

Project: Wells Ranch  
 Site: A Section 21  
 Well: Rampart A33-730  
 Wellbore: Rampart A33-730  
 Design: APD-Rev 1

# Northern Region - DJ Basin

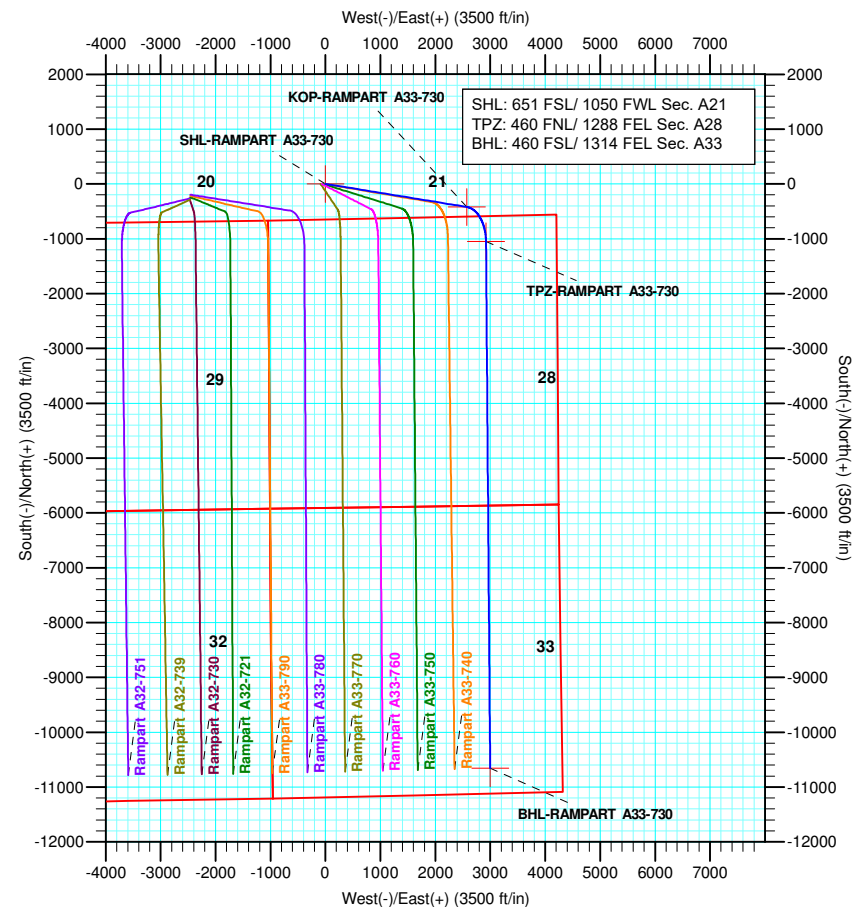
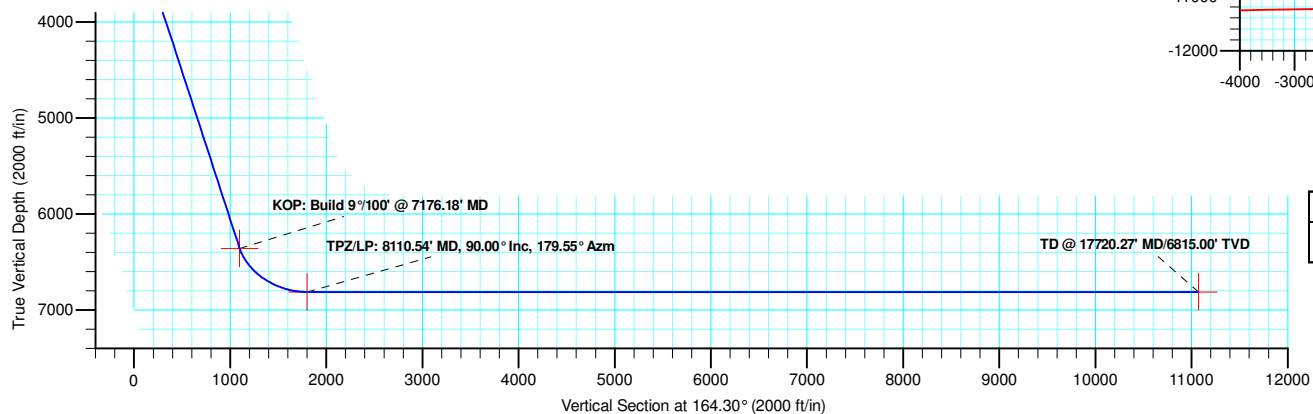
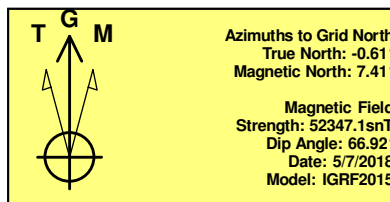
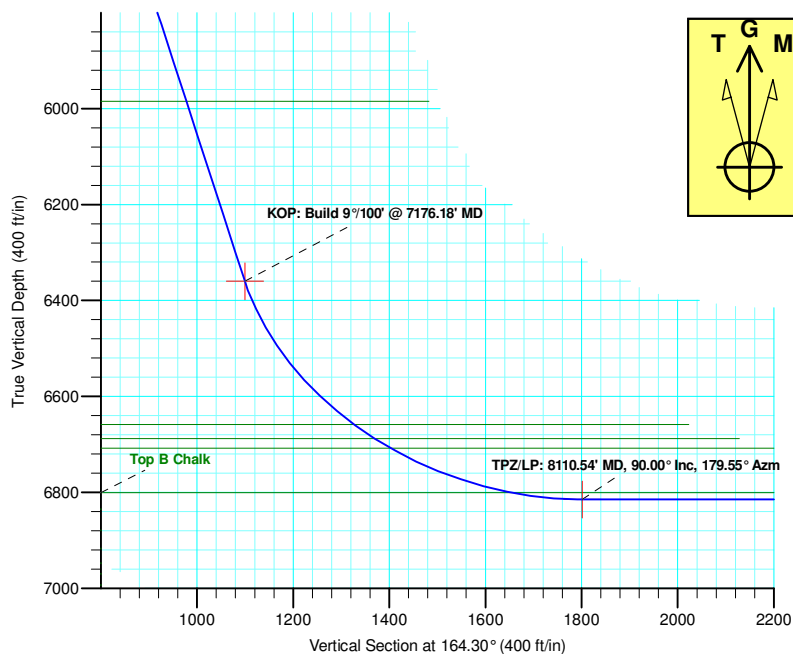
Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Northern Zone  
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00
3	3879.22	37.58	99.27	3747.32	-95.73	586.81	2.00	99.27	250.98
4	7176.18	37.58	99.27	6360.01	-419.52	2571.48	0.00	0.00	1099.82
5	8110.54	90.00	179.55	6815.00	-1050.04	2921.60	9.00	82.27	1801.57
6	17720.27	90.00	179.55	6815.00	-10659.48	2996.78	0.00	0.00	11072.72

WELL DETAILS: Rampart A33-730

+N/-S	+E/-W	Northing	Ground Level: Easting	4726.00 Latitude	Longitude	Slot
0.00	0.00	1414004.12	3261307.86	40.4660444	-104.5608336	



Plan: APD-Rev 1 (Rampart A33-730/Rampart A33-730)

Created By: Keith Noack Date: 9:53, November 01 2018

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 21**

**Rampart A33-730**

**Rampart A33-730**

**Plan: APD-Rev 1**

## **Standard Planning Report**

**01 November, 2018**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 1		

<b>Project</b>	Wells Ranch, Weld County Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site	A Section 21				
Site Position:		Northing:	1,414,202.83 usft	Latitude:	40.4665920
From:	Lat/Long	Easting:	3,261,231.91 usft	Longitude:	-104.5610990
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.61 °

Well	Rampart A33-730					
Well Position	+N/-S	-198.70 ft	Northing:	1,414,004.13 usft	Latitude:	40.4660444
	+E/-W	75.95 ft	Easting:	3,261,307.86 usft	Longitude:	-104.5608336
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,726.00 ft

<b>Wellbore</b>	Rampart A33-730				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	5/7/2018	8.01	66.92	52,347.07579023

<b>Design</b>	APD-Rev 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	164.30

<b>Plan Sections</b>										
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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,879.22	37.58	99.27	3,747.32	-95.73	586.81	2.00	2.00	0.00	99.27	
7,176.18	37.58	99.27	6,360.01	-419.52	2,571.48	0.00	0.00	0.00	0.00	
8,110.54	90.00	179.55	6,815.00	-1,050.04	2,921.60	9.00	5.61	8.59	82.27	TPZ-RAMPART A3
17,720.27	90.00	179.55	6,815.00	-10,659.48	2,996.78	0.00	0.00	0.00	0.00	BHL-RAMPART A3

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 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
495.00	0.00	0.00	495.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer Top</b>									
496.00	0.00	0.00	496.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Pierre</b>									
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
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
1,100.00	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
1,532.00	0.00	0.00	1,532.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer Base</b>									
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
1,900.00	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
<b>Build: 2°/100'</b>									
2,100.00	2.00	99.27	2,099.98	-0.28	1.72	0.74	2.00	2.00	0.00
2,200.00	4.00	99.27	2,199.84	-1.12	6.89	2.95	2.00	2.00	0.00
2,300.00	6.00	99.27	2,299.45	-2.53	15.49	6.62	2.00	2.00	0.00
2,400.00	8.00	99.27	2,398.70	-4.49	27.52	11.77	2.00	2.00	0.00
2,500.00	10.00	99.27	2,497.47	-7.01	42.95	18.37	2.00	2.00	0.00
2,600.00	12.00	99.27	2,595.62	-10.08	61.78	26.43	2.00	2.00	0.00
2,700.00	14.00	99.27	2,693.06	-13.70	83.99	35.92	2.00	2.00	0.00
2,800.00	16.00	99.27	2,789.64	-17.87	109.53	46.85	2.00	2.00	0.00
2,900.00	18.00	99.27	2,885.27	-22.58	138.38	59.19	2.00	2.00	0.00
3,000.00	20.00	99.27	2,979.82	-27.82	170.51	72.93	2.00	2.00	0.00
3,100.00	22.00	99.27	3,073.17	-33.59	205.88	88.05	2.00	2.00	0.00
3,200.00	24.00	99.27	3,165.22	-39.88	244.44	104.55	2.00	2.00	0.00
3,300.00	26.00	99.27	3,255.84	-46.68	286.15	122.39	2.00	2.00	0.00
3,400.00	28.00	99.27	3,344.94	-53.99	330.95	141.55	2.00	2.00	0.00
3,500.00	30.00	99.27	3,432.40	-61.80	378.80	162.01	2.00	2.00	0.00
3,600.00	32.00	99.27	3,518.11	-70.09	429.63	183.75	2.00	2.00	0.00
3,700.00	34.00	99.27	3,601.97	-78.86	483.38	206.74	2.00	2.00	0.00
3,800.00	36.00	99.27	3,683.88	-88.09	539.98	230.95	2.00	2.00	0.00
3,801.38	36.03	99.27	3,685.00	-88.23	540.79	231.29	2.00	2.00	0.00
<b>Parkman</b>									
3,879.22	37.58	99.27	3,747.32	-95.73	586.81	250.98	2.00	2.00	0.00
<b>Hold: 37.58° Inc, 99.27° Azm</b>									
3,900.00	37.58	99.27	3,763.79	-97.77	599.32	256.33	0.00	0.00	0.00
4,000.00	37.58	99.27	3,843.03	-107.60	659.52	282.08	0.00	0.00	0.00
4,100.00	37.58	99.27	3,922.28	-117.42	719.71	307.82	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 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	37.58	99.27	4,001.52	-127.24	779.91	333.57	0.00	0.00	0.00
4,300.00	37.58	99.27	4,080.77	-137.06	840.11	359.31	0.00	0.00	0.00
4,400.00	37.58	99.27	4,160.02	-146.88	900.30	385.06	0.00	0.00	0.00
4,454.24	37.58	99.27	4,203.00	-152.21	932.96	399.03	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	37.58	99.27	4,239.26	-156.70	960.50	410.81	0.00	0.00	0.00
4,600.00	37.58	99.27	4,318.51	-166.52	1,020.70	436.55	0.00	0.00	0.00
4,700.00	37.58	99.27	4,397.75	-176.34	1,080.90	462.30	0.00	0.00	0.00
4,800.00	37.58	99.27	4,477.00	-186.16	1,141.09	488.05	0.00	0.00	0.00
4,900.00	37.58	99.27	4,556.24	-195.98	1,201.29	513.79	0.00	0.00	0.00
5,000.00	37.58	99.27	4,635.49	-205.80	1,261.49	539.54	0.00	0.00	0.00
5,100.00	37.58	99.27	4,714.73	-215.62	1,321.68	565.28	0.00	0.00	0.00
5,200.00	37.58	99.27	4,793.98	-225.44	1,381.88	591.03	0.00	0.00	0.00
5,300.00	37.58	99.27	4,873.23	-235.27	1,442.08	616.78	0.00	0.00	0.00
5,400.00	37.58	99.27	4,952.47	-245.09	1,502.28	642.52	0.00	0.00	0.00
5,500.00	37.58	99.27	5,031.72	-254.91	1,562.47	668.27	0.00	0.00	0.00
5,504.14	37.58	99.27	5,035.00	-255.31	1,564.97	669.34	0.00	0.00	0.00
<b>Shannon</b>									
5,600.00	37.58	99.27	5,110.96	-264.73	1,622.67	694.02	0.00	0.00	0.00
5,700.00	37.58	99.27	5,190.21	-274.55	1,682.87	719.76	0.00	0.00	0.00
5,800.00	37.58	99.27	5,269.45	-284.37	1,743.06	745.51	0.00	0.00	0.00
5,900.00	37.58	99.27	5,348.70	-294.19	1,803.26	771.25	0.00	0.00	0.00
6,000.00	37.58	99.27	5,427.94	-304.01	1,863.46	797.00	0.00	0.00	0.00
6,100.00	37.58	99.27	5,507.19	-313.83	1,923.66	822.75	0.00	0.00	0.00
6,200.00	37.58	99.27	5,586.44	-323.65	1,983.85	848.49	0.00	0.00	0.00
6,300.00	37.58	99.27	5,665.68	-333.47	2,044.05	874.24	0.00	0.00	0.00
6,400.00	37.58	99.27	5,744.93	-343.29	2,104.25	899.99	0.00	0.00	0.00
6,500.00	37.58	99.27	5,824.17	-353.11	2,164.44	925.73	0.00	0.00	0.00
6,600.00	37.58	99.27	5,903.42	-362.94	2,224.64	951.48	0.00	0.00	0.00
6,700.00	37.58	99.27	5,982.66	-372.76	2,284.84	977.23	0.00	0.00	0.00
6,702.95	37.58	99.27	5,985.00	-373.05	2,286.61	977.98	0.00	0.00	0.00
<b>Teepee Buttes</b>									
6,800.00	37.58	99.27	6,061.91	-382.58	2,345.04	1,002.97	0.00	0.00	0.00
6,900.00	37.58	99.27	6,141.15	-392.40	2,405.23	1,028.72	0.00	0.00	0.00
7,000.00	37.58	99.27	6,220.40	-402.22	2,465.43	1,054.46	0.00	0.00	0.00
7,100.00	37.58	99.27	6,299.65	-412.04	2,525.63	1,080.21	0.00	0.00	0.00
7,176.18	37.58	99.27	6,360.01	-419.52	2,571.48	1,099.82	0.00	0.00	0.00
<b>KOP: Build 9°/100' @ 7176.18' MD</b>									
7,200.00	37.92	102.72	6,378.85	-422.30	2,585.80	1,106.38	9.00	1.42	14.52
7,250.00	38.95	109.77	6,418.03	-431.01	2,615.59	1,122.82	9.00	2.06	14.10
7,300.00	40.39	116.46	6,456.53	-443.55	2,644.90	1,142.83	9.00	2.87	13.37
7,350.00	42.18	122.71	6,494.12	-459.85	2,673.54	1,166.27	9.00	3.59	12.51
7,400.00	44.30	128.52	6,530.56	-479.81	2,701.34	1,193.00	9.00	4.22	11.61
7,450.00	46.68	133.87	6,565.62	-503.30	2,728.13	1,222.87	9.00	4.77	10.71
7,500.00	49.29	138.81	6,599.10	-530.18	2,753.73	1,255.67	9.00	5.23	9.87
7,550.00	52.10	143.35	6,630.77	-560.28	2,778.00	1,291.22	9.00	5.61	9.09
7,597.45	54.91	147.35	6,659.00	-591.66	2,799.66	1,327.30	9.00	5.93	8.42
<b>Sharon Springs</b>									
7,600.00	55.07	147.56	6,660.46	-593.42	2,800.78	1,329.29	9.00	6.07	8.11
7,650.00	58.17	151.46	6,687.97	-629.40	2,821.94	1,369.65	9.00	6.21	7.81
7,650.05	58.17	151.46	6,688.00	-629.43	2,821.96	1,369.69	0.00	0.00	0.00
<b>Top A Chalk</b>									
7,689.38	60.70	154.35	6,708.00	-659.58	2,837.37	1,402.88	9.01	6.42	7.35

# Noble Energy, Inc.

## Planning Report

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<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 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)
<b>Top A Marl</b>									
7,700.00	61.39	155.11	6,713.14	-667.98	2,841.33	1,412.05	9.00	6.51	7.11
7,750.00	64.69	158.53	6,735.81	-708.95	2,858.85	1,456.22	9.00	6.61	6.85
7,800.00	68.08	161.77	6,755.85	-752.03	2,874.39	1,501.90	9.00	6.76	6.48
7,850.00	71.52	164.86	6,773.11	-796.97	2,887.84	1,548.80	9.00	6.88	6.18
7,900.00	75.01	167.83	6,787.52	-843.48	2,899.13	1,596.64	9.00	6.98	5.93
7,950.00	78.53	170.70	6,798.96	-891.29	2,908.18	1,645.12	9.00	7.05	5.74
7,960.62	79.29	171.30	6,801.00	-901.58	2,909.81	1,655.46	9.00	7.09	5.65
<b>Top B Chalk</b>									
8,000.00	82.09	173.50	6,807.37	-940.10	2,914.95	1,693.93	9.00	7.11	5.59
8,050.00	85.66	176.25	6,812.71	-989.60	2,919.39	1,742.79	9.00	7.15	5.50
8,100.00	89.24	178.98	6,814.93	-1,039.50	2,921.46	1,791.38	9.00	7.17	5.45
8,110.54	90.00	179.55	6,815.00	-1,050.04	2,921.60	1,801.57	9.00	7.17	5.44
<b>TPZ/LP: 8110.54' MD, 90.00° Inc, 179.55° Azm</b>									
8,200.00	90.00	179.55	6,815.00	-1,139.50	2,922.30	1,887.87	0.00	0.00	0.00
8,300.00	90.00	179.55	6,815.00	-1,239.49	2,923.08	1,984.35	0.00	0.00	0.00
8,400.00	90.00	179.55	6,815.00	-1,339.49	2,923.86	2,080.83	0.00	0.00	0.00
8,500.00	90.00	179.55	6,815.00	-1,439.49	2,924.64	2,177.30	0.00	0.00	0.00
8,600.00	90.00	179.55	6,815.00	-1,539.48	2,925.43	2,273.78	0.00	0.00	0.00
8,700.00	90.00	179.55	6,815.00	-1,639.48	2,926.21	2,370.26	0.00	0.00	0.00
8,800.00	90.00	179.55	6,815.00	-1,739.48	2,926.99	2,466.73	0.00	0.00	0.00
8,900.00	90.00	179.55	6,815.00	-1,839.47	2,927.77	2,563.21	0.00	0.00	0.00
9,000.00	90.00	179.55	6,815.00	-1,939.47	2,928.56	2,659.69	0.00	0.00	0.00
9,100.00	90.00	179.55	6,815.00	-2,039.47	2,929.34	2,756.16	0.00	0.00	0.00
9,200.00	90.00	179.55	6,815.00	-2,139.46	2,930.12	2,852.64	0.00	0.00	0.00
9,300.00	90.00	179.55	6,815.00	-2,239.46	2,930.90	2,949.12	0.00	0.00	0.00
9,400.00	90.00	179.55	6,815.00	-2,339.46	2,931.68	3,045.59	0.00	0.00	0.00
9,500.00	90.00	179.55	6,815.00	-2,439.46	2,932.47	3,142.07	0.00	0.00	0.00
9,600.00	90.00	179.55	6,815.00	-2,539.45	2,933.25	3,238.55	0.00	0.00	0.00
9,700.00	90.00	179.55	6,815.00	-2,639.45	2,934.03	3,335.02	0.00	0.00	0.00
9,800.00	90.00	179.55	6,815.00	-2,739.45	2,934.81	3,431.50	0.00	0.00	0.00
9,900.00	90.00	179.55	6,815.00	-2,839.44	2,935.60	3,527.98	0.00	0.00	0.00
10,000.00	90.00	179.55	6,815.00	-2,939.44	2,936.38	3,624.45	0.00	0.00	0.00
10,100.00	90.00	179.55	6,815.00	-3,039.44	2,937.16	3,720.93	0.00	0.00	0.00
10,200.00	90.00	179.55	6,815.00	-3,139.43	2,937.94	3,817.41	0.00	0.00	0.00
10,300.00	90.00	179.55	6,815.00	-3,239.43	2,938.73	3,913.88	0.00	0.00	0.00
10,400.00	90.00	179.55	6,815.00	-3,339.43	2,939.51	4,010.36	0.00	0.00	0.00
10,500.00	90.00	179.55	6,815.00	-3,439.43	2,940.29	4,106.84	0.00	0.00	0.00
10,600.00	90.00	179.55	6,815.00	-3,539.42	2,941.07	4,203.32	0.00	0.00	0.00
10,700.00	90.00	179.55	6,815.00	-3,639.42	2,941.86	4,299.79	0.00	0.00	0.00
10,800.00	90.00	179.55	6,815.00	-3,739.42	2,942.64	4,396.27	0.00	0.00	0.00
10,900.00	90.00	179.55	6,815.00	-3,839.41	2,943.42	4,492.75	0.00	0.00	0.00
11,000.00	90.00	179.55	6,815.00	-3,939.41	2,944.20	4,589.22	0.00	0.00	0.00
11,100.00	90.00	179.55	6,815.00	-4,039.41	2,944.98	4,685.70	0.00	0.00	0.00
11,200.00	90.00	179.55	6,815.00	-4,139.40	2,945.77	4,782.18	0.00	0.00	0.00
11,300.00	90.00	179.55	6,815.00	-4,239.40	2,946.55	4,878.65	0.00	0.00	0.00
11,400.00	90.00	179.55	6,815.00	-4,339.40	2,947.33	4,975.13	0.00	0.00	0.00
11,500.00	90.00	179.55	6,815.00	-4,439.39	2,948.11	5,071.61	0.00	0.00	0.00
11,600.00	90.00	179.55	6,815.00	-4,539.39	2,948.90	5,168.08	0.00	0.00	0.00
11,700.00	90.00	179.55	6,815.00	-4,639.39	2,949.68	5,264.56	0.00	0.00	0.00
11,800.00	90.00	179.55	6,815.00	-4,739.39	2,950.46	5,361.04	0.00	0.00	0.00
11,900.00	90.00	179.55	6,815.00	-4,839.38	2,951.24	5,457.51	0.00	0.00	0.00
12,000.00	90.00	179.55	6,815.00	-4,939.38	2,952.03	5,553.99	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,100.00	90.00	179.55	6,815.00	-5,039.38	2,952.81	5,650.47	0.00	0.00	0.00
12,200.00	90.00	179.55	6,815.00	-5,139.37	2,953.59	5,746.94	0.00	0.00	0.00
12,300.00	90.00	179.55	6,815.00	-5,239.37	2,954.37	5,843.42	0.00	0.00	0.00
12,400.00	90.00	179.55	6,815.00	-5,339.37	2,955.16	5,939.90	0.00	0.00	0.00
12,500.00	90.00	179.55	6,815.00	-5,439.36	2,955.94	6,036.37	0.00	0.00	0.00
12,600.00	90.00	179.55	6,815.00	-5,539.36	2,956.72	6,132.85	0.00	0.00	0.00
12,700.00	90.00	179.55	6,815.00	-5,639.36	2,957.50	6,229.33	0.00	0.00	0.00
12,800.00	90.00	179.55	6,815.00	-5,739.35	2,958.28	6,325.80	0.00	0.00	0.00
12,900.00	90.00	179.55	6,815.00	-5,839.35	2,959.07	6,422.28	0.00	0.00	0.00
13,000.00	90.00	179.55	6,815.00	-5,939.35	2,959.85	6,518.76	0.00	0.00	0.00
13,100.00	90.00	179.55	6,815.00	-6,039.35	2,960.63	6,615.23	0.00	0.00	0.00
13,200.00	90.00	179.55	6,815.00	-6,139.34	2,961.41	6,711.71	0.00	0.00	0.00
13,300.00	90.00	179.55	6,815.00	-6,239.34	2,962.20	6,808.19	0.00	0.00	0.00
13,400.00	90.00	179.55	6,815.00	-6,339.34	2,962.98	6,904.66	0.00	0.00	0.00
13,500.00	90.00	179.55	6,815.00	-6,439.33	2,963.76	7,001.14	0.00	0.00	0.00
13,600.00	90.00	179.55	6,815.00	-6,539.33	2,964.54	7,097.62	0.00	0.00	0.00
13,700.00	90.00	179.55	6,815.00	-6,639.33	2,965.33	7,194.09	0.00	0.00	0.00
13,800.00	90.00	179.55	6,815.00	-6,739.32	2,966.11	7,290.57	0.00	0.00	0.00
13,900.00	90.00	179.55	6,815.00	-6,839.32	2,966.89	7,387.05	0.00	0.00	0.00
14,000.00	90.00	179.55	6,815.00	-6,939.32	2,967.67	7,483.52	0.00	0.00	0.00
14,100.00	90.00	179.55	6,815.00	-7,039.31	2,968.46	7,580.00	0.00	0.00	0.00
14,200.00	90.00	179.55	6,815.00	-7,139.31	2,969.24	7,676.48	0.00	0.00	0.00
14,300.00	90.00	179.55	6,815.00	-7,239.31	2,970.02	7,772.95	0.00	0.00	0.00
14,400.00	90.00	179.55	6,815.00	-7,339.31	2,970.80	7,869.43	0.00	0.00	0.00
14,500.00	90.00	179.55	6,815.00	-7,439.30	2,971.58	7,965.91	0.00	0.00	0.00
14,600.00	90.00	179.55	6,815.00	-7,539.30	2,972.37	8,062.38	0.00	0.00	0.00
14,700.00	90.00	179.55	6,815.00	-7,639.30	2,973.15	8,158.86	0.00	0.00	0.00
14,800.00	90.00	179.55	6,815.00	-7,739.29	2,973.93	8,255.34	0.00	0.00	0.00
14,900.00	90.00	179.55	6,815.00	-7,839.29	2,974.71	8,351.81	0.00	0.00	0.00
15,000.00	90.00	179.55	6,815.00	-7,939.29	2,975.50	8,448.29	0.00	0.00	0.00
15,100.00	90.00	179.55	6,815.00	-8,039.28	2,976.28	8,544.77	0.00	0.00	0.00
15,200.00	90.00	179.55	6,815.00	-8,139.28	2,977.06	8,641.24	0.00	0.00	0.00
15,300.00	90.00	179.55	6,815.00	-8,239.28	2,977.84	8,737.72	0.00	0.00	0.00
15,400.00	90.00	179.55	6,815.00	-8,339.28	2,978.63	8,834.20	0.00	0.00	0.00
15,500.00	90.00	179.55	6,815.00	-8,439.27	2,979.41	8,930.67	0.00	0.00	0.00
15,600.00	90.00	179.55	6,815.00	-8,539.27	2,980.19	9,027.15	0.00	0.00	0.00
15,700.00	90.00	179.55	6,815.00	-8,639.27	2,980.97	9,123.63	0.00	0.00	0.00
15,800.00	90.00	179.55	6,815.00	-8,739.26	2,981.75	9,220.10	0.00	0.00	0.00
15,900.00	90.00	179.55	6,815.00	-8,839.26	2,982.54	9,316.58	0.00	0.00	0.00
16,000.00	90.00	179.55	6,815.00	-8,939.26	2,983.32	9,413.06	0.00	0.00	0.00
16,100.00	90.00	179.55	6,815.00	-9,039.25	2,984.10	9,509.53	0.00	0.00	0.00
16,200.00	90.00	179.55	6,815.00	-9,139.25	2,984.88	9,606.01	0.00	0.00	0.00
16,300.00	90.00	179.55	6,815.00	-9,239.25	2,985.67	9,702.49	0.00	0.00	0.00
16,400.00	90.00	179.55	6,815.00	-9,339.24	2,986.45	9,798.96	0.00	0.00	0.00
16,500.00	90.00	179.55	6,815.00	-9,439.24	2,987.23	9,895.44	0.00	0.00	0.00
16,600.00	90.00	179.55	6,815.00	-9,539.24	2,988.01	9,991.92	0.00	0.00	0.00
16,700.00	90.00	179.55	6,815.00	-9,639.24	2,988.80	10,088.39	0.00	0.00	0.00
16,800.00	90.00	179.55	6,815.00	-9,739.23	2,989.58	10,184.87	0.00	0.00	0.00
16,900.00	90.00	179.55	6,815.00	-9,839.23	2,990.36	10,281.35	0.00	0.00	0.00
17,000.00	90.00	179.55	6,815.00	-9,939.23	2,991.14	10,377.82	0.00	0.00	0.00
17,100.00	90.00	179.55	6,815.00	-10,039.22	2,991.93	10,474.30	0.00	0.00	0.00
17,200.00	90.00	179.55	6,815.00	-10,139.22	2,992.71	10,570.78	0.00	0.00	0.00
17,300.00	90.00	179.55	6,815.00	-10,239.22	2,993.49	10,667.25	0.00	0.00	0.00
17,400.00	90.00	179.55	6,815.00	-10,339.21	2,994.27	10,763.73	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,500.00	90.00	179.55	6,815.00	-10,439.21	2,995.05	10,860.21	0.00	0.00	0.00
17,600.00	90.00	179.55	6,815.00	-10,539.21	2,995.84	10,956.68	0.00	0.00	0.00
17,700.00	90.00	179.55	6,815.00	-10,639.20	2,996.62	11,053.16	0.00	0.00	0.00
17,720.27	90.00	179.55	6,815.00	-10,659.48	2,996.78	11,072.72	0.00	0.00	0.00
TD @ 17720.27' MD/6815.00' TVD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL-RAMPART A33- - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,414,004.13	3,261,307.86	40.4660444	-104.5608336
KOP-RAMPART A33- - plan hits target center - Point	0.00	0.01	6,360.01	-419.52	2,571.49	1,413,584.61	3,263,879.34	40.4648178	-104.5516083
TPZ-RAMPART A33- - plan hits target center - Point	0.00	0.00	6,815.00	-1,050.04	2,921.60	1,412,954.09	3,264,229.45	40.4630768	-104.5503743
BHL-RAMPART A33- - plan hits target center - Point	0.00	0.00	6,815.00	-10,659.48	2,996.78	1,403,344.67	3,264,304.64	40.4366985	-104.5504739

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
495.00	495.00	Upper Pierre Aquifer Top				
496.00	496.00	Pierre				
1,532.00	1,532.00	Upper Pierre Aquifer Base				
3,801.38	3,685.00	Parkman				
4,454.24	4,203.00	Sussex				
5,504.14	5,035.00	Shannon				
6,702.95	5,985.00	Teepee Buttes				
7,597.45	6,659.00	Sharon Springs				
7,650.05	6,688.00	Top A Chalk				
7,689.38	6,708.00	Top A Marl				
7,960.62	6,801.00	Top B Chalk				

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Project:</b>	Wells Ranch	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site:</b>	A Section 21	<b>North Reference:</b>	Grid
<b>Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Rampart A33-730		
<b>Design:</b>	APD-Rev 1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.00	2,000.00	0.00	0.00	Build: 2°/100'
3,879.22	3,747.32	-95.73	586.81	Hold: 37.58° Inc, 99.27° Azm
7,176.18	6,360.01	-419.52	2,571.48	KOP: Build 9°/100' @ 7176.18' MD
8,110.54	6,815.00	-1,050.04	2,921.60	TPZ/LP: 8110.54' MD, 90.00° Inc, 179.55° Azm
17,720.27	6,815.00	-10,659.48	2,996.78	TD @ 17720.27' MD/6815.00' TVD

# **Northern Region - DJ Basin**

**Wells Ranch**

**A Section 21**

**Rampart A33-730**

**Rampart A33-730**

**APD-Rev 1**

## **Anticollision Summary Report**

**01 November, 2018**

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	APD-Rev 1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00 ft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	10/31/2018		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	2,000.00	APD-Rev 1 (Rampart A33-730)	2_Gyro-NS-CT_OWSG	A021Ga: Continuous gyro in casing
2,000.00	17,720.27	APD-Rev 1 (Rampart A33-730)	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
A Section 20						
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	644.75	598.79	1,724.28	1,720.33	436.642	CC
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	800.00	740.83	1,724.72	1,719.74	345.876	ES
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	7,550.00	6,608.95	4,531.78	4,484.24	95.327	SF
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	528.54	492.55	3,158.96	3,155.79	997.820	CC
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	2,000.00	1,957.06	3,165.08	3,151.65	235.715	ES
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	7,650.00	6,719.86	6,040.73	5,992.62	125.559	SF
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	2,000.00	1,944.00	3,043.16	2,997.53	66.685	CC
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	2,100.00	2,043.98	3,044.86	2,997.05	63.684	ES
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	7,800.00	6,699.85	5,933.59	5,774.05	37.193	SF
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	335.96	309.14	2,149.11	2,147.26	1,159.338	CC
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	1,700.00	1,663.30	2,150.92	2,139.57	189.433	ES
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	7,300.00	6,465.39	4,613.50	4,567.21	99.671	SF
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	359.68	304.69	7,244.66	7,242.74	3,776.098	CC
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	2,000.00	1,932.85	7,246.25	7,232.92	543.630	ES
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	7,500.00	6,642.39	9,997.29	9,944.03	187.709	SF
Rampart A32-721 - Rampart A32-721 - APD-Rev 1	2,440.68	2,788.67	2,452.52	2,438.12	170.266	CC, ES
Rampart A32-721 - Rampart A32-721 - APD-Rev 1	17,720.27	16,829.83	4,678.54	4,498.29	25.957	SF
Rampart A32-730 - Rampart A32-730 - APD-Rev 0	2,000.00	1,980.00	2,480.90	2,467.46	184.591	CC, ES
Rampart A32-730 - Rampart A32-730 - APD-Rev 0	17,720.27	16,740.82	5,250.36	5,070.91	29.258	SF
Rampart A32-739 - Rampart A32-739 - APD-Rev 1	2,000.00	1,980.00	2,478.39	2,464.95	184.406	CC, ES
Rampart A32-739 - Rampart A32-739 - APD-Rev 1	17,720.27	16,860.81	5,873.64	5,693.11	32.536	SF
Rampart A32-751 - Rampart A32-751 - APD-Rev 0	2,000.00	1,980.00	2,476.03	2,462.59	184.232	CC, ES
Rampart A32-751 - Rampart A32-751 - APD-Rev 0	17,720.27	16,901.59	6,588.61	6,408.60	36.602	SF
Rampart A33-780 - Rampart A33-780 - APD-Rev 0	3,334.46	4,405.23	2,230.73	2,210.73	111.574	CC, ES
Rampart A33-780 - Rampart A33-780 - APD-Rev 0	17,720.27	17,258.46	3,328.31	3,146.62	18.318	SF
Rampart A33-790 - Rampart A33-790 - APD-Rev 0	2,907.83	3,636.25	2,364.77	2,348.22	142.866	CC, ES
Rampart A33-790 - Rampart A33-790 - APD-Rev 0	17,720.27	16,948.41	3,963.53	3,783.02	21.957	SF
Simmons 42-20D - Original Drilling - Original Drilling - As	1,701.02	1,705.73	3,119.90	3,108.64	276.962	CC
Simmons 42-20D - Original Drilling - Original Drilling - As	2,000.00	1,981.54	3,121.22	3,107.92	234.710	ES
Simmons 42-20D - Original Drilling - Original Drilling - As	7,400.00	6,596.66	5,421.54	5,372.80	111.229	SF
Snider 1-20EG - Original Drilling - Original Drilling - As D	1,303.87	1,249.90	4,377.46	4,368.93	513.644	CC
Snider 1-20EG - Original Drilling - Original Drilling - As D	2,021.14	1,998.98	4,377.80	4,364.20	321.925	ES
Snider 1-20EG - Original Drilling - Original Drilling - As D	9,800.00	6,635.09	7,770.98	7,719.25	150.228	SF
Stump A20-11 - Original Drilling - Original Drilling - As Dr	200.60	154.61	4,704.50	4,703.66	5,581.286	CC
Stump A20-11 - Original Drilling - Original Drilling - As Dr	2,038.53	2,055.68	4,707.49	4,693.66	340.389	ES
Stump A20-11 - Original Drilling - Original Drilling - As Dr	7,900.00	7,036.52	7,654.99	7,604.81	152.559	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	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						
A Section 20						
Stump A20-12 - Original Drilling - Original Drilling - As Dr	2,009.49	1,981.45	5,737.66	5,724.14	424.341	CC, ES
Stump A20-12 - Original Drilling - Original Drilling - As Dr	7,900.00	7,027.79	8,739.70	8,689.69	174.748	SF
Stump A20-13 - Original Drilling - Original Drilling - As Dr	2,038.52	2,060.17	5,659.36	5,645.52	408.885	CC, ES
Stump A20-13 - Original Drilling - Original Drilling - As Dr	7,650.00	7,650.00	8,481.41	8,429.62	163.768	SF
Winter 20-19 - Original Drilling - Original Drilling - As Dril	351.99	300.00	7,296.48	7,294.60	3,881.637	CC
Winter 20-19 - Original Drilling - Original Drilling - As Dril	400.00	325.21	7,296.54	7,294.40	3,405.312	ES
Winter 20-19 - Original Drilling - Original Drilling - As Dril	6,900.00	6,107.07	9,961.94	9,916.42	218.850	SF
Winter 24-19 - Original Drilling - Original Drilling - As Dril	100.00	41.91	7,281.45	7,281.25	10,000.000	CC
Winter 24-19 - Original Drilling - Original Drilling - As Dril	500.00	388.91	7,282.78	7,279.93	2,556.456	ES
Winter 24-19 - Original Drilling - Original Drilling - As Dril	6,300.00	6,300.00	9,643.73	9,583.79	160.889	SF
Winter 39-19 - Original Drilling - Original Drilling - As Dril	2,556.85	3,900.00	6,600.76	6,574.36	250.051	CC, ES
Winter 39-19 - Original Drilling - Original Drilling - As Dril	10,300.00	6,870.59	9,973.00	9,910.47	159.487	SF
Winter 40-19 - Original Drilling - Original Drilling - As Dril	2,594.91	4,200.00	6,836.76	6,792.96	156.075	CC
Winter 40-19 - Original Drilling - Original Drilling - As Dril	2,600.00	4,200.00	6,836.77	6,792.95	156.037	ES
Winter 40-19 - Original Drilling - Original Drilling - As Dril	6,300.00	6,300.00	8,504.68	8,433.44	119.381	SF

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
A Section 21						
Culbreath 23-21 - Original Drilling - Original Drilling - As I	4,336.67	4,041.96	1,553.09	1,525.99	57.312	CC
Culbreath 23-21 - Original Drilling - Original Drilling - As I	4,400.00	4,093.80	1,553.54	1,525.91	56.231	ES
Culbreath 23-21 - Original Drilling - Original Drilling - As I	6,000.00	5,378.19	1,867.13	1,826.81	46.309	SF
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	6,112.19	5,478.85	1,647.98	1,514.31	12.329	CC
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	6,200.00	5,548.44	1,648.85	1,513.25	12.159	ES
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	7,176.18	6,322.01	1,771.15	1,614.87	11.333	SF
Harper A21-618 - Original Drilling - APD - Rev 1	2,012.99	2,014.85	254.34	240.56	18.454	CC
Harper A21-618 - Original Drilling - APD - Rev 1	2,100.00	2,107.16	254.42	240.18	17.860	ES
Harper A21-618 - Original Drilling - APD - Rev 1	7,500.00	9,472.89	533.72	460.93	7.332	SF
Harper A21-626 - Original Drilling - APD - Rev 1	2,000.00	2,001.00	272.67	258.96	19.882	CC, ES
Harper A21-626 - Original Drilling - APD - Rev 1	7,450.00	9,514.45	1,039.69	966.70	14.246	SF
Harper A21-631 - Original Drilling - APD - Rev 1	2,000.00	2,001.00	290.83	277.11	21.204	CC, ES
Harper A21-631 - Original Drilling - APD - Rev 1	7,400.00	9,429.18	1,369.46	1,296.05	18.655	SF
Harper A21-637 - Original Drilling - APD - Rev 1	2,000.00	2,001.00	310.34	296.63	22.625	CC, ES
Harper A21-637 - Original Drilling - APD - Rev 1	2,100.00	2,092.12	312.91	298.70	22.011	SF
Harper A21-643 - Original Drilling - APD - Rev 1	1,910.78	1,925.78	1,604.92	1,591.77	122.119	CC
Harper A21-643 - Original Drilling - APD - Rev 1	2,000.00	2,014.17	1,604.92	1,591.15	116.546	ES
Harper A21-643 - Original Drilling - APD - Rev 1	7,400.00	9,624.82	2,156.07	2,080.39	28.492	SF
Harper A21-649 - Original Drilling - APD - Rev 1	2,000.00	2,016.00	1,626.87	1,613.09	118.073	CC
Harper A21-649 - Original Drilling - APD - Rev 1	2,100.00	2,115.98	1,627.28	1,612.96	113.680	ES
Harper A21-649 - Original Drilling - APD - Rev 1	7,450.00	9,759.09	2,544.25	2,467.90	33.325	SF
Harper A21-656 - Original Drilling - APD - Rev 1	2,000.00	2,016.00	1,651.13	1,637.35	119.834	CC
Harper A21-656 - Original Drilling - APD - Rev 1	2,100.00	2,115.98	1,651.53	1,637.21	115.374	ES
Harper A21-656 - Original Drilling - APD - Rev 1	7,450.00	9,726.82	2,883.69	2,807.12	37.660	SF
Harper A21-664 - Original Drilling - APD - Rev 2	2,000.00	2,016.00	1,673.10	1,659.32	121.428	CC
Harper A21-664 - Original Drilling - APD - Rev 2	2,100.00	2,115.98	1,673.49	1,659.18	116.908	ES
Harper A21-664 - Original Drilling - APD - Rev 2	7,500.00	9,951.25	3,421.79	3,344.06	44.022	SF
Harper A21-669 - Original Drilling - APD - Rev 1	2,000.00	2,017.00	1,694.72	1,680.94	122.966	CC
Harper A21-669 - Original Drilling - APD - Rev 1	2,100.00	2,116.98	1,695.13	1,680.81	118.391	ES
Harper A21-669 - Original Drilling - APD - Rev 1	7,500.00	9,977.74	3,775.53	3,697.50	48.381	SF
Harper A21-674 - Original Drilling - APD - Rev 1	2,000.00	2,017.00	1,716.68	1,702.90	124.559	CC
Harper A21-674 - Original Drilling - APD - Rev 1	2,100.00	2,116.98	1,717.09	1,702.77	119.924	ES
Harper A21-674 - Original Drilling - APD - Rev 1	7,550.00	10,187.88	4,168.19	4,089.30	52.840	SF
Harper A21-681 - Original Drilling - APD - Rev 1	1,909.35	1,927.35	1,740.98	1,727.84	132.466	CC
Harper A21-681 - Original Drilling - APD - Rev 1	2,000.00	2,000.00	1,741.08	1,727.36	126.895	ES
Harper A21-681 - Original Drilling - APD - Rev 1	7,550.00	10,030.77	4,593.44	4,515.94	59.273	SF
Kona A19-616 - Kona A19-616 - Kona A19-616 - As Drill	2,705.60	2,719.75	165.09	151.61	12.245	CC, ES
Kona A19-616 - Kona A19-616 - Kona A19-616 - As Drill	2,800.00	2,812.45	166.72	152.95	12.109	SF
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	0.00	0.00	220.63			
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	2,000.00	1,995.81	231.35	218.77	18.391	ES
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	2,100.00	2,093.74	232.94	220.16	18.231	SF
Kona A19-636 - Kona A19-636 - Kona A19-636 - As Drill	0.00	0.00	267.99			
Kona A19-636 - Kona A19-636 - Kona A19-636 - As Drill	2,600.00	2,579.46	316.02	302.32	23.062	SF
Kona A19-646 - Original Drilling - Original Drilling - As Dr	2,046.31	2,066.02	1,613.34	1,599.82	119.368	CC, ES
Kona A19-646 - Original Drilling - Original Drilling - As Dr	6,500.00	6,044.00	2,689.78	2,650.84	69.075	SF
Kona A19-662 - Original Drilling - Original Drilling - As Dr	2,184.07	2,217.76	1,710.77	1,697.07	124.878	CC
Kona A19-662 - Original Drilling - Original Drilling - As Dr	2,200.00	2,233.82	1,710.78	1,697.07	124.780	ES
Kona A19-662 - Original Drilling - Original Drilling - As Dr	5,600.00	5,600.00	2,887.99	2,854.71	86.783	SF
Kona A19-670 - Kona A19-670 - Original Drilling - As Drill	1,986.41	2,004.48	1,733.79	1,720.41	129.581	CC
Kona A19-670 - Kona A19-670 - Original Drilling - As Drill	2,000.00	2,011.03	1,733.82	1,720.39	129.115	ES
Kona A19-670 - Kona A19-670 - Original Drilling - As Drill	7,000.00	5,679.86	3,834.26	3,792.79	92.459	SF
Kona A19-685 - Original Drilling - Original Drilling - As Dr	2,006.49	2,024.14	1,686.28	1,672.79	124.989	CC, ES
Kona A19-685 - Original Drilling - Original Drilling - As Dr	6,700.00	5,089.57	3,691.67	3,654.83	100.203	SF

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

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	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						
A Section 21						
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	2,000.00	1,998.00	2,434.99	2,388.25	52.092	CC
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	2,200.00	2,197.84	2,437.45	2,386.51	47.852	ES
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	7,200.00	6,376.85	4,154.76	4,001.89	27.179	SF
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	3,663.92	3,585.93	3,877.78	3,796.24	47.558	CC
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	3,879.22	3,761.32	3,879.79	3,793.81	45.126	ES
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	7,350.00	6,508.12	4,499.96	4,339.89	28.112	SF
McKee 22-21 - Original Drilling - Original Drilling - As Dril	3,594.29	3,457.56	2,611.92	2,590.43	121.517	CC
McKee 22-21 - Original Drilling - Original Drilling - As Dril	3,600.00	3,461.68	2,611.92	2,590.39	121.320	ES
McKee 22-21 - Original Drilling - Original Drilling - As Dril	7,250.00	6,456.55	3,434.26	3,383.67	67.880	SF
McKee 31-21 - Original Drilling - Original Drilling - As Dril	5,052.44	4,518.83	4,456.07	4,423.11	135.180	CC
McKee 31-21 - Original Drilling - Original Drilling - As Dril	5,200.00	4,642.92	4,457.02	4,422.72	129.918	ES
McKee 31-21 - Original Drilling - Original Drilling - As Dril	7,500.00	6,796.61	4,714.41	4,658.58	84.448	SF
McKee 32-21 - Original Drilling - Original Drilling - As Dril	5,544.56	4,963.75	2,881.26	2,843.58	76.464	CC
McKee 32-21 - Original Drilling - Original Drilling - As Dril	5,600.00	5,011.90	2,881.43	2,843.23	75.433	ES
McKee 32-21 - Original Drilling - Original Drilling - As Dril	7,350.00	6,489.34	3,099.13	3,045.41	57.689	SF
McKee 41-21 - Original Drilling - Original Drilling - As Dril	7,119.40	6,182.93	4,583.10	4,530.90	87.804	CC
McKee 41-21 - Original Drilling - Original Drilling - As Dril	7,176.18	6,224.98	4,583.25	4,530.53	86.943	ES
McKee 41-21 - Original Drilling - Original Drilling - As Dril	7,550.00	6,506.05	4,695.51	4,639.54	83.880	SF
McKee 42-21 - Original Drilling - Original Drilling - As Dril	7,237.52	6,396.06	3,011.42	2,957.75	56.115	CC, ES
McKee 42-21 - Original Drilling - Original Drilling - As Dril	7,500.00	6,606.44	3,066.54	3,010.39	54.615	SF
Rampart A33-740 - Rampart A33-740 - APD-Rev 0	3,431.09	3,442.67	20.05	3.37	1.202	Level 3, CC, ES, SF
Rampart A33-750 - Rampart A33-750 - APD-Rev 0	2,051.05	2,052.85	45.09	31.40	3.294	CC
Rampart A33-750 - Rampart A33-750 - APD-Rev 0	2,100.00	2,102.54	45.10	31.25	3.255	ES, SF
Rampart A33-760 - Rampart A33-760 - APD-Rev 1	2,000.05	2,000.05	67.56	54.05	5.001	CC
Rampart A33-760 - Rampart A33-760 - APD-Rev 1	2,100.00	2,102.13	67.70	53.84	4.885	ES, SF
Rampart A33-770 - Rampart A33-770 - APD-Rev 0	2,001.33	2,002.37	90.09	76.58	6.666	CC, ES
Rampart A33-770 - Rampart A33-770 - APD-Rev 0	2,100.00	2,102.76	90.82	76.96	6.550	SF
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	7,275.01	6,391.39	2,168.24	2,008.86	13.605	CC
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	7,300.00	6,410.53	2,168.76	2,008.82	13.559	ES
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	7,450.00	6,519.62	2,193.96	2,030.73	13.441	SF
Wells Trust 13-21 - Original Drilling - Original Drilling - As	2,037.75	2,022.43	1,235.93	1,222.19	89.955	CC, ES
Wells Trust 13-21 - Original Drilling - Original Drilling - As	3,700.00	3,554.95	1,564.48	1,542.61	71.529	SF
Wells Trust 14-21 - Original Drilling - Original Drilling - As	2,021.65	1,984.13	605.42	591.87	44.688	CC, ES
Wells Trust 14-21 - Original Drilling - Original Drilling - As	2,500.00	2,454.56	646.62	631.09	41.643	SF
Wells Trust 24-21 - Original Drilling - Original Drilling - As	3,224.01	3,135.28	58.78	39.63	3.069	CC, ES, SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	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						
A Section 28						
Ankeney 2-28 (SI) - Wellbore #1 - No Surveys	9,958.13	6,751.00	666.04	496.01	3.917	CC, ES
Ankeney 2-28 (SI) - Wellbore #1 - No Surveys	10,000.00	6,751.00	667.36	496.17	3.898	SF
Ankeney 28-01 (PA) - Wellbore #1 - Gyro Surveys	9,820.63	6,732.67	689.81	632.87	12.116	CC, ES
Ankeney 28-01 (PA) - Wellbore #1 - Gyro Surveys	10,000.00	6,734.10	712.75	651.46	11.629	SF
Art Rohr 1 (PA) - Wellbore #1 - No Surveys	10,995.01	6,746.00	2,037.26	1,861.02	11.559	CC, ES, SF
Danley 1 (TA) - Wellbore #1 - Gyro Surveys	1,981.45	1,934.50	1,116.12	1,102.82	83.914	CC
Danley 1 (TA) - Wellbore #1 - Gyro Surveys	2,000.00	1,950.41	1,116.14	1,102.72	83.162	ES
Danley 1 (TA) - Wellbore #1 - Gyro Surveys	4,400.00	4,117.96	1,437.65	1,410.44	52.840	SF
Danley 12-28 (SI) - Wellbore #1 - Gyro Surveys	100.00	36.89	2,622.78	2,622.59	10,000.000	CC
Danley 12-28 (SI) - Wellbore #1 - Gyro Surveys	2,800.00	2,727.87	2,623.87	2,607.00	155.591	ES
Danley 12-28 (SI) - Wellbore #1 - Gyro Surveys	9,900.00	6,797.48	3,242.38	3,184.78	56.289	SF
Danley 13-28 (PR) - Wellbore #1 - Gyro Surveys	11,025.77	6,810.17	3,271.64	3,206.13	49.938	CC, ES
Danley 13-28 (PR) - Wellbore #1 - Gyro Surveys	11,200.00	6,813.03	3,276.28	3,210.51	49.815	SF
Danley 14-28 (PR) - Wellbore #1 - Gyro Surveys	12,373.79	6,772.48	3,286.71	3,212.20	44.111	CC, ES
Danley 14-28 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,779.15	3,294.48	3,219.60	43.993	SF
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	4,773.75	4,394.21	1,259.95	1,229.10	40.842	CC
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	4,800.00	4,415.45	1,260.04	1,228.96	40.536	ES
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	5,800.00	5,207.01	1,407.38	1,367.94	35.690	SF
Dewey 22-28 (SI) - Wellbore #1 - Gyro Surveys	9,590.15	6,865.57	1,936.86	1,879.01	33.479	CC, ES, SF
Hannan Rohr 1 (PA) - Wellbore #1 - Gyro Surveys	12,300.00	6,725.79	1,993.07	1,918.85	26.853	SF
Hannan Rohr 1 (PA) - Wellbore #1 - Gyro Surveys	12,395.34	6,725.49	1,990.79	1,916.71	26.873	CC, ES
Rohr A 28-25 (SI) - Wellbore #1 - Gyro Surveys	11,515.39	6,829.13	2,481.53	2,412.49	35.942	CC, ES, SF
Wardlaw 16-28 - Original Drilling - Original Drilling - As D	12,384.99	6,724.00	461.60	276.30	2.491	CC
Wardlaw 16-28 - Original Drilling - Original Drilling - As D	12,400.00	6,724.00	461.85	275.88	2.483	ES, SF
Wardlaw 16-28 (SI) - Wellbore #1 - Gyro Surveys	12,344.48	6,721.41	482.46	408.50	6.523	CC, ES
Wardlaw 16-28 (SI) - Wellbore #1 - Gyro Surveys	12,400.00	6,720.76	485.64	409.45	6.373	SF
Wardlaw 20-28 - Original Drilling - Original Drilling - As D	11,733.42	6,719.00	148.58	-32.06	0.823	Level 1, CC, ES, SF
Wardlaw 20-28 (SI) - Wellbore #1 - Gyro Surveys	11,700.62	6,719.18	157.28	87.85	2.265	CC, ES, SF
Wardlaw 33-28 (PA) - Wellbore #1 - Gyro Surveys	11,100.00	7,532.41	501.03	360.34	3.561	ES, SF
Wardlaw 33-28 (PA) - Wellbore #1 - Gyro Surveys	11,206.18	7,500.00	490.72	371.35	4.111	CC
Webster 09-28 - Original Drilling - Original Drilling - As D	10,933.32	6,734.00	435.40	259.80	2.479	CC, ES
Webster 09-28 - Original Drilling - Original Drilling - As D	11,000.00	6,734.00	440.48	262.16	2.470	SF
Webster 15-28 (SI) - Wellbore #1 - Gyro Surveys	12,200.00	6,772.19	857.91	783.47	11.525	SF
Webster 15-28 (SI) - Wellbore #1 - Gyro Surveys	12,273.38	6,771.97	854.77	781.20	11.618	CC, ES
Webster 9-28 (PR) - Wellbore #1 - Gyro Surveys	10,893.77	6,732.13	450.54	386.44	7.028	CC
Webster 9-28 (PR) - Wellbore #1 - Gyro Surveys	10,900.00	6,732.11	450.58	386.21	7.000	ES
Webster 9-28 (PR) - Wellbore #1 - Gyro Surveys	11,000.00	6,731.73	462.89	394.85	6.802	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
A Section 29						
Amos 1 (DA) - Wellbore #1 - No Surveys	2,000.00	1,914.00	6,690.15	6,645.10	148.519	CC
Amos 1 (DA) - Wellbore #1 - No Surveys	2,100.00	2,013.98	6,691.34	6,644.12	141.698	ES
Amos 1 (DA) - Wellbore #1 - No Surveys	4,500.00	4,153.26	7,392.89	7,296.70	76.851	SF
Anderson 3-29 (SI) - Wellbore #1 - Gyro Surveys	210.55	148.55	4,528.66	4,527.81	5,316.934	CC
Anderson 3-29 (SI) - Wellbore #1 - Gyro Surveys	900.00	812.38	4,531.74	4,526.16	811.961	ES
Anderson 3-29 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,707.13	7,981.16	7,923.21	137.730	SF
Andy 29-1 (PA) - Wellbore #1 - No Surveys	2,000.00	1,928.00	5,105.69	5,060.37	112.650	CC
Andy 29-1 (PA) - Wellbore #1 - No Surveys	2,100.00	2,027.98	5,106.99	5,059.49	107.515	ES
Andy 29-1 (PA) - Wellbore #1 - No Surveys	10,900.00	6,743.00	7,324.08	7,151.27	42.383	SF
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	225.92	156.92	6,170.22	6,169.28	6,570.631	CC
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	2,000.00	1,910.17	6,173.30	6,160.04	465.548	ES
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	13,500.00	6,757.33	9,373.87	9,303.13	132.509	SF
Capehart 1 (SI) - Wellbore #1 - Gyro Surveys	997.80	916.81	4,124.44	4,118.15	655.818	CC
Capehart 1 (SI) - Wellbore #1 - Gyro Surveys	2,000.01	1,919.03	4,125.01	4,111.72	310.330	ES
Capehart 1 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,752.98	6,272.91	6,210.80	100.994	SF
Capehart 31-29 (TA) - Wellbore #1 - Gyro Surveys	1,791.92	1,726.98	3,129.30	3,117.40	263.004	CC
Capehart 31-29 (TA) - Wellbore #1 - Gyro Surveys	2,000.00	1,914.45	3,130.00	3,116.73	235.752	ES
Capehart 31-29 (TA) - Wellbore #1 - Gyro Surveys	9,700.00	6,772.24	5,890.90	5,837.00	109.289	SF
Capehart 41-29 (TA) - Wellbore #1 - Gyro Surveys	2,026.24	1,975.71	2,078.11	2,064.56	153.402	CC, ES
Capehart 41-29 (TA) - Wellbore #1 - Gyro Surveys	8,900.00	6,809.16	4,479.25	4,426.93	85.611	SF
Capehart 42-29 (SI) - Wellbore #1 - Gyro Surveys	268.65	194.67	5,381.91	5,380.67	4,360.572	CC
Capehart 42-29 (SI) - Wellbore #1 - Gyro Surveys	2,000.00	1,925.82	5,387.05	5,373.73	404.400	ES
Capehart 42-29 (SI) - Wellbore #1 - Gyro Surveys	12,800.00	6,723.64	8,090.72	8,022.72	118.973	SF
Miller 15-29 (PR) - Wellbore #1 - Gyro Surveys	12,058.43	7,125.00	5,884.76	5,810.09	78.803	CC
Miller 15-29 (PR) - Wellbore #1 - Gyro Surveys	12,100.00	7,125.00	5,884.91	5,810.06	78.621	ES
Miller 15-29 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	7,161.45	6,109.33	6,028.76	75.829	SF
Miller 16-29 (SI) - Wellbore #1 - Gyro Surveys	12,328.94	6,678.12	4,386.68	4,313.31	59.791	CC, ES
Miller 16-29 (SI) - Wellbore #1 - Gyro Surveys	12,900.00	6,700.00	4,423.70	4,348.70	58.983	SF
Miller 33-29 (SI) - Wellbore #1 - Gyro Surveys	1,336.59	1,246.64	5,027.40	5,018.77	582.082	CC
Miller 33-29 (SI) - Wellbore #1 - Gyro Surveys	2,000.00	1,899.99	5,029.97	5,016.74	380.040	ES
Miller 33-29 (SI) - Wellbore #1 - Gyro Surveys	12,600.00	6,746.11	6,144.02	6,073.56	87.200	SF
Miller 43-29 (SI) - Wellbore #1 - Gyro Surveys	2,260.55	2,266.12	4,508.89	4,494.15	305.860	CC
Miller 43-29 (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,307.66	4,508.94	4,494.04	302.571	ES
Miller 43-29 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	6,815.16	4,618.09	4,549.97	67.790	SF
Rhine 15-29 (PR) - Wellbore #1 - Gyro Surveys	2,034.49	1,963.92	5,962.81	5,949.28	440.974	CC
Rhine 15-29 (PR) - Wellbore #1 - Gyro Surveys	12,133.12	6,534.31	5,976.79	5,905.67	84.044	ES
Rhine 15-29 (PR) - Wellbore #1 - Gyro Surveys	13,400.00	6,480.28	6,109.27	6,034.11	81.284	SF
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	1,605.19	1,525.22	7,735.77	7,725.23	733.718	CC
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	2,003.48	1,929.21	7,736.40	7,723.06	580.007	ES
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	15,500.00	6,700.00	9,186.46	9,099.54	105.688	SF
Uhrich 13-29 (PR) - Wellbore #1 - Gyro Surveys	221.76	143.76	6,989.34	6,988.46	7,938.050	CC
Uhrich 13-29 (PR) - Wellbore #1 - Gyro Surveys	400.00	306.08	6,989.62	6,987.55	3,373.327	ES
Uhrich 13-29 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	6,767.80	9,426.59	9,346.43	117.601	SF
Uhrich 14-29 (SI) - Wellbore #1 - Gyro Surveys	549.88	458.89	6,895.38	6,892.25	2,204.249	CC
Uhrich 14-29 (SI) - Wellbore #1 - Gyro Surveys	700.00	575.84	6,895.70	6,891.63	1,697.788	ES
Uhrich 14-29 (SI) - Wellbore #1 - Gyro Surveys	14,400.00	6,437.56	7,364.61	7,284.15	91.527	SF
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	100.00	9.70	6,811.63	6,811.49	10,000.000	CC
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	1,800.00	1,670.01	6,816.88	6,805.15	581.070	ES
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	14,000.00	14,000.00	8,053.33	7,949.04	77.218	SF
Uhrich 23-29 (SI) - Wellbore #1 - Gyro Surveys	356.17	265.19	5,927.74	5,925.96	3,341.630	CC
Uhrich 23-29 (SI) - Wellbore #1 - Gyro Surveys	400.00	300.00	5,927.86	5,925.81	2,894.229	ES
Uhrich 23-29 (SI) - Wellbore #1 - Gyro Surveys	13,600.00	6,714.27	7,410.53	7,335.16	98.320	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	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						
A Section 32						
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	16,200.97	6,961.26	8,614.51	8,510.34	82.697	CC
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	16,300.00	6,966.97	8,615.08	8,510.34	82.251	ES
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	17,720.27	7,048.80	8,747.03	8,635.11	78.158	SF
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	17,574.24	6,927.81	8,504.00	8,389.18	74.062	CC
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	17,600.00	6,927.27	8,504.04	8,389.07	73.970	ES
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	17,720.27	6,924.72	8,505.25	8,389.63	73.560	SF
Farmland 10-32 (SI) - Wellbore #1 - Gyro Surveys	16,390.53	6,781.53	5,945.32	5,840.51	56.726	CC
Farmland 10-32 (SI) - Wellbore #1 - Gyro Surveys	16,400.00	6,781.49	5,945.32	5,840.47	56.703	ES
Farmland 10-32 (SI) - Wellbore #1 - Gyro Surveys	17,300.00	6,777.32	6,014.47	5,906.30	55.600	SF
Farmland 16-32 (SI) - Wellbore #1 - Gyro Surveys	17,613.31	6,707.41	4,570.84	4,456.79	40.077	CC, ES
Farmland 16-32 (SI) - Wellbore #1 - Gyro Surveys	17,720.27	6,707.76	4,572.09	4,457.66	39.955	SF
Hoffner 1 (PR) - Wellbore #1 - Gyro Surveys	13,651.06	6,658.81	5,934.78	5,851.80	71.524	CC
Hoffner 1 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,658.10	5,934.98	5,851.80	71.349	ES
Hoffner 1 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	6,643.10	6,044.95	5,957.97	69.495	SF
Hoffner 32-32 (SI) - Wellbore #1 - Gyro Surveys	14,985.62	6,700.00	5,943.37	5,849.94	63.614	CC
Hoffner 32-32 (SI) - Wellbore #1 - Gyro Surveys	15,000.00	6,700.00	5,943.39	5,849.89	63.570	ES
Hoffner 32-32 (SI) - Wellbore #1 - Gyro Surveys	16,000.00	6,700.00	6,029.31	5,932.15	62.058	SF
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	15,290.76	6,879.20	8,313.52	8,217.03	86.157	CC
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,879.44	8,313.53	8,216.99	86.112	ES
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	17,600.00	6,938.60	8,628.08	8,521.33	80.824	SF
Johnson A 32-06 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	14,800.00	7,081.07	6,959.75	58.370	ES, SF
Johnson A 32-06 (PR) - Wellbore #1 - Gyro Surveys	15,152.63	6,812.08	7,072.28	6,976.97	74.198	CC
Larsen 1 (PR) - Wellbore #1 - Gyro Surveys	13,688.68	6,707.37	4,639.44	4,555.85	55.503	CC
Larsen 1 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,707.36	4,639.45	4,555.82	55.477	ES
Larsen 1 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,706.82	4,679.54	4,594.22	54.849	SF
Larsen 2 (PR) - Wellbore #1 - Gyro Surveys	14,910.04	6,685.67	4,646.80	4,554.07	50.110	CC, ES
Larsen 2 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,684.77	4,672.56	4,578.38	49.613	SF
Larson A32-17 (PR) - Wellbore #1 - MWD Surveys	14,219.57	6,707.17	5,056.66	4,969.33	57.900	CC, ES
Larson A32-17 (PR) - Wellbore #1 - MWD Surveys	14,900.00	6,689.07	5,102.20	5,012.83	57.088	SF
QC USX A32-19 (PR) - Wellbore #1 - MWD Surveys	14,259.34	6,691.28	7,635.94	7,548.13	86.962	CC
QC USX A32-19 (PR) - Wellbore #1 - MWD Surveys	14,300.00	6,691.85	7,636.05	7,548.03	86.755	ES
QC USX A32-19 (PR) - Wellbore #1 - MWD Surveys	16,300.00	6,719.51	7,903.86	7,807.32	81.870	SF
Rubix A 32-03 (PR) - Wellbore #1 - Gyro Surveys	13,437.63	6,200.00	7,149.71	7,071.21	91.084	CC
Rubix A 32-03 (PR) - Wellbore #1 - Gyro Surveys	13,500.00	6,200.00	7,149.98	7,071.19	90.747	ES
Rubix A 32-03 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,685.92	7,529.58	7,439.00	83.126	SF
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	13,473.12	6,724.00	8,491.35	8,298.13	43.945	CC
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	13,500.00	6,724.00	8,491.40	8,298.03	43.914	ES
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	15,000.00	6,724.00	8,627.54	8,426.99	43.018	SF
Webster 11-32 (PR) - Wellbore #1 - Gyro Surveys	16,175.44	6,760.08	7,016.47	6,913.46	68.114	CC
Webster 11-32 (PR) - Wellbore #1 - Gyro Surveys	16,200.00	6,760.22	7,016.51	6,913.37	68.031	ES
Webster 11-32 (PR) - Wellbore #1 - Gyro Surveys	17,600.00	6,767.57	7,159.62	7,050.73	65.756	SF
Webster 14-32 (TA) - Wellbore #1 - Gyro Surveys	17,720.27	6,647.74	7,235.72	7,122.65	63.994	CC, ES, SF
Webster 15-32 (PR) - Wellbore #1 - Gyro Surveys	17,557.26	6,681.60	5,829.32	5,715.92	51.403	CC
Webster 15-32 (PR) - Wellbore #1 - Gyro Surveys	17,600.00	6,681.74	5,829.48	5,715.88	51.316	ES
Webster 15-32 (PR) - Wellbore #1 - Gyro Surveys	17,720.27	6,682.13	5,831.60	5,717.47	51.098	SF
Webster 9-32 (SI) - Wellbore #1 - Gyro Surveys	16,212.05	6,611.87	4,616.85	4,514.58	45.146	CC, ES
Webster 9-32 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,617.81	4,642.56	4,538.84	44.761	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	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						
A Section 33						
Achziger 11-33 (PR) - Wellbore #1 - Gyro Surveys	16,100.00	6,716.09	1,770.43	1,667.70	17.233	SF
Achziger 11-33 (PR) - Wellbore #1 - Gyro Surveys	16,134.85	6,716.73	1,770.09	1,667.43	17.243	CC, ES
Achziger 14-33 (PA) - Wellbore #1 - No Surveys	17,720.27	6,684.00	2,001.84	1,776.33	8.877	CC, ES, SF
Briggs 15-33 (SI) - Wellbore #1 - Gyro Surveys	17,500.00	6,717.66	691.30	576.45	6.019	SF
Briggs 15-33 (SI) - Wellbore #1 - Gyro Surveys	17,543.34	6,717.79	689.94	575.78	6.044	CC, ES
Ehrlich 19-33 (PR) - Wellbore #1 - Gyro Survey	16,969.66	6,694.95	2,791.90	2,683.01	25.640	CC, ES
Ehrlich 19-33 (PR) - Wellbore #1 - Gyro Survey	17,000.00	6,695.11	2,792.07	2,683.15	25.636	SF
French 09-33 - Original Drilling - Original Drilling - As Dril	16,216.86	6,705.03	666.02	563.40	6.490	CC, ES
French 09-33 - Original Drilling - Original Drilling - As Dril	16,300.00	6,703.79	671.19	566.03	6.382	SF
Hammerbeck 16-33 - Original Drilling - Original Drilling -	17,631.47	6,707.48	726.84	613.20	6.396	CC, ES
Hammerbeck 16-33 - Original Drilling - Original Drilling -	17,720.27	6,708.04	732.25	616.15	6.307	SF
Hammerbeck 20-33 - Wellbore #1 - Gyro Surveys	16,900.00	6,689.52	38.41	-71.91	0.348	Level 1, ES, SF
Hammerbeck 20-33 - Wellbore #1 - Gyro Surveys	16,907.86	6,689.43	37.60	-70.34	0.348	Level 1, CC
Noffsinger 11-33 (PR) - Wellbore #1 - Gyro Surveys	13,475.66	6,703.70	3,415.77	3,333.81	41.678	CC, ES
Noffsinger 11-33 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,704.85	3,423.13	3,340.80	41.580	SF
Noffsinger 12-33 (PR) - Wellbore #1 - Gyro Surveys	15,206.47	6,725.61	3,222.71	3,127.43	33.825	CC, ES
Noffsinger 12-33 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,725.50	3,224.07	3,128.64	33.786	SF
Noffsinger 21-33 (PA) - Wellbore #1 - No Surveys	13,400.00	6,724.00	1,990.62	1,797.75	10.321	SF
Noffsinger 21-33 (PA) - Wellbore #1 - No Surveys	13,448.46	6,724.00	1,990.03	1,797.24	10.322	CC, ES
Noffsinger 22-33 (PR) - Wellbore #1 - Gyro Surveys	13,400.00	6,407.59	449.28	367.95	5.524	ES, SF
Noffsinger 22-33 (PR) - Wellbore #1 - Gyro Surveys	13,417.45	6,406.97	448.94	368.19	5.559	CC
Noffsinger 31-33 (PR) - Wellbore #1 - Gyro Surveys						Out of range
Noffsinger 32-33 (PR) - Wellbore #1 - Gyro Surveys	15,200.00	6,770.21	786.36	689.81	8.144	SF
Noffsinger 32-33 (PR) - Wellbore #1 - Gyro Surveys	15,226.52	6,769.67	785.92	689.74	8.172	CC, ES
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	16,289.19	6,711.29	3,356.75	3,253.09	32.381	CC
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	16,300.00	6,711.28	3,356.77	3,253.08	32.374	ES
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,711.16	3,358.58	3,254.71	32.336	SF
Sitzman 13-33 (SI) - Wellbore #1 - Gyro Surveys	17,720.27	6,688.68	3,353.17	3,237.75	29.050	CC, ES, SF
Sughrue 41-33 - Original Drilling - Original Drilling - As I	13,454.16	6,752.70	717.79	636.89	8.873	CC
Sughrue 41-33 - Original Drilling - Original Drilling - As I	13,500.00	6,751.50	719.25	636.86	8.730	ES
Sughrue 41-33 - Original Drilling - Original Drilling - As I	13,600.00	6,749.03	732.44	647.48	8.621	SF
Webster 10-33 (PA) - Wellbore #1 - Gyro Surveys	16,100.00	6,708.00	640.92	536.55	6.140	SF
Webster 10-33 (PA) - Wellbore #1 - Gyro Surveys	16,185.90	6,706.96	635.14	532.05	6.161	CC, ES

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

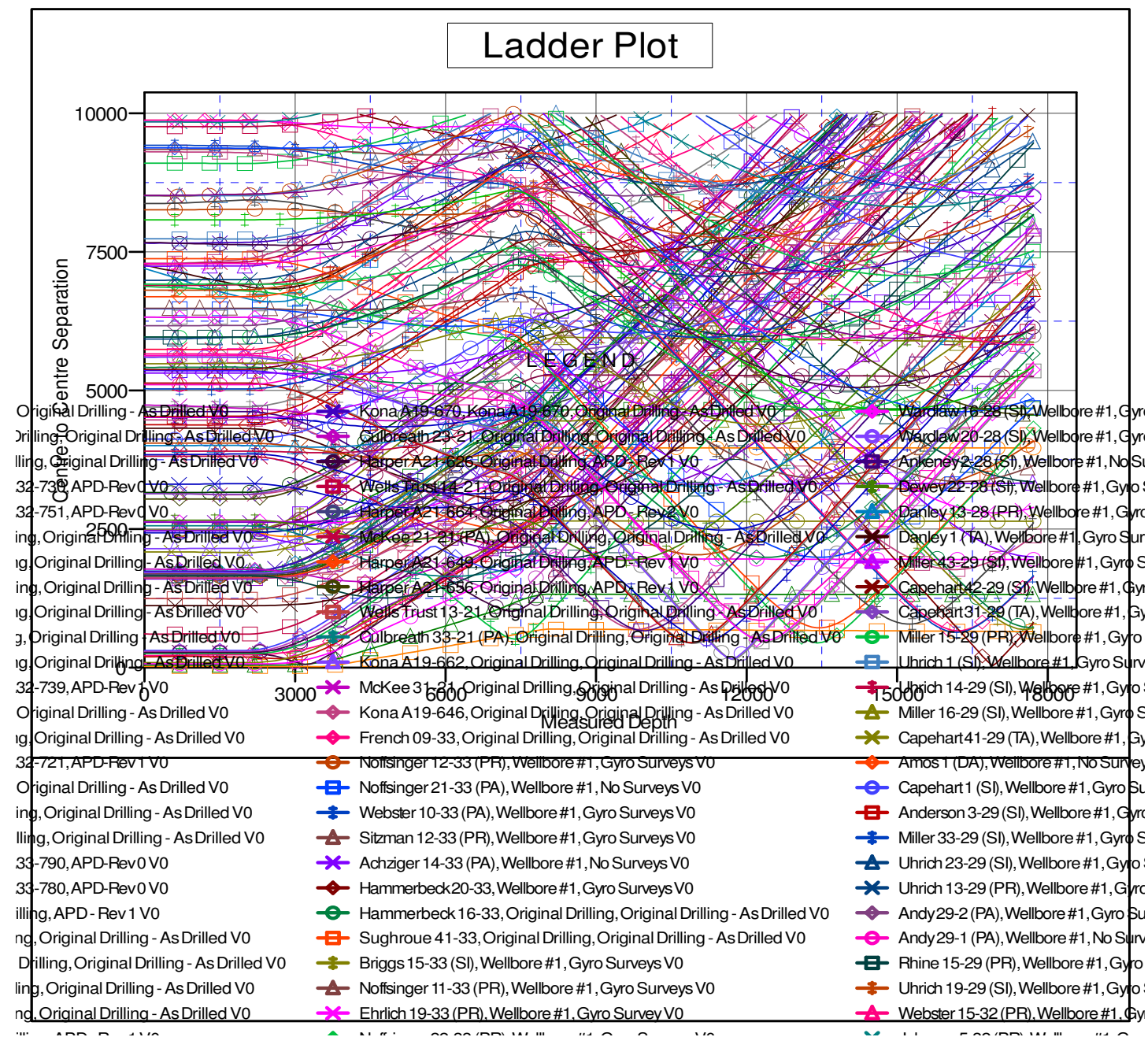
## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

Coordinates are relative to: Rampart A33-730

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°



## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Rampart A33-730
<b>Project:</b>	Wells Ranch	<b>TVD Reference:</b>	Well @ 4756.00ft
<b>Reference Site:</b>	A Section 21	<b>MD Reference:</b>	Well @ 4756.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Rampart A33-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Rampart A33-730	<b>Database:</b>	EDMP
<b>Reference Design:</b>	APD-Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to Well @ 4756.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Rampart A33-730  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.61°

