

Project: Wells Ranch
 Site: A Section 20
 Well: Rampart A32-730
 Wellbore: Rampart A32-730
 Design: APD-Rev 0

Northern Region - DJ Basin

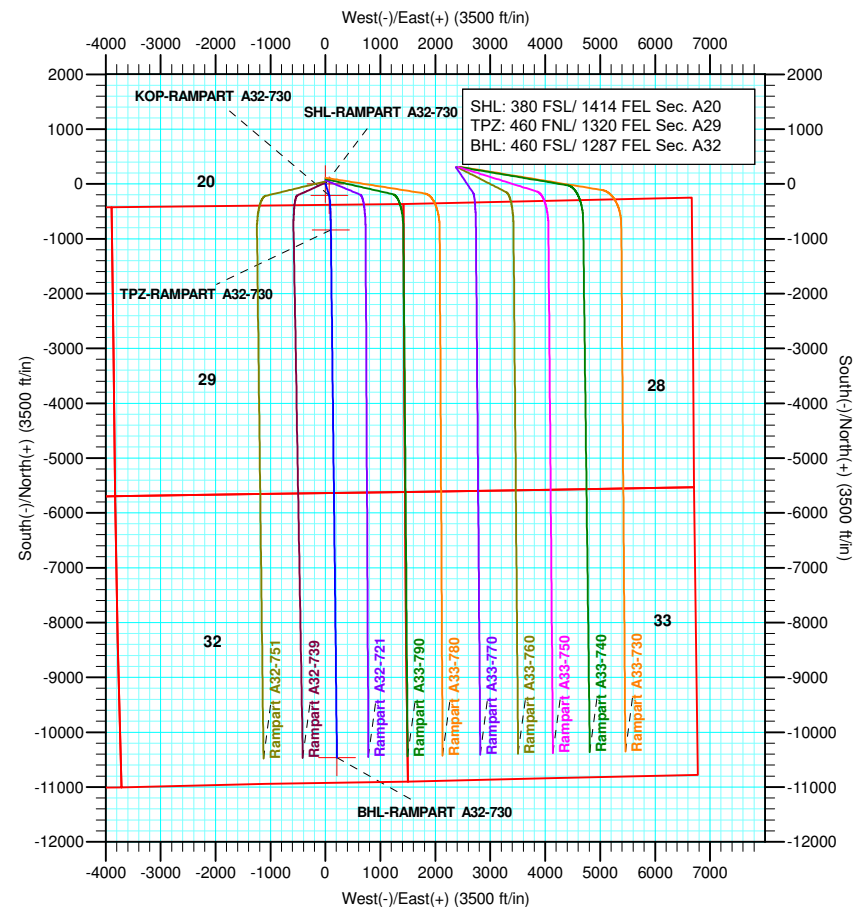
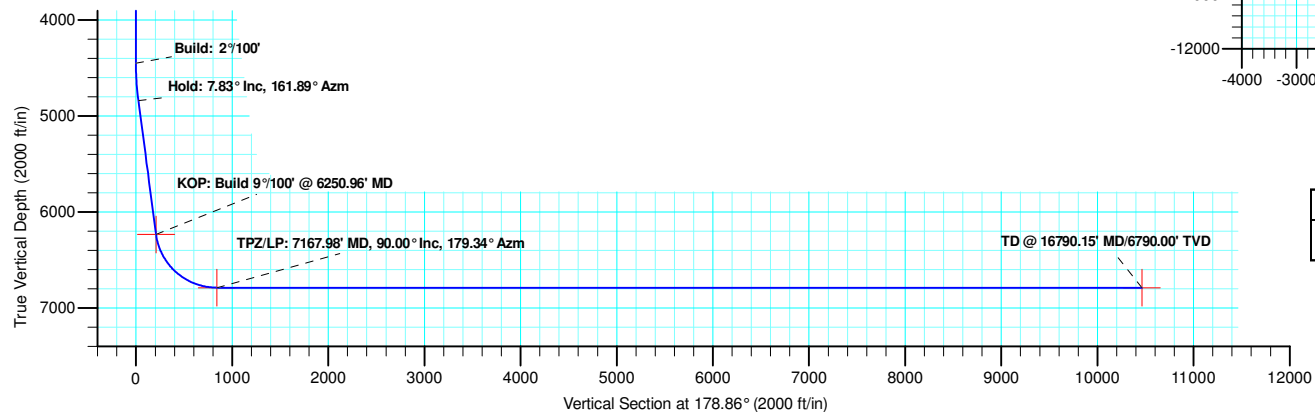
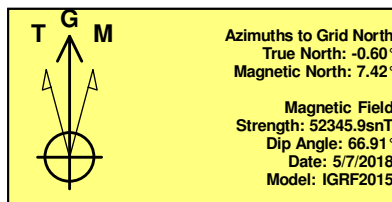
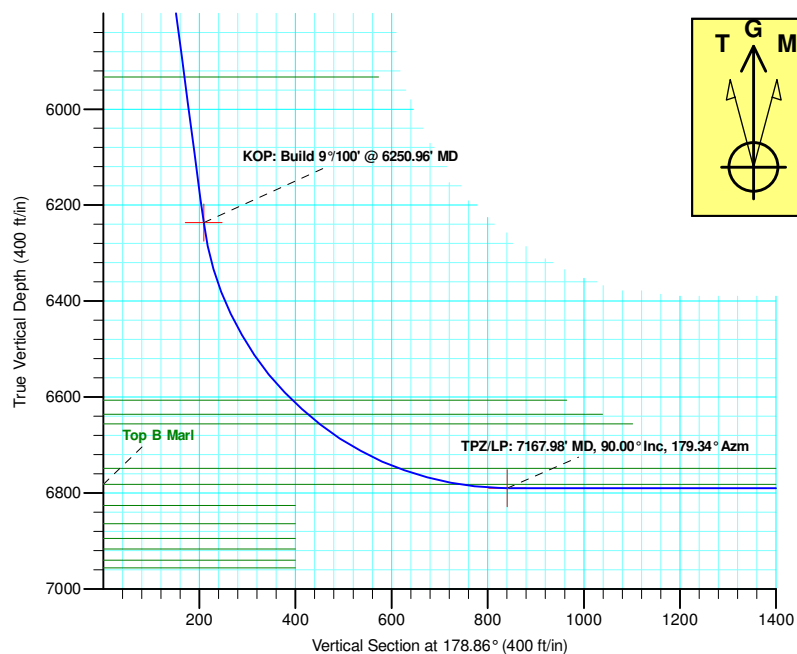
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	4450.00	0.00	0.00	4450.00	0.00	0.00	0.00	0.00	0.00
3	4841.54	7.83	161.89	4840.32	-25.39	8.30	2.00	161.89	25.55
4	6250.96	7.83	161.89	6236.60	-207.91	67.98	0.00	0.00	209.23
5	7167.98	90.00	179.34	6790.00	-838.83	98.07	9.00	17.60	840.62
6	16790.15	90.00	179.34	6790.00	-10460.36	208.93	0.00	0.00	10462.45

WELL DETAILS: Rampart A32-730

+N/-S	+E/-W	Northing	Ground Level: Easting	4706.00	Latitude	Longitude	Slot
0.00	0.00	1413695.20	3258846.27		40.4652677	-104.5696918	



Plan: APD-Rev 0 (Rampart A32-730/Rampart A32-730)

Created By: Keith Noack Date: 7:58, November 01 2018

Northern Region - DJ Basin

Wells Ranch

A Section 20

Rampart A32-730

Rampart A32-730

Plan: APD-Rev 0

Standard Planning Report

01 November, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Rampart A32-730
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4736.00ft
Project:	Wells Ranch	MD Reference:	KB @ 4736.00ft
Site:	A Section 20	North Reference:	Grid
Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

Project	Wells Ranch, 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	A Section 20				
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 A32-730					
Well Position	+N-S	-507.63 ft	Northing:	1,413,695.20 usft	Latitude:	40.4652677
	+E-W	-2,385.64 ft	Easting:	3,258,846.27 usft	Longitude:	-104.5696918
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,706.00 ft

Wellbore	Rampart A32-730				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/7/2018	8.02	66.91	52,345.92168337

Design	APD-Rev 0			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	178.86

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	
4,450.00	0.00	0.00	4,450.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,841.54	7.83	161.89	4,840.32	-25.39	8.30	2.00	2.00	0.00	161.89	
6,250.96	7.83	161.89	6,236.60	-207.91	67.98	0.00	0.00	0.00	0.00	
7,167.98	90.00	179.34	6,790.00	-838.83	98.07	9.00	8.96	1.90	17.60	TPZ-RAMPART A3
16,790.15	90.00	179.34	6,790.00	-10,460.36	208.93	0.00	0.00	0.00	0.00	BHL-RAMPART A3

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4736.00ft
Project:	Wells Ranch	MD Reference:	KB @ 4736.00ft
Site:	A Section 20	North Reference:	Grid
Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

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
444.00	0.00	0.00	444.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
475.00	0.00	0.00	475.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
1,512.00	0.00	0.00	1,512.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
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
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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,633.00	0.00	0.00	3,633.00	0.00	0.00	0.00	0.00	0.00	0.00
Parkman									
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,151.00	0.00	0.00	4,151.00	0.00	0.00	0.00	0.00	0.00	0.00
Sussex									
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

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)
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,450.00	0.00	0.00	4,450.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
4,500.00	1.00	161.89	4,500.00	-0.41	0.14	0.42	2.00	2.00	0.00
4,600.00	3.00	161.89	4,599.93	-3.73	1.22	3.76	2.00	2.00	0.00
4,700.00	5.00	161.89	4,699.68	-10.36	3.39	10.43	2.00	2.00	0.00
4,800.00	7.00	161.89	4,799.13	-20.30	6.64	20.42	2.00	2.00	0.00
4,841.54	7.83	161.89	4,840.32	-25.39	8.30	25.55	2.00	2.00	0.00
Hold: 7.83° Inc, 161.89° Azm									
4,900.00	7.83	161.89	4,898.24	-32.96	10.78	33.17	0.00	0.00	0.00
4,985.56	7.83	161.89	4,983.00	-44.04	14.40	44.32	0.00	0.00	0.00
Shannon									
5,000.00	7.83	161.89	4,997.30	-45.91	15.01	46.20	0.00	0.00	0.00
5,100.00	7.83	161.89	5,096.37	-58.86	19.25	59.24	0.00	0.00	0.00
5,200.00	7.83	161.89	5,195.44	-71.81	23.48	72.27	0.00	0.00	0.00
5,300.00	7.83	161.89	5,294.51	-84.76	27.72	85.30	0.00	0.00	0.00
5,400.00	7.83	161.89	5,393.57	-97.71	31.95	98.33	0.00	0.00	0.00
5,500.00	7.83	161.89	5,492.64	-110.66	36.18	111.36	0.00	0.00	0.00
5,600.00	7.83	161.89	5,591.71	-123.61	40.42	124.40	0.00	0.00	0.00
5,700.00	7.83	161.89	5,690.78	-136.56	44.65	137.43	0.00	0.00	0.00
5,800.00	7.83	161.89	5,789.84	-149.51	48.89	150.46	0.00	0.00	0.00
5,900.00	7.83	161.89	5,888.91	-162.46	53.12	163.49	0.00	0.00	0.00
5,944.50	7.83	161.89	5,933.00	-168.23	55.01	169.29	0.00	0.00	0.00
Teepee Buttes									
6,000.00	7.83	161.89	5,987.98	-175.41	57.36	176.52	0.00	0.00	0.00
6,100.00	7.83	161.89	6,087.05	-188.36	61.59	189.56	0.00	0.00	0.00
6,200.00	7.83	161.89	6,186.11	-201.31	65.83	202.59	0.00	0.00	0.00
6,250.96	7.83	161.89	6,236.60	-207.91	67.98	209.23	0.00	0.00	0.00
KOP: Build 9°/100' @ 6250.96' MD									
6,300.00	12.11	168.26	6,284.89	-216.13	70.07	217.49	9.00	8.73	12.99
6,350.00	16.55	171.36	6,333.32	-228.31	72.21	229.71	9.00	8.87	6.20
6,400.00	21.01	173.18	6,380.65	-244.26	74.34	245.69	9.00	8.92	3.63
6,450.00	25.48	174.38	6,426.58	-263.87	76.46	265.35	9.00	8.95	2.40
6,500.00	29.97	175.24	6,470.83	-287.03	78.55	288.54	9.00	8.96	1.72
6,550.00	34.45	175.89	6,513.12	-313.60	80.60	315.14	9.00	8.97	1.31
6,600.00	38.94	176.42	6,553.20	-343.40	82.60	344.98	9.00	8.98	1.04
6,650.00	43.43	176.84	6,590.82	-376.26	84.53	377.88	9.00	8.98	0.86
6,672.67	45.47	177.02	6,607.00	-392.12	85.38	393.74	9.00	8.98	0.76
Sharon Springs									
6,700.00	47.93	177.21	6,625.74	-411.98	86.38	413.62	9.00	8.99	0.70
6,715.52	49.32	177.31	6,636.00	-423.61	86.94	425.26	9.00	8.99	0.66
Top A Chalk									
6,747.13	52.16	177.50	6,656.00	-448.06	88.05	449.72	9.00	8.99	0.62
Top A Marl									
6,750.00	52.42	177.52	6,657.76	-450.33	88.14	452.00	9.00	8.99	0.59
6,800.00	56.91	177.80	6,686.67	-491.07	89.81	492.77	9.00	8.99	0.56
6,850.00	61.41	178.05	6,712.29	-533.97	91.36	535.68	9.00	8.99	0.50
6,900.00	65.90	178.28	6,734.47	-578.74	92.79	580.48	9.00	8.99	0.46
6,938.15	69.33	178.45	6,749.00	-614.00	93.79	615.75	9.00	8.99	0.43
Top B Chalk									
6,950.00	70.40	178.50	6,753.08	-625.12	94.09	626.87	9.00	8.99	0.42
7,000.00	74.90	178.70	6,767.99	-672.81	95.25	674.58	9.00	8.99	0.41
7,050.00	79.39	178.90	6,779.11	-721.54	96.27	723.32	9.00	8.99	0.39

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4736.00ft
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Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

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)
7,066.90	80.91	178.96	6,782.00	-738.19	96.58	739.97	9.00	8.99	0.38
Top B Marl									
7,100.00	83.89	179.09	6,786.38	-770.99	97.14	772.77	9.00	8.99	0.38
7,150.00	88.38	179.27	6,789.75	-820.85	97.86	822.64	9.00	8.99	0.37
7,167.98	90.00	179.34	6,790.00	-838.83	98.07	840.62	9.00	8.99	0.37
TPZ/LP: 7167.98' MD, 90.00° Inc, 179.34° Azm									
7,200.00	90.00	179.34	6,790.00	-870.85	98.44	872.64	0.00	0.00	0.00
7,300.00	90.00	179.34	6,790.00	-970.84	99.60	972.64	0.00	0.00	0.00
7,400.00	90.00	179.34	6,790.00	-1,070.84	100.75	1,072.63	0.00	0.00	0.00
7,500.00	90.00	179.34	6,790.00	-1,170.83	101.90	1,172.63	0.00	0.00	0.00
7,600.00	90.00	179.34	6,790.00	-1,270.82	103.05	1,272.63	0.00	0.00	0.00
7,700.00	90.00	179.34	6,790.00	-1,370.82	104.20	1,372.62	0.00	0.00	0.00
7,800.00	90.00	179.34	6,790.00	-1,470.81	105.36	1,472.62	0.00	0.00	0.00
7,900.00	90.00	179.34	6,790.00	-1,570.80	106.51	1,572.62	0.00	0.00	0.00
8,000.00	90.00	179.34	6,790.00	-1,670.80	107.66	1,672.61	0.00	0.00	0.00
8,100.00	90.00	179.34	6,790.00	-1,770.79	108.81	1,772.61	0.00	0.00	0.00
8,200.00	90.00	179.34	6,790.00	-1,870.78	109.96	1,872.61	0.00	0.00	0.00
8,300.00	90.00	179.34	6,790.00	-1,970.78	111.12	1,972.60	0.00	0.00	0.00
8,400.00	90.00	179.34	6,790.00	-2,070.77	112.27	2,072.60	0.00	0.00	0.00
8,500.00	90.00	179.34	6,790.00	-2,170.76	113.42	2,172.59	0.00	0.00	0.00
8,600.00	90.00	179.34	6,790.00	-2,270.76	114.57	2,272.59	0.00	0.00	0.00
8,700.00	90.00	179.34	6,790.00	-2,370.75	115.72	2,372.59	0.00	0.00	0.00
8,800.00	90.00	179.34	6,790.00	-2,470.74	116.88	2,472.58	0.00	0.00	0.00
8,900.00	90.00	179.34	6,790.00	-2,570.74	118.03	2,572.58	0.00	0.00	0.00
9,000.00	90.00	179.34	6,790.00	-2,670.73	119.18	2,672.58	0.00	0.00	0.00
9,100.00	90.00	179.34	6,790.00	-2,770.72	120.33	2,772.57	0.00	0.00	0.00
9,200.00	90.00	179.34	6,790.00	-2,870.72	121.48	2,872.57	0.00	0.00	0.00
9,300.00	90.00	179.34	6,790.00	-2,970.71	122.64	2,972.57	0.00	0.00	0.00
9,400.00	90.00	179.34	6,790.00	-3,070.70	123.79	3,072.56	0.00	0.00	0.00
9,500.00	90.00	179.34	6,790.00	-3,170.70	124.94	3,172.56	0.00	0.00	0.00
9,600.00	90.00	179.34	6,790.00	-3,270.69	126.09	3,272.56	0.00	0.00	0.00
9,700.00	90.00	179.34	6,790.00	-3,370.68	127.25	3,372.55	0.00	0.00	0.00
9,800.00	90.00	179.34	6,790.00	-3,470.68	128.40	3,472.55	0.00	0.00	0.00
9,900.00	90.00	179.34	6,790.00	-3,570.67	129.55	3,572.54	0.00	0.00	0.00
10,000.00	90.00	179.34	6,790.00	-3,670.66	130.70	3,672.54	0.00	0.00	0.00
10,100.00	90.00	179.34	6,790.00	-3,770.66	131.85	3,772.54	0.00	0.00	0.00
10,200.00	90.00	179.34	6,790.00	-3,870.65	133.01	3,872.53	0.00	0.00	0.00
10,300.00	90.00	179.34	6,790.00	-3,970.64	134.16	3,972.53	0.00	0.00	0.00
10,400.00	90.00	179.34	6,790.00	-4,070.64	135.31	4,072.53	0.00	0.00	0.00
10,500.00	90.00	179.34	6,790.00	-4,170.63	136.46	4,172.52	0.00	0.00	0.00
10,600.00	90.00	179.34	6,790.00	-4,270.62	137.61	4,272.52	0.00	0.00	0.00
10,700.00	90.00	179.34	6,790.00	-4,370.62	138.77	4,372.52	0.00	0.00	0.00
10,800.00	90.00	179.34	6,790.00	-4,470.61	139.92	4,472.51	0.00	0.00	0.00
10,900.00	90.00	179.34	6,790.00	-4,570.60	141.07	4,572.51	0.00	0.00	0.00
11,000.00	90.00	179.34	6,790.00	-4,670.60	142.22	4,672.51	0.00	0.00	0.00
11,100.00	90.00	179.34	6,790.00	-4,770.59	143.37	4,772.50	0.00	0.00	0.00
11,200.00	90.00	179.34	6,790.00	-4,870.58	144.53	4,872.50	0.00	0.00	0.00
11,300.00	90.00	179.34	6,790.00	-4,970.58	145.68	4,972.49	0.00	0.00	0.00
11,400.00	90.00	179.34	6,790.00	-5,070.57	146.83	5,072.49	0.00	0.00	0.00
11,500.00	90.00	179.34	6,790.00	-5,170.56	147.98	5,172.49	0.00	0.00	0.00
11,600.00	90.00	179.34	6,790.00	-5,270.56	149.14	5,272.48	0.00	0.00	0.00
11,700.00	90.00	179.34	6,790.00	-5,370.55	150.29	5,372.48	0.00	0.00	0.00
11,800.00	90.00	179.34	6,790.00	-5,470.54	151.44	5,472.48	0.00	0.00	0.00
11,900.00	90.00	179.34	6,790.00	-5,570.54	152.59	5,572.47	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Rampart A32-730
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4736.00ft
Project:	Wells Ranch	MD Reference:	KB @ 4736.00ft
Site:	A Section 20	North Reference:	Grid
Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

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)
12,000.00	90.00	179.34	6,790.00	-5,670.53	153.74	5,672.47	0.00	0.00	0.00
12,100.00	90.00	179.34	6,790.00	-5,770.52	154.90	5,772.47	0.00	0.00	0.00
12,200.00	90.00	179.34	6,790.00	-5,870.52	156.05	5,872.46	0.00	0.00	0.00
12,300.00	90.00	179.34	6,790.00	-5,970.51	157.20	5,972.46	0.00	0.00	0.00
12,400.00	90.00	179.34	6,790.00	-6,070.50	158.35	6,072.46	0.00	0.00	0.00
12,500.00	90.00	179.34	6,790.00	-6,170.50	159.50	6,172.45	0.00	0.00	0.00
12,600.00	90.00	179.34	6,790.00	-6,270.49	160.66	6,272.45	0.00	0.00	0.00
12,700.00	90.00	179.34	6,790.00	-6,370.48	161.81	6,372.44	0.00	0.00	0.00
12,800.00	90.00	179.34	6,790.00	-6,470.48	162.96	6,472.44	0.00	0.00	0.00
12,900.00	90.00	179.34	6,790.00	-6,570.47	164.11	6,572.44	0.00	0.00	0.00
13,000.00	90.00	179.34	6,790.00	-6,670.46	165.26	6,672.43	0.00	0.00	0.00
13,100.00	90.00	179.34	6,790.00	-6,770.46	166.42	6,772.43	0.00	0.00	0.00
13,200.00	90.00	179.34	6,790.00	-6,870.45	167.57	6,872.43	0.00	0.00	0.00
13,300.00	90.00	179.34	6,790.00	-6,970.44	168.72	6,972.42	0.00	0.00	0.00
13,400.00	90.00	179.34	6,790.00	-7,070.44	169.87	7,072.42	0.00	0.00	0.00
13,500.00	90.00	179.34	6,790.00	-7,170.43	171.03	7,172.42	0.00	0.00	0.00
13,600.00	90.00	179.34	6,790.00	-7,270.42	172.18	7,272.41	0.00	0.00	0.00
13,700.00	90.00	179.34	6,790.00	-7,370.42	173.33	7,372.41	0.00	0.00	0.00
13,800.00	90.00	179.34	6,790.00	-7,470.41	174.48	7,472.41	0.00	0.00	0.00
13,900.00	90.00	179.34	6,790.00	-7,570.40	175.63	7,572.40	0.00	0.00	0.00
14,000.00	90.00	179.34	6,790.00	-7,670.40	176.79	7,672.40	0.00	0.00	0.00
14,100.00	90.00	179.34	6,790.00	-7,770.39	177.94	7,772.39	0.00	0.00	0.00
14,200.00	90.00	179.34	6,790.00	-7,870.38	179.09	7,872.39	0.00	0.00	0.00
14,300.00	90.00	179.34	6,790.00	-7,970.38	180.24	7,972.39	0.00	0.00	0.00
14,400.00	90.00	179.34	6,790.00	-8,070.37	181.39	8,072.38	0.00	0.00	0.00
14,500.00	90.00	179.34	6,790.00	-8,170.36	182.55	8,172.38	0.00	0.00	0.00
14,600.00	90.00	179.34	6,790.00	-8,270.36	183.70	8,272.38	0.00	0.00	0.00
14,700.00	90.00	179.34	6,790.00	-8,370.35	184.85	8,372.37	0.00	0.00	0.00
14,800.00	90.00	179.34	6,790.00	-8,470.34	186.00	8,472.37	0.00	0.00	0.00
14,900.00	90.00	179.34	6,790.00	-8,570.34	187.15	8,572.37	0.00	0.00	0.00
15,000.00	90.00	179.34	6,790.00	-8,670.33	188.31	8,672.36	0.00	0.00	0.00
15,100.00	90.00	179.34	6,790.00	-8,770.32	189.46	8,772.36	0.00	0.00	0.00
15,200.00	90.00	179.34	6,790.00	-8,870.32	190.61	8,872.36	0.00	0.00	0.00
15,300.00	90.00	179.34	6,790.00	-8,970.31	191.76	8,972.35	0.00	0.00	0.00
15,400.00	90.00	179.34	6,790.00	-9,070.30	192.92	9,072.35	0.00	0.00	0.00
15,500.00	90.00	179.34	6,790.00	-9,170.30	194.07	9,172.34	0.00	0.00	0.00
15,600.00	90.00	179.34	6,790.00	-9,270.29	195.22	9,272.34	0.00	0.00	0.00
15,700.00	90.00	179.34	6,790.00	-9,370.28	196.37	9,372.34	0.00	0.00	0.00
15,800.00	90.00	179.34	6,790.00	-9,470.28	197.52	9,472.33	0.00	0.00	0.00
15,900.00	90.00	179.34	6,790.00	-9,570.27	198.68	9,572.33	0.00	0.00	0.00
16,000.00	90.00	179.34	6,790.00	-9,670.26	199.83	9,672.33	0.00	0.00	0.00
16,100.00	90.00	179.34	6,790.00	-9,770.26	200.98	9,772.32	0.00	0.00	0.00
16,200.00	90.00	179.34	6,790.00	-9,870.25	202.13	9,872.32	0.00	0.00	0.00
16,300.00	90.00	179.34	6,790.00	-9,970.24	203.28	9,972.32	0.00	0.00	0.00
16,400.00	90.00	179.34	6,790.00	-10,070.24	204.44	10,072.31	0.00	0.00	0.00
16,500.00	90.00	179.34	6,790.00	-10,170.23	205.59	10,172.31	0.00	0.00	0.00
16,600.00	90.00	179.34	6,790.00	-10,270.22	206.74	10,272.31	0.00	0.00	0.00
16,700.00	90.00	179.34	6,790.00	-10,370.22	207.89	10,372.30	0.00	0.00	0.00
16,790.15	90.00	179.34	6,790.00	-10,460.36	208.93	10,462.45	0.00	0.00	0.00
TD @ 16790.15' MD/6790.00' TVD									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Rampart A32-730
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4736.00ft
Project:	Wells Ranch	MD Reference:	KB @ 4736.00ft
Site:	A Section 20	North Reference:	Grid
Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Wellbore:	Rampart A32-730		
Design:	APD-Rev 0		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
SHL-RAMPART A32- - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,413,695.20	3,258,846.27	40.4652677	-104.5696918
KOP-RAMPART A32- - plan hits target center - Point	0.00	0.00	6,236.60	-207.91	67.98	1,413,487.29	3,258,914.26	40.4646951	-104.5694553
BHL-RAMPART A32- - plan hits target center - Point	0.00	0.00	6,790.00	-10,460.36	208.93	1,403,234.86	3,259,055.20	40.4365498	-104.5693355
TPZ-RAMPART A32- - plan hits target center - Point	0.00	0.00	6,790.00	-838.83	98.07	1,412,856.37	3,258,944.35	40.4629624	-104.5693710

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
444.00	444.00	Pierre				
475.00	475.00	Upper Pierre Aquifer Top				
1,512.00	1,512.00	Upper Pierre Aquifer Base				
3,633.00	3,633.00	Parkman				
4,151.00	4,151.00	Sussex				
4,985.56	4,983.00	Shannon				
5,944.50	5,933.00	Teepee Buttes				
6,672.67	6,607.00	Sharon Springs				
6,715.52	6,636.00	Top A Chalk				
6,747.13	6,656.00	Top A Marl				
6,938.15	6,749.00	Top B Chalk				
7,066.90	6,782.00	Top B Marl				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)	Comment	
4,450.00	4,450.00	0.00	0.00	Build: 2°/100'	
4,841.54	4,840.32	-25.39	8.30	Hold: 7.83° Inc, 161.89° Azm	
6,250.96	6,236.60	-207.91	67.98	KOP: Build 9°/100' @ 6250.96' MD	
7,167.98	6,790.00	-838.83	98.07	TPZ/LP: 7167.98' MD, 90.00° Inc, 179.34° Azm	
16,790.15	6,790.00	-10,460.36	208.93	TD @ 16790.15' MD/6790.00' TVD	

Northern Region - DJ Basin

Wells Ranch

A Section 20

Rampart A32-730

Rampart A32-730

APD-Rev 0

Anticollision Summary Report

01 November, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	Offset TVD Reference:	Offset Datum

Reference	APD-Rev 0		
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	10/31/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	2,002.99	APD-Rev 0 (Rampart A32-730)	2_Gyro-NS-CT_OWSG	A021Ga: Continuous gyro in casing
2,002.99	16,790.15	APD-Rev 0 (Rampart A32-730)	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	4,113.87	4,088.23	772.96	748.71	31.882	CC
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	4,200.00	4,167.83	773.35	748.60	31.248	ES
Foe 16-20 - Original Drilling - Original Drilling - As Drilled	6,350.00	6,306.87	843.23	804.76	21.918	SF
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	4,170.43	4,154.67	1,479.99	1,455.35	60.064	CC
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	4,450.00	4,429.26	1,481.20	1,454.84	56.199	ES
Foe 33-20 - Original Drilling - Original Drilling - As Drilled	6,400.00	6,397.43	1,733.60	1,694.70	44.556	SF
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	4,450.00	4,414.00	580.59	481.27	5.845	CC
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	4,600.00	4,563.93	582.39	479.67	5.670	ES
Foe 34-20 (PA) - Original Drilling - Original Drilling - As D	6,300.00	6,248.89	712.61	571.21	5.040	SF
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	4,451.56	4,445.98	1,949.25	1,922.81	73.721	CC, ES
Foe 43-20 - Original Drilling - Original Drilling - As Drilled	6,400.00	6,360.89	2,145.00	2,106.19	55.260	SF
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	350.84	315.84	4,795.56	4,793.64	2,489.173	CC
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	4,600.00	4,624.09	4,805.67	4,778.26	175.292	ES
Linda Rae 1 - Original Drilling - Original Drilling - As Drille	7,800.00	6,807.36	5,210.32	5,158.89	101.294	SF
Rampart A32-721 - Rampart A32-721 - APD-Rev 1	2,386.06	2,388.25	62.08	47.96	4.395	CC, ES
Rampart A32-721 - Rampart A32-721 - APD-Rev 1	16,790.15	16,911.98	575.73	399.38	3.265	SF
Rampart A32-739 - Rampart A32-739 - APD-Rev 1	2,227.74	2,227.98	20.53	6.56	1.469	Level 3, CC, ES, SF
Rampart A32-751 - Rampart A32-751 - APD-Rev 0	2,241.75	2,242.04	43.85	29.86	3.135	CC, ES, SF
Rampart A33-780 - Rampart A33-780 - APD-Rev 0	2,322.79	2,324.49	110.94	96.88	7.890	CC, ES
Rampart A33-780 - Rampart A33-780 - APD-Rev 0	2,400.00	2,400.95	111.37	97.22	7.874	SF
Rampart A33-790 - Rampart A33-790 - APD-Rev 0	2,340.72	2,342.54	87.62	73.54	6.223	CC, ES
Rampart A33-790 - Rampart A33-790 - APD-Rev 0	2,400.00	2,401.24	87.96	73.81	6.219	SF
Simmons 42-20D - Original Drilling - Original Drilling - As	4,631.91	4,849.10	3,119.63	3,090.82	108.273	CC, ES
Simmons 42-20D - Original Drilling - Original Drilling - As	6,500.00	6,517.67	3,347.74	3,307.67	83.535	SF
Snider 1-20EG - Original Drilling - Original Drilling - As D	3,521.56	3,487.61	1,927.12	1,906.40	92.992	CC
Snider 1-20EG - Original Drilling - Original Drilling - As D	3,700.00	3,659.51	1,927.23	1,905.51	88.718	ES
Snider 1-20EG - Original Drilling - Original Drilling - As D	6,700.00	6,554.33	2,090.09	2,049.67	51.714	SF
Stump A20-11 - Original Drilling - Original Drilling - As Dr	4,482.49	4,479.64	2,525.63	2,499.01	94.882	CC
Stump A20-11 - Original Drilling - Original Drilling - As Dr	4,500.00	4,496.96	2,525.67	2,498.95	94.503	ES
Stump A20-11 - Original Drilling - Original Drilling - As Dr	6,600.00	6,657.25	2,770.57	2,730.10	68.473	SF
Stump A20-12 - Original Drilling - Original Drilling - As Dr	3,330.55	3,306.02	3,546.45	3,526.75	180.062	CC
Stump A20-12 - Original Drilling - Original Drilling - As Dr	3,400.00	3,355.46	3,546.61	3,526.61	177.275	ES
Stump A20-12 - Original Drilling - Original Drilling - As Dr	6,850.00	6,797.39	3,922.09	3,880.44	94.174	SF
Stump A20-13 - Original Drilling - Original Drilling - As Dr	4,238.04	4,206.81	3,178.32	3,153.33	127.175	CC
Stump A20-13 - Original Drilling - Original Drilling - As Dr	4,300.00	4,250.87	3,178.49	3,153.18	125.572	ES
Stump A20-13 - Original Drilling - Original Drilling - As Dr	7,050.00	6,765.92	3,400.32	3,358.09	80.514	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 Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 20						
Winter 20-19 - Original Drilling - Original Drilling - As Dril	316.38	284.39	4,844.45	4,842.75	2,848.909	CC
Winter 20-19 - Original Drilling - Original Drilling - As Dril	400.00	335.55	4,844.70	4,842.51	2,220.600	ES
Winter 20-19 - Original Drilling - Original Drilling - As Dril	12,600.00	12,600.00	8,922.54	8,843.91	113.468	SF
Winter 24-19 - Original Drilling - Original Drilling - As Dril	100.00	59.71	4,829.53	4,829.30	10,000.000	CC
Winter 24-19 - Original Drilling - Original Drilling - As Dril	400.00	327.48	4,830.91	4,828.68	2,165.265	ES
Winter 24-19 - Original Drilling - Original Drilling - As Dril	6,650.00	6,825.29	5,585.89	5,532.75	105.116	SF
Winter 39-19 - Original Drilling - Original Drilling - As Dril	4,492.57	4,624.02	3,967.09	3,932.42	114.431	CC
Winter 39-19 - Original Drilling - Original Drilling - As Dril	4,500.00	4,631.14	3,967.10	3,932.39	114.311	ES
Winter 39-19 - Original Drilling - Original Drilling - As Dril	7,600.00	6,883.74	4,450.42	4,397.38	83.904	SF
Winter 40-19 - Original Drilling - Original Drilling - As Dril	4,637.19	5,113.05	4,236.52	4,175.13	69.014	CC
Winter 40-19 - Original Drilling - Original Drilling - As Dril	4,700.00	5,164.39	4,237.09	4,175.06	68.300	ES
Winter 40-19 - Original Drilling - Original Drilling - As Dril	6,500.00	6,792.22	4,424.14	4,351.76	61.127	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 21						
Culbreath 23-21 - Original Drilling - Original Drilling - As Dr	1,413.69	1,409.76	3,977.43	3,967.96	419.734	CC
Culbreath 23-21 - Original Drilling - Original Drilling - As Dr	2,100.00	2,080.98	3,979.23	3,965.19	283.446	ES
Culbreath 23-21 - Original Drilling - Original Drilling - As Dr	6,850.00	6,722.39	4,176.49	4,134.99	100.637	SF
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	4,450.00	4,432.00	4,931.74	4,832.05	49.471	CC
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	6,300.00	6,266.89	4,941.79	4,800.01	34.855	ES
Culbreath 33-21 (PA) - Original Drilling - Original Drilling	6,900.00	6,716.47	5,067.22	4,914.53	33.186	SF
Harper A21-618 - Original Drilling - APD - Rev 1	6,196.91	6,178.47	2,242.82	2,205.21	59.636	CC
Harper A21-618 - Original Drilling - APD - Rev 1	6,200.00	6,179.16	2,242.82	2,205.20	59.617	ES
Harper A21-618 - Original Drilling - APD - Rev 1	6,450.00	6,250.00	2,260.22	2,221.67	58.635	SF
Harper A21-626 - Original Drilling - APD - Rev 1	2,659.86	2,681.11	2,360.60	2,343.96	141.849	CC
Harper A21-626 - Original Drilling - APD - Rev 1	5,300.00	5,307.45	2,363.93	2,331.82	73.613	ES
Harper A21-626 - Original Drilling - APD - Rev 1	6,450.00	6,270.85	2,400.12	2,361.05	61.440	SF
Harper A21-631 - Original Drilling - APD - Rev 1	2,107.81	2,128.81	2,365.46	2,351.13	165.041	CC
Harper A21-631 - Original Drilling - APD - Rev 1	2,300.00	2,308.53	2,365.78	2,350.75	157.408	ES
Harper A21-631 - Original Drilling - APD - Rev 1	6,400.00	6,200.00	2,544.35	2,505.59	65.632	SF
Harper A21-637 - Original Drilling - APD - Rev 1	1,907.81	1,928.81	2,370.73	2,357.61	180.757	CC
Harper A21-637 - Original Drilling - APD - Rev 1	2,100.00	2,104.87	2,371.14	2,356.89	166.462	ES
Harper A21-637 - Original Drilling - APD - Rev 1	6,550.00	6,295.18	2,769.51	2,729.63	69.447	SF
Harper A21-643 - Original Drilling - APD - Rev 1	4,830.52	5,031.98	2,866.33	2,836.65	96.597	CC
Harper A21-643 - Original Drilling - APD - Rev 1	5,300.00	5,505.98	2,868.28	2,835.59	87.736	ES
Harper A21-643 - Original Drilling - APD - Rev 1	6,450.00	6,250.00	2,939.71	2,900.94	75.826	SF
Harper A21-649 - Original Drilling - APD - Rev 1	4,511.09	4,587.42	3,012.68	2,985.29	109.995	CC, ES
Harper A21-649 - Original Drilling - APD - Rev 1	6,350.00	6,250.00	3,136.38	3,097.60	80.858	SF
Harper A21-656 - Original Drilling - APD - Rev 1	2,707.92	2,743.92	3,058.05	3,041.11	180.574	CC
Harper A21-656 - Original Drilling - APD - Rev 1	2,900.00	2,920.98	3,058.38	3,040.57	171.662	ES
Harper A21-656 - Original Drilling - APD - Rev 1	6,350.00	6,159.37	3,344.90	3,306.25	86.558	SF
Harper A21-664 - Original Drilling - APD - Rev 2	2,507.92	2,543.92	3,072.07	3,056.05	191.762	CC
Harper A21-664 - Original Drilling - APD - Rev 2	2,600.00	2,626.37	3,072.12	3,055.72	187.348	ES
Harper A21-664 - Original Drilling - APD - Rev 2	6,500.00	5,907.77	3,744.46	3,706.23	97.933	SF
Harper A21-669 - Original Drilling - APD - Rev 1	2,307.09	2,344.09	3,075.69	3,060.51	202.701	CC
Harper A21-669 - Original Drilling - APD - Rev 1	2,400.00	2,425.57	3,075.76	3,060.24	198.227	ES
Harper A21-669 - Original Drilling - APD - Rev 1	6,450.00	5,604.45	3,929.24	3,892.34	106.493	SF
Harper A21-674 - Original Drilling - APD - Rev 1	2,107.09	2,144.09	3,089.89	3,075.49	214.592	CC
Harper A21-674 - Original Drilling - APD - Rev 1	2,200.00	2,224.58	3,089.96	3,075.26	210.139	ES
Harper A21-674 - Original Drilling - APD - Rev 1	6,450.00	5,374.31	4,116.52	4,080.55	114.425	SF
Harper A21-681 - Original Drilling - APD - Rev 1	1,906.24	1,944.24	3,115.97	3,102.79	236.485	CC
Harper A21-681 - Original Drilling - APD - Rev 1	2,000.00	2,022.98	3,116.06	3,102.27	226.029	ES
Harper A21-681 - Original Drilling - APD - Rev 1	6,400.00	4,905.35	4,378.45	4,344.89	130.464	SF
Kona A19-616 - Kona A19-616 - Kona A19-616 - As Drill	6,586.55	9,352.42	406.45	357.16	8.245	CC
Kona A19-616 - Kona A19-616 - Kona A19-616 - As Drill	6,600.00	9,352.88	406.81	356.93	8.154	ES
Kona A19-616 - Kona A19-616 - Kona A19-616 - As Drill	6,650.00	9,354.91	414.46	362.62	7.995	SF
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	6,498.31	9,566.11	949.36	898.52	18.675	CC
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	6,500.00	9,566.07	949.36	898.49	18.662	ES
Kona A19-624 - Kona A19-624 - Kona A19-624 - As Drill	6,600.00	9,563.52	962.78	910.09	18.272	SF
Kona A19-636 - Kona A19-636 - Kona A19-636 - As Drill	6,361.17	9,640.54	1,605.43	1,551.12	29.562	CC, ES
Kona A19-636 - Kona A19-636 - Kona A19-636 - As Drill	6,500.00	9,634.00	1,626.23	1,570.44	29.150	SF
Kona A19-646 - Original Drilling - Original Drilling - As Dr	6,321.53	9,803.16	2,338.38	2,282.57	41.896	CC, ES
Kona A19-646 - Original Drilling - Original Drilling - As Dr	6,450.00	9,801.62	2,354.71	2,298.04	41.557	SF
Kona A19-662 - Original Drilling - Original Drilling - As Dr	1,880.49	1,918.60	3,210.03	3,197.16	249.506	CC
Kona A19-662 - Original Drilling - Original Drilling - As Dr	1,900.00	1,932.81	3,210.04	3,197.06	247.242	ES
Kona A19-662 - Original Drilling - Original Drilling - As Dr	6,500.00	9,446.00	3,371.08	3,317.88	63.366	SF
Kona A19-670 - Kona A19-670 - Original Drilling - As Drill	1,914.27	1,952.33	3,229.84	3,216.77	247.254	CC, ES
Kona A19-670 - Kona A19-670 - Original Drilling - As Drill	6,500.00	9,881.57	3,973.88	3,916.28	68.991	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 Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 21						
Kona A19-685 - Original Drilling - Original Drilling - As Dr	1,943.02	1,980.13	3,197.24	3,183.99	241.398	CC
Kona A19-685 - Original Drilling - Original Drilling - As Dr	2,000.00	2,018.52	3,197.40	3,183.94	237.440	ES
Kona A19-685 - Original Drilling - Original Drilling - As Dr	6,300.00	4,246.29	4,422.17	4,396.78	174.187	SF
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	4,450.00	4,468.00	3,350.62	3,250.20	33.366	CC
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	4,600.00	4,617.93	3,352.90	3,249.09	32.299	ES
McKee 12-21 (PA) - Original Drilling - Original Drilling - A	6,550.00	6,531.12	3,564.10	3,416.23	24.103	SF
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	4,450.00	4,484.00	5,393.26	5,292.52	53.538	CC
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	4,600.00	4,633.93	5,395.27	5,291.14	51.815	ES
McKee 21-21 (PA) - Original Drilling - Original Drilling - A	6,700.00	6,659.74	5,656.58	5,505.68	37.487	SF
McKee 22-21 - Original Drilling - Original Drilling - As Dril	0.00	11.91	4,371.46			
McKee 22-21 - Original Drilling - Original Drilling - As Dril	1,500.00	1,487.88	4,378.58	4,368.52	435.426	ES
McKee 22-21 - Original Drilling - Original Drilling - As Dril	6,750.00	6,661.38	4,663.21	4,622.21	113.732	SF
McKee 31-21 - Original Drilling - Original Drilling - As Dril	2,910.27	2,935.48	6,439.63	6,421.92	363.619	CC
McKee 31-21 - Original Drilling - Original Drilling - As Dril	3,500.00	3,500.00	6,440.47	6,419.73	310.460	ES
McKee 31-21 - Original Drilling - Original Drilling - As Dril	6,900.00	7,081.13	6,741.54	6,698.67	157.258	SF
McKee 32-21 - Original Drilling - Original Drilling - As Dril	3,208.67	3,210.55	5,417.69	5,398.47	281.967	CC
McKee 32-21 - Original Drilling - Original Drilling - As Dril	3,400.00	3,377.28	5,418.22	5,398.06	268.728	ES
McKee 32-21 - Original Drilling - Original Drilling - As Dril	6,950.00	6,775.96	5,738.15	5,696.17	136.701	SF
McKee 41-21 - Original Drilling - Original Drilling - As Dril	4,529.86	4,600.00	7,346.79	7,319.61	270.305	CC, ES
McKee 41-21 - Original Drilling - Original Drilling - As Dril	6,950.00	6,589.04	7,671.68	7,630.43	186.011	SF
McKee 42-21 - Original Drilling - Original Drilling - As Dril	4,727.37	4,788.83	6,588.60	6,560.26	232.522	CC
McKee 42-21 - Original Drilling - Original Drilling - As Dril	4,800.00	4,840.05	6,588.82	6,560.11	229.518	ES
McKee 42-21 - Original Drilling - Original Drilling - As Dril	7,100.00	6,837.59	6,853.29	6,810.68	160.833	SF
Rampart A33-730 - Rampart A33-730 - APD-Rev 1	1,908.34	1,928.34	2,480.90	2,467.97	191.729	CC
Rampart A33-730 - Rampart A33-730 - APD-Rev 1	2,000.00	2,000.00	2,480.99	2,467.48	183.648	ES
Rampart A33-730 - Rampart A33-730 - APD-Rev 1	16,790.15	17,720.27	5,250.59	5,070.56	29.165	SF
Rampart A33-740 - Rampart A33-740 - APD-Rev 0	1,907.81	1,928.81	2,458.41	2,445.47	189.994	CC
Rampart A33-740 - Rampart A33-740 - APD-Rev 0	2,000.00	2,000.00	2,458.50	2,444.99	181.984	ES
Rampart A33-740 - Rampart A33-740 - APD-Rev 0	16,790.15	17,515.21	4,604.46	4,425.02	25.660	SF
Rampart A33-750 - Rampart A33-750 - APD-Rev 0	1,907.81	1,928.81	2,436.12	2,423.18	188.271	CC
Rampart A33-750 - Rampart A33-750 - APD-Rev 0	2,000.00	2,000.00	2,436.21	2,422.70	180.334	ES
Rampart A33-750 - Rampart A33-750 - APD-Rev 0	16,790.15	17,093.98	3,932.03	3,752.91	21.951	SF
Rampart A33-760 - Rampart A33-760 - APD-Rev 1	1,908.33	1,928.33	2,413.83	2,400.89	186.545	CC
Rampart A33-760 - Rampart A33-760 - APD-Rev 1	2,000.00	2,000.00	2,413.91	2,400.40	178.683	ES
Rampart A33-760 - Rampart A33-760 - APD-Rev 1	16,790.15	16,956.23	3,297.34	3,118.52	18.439	SF
Rampart A33-770 - Rampart A33-770 - APD-Rev 0	1,907.81	1,928.81	2,391.46	2,378.52	184.818	CC
Rampart A33-770 - Rampart A33-770 - APD-Rev 0	2,000.00	2,015.31	2,391.48	2,377.94	176.663	ES
Rampart A33-770 - Rampart A33-770 - APD-Rev 0	16,790.15	16,811.58	2,609.40	2,430.19	14.561	SF
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	5,192.37	5,161.88	6,230.33	6,114.05	53.578	CC
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	6,300.00	6,258.89	6,232.77	6,091.15	44.010	ES
Sexton 43-21 (PA) - Original Drilling - Original Drilling - A	7,000.00	6,741.99	6,376.68	6,223.17	41.539	SF
Wells Trust 13-21 - Original Drilling - Original Drilling - As	4,582.02	4,613.92	2,423.97	2,396.61	88.615	CC
Wells Trust 13-21 - Original Drilling - Original Drilling - As	4,600.00	4,632.01	2,423.99	2,396.52	88.261	ES
Wells Trust 13-21 - Original Drilling - Original Drilling - As	6,550.00	6,509.97	2,550.97	2,511.13	64.037	SF
Wells Trust 14-21 - Original Drilling - Original Drilling - As	6,283.86	6,256.15	1,858.37	1,820.32	48.831	CC
Wells Trust 14-21 - Original Drilling - Original Drilling - As	6,300.00	6,272.46	1,858.43	1,820.26	48.693	ES
Wells Trust 14-21 - Original Drilling - Original Drilling - As	6,750.00	6,635.92	1,914.08	1,873.18	46.796	SF
Wells Trust 24-21 - Original Drilling - Original Drilling - As	6,269.20	6,200.99	2,707.14	2,669.31	71.555	CC
Wells Trust 24-21 - Original Drilling - Original Drilling - As	6,300.00	6,229.79	2,707.31	2,669.28	71.184	ES
Wells Trust 24-21 - Original Drilling - Original Drilling - As	6,900.00	6,667.66	2,791.77	2,750.28	67.281	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 28						
Ankeney 2-28 (SI) - Wellbore #1 - No Surveys	8,981.20	6,746.00	5,945.10	5,781.86	36.419	CC
Ankeney 2-28 (SI) - Wellbore #1 - No Surveys	9,000.00	6,746.00	5,945.13	5,781.77	36.392	ES
Ankeney 2-28 (SI) - Wellbore #1 - No Surveys	10,300.00	6,746.00	6,089.62	5,917.83	35.447	SF
Ankeney 28-01 (PA) - Wellbore #1 - Gyro Surveys	8,843.32	6,675.41	5,969.07	5,919.13	119.543	CC
Ankeney 28-01 (PA) - Wellbore #1 - Gyro Surveys	8,900.00	6,675.86	5,969.33	5,919.04	118.695	ES
Ankeney 28-01 (PA) - Wellbore #1 - Gyro Surveys	11,800.00	6,699.04	6,661.16	6,593.93	99.078	SF
Art Rohr 1 (PA) - Wellbore #1 - No Surveys	10,008.08	6,741.00	3,237.98	3,067.86	19.034	CC, ES
Art Rohr 1 (PA) - Wellbore #1 - No Surveys	10,400.00	6,741.00	3,261.61	3,088.80	18.874	SF
Danley 1 (TA) - Wellbore #1 - Gyro Surveys	7,128.42	6,725.99	2,208.99	2,166.56	52.056	CC, ES
Danley 1 (TA) - Wellbore #1 - Gyro Surveys	7,600.00	6,736.88	2,259.41	2,215.31	51.235	SF
Danley 12-28 (SI) - Wellbore #1 - Gyro Surveys	8,710.22	6,729.77	2,043.22	1,993.25	40.887	CC, ES
Danley 12-28 (SI) - Wellbore #1 - Gyro Surveys	9,100.00	6,746.39	2,080.00	2,027.72	39.782	SF
Danley 13-28 (PR) - Wellbore #1 - Gyro Surveys	10,032.90	6,703.92	2,002.45	1,943.74	34.104	CC, ES
Danley 13-28 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,708.46	2,035.82	1,974.80	33.363	SF
Danley 14-28 (PR) - Wellbore #1 - Gyro Surveys	11,379.51	6,686.69	1,982.73	1,914.12	28.901	CC
Danley 14-28 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	6,687.32	1,982.83	1,914.07	28.835	ES
Danley 14-28 (PR) - Wellbore #1 - Gyro Surveys	11,700.00	6,696.63	2,008.44	1,937.76	28.417	SF
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	7,475.59	6,655.52	3,292.06	3,248.70	75.934	CC
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	7,500.00	6,655.61	3,292.15	3,248.70	75.771	ES
Dewey 21-28 (TA) - Wellbore #1 - Gyro Surveys	8,600.00	6,660.00	3,478.78	3,430.27	71.717	SF
Dewey 22-28 (SI) - Wellbore #1 - Gyro Surveys	8,586.38	6,580.25	3,335.32	3,286.65	68.521	CC
Dewey 22-28 (SI) - Wellbore #1 - Gyro Surveys	8,600.00	6,580.81	3,335.35	3,286.59	68.403	ES
Dewey 22-28 (SI) - Wellbore #1 - Gyro Surveys	9,700.00	6,628.58	3,515.97	3,460.83	63.760	SF
Hannan Rohr 1 (PA) - Wellbore #1 - Gyro Surveys	11,408.59	6,715.20	3,279.26	3,210.48	47.674	CC, ES
Hannan Rohr 1 (PA) - Wellbore #1 - Gyro Surveys	12,200.00	6,712.73	3,373.41	3,299.62	45.715	SF
Rohr A 28-25 (SI) - Wellbore #1 - Gyro Surveys	10,523.22	6,643.88	2,788.60	2,726.54	44.934	CC, ES
Rohr A 28-25 (SI) - Wellbore #1 - Gyro Surveys	11,100.00	6,656.15	2,847.60	2,781.80	43.278	SF
Wardlaw 16-28 - Original Drilling - Original Drilling - As D	11,407.28	6,719.00	5,731.69	5,551.68	31.841	CC, ES
Wardlaw 16-28 - Original Drilling - Original Drilling - As D	12,500.00	6,719.00	5,834.92	5,647.19	31.081	SF
Wardlaw 16-28 (SI) - Wellbore #1 - Gyro Surveys	11,367.32	6,684.85	5,752.55	5,684.05	83.980	CC
Wardlaw 16-28 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,684.46	5,752.65	5,683.90	83.676	ES
Wardlaw 16-28 (SI) - Wellbore #1 - Gyro Surveys	13,500.00	6,660.54	6,135.11	6,053.28	74.976	SF
Wardlaw 20-28 - Original Drilling - Original Drilling - As D	10,754.57	6,714.00	5,421.07	5,246.07	30.976	CC
Wardlaw 20-28 - Original Drilling - Original Drilling - As D	10,800.00	6,714.00	5,421.27	5,245.92	30.917	ES
Wardlaw 20-28 - Original Drilling - Original Drilling - As D	11,800.00	6,714.00	5,520.96	5,338.66	30.284	SF
Wardlaw 20-28 (SI) - Wellbore #1 - Gyro Surveys	10,722.14	6,683.06	5,429.78	5,366.13	85.307	CC
Wardlaw 20-28 (SI) - Wellbore #1 - Gyro Surveys	10,800.00	6,682.38	5,430.34	5,366.11	84.544	ES
Wardlaw 20-28 (SI) - Wellbore #1 - Gyro Surveys	12,800.00	6,667.27	5,813.75	5,737.22	75.966	SF
Wardlaw 33-28 (PA) - Wellbore #1 - Gyro Surveys	9,547.83	6,000.00	4,161.70	4,109.16	79.206	CC
Wardlaw 33-28 (PA) - Wellbore #1 - Gyro Surveys	9,600.00	6,000.00	4,162.03	4,109.12	78.674	ES
Wardlaw 33-28 (PA) - Wellbore #1 - Gyro Surveys	16,400.00	7,529.51	7,876.57	7,688.96	41.985	SF
Webster 09-28 - Original Drilling - Original Drilling - As D	9,955.52	6,729.00	5,710.86	5,541.35	33.692	CC
Webster 09-28 - Original Drilling - Original Drilling - As D	10,000.00	6,729.00	5,711.03	5,541.21	33.629	ES
Webster 09-28 - Original Drilling - Original Drilling - As D	11,200.00	6,729.00	5,844.88	5,666.91	32.842	SF
Webster 15-28 (SI) - Wellbore #1 - Gyro Surveys	11,290.99	6,674.84	4,415.41	4,347.52	65.034	CC
Webster 15-28 (SI) - Wellbore #1 - Gyro Surveys	11,300.00	6,674.83	4,415.42	4,347.46	64.968	ES
Webster 15-28 (SI) - Wellbore #1 - Gyro Surveys	12,600.00	6,672.88	4,605.37	4,529.16	60.430	SF
Webster 9-28 (PR) - Wellbore #1 - Gyro Surveys	9,916.16	6,695.86	5,726.03	5,668.17	98.975	CC, ES
Webster 9-28 (PR) - Wellbore #1 - Gyro Surveys	12,400.00	6,687.45	6,241.53	6,168.55	85.523	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 Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 29						
Amos 1 (DA) - Wellbore #1 - No Surveys	10,041.79	3,800.00	4,182.33	4,095.86	48.367	CC, ES
Amos 1 (DA) - Wellbore #1 - No Surveys	11,600.00	3,800.00	4,463.18	4,365.03	45.473	SF
Anderson 3-29 (SI) - Wellbore #1 - Gyro Surveys	7,207.69	6,736.36	2,032.24	1,990.44	48.616	CC, ES
Anderson 3-29 (SI) - Wellbore #1 - Gyro Surveys	7,500.00	6,736.15	2,053.16	2,010.41	48.026	SF
Andy 29-1 (PA) - Wellbore #1 - No Surveys	8,751.14	6,738.00	1,954.53	1,792.89	12.092	CC, ES
Andy 29-1 (PA) - Wellbore #1 - No Surveys	8,900.00	6,738.00	1,960.19	1,797.71	12.064	SF
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	8,568.10	6,753.05	3,233.90	3,185.00	66.141	CC
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	8,600.00	6,752.90	3,234.05	3,184.98	65.898	ES
Andy 29-2 (PA) - Wellbore #1 - Gyro Surveys	9,500.00	6,748.67	3,365.49	3,311.57	62.424	SF
Capehart 1 (SI) - Wellbore #1 - Gyro Surveys	8,705.46	6,733.03	760.21	710.28	15.225	CC, ES
Capehart 1 (SI) - Wellbore #1 - Gyro Surveys	8,800.00	6,733.08	766.06	715.72	15.217	SF
Capehart 31-29 (TA) - Wellbore #1 - Gyro Surveys	7,355.69	6,748.48	450.63	407.38	10.419	CC, ES, SF
Capehart 41-29 (TA) - Wellbore #1 - Gyro Surveys	7,420.74	6,739.73	831.44	787.95	19.118	CC, ES
Capehart 41-29 (TA) - Wellbore #1 - Gyro Surveys	7,500.00	6,739.27	835.21	791.42	19.073	SF
Capehart 42-29 (SI) - Wellbore #1 - Gyro Surveys	8,807.95	6,736.53	2,240.37	2,189.79	44.292	CC, ES
Capehart 42-29 (SI) - Wellbore #1 - Gyro Surveys	9,300.00	6,734.06	2,293.77	2,240.58	43.125	SF
Miller 15-29 (PR) - Wellbore #1 - Gyro Surveys	11,089.42	6,778.85	637.70	571.02	9.564	CC, ES
Miller 15-29 (PR) - Wellbore #1 - Gyro Surveys	11,100.00	6,777.86	637.78	571.03	9.555	SF
Miller 16-29 (SI) - Wellbore #1 - Gyro Surveys	11,335.12	6,730.27	883.25	814.86	12.914	CC, ES
Miller 16-29 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,732.55	885.63	816.79	12.864	SF
Miller 33-29 (SI) - Wellbore #1 - Gyro Surveys	10,103.98	6,726.33	684.66	625.34	11.542	CC, ES, SF
Miller 43-29 (SI) - Wellbore #1 - Gyro Surveys	10,181.90	6,705.53	697.05	637.23	11.653	CC, ES
Miller 43-29 (SI) - Wellbore #1 - Gyro Surveys	10,200.00	6,705.50	697.28	637.33	11.631	SF
Rhine 15-29 (PR) - Wellbore #1 - Gyro Surveys	11,121.46	6,689.53	708.63	641.96	10.629	CC, ES, SF
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	11,275.21	6,727.23	3,335.59	3,267.65	49.096	CC
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	11,300.00	6,726.98	3,335.68	3,267.56	48.967	ES
Uhrich 1 (SI) - Wellbore #1 - Gyro Surveys	12,000.00	6,720.08	3,413.42	3,341.06	47.175	SF
Uhrich 13-29 (PR) - Wellbore #1 - Gyro Surveys	10,021.43	6,738.49	3,408.99	3,350.23	58.020	CC, ES
Uhrich 13-29 (PR) - Wellbore #1 - Gyro Surveys	10,900.00	6,742.15	3,520.38	3,456.38	55.010	SF
Uhrich 14-29 (SI) - Wellbore #1 - Gyro Surveys	11,452.51	6,647.53	1,839.27	1,770.32	26.675	CC, ES
Uhrich 14-29 (SI) - Wellbore #1 - Gyro Surveys	11,700.00	6,638.00	1,855.82	1,785.48	26.386	SF
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	10,799.22	6,726.80	2,476.86	2,412.47	38.469	CC
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	10,800.00	6,726.79	2,476.86	2,412.47	38.466	ES
Uhrich 19-29 (SI) - Wellbore #1 - Gyro Surveys	11,200.00	6,721.16	2,509.07	2,442.26	37.556	SF
Uhrich 23-29 (SI) - Wellbore #1 - Gyro Surveys	10,347.22	6,720.53	1,787.61	1,726.56	29.279	CC, ES
Uhrich 23-29 (SI) - Wellbore #1 - Gyro Surveys	10,600.00	6,719.55	1,805.40	1,742.88	28.879	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 Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 32						
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	15,180.28	6,808.17	3,360.98	3,262.07	33.978	CC
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	15,200.00	6,809.46	3,361.04	3,261.97	33.924	ES
Ehrlich 13-32 (PR) - Wellbore #1 - Gyro Surveys	15,700.00	6,839.64	3,400.76	3,298.50	33.256	SF
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	16,566.58	6,777.30	3,255.03	3,145.09	29.606	CC
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	16,600.00	6,776.18	3,255.20	3,145.00	29.539	ES
Ehrlich 14-32 (TA) - Wellbore #1 - Gyro Surveys	16,790.15	6,769.51	3,262.69	3,151.21	29.265	SF
Farmland 10-32 (SI) - Wellbore #1 - Gyro Surveys	15,389.44	6,701.68	690.43	590.22	6.889	CC, ES
Farmland 10-32 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,701.64	690.51	590.23	6.886	SF
Farmland 16-32 (SI) - Wellbore #1 - Gyro Surveys	16,616.88	6,717.71	679.89	569.82	6.177	CC, ES, SF
Hoffner 1 (PR) - Wellbore #1 - Gyro Surveys	12,649.07	6,699.18	669.48	591.07	8.538	CC, ES, SF
Hoffner 32-32 (SI) - Wellbore #1 - Gyro Surveys	13,984.29	6,690.23	682.87	593.95	7.680	CC, ES
Hoffner 32-32 (SI) - Wellbore #1 - Gyro Surveys	14,000.00	6,690.12	683.05	594.04	7.674	SF
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	14,277.97	6,776.32	3,055.32	2,963.75	33.367	CC
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,776.70	3,055.40	2,963.66	33.306	ES
Johnson 5-32 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	6,783.84	3,084.32	2,990.05	32.718	SF
Johnson A 32-06 (PR) - Wellbore #1 - Gyro Surveys	14,146.86	6,723.46	1,812.81	1,722.49	20.070	CC, ES
Johnson A 32-06 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,723.89	1,819.27	1,728.00	19.932	SF
Larsen 1 (PR) - Wellbore #1 - Gyro Surveys	12,692.10	6,706.44	625.86	547.08	7.944	CC
Larsen 1 (PR) - Wellbore #1 - Gyro Surveys	12,700.00	6,706.42	625.91	547.06	7.938	ES, SF
Larsen 2 (PR) - Wellbore #1 - Gyro Surveys	13,913.41	6,694.57	613.97	525.60	6.948	CC, ES, SF
Larsen A32-17 (PR) - Wellbore #1 - MWD Surveys	13,221.62	6,701.01	206.68	124.02	2.500	CC, ES, SF
QC USX A32-19 (PR) - Wellbore #1 - MWD Surveys	13,251.93	6,707.73	2,372.76	2,289.52	28.507	CC, ES
QC USX A32-19 (PR) - Wellbore #1 - MWD Surveys	13,600.00	6,712.78	2,398.15	2,312.82	28.105	SF
Rubix A 32-03 (PR) - Wellbore #1 - Gyro Surveys	12,454.33	6,703.19	1,890.71	1,813.77	24.574	CC, ES
Rubix A 32-03 (PR) - Wellbore #1 - Gyro Surveys	12,700.00	6,706.38	1,906.60	1,828.22	24.325	SF
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	12,462.30	6,719.00	3,225.23	3,037.10	17.144	CC
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	12,500.00	6,719.00	3,225.45	3,037.04	17.119	ES
Rubix A 32-04 (SI) - Wellbore #1 - No Surveys	12,800.00	6,719.00	3,242.86	3,052.44	17.029	SF
Webster 11-32 (PR) - Wellbore #1 - Gyro Surveys	15,169.66	6,713.23	1,760.64	1,662.17	17.880	CC, ES
Webster 11-32 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,714.85	1,765.46	1,666.18	17.782	SF
Webster 14-32 (TA) - Wellbore #1 - Gyro Surveys	16,790.15	6,667.91	1,985.26	1,875.70	18.121	CC, ES, SF
Webster 15-32 (PR) - Wellbore #1 - Gyro Surveys	16,556.27	6,685.71	578.32	468.78	5.280	CC, ES, SF
Webster 9-32 (SI) - Wellbore #1 - Gyro Surveys	15,216.48	6,696.58	638.45	539.69	6.465	CC, ES, SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	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						
A Section 33						
Achziger 11-33 (PR) - Wellbore #1 - Gyro Surveys	15,148.11	6,660.40	3,485.84	3,387.67	35.506	CC
Achziger 11-33 (PR) - Wellbore #1 - Gyro Surveys	15,200.00	6,660.91	3,486.23	3,387.63	35.359	ES
Achziger 11-33 (PR) - Wellbore #1 - Gyro Surveys	15,700.00	6,666.08	3,529.25	3,427.42	34.656	SF
Achziger 14-33 (PA) - Wellbore #1 - No Surveys	16,762.24	6,679.00	3,248.64	3,027.04	14.660	CC
Achziger 14-33 (PA) - Wellbore #1 - No Surveys	16,790.15	6,679.00	3,248.76	3,026.93	14.646	ES, SF
Briggs 15-33 (SI) - Wellbore #1 - Gyro Surveys	16,560.53	6,518.09	4,556.34	4,447.36	41.811	CC
Briggs 15-33 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,518.13	4,556.51	4,447.21	41.690	ES
Briggs 15-33 (SI) - Wellbore #1 - Gyro Surveys	16,790.15	6,518.31	4,562.12	4,451.36	41.190	SF
Ehrlich 19-33 (PR) - Wellbore #1 - Gyro Survey	15,979.84	6,683.90	2,461.24	2,356.35	23.464	CC
Ehrlich 19-33 (PR) - Wellbore #1 - Gyro Survey	16,000.00	6,683.99	2,461.33	2,356.26	23.427	ES
Ehrlich 19-33 (PR) - Wellbore #1 - Gyro Survey	16,300.00	6,685.37	2,481.98	2,375.05	23.212	SF
French 09-33 - Original Drilling - Original Drilling - As Dril	15,238.61	6,792.17	5,921.21	5,821.94	59.647	CC
French 09-33 - Original Drilling - Original Drilling - As Dril	15,300.00	6,791.27	5,921.53	5,821.77	59.355	ES
French 09-33 - Original Drilling - Original Drilling - As Dril	16,790.15	6,769.42	6,121.07	6,011.84	56.038	SF
Hammerbeck 16-33 - Original Drilling - Original Drilling -	16,655.44	6,823.52	5,976.25	5,865.48	53.951	CC
Hammerbeck 16-33 - Original Drilling - Original Drilling -	16,700.00	6,823.80	5,976.41	5,865.28	53.776	ES
Hammerbeck 16-33 - Original Drilling - Original Drilling -	16,790.15	6,824.36	5,977.77	5,865.91	53.440	SF
Hammerbeck 20-33 - Wellbore #1 - Gyro Surveys	15,927.09	6,786.39	5,214.86	5,110.23	49.837	CC
Hammerbeck 20-33 - Wellbore #1 - Gyro Surveys	16,000.00	6,785.50	5,215.37	5,110.15	49.563	ES
Hammerbeck 20-33 - Wellbore #1 - Gyro Surveys	16,790.15	6,775.86	5,285.79	5,175.18	47.787	SF
Noffsinger 11-33 (PR) - Wellbore #1 - Gyro Surveys	12,483.66	6,713.31	1,850.30	1,773.12	23.973	CC
Noffsinger 11-33 (PR) - Wellbore #1 - Gyro Surveys	12,500.00	6,713.40	1,850.37	1,773.06	23.933	ES
Noffsinger 11-33 (PR) - Wellbore #1 - Gyro Surveys	12,700.00	6,714.45	1,862.90	1,784.27	23.692	SF
Noffsinger 12-33 (PR) - Wellbore #1 - Gyro Surveys	14,215.16	6,693.50	2,036.87	1,946.06	22.430	CC, ES
Noffsinger 12-33 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,693.22	2,045.24	1,953.16	22.211	SF
Noffsinger 21-33 (PA) - Wellbore #1 - No Surveys	12,461.68	6,719.00	3,276.14	3,088.26	17.438	CC
Noffsinger 21-33 (PA) - Wellbore #1 - No Surveys	12,500.00	6,719.00	3,276.36	3,088.19	17.411	ES
Noffsinger 21-33 (PA) - Wellbore #1 - No Surveys	12,800.00	6,719.00	3,293.56	3,103.23	17.305	SF
Noffsinger 22-33 (PR) - Wellbore #1 - Gyro Surveys	12,437.33	6,380.51	4,817.25	4,741.47	63.571	CC
Noffsinger 22-33 (PR) - Wellbore #1 - Gyro Surveys	12,500.00	6,378.66	4,817.66	4,741.40	63.171	ES
Noffsinger 22-33 (PR) - Wellbore #1 - Gyro Surveys	13,800.00	6,335.52	5,006.04	4,921.69	59.346	SF
Noffsinger 31-33 (PR) - Wellbore #1 - Gyro Surveys						Out of range
Noffsinger 32-33 (PR) - Wellbore #1 - Gyro Surveys	14,236.41	6,454.78	4,467.72	4,377.58	49.562	CC
Noffsinger 32-33 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,456.06	4,468.17	4,377.51	49.286	ES
Noffsinger 32-33 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,478.41	4,592.49	4,495.50	47.352	SF
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	15,297.39	6,678.37	1,898.82	1,799.41	19.101	CC
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,678.36	1,898.82	1,799.39	19.097	ES
Sitzman 12-33 (PR) - Wellbore #1 - Gyro Surveys	15,500.00	6,677.92	1,909.60	1,808.90	18.963	SF
Sitzman 13-33 (SI) - Wellbore #1 - Gyro Surveys	16,790.15	6,681.58	1,900.20	1,788.86	17.066	CC, ES, SF
Sughrue 41-33 - Original Drilling - Original Drilling - As I	12,464.39	7,036.34	5,976.25	5,898.15	76.526	CC
Sughrue 41-33 - Original Drilling - Original Drilling - As I	12,500.00	7,034.65	5,976.35	5,897.98	76.257	ES
Sughrue 41-33 - Original Drilling - Original Drilling - As I	14,500.00	6,939.56	6,312.68	6,221.89	69.533	SF
Webster 10-33 (PA) - Wellbore #1 - Gyro Surveys	15,205.92	6,556.71	4,618.75	4,520.62	47.068	CC, ES
Webster 10-33 (PA) - Wellbore #1 - Gyro Surveys	16,200.00	6,544.79	4,724.50	4,619.99	45.206	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4736.00ft

Offset Depths are relative to Offset Datum

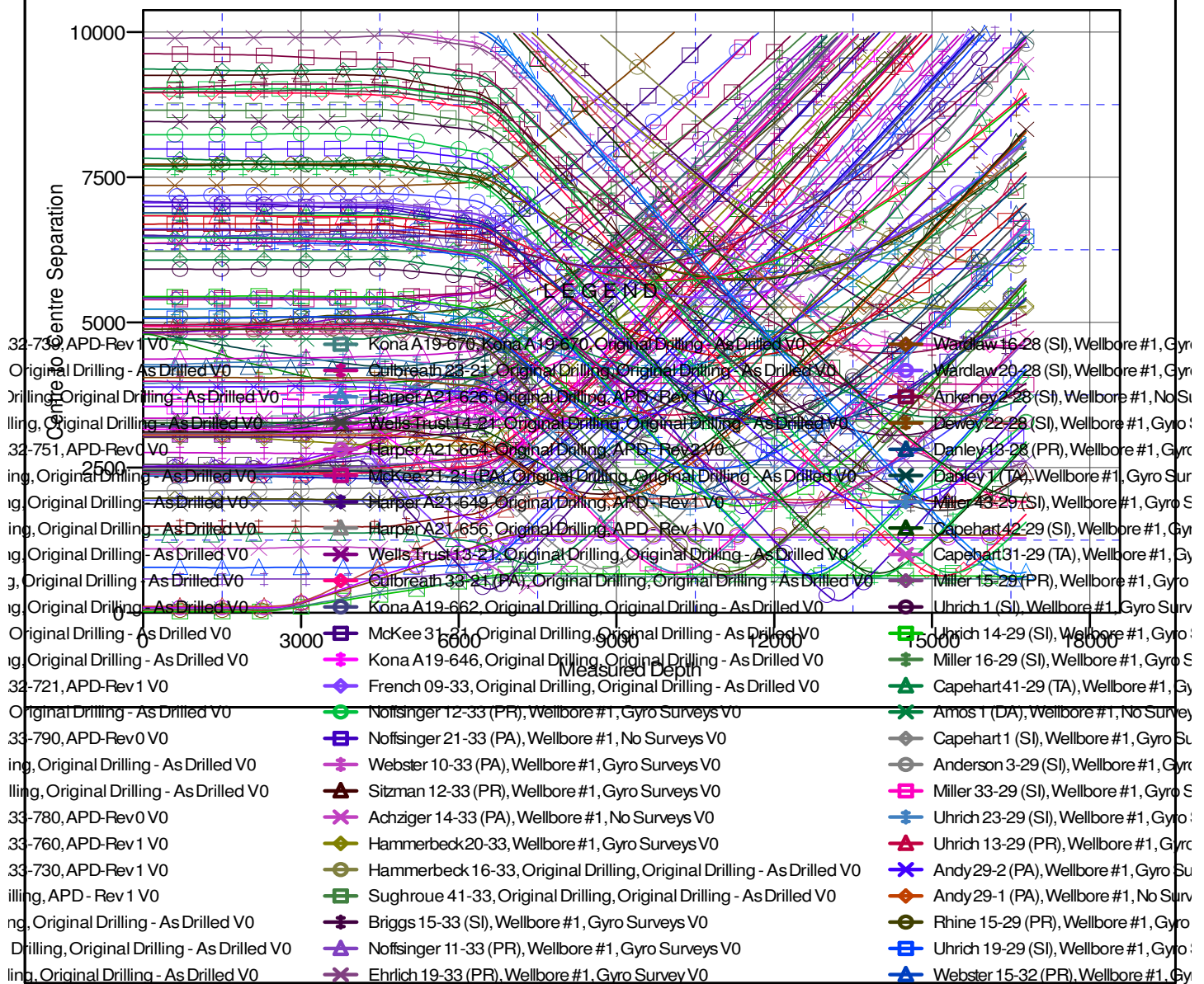
Central Meridian is -105.5000000

Coordinates are relative to: Rampart A32-730

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.60°

Ladder Plot



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

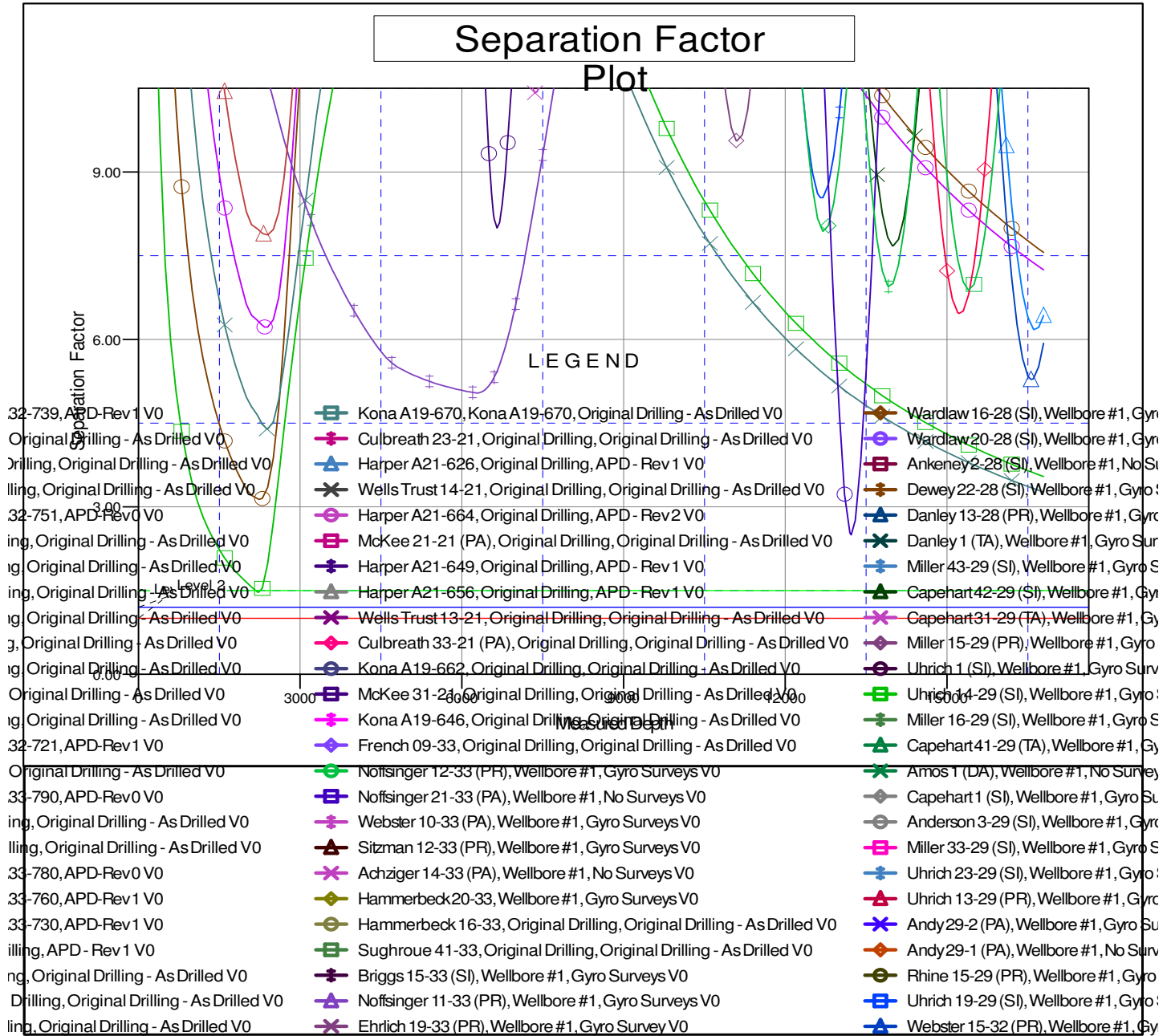
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Rampart A32-730
Project:	Wells Ranch	TVD Reference:	KB @ 4736.00ft
Reference Site:	A Section 20	MD Reference:	KB @ 4736.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Rampart A32-730	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Rampart A32-730	Database:	EDMP
Reference Design:	APD-Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4736.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Rampart A32-730
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.60°



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