

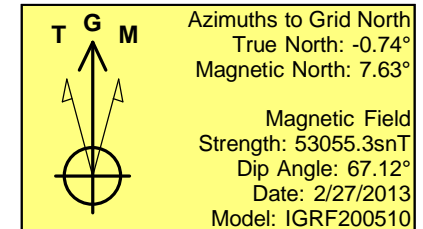
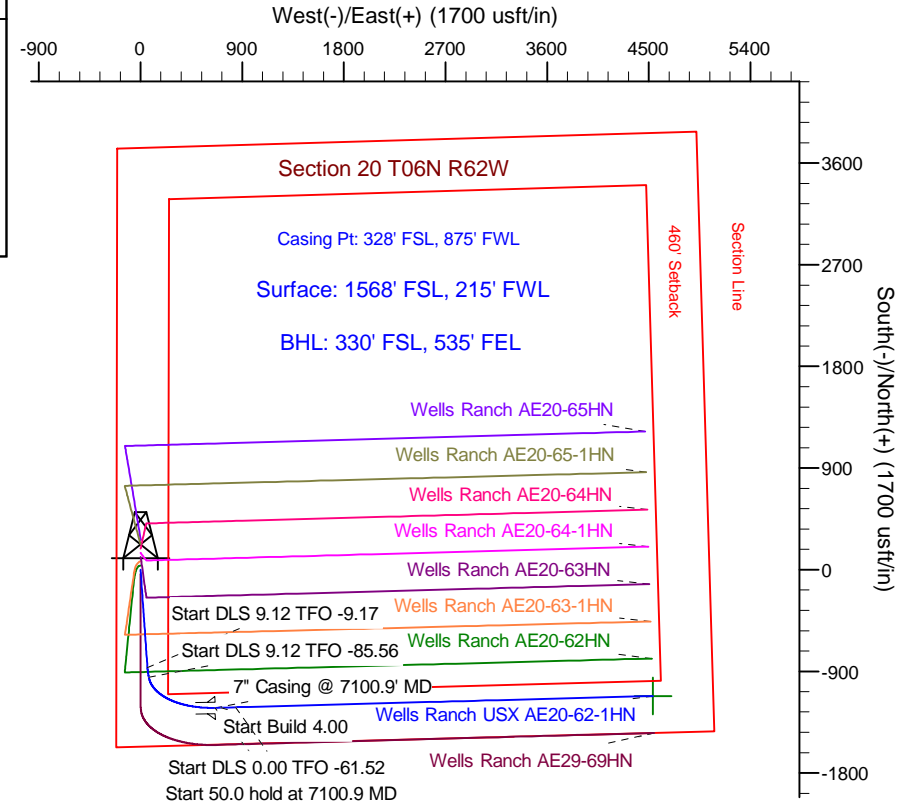
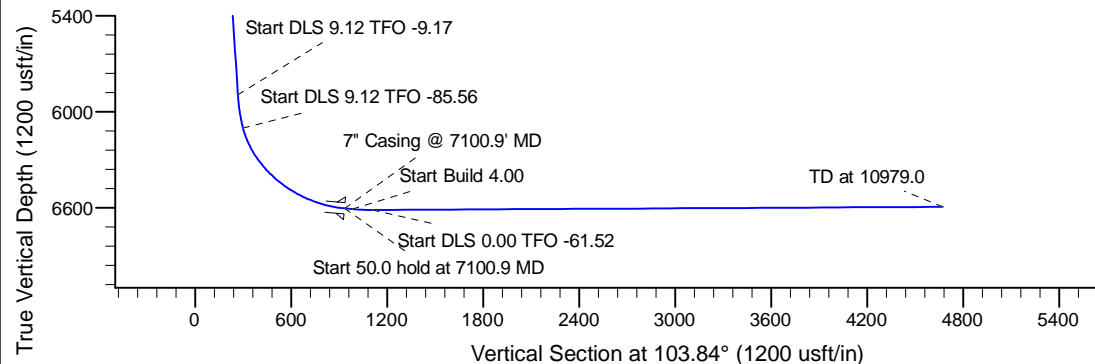
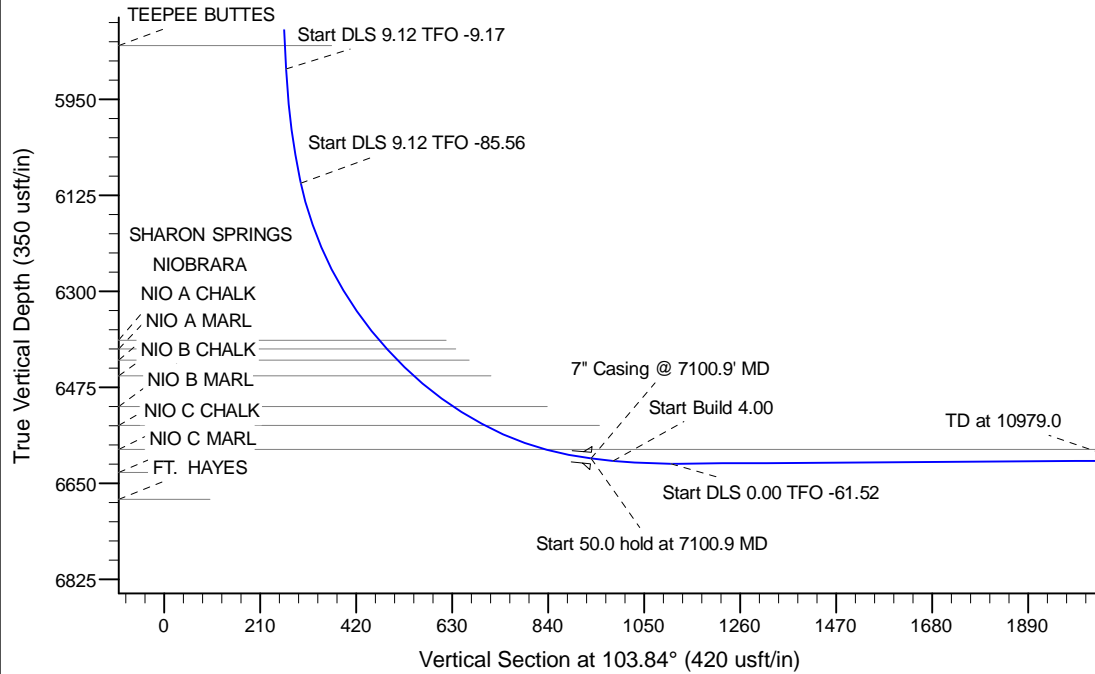
Project: Wattenberg Field
Site: AE (Sec.20-T06N-R62W) Weld County, CO
Well: Wells Ranch USX AE20-62-1HN
Wellbore: Original Drilling
Design: APD - Rev 0

Northern Region Drilling

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2100.0	12.00	176.00	2095.6	-62.5	4.4	2.00	176.00	19.2	
4	5983.7	12.00	176.00	5894.5	-868.0	60.7	0.00	0.00	266.6	
5	6209.8	32.51	170.01	6102.6	-952.1	73.0	9.12	-9.17	298.7	
6	7100.9	85.00	88.45	6604.2	-1223.0	660.0	9.12	-85.56	933.4	
7	7150.9	85.00	88.45	6608.6	-1221.7	709.8	0.00	0.00	981.5	
8	7283.4	90.30	88.45	6614.0	-1218.1	842.1	4.00	0.00	1109.1	
9	10979.0	90.30	88.44	6594.5	-1117.9	4536.4	0.00	-61.52	4672.1	Wells Ranch USX AE20-62-1HN BHL 330'FSL, 535'FEL



WELL DETAILS: Wells Ranch USX AE20-62-1HN				
Ground Level: 4785.0				
0.0	0.0	1415850.95	3318467.86	40.469270
Longitude: -104.355330				
Plan: APD - Rev 0 (Wells Ranch USX AE20-62-1HN/Original Drilling)				
Created By: Shailey Jewell		Date: 15:43, March 07 2013		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region Drilling

Wattenberg Field

AE (06N-62W)

Wells Ranch USX AE20-62-1HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

07 March, 2013

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Project	Wattenberg Field, Weld County CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	AE (06N-62W)		
Site Position:		Northing:	1,425,696.50 usft
From:	Lat/Long	Easting:	3,326,750.02 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40.495996
		Longitude:	-104.325096
		Grid Convergence:	0.76 °

Well	Wells Ranch USX AE20-62-1HN		
Well Position	+N/-S	-9,845.9 usft	Northing: 1,415,850.95 usft
	+E/-W	-8,282.4 usft	Easting: 3,318,467.86 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Latitude: 40.469270
			Longitude: -104.355330
			Ground Level: 4,785.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/27/2013	8.37	67.12	53,055

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	103.84

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,100.0	12.00	176.00	2,095.6	-62.5	4.4	2.00	2.00	0.00	176.00	
5,983.7	12.00	176.00	5,894.5	-868.0	60.7	0.00	0.00	0.00	0.00	
6,209.8	32.51	170.01	6,102.6	-952.1	73.0	9.12	9.08	-2.65	-9.17	
7,100.9	85.00	88.45	6,604.2	-1,223.0	660.0	9.12	5.89	-9.15	-85.56	
7,150.9	85.00	88.45	6,608.6	-1,221.7	709.8	0.00	0.00	0.00	0.00	
7,283.4	90.30	88.45	6,614.0	-1,218.1	842.1	4.00	4.00	0.00	0.00	
10,979.0	90.30	88.44	6,594.5	-1,117.9	4,536.4	0.00	0.00	0.00	-61.52	Wells Ranch USX AE

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,080.0	0.00	0.00	1,080.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,250.0	0.00	0.00	1,250.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,350.0	0.00	0.00	1,350.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,450.0	0.00	0.00	1,450.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,550.0	1.00	176.00	1,550.0	-0.4	0.0	0.1	2.00	2.00	0.00
1,600.0	2.00	176.00	1,600.0	-1.7	0.1	0.5	2.00	2.00	0.00
1,650.0	3.00	176.00	1,649.9	-3.9	0.3	1.2	2.00	2.00	0.00
1,700.0	4.00	176.00	1,699.8	-7.0	0.5	2.1	2.00	2.00	0.00
1,750.0	5.00	176.00	1,749.7	-10.9	0.8	3.3	2.00	2.00	0.00
1,800.0	6.00	176.00	1,799.5	-15.7	1.1	4.8	2.00	2.00	0.00
1,850.0	7.00	176.00	1,849.1	-21.3	1.5	6.5	2.00	2.00	0.00
1,900.0	8.00	176.00	1,898.7	-27.8	1.9	8.5	2.00	2.00	0.00
1,950.0	9.00	176.00	1,948.2	-35.2	2.5	10.8	2.00	2.00	0.00
2,000.0	10.00	176.00	1,997.5	-43.4	3.0	13.3	2.00	2.00	0.00
2,050.0	11.00	176.00	2,046.6	-52.5	3.7	16.1	2.00	2.00	0.00
2,100.0	12.00	176.00	2,095.6	-62.5	4.4	19.2	2.00	2.00	0.00
2,150.0	12.00	176.00	2,144.5	-72.8	5.1	22.4	0.00	0.00	0.00
2,200.0	12.00	176.00	2,193.4	-83.2	5.8	25.6	0.00	0.00	0.00
2,250.0	12.00	176.00	2,242.3	-93.6	6.5	28.7	0.00	0.00	0.00
2,300.0	12.00	176.00	2,291.3	-103.9	7.3	31.9	0.00	0.00	0.00
2,350.0	12.00	176.00	2,340.2	-114.3	8.0	35.1	0.00	0.00	0.00
2,400.0	12.00	176.00	2,389.1	-124.7	8.7	38.3	0.00	0.00	0.00
2,450.0	12.00	176.00	2,438.0	-135.0	9.4	41.5	0.00	0.00	0.00
2,500.0	12.00	176.00	2,486.9	-145.4	10.2	44.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,550.0	12.00	176.00	2,535.8	-155.8	10.9	47.9	0.00	0.00	0.00
2,600.0	12.00	176.00	2,584.7	-166.2	11.6	51.0	0.00	0.00	0.00
2,650.0	12.00	176.00	2,633.6	-176.5	12.3	54.2	0.00	0.00	0.00
2,700.0	12.00	176.00	2,682.5	-186.9	13.1	57.4	0.00	0.00	0.00
2,750.0	12.00	176.00	2,731.4	-197.3	13.8	60.6	0.00	0.00	0.00
2,800.0	12.00	176.00	2,780.3	-207.6	14.5	63.8	0.00	0.00	0.00
2,850.0	12.00	176.00	2,829.2	-218.0	15.2	67.0	0.00	0.00	0.00
2,900.0	12.00	176.00	2,878.1	-228.4	16.0	70.1	0.00	0.00	0.00
2,950.0	12.00	176.00	2,927.0	-238.7	16.7	73.3	0.00	0.00	0.00
3,000.0	12.00	176.00	2,976.0	-249.1	17.4	76.5	0.00	0.00	0.00
3,050.0	12.00	176.00	3,024.9	-259.5	18.1	79.7	0.00	0.00	0.00
3,100.0	12.00	176.00	3,073.8	-269.9	18.9	82.9	0.00	0.00	0.00
3,150.0	12.00	176.00	3,122.7	-280.2	19.6	86.1	0.00	0.00	0.00
3,200.0	12.00	176.00	3,171.6	-290.6	20.3	89.3	0.00	0.00	0.00
3,250.0	12.00	176.00	3,220.5	-301.0	21.0	92.4	0.00	0.00	0.00
3,300.0	12.00	176.00	3,269.4	-311.3	21.8	95.6	0.00	0.00	0.00
3,350.0	12.00	176.00	3,318.3	-321.7	22.5	98.8	0.00	0.00	0.00
3,400.0	12.00	176.00	3,367.2	-332.1	23.2	102.0	0.00	0.00	0.00
3,450.0	12.00	176.00	3,416.1	-342.4	23.9	105.2	0.00	0.00	0.00
3,500.0	12.00	176.00	3,465.0	-352.8	24.7	108.4	0.00	0.00	0.00
3,536.8	12.00	176.00	3,501.0	-360.4	25.2	110.7	0.00	0.00	0.00
PARKMAN									
3,550.0	12.00	176.00	3,513.9	-363.2	25.4	111.6	0.00	0.00	0.00
3,600.0	12.00	176.00	3,562.8	-373.6	26.1	114.7	0.00	0.00	0.00
3,650.0	12.00	176.00	3,611.8	-383.9	26.8	117.9	0.00	0.00	0.00
3,700.0	12.00	176.00	3,660.7	-394.3	27.6	121.1	0.00	0.00	0.00
3,750.0	12.00	176.00	3,709.6	-404.7	28.3	124.3	0.00	0.00	0.00
3,800.0	12.00	176.00	3,758.5	-415.0	29.0	127.5	0.00	0.00	0.00
3,850.0	12.00	176.00	3,807.4	-425.4	29.7	130.7	0.00	0.00	0.00
3,900.0	12.00	176.00	3,856.3	-435.8	30.5	133.9	0.00	0.00	0.00
3,950.0	12.00	176.00	3,905.2	-446.1	31.2	137.0	0.00	0.00	0.00
4,000.0	12.00	176.00	3,954.1	-456.5	31.9	140.2	0.00	0.00	0.00
4,050.0	12.00	176.00	4,003.0	-466.9	32.6	143.4	0.00	0.00	0.00
4,073.5	12.00	176.00	4,026.0	-471.8	33.0	144.9	0.00	0.00	0.00
SUSSEX									
4,100.0	12.00	176.00	4,051.9	-477.3	33.4	146.6	0.00	0.00	0.00
4,150.0	12.00	176.00	4,100.8	-487.6	34.1	149.8	0.00	0.00	0.00
4,200.0	12.00	176.00	4,149.7	-498.0	34.8	153.0	0.00	0.00	0.00
4,250.0	12.00	176.00	4,198.6	-508.4	35.5	156.2	0.00	0.00	0.00
4,300.0	12.00	176.00	4,247.5	-518.7	36.3	159.3	0.00	0.00	0.00
4,350.0	12.00	176.00	4,296.5	-529.1	37.0	162.5	0.00	0.00	0.00
4,400.0	12.00	176.00	4,345.4	-539.5	37.7	165.7	0.00	0.00	0.00
4,450.0	12.00	176.00	4,394.3	-549.9	38.4	168.9	0.00	0.00	0.00
4,500.0	12.00	176.00	4,443.2	-560.2	39.2	172.1	0.00	0.00	0.00
4,550.0	12.00	176.00	4,492.1	-570.6	39.9	175.3	0.00	0.00	0.00
4,600.0	12.00	176.00	4,541.0	-581.0	40.6	178.4	0.00	0.00	0.00
4,650.0	12.00	176.00	4,589.9	-591.3	41.4	181.6	0.00	0.00	0.00
4,700.0	12.00	176.00	4,638.8	-601.7	42.1	184.8	0.00	0.00	0.00
4,750.0	12.00	176.00	4,687.7	-612.1	42.8	188.0	0.00	0.00	0.00
4,800.0	12.00	176.00	4,736.6	-622.4	43.5	191.2	0.00	0.00	0.00
4,850.0	12.00	176.00	4,785.5	-632.8	44.3	194.4	0.00	0.00	0.00
4,881.2	12.00	176.00	4,816.0	-639.3	44.7	196.4	0.00	0.00	0.00
SHANNON									

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.0	12.00	176.00	4,834.4	-643.2	45.0	197.6	0.00	0.00	0.00
4,950.0	12.00	176.00	4,883.3	-653.6	45.7	200.7	0.00	0.00	0.00
5,000.0	12.00	176.00	4,932.3	-663.9	46.4	203.9	0.00	0.00	0.00
5,050.0	12.00	176.00	4,981.2	-674.3	47.2	207.1	0.00	0.00	0.00
5,100.0	12.00	176.00	5,030.1	-684.7	47.9	210.3	0.00	0.00	0.00
5,150.0	12.00	176.00	5,079.0	-695.0	48.6	213.5	0.00	0.00	0.00
5,200.0	12.00	176.00	5,127.9	-705.4	49.3	216.7	0.00	0.00	0.00
5,250.0	12.00	176.00	5,176.8	-715.8	50.1	219.9	0.00	0.00	0.00
5,300.0	12.00	176.00	5,225.7	-726.1	50.8	223.0	0.00	0.00	0.00
5,350.0	12.00	176.00	5,274.6	-736.5	51.5	226.2	0.00	0.00	0.00
5,400.0	12.00	176.00	5,323.5	-746.9	52.2	229.4	0.00	0.00	0.00
5,450.0	12.00	176.00	5,372.4	-757.3	53.0	232.6	0.00	0.00	0.00
5,500.0	12.00	176.00	5,421.3	-767.6	53.7	235.8	0.00	0.00	0.00
5,550.0	12.00	176.00	5,470.2	-778.0	54.4	239.0	0.00	0.00	0.00
5,600.0	12.00	176.00	5,519.1	-788.4	55.1	242.2	0.00	0.00	0.00
5,650.0	12.00	176.00	5,568.0	-798.7	55.9	245.3	0.00	0.00	0.00
5,700.0	12.00	176.00	5,617.0	-809.1	56.6	248.5	0.00	0.00	0.00
5,750.0	12.00	176.00	5,665.9	-819.5	57.3	251.7	0.00	0.00	0.00
5,800.0	12.00	176.00	5,714.8	-829.8	58.0	254.9	0.00	0.00	0.00
5,850.0	12.00	176.00	5,763.7	-840.2	58.8	258.1	0.00	0.00	0.00
5,900.0	12.00	176.00	5,812.6	-850.6	59.5	261.3	0.00	0.00	0.00
5,940.3	12.00	176.00	5,852.0	-858.9	60.1	263.8	0.00	0.00	0.00
TEEPEE BUTTES									
5,950.0	12.00	176.00	5,861.5	-861.0	60.2	264.5	0.00	0.00	0.00
5,983.7	12.00	176.00	5,894.5	-867.9	60.7	266.6	0.00	0.00	0.00
Start DLS 9.12 TFO -9.17									
6,000.0	13.47	174.99	5,910.4	-871.5	61.0	267.7	9.09	8.99	-6.22
6,050.0	17.99	172.89	5,958.5	-885.0	62.4	272.4	9.12	9.05	-4.20
6,100.0	22.53	171.61	6,005.4	-902.1	64.8	278.8	9.12	9.08	-2.55
6,150.0	27.07	170.75	6,050.7	-922.9	68.0	286.9	9.12	9.09	-1.73
6,200.0	31.62	170.12	6,094.3	-947.0	72.1	296.6	9.12	9.10	-1.26
6,209.8	32.51	170.01	6,102.6	-952.1	73.0	298.7	9.09	9.07	-1.07
Start DLS 9.12 TFO -85.56									
6,250.0	32.98	163.28	6,136.4	-973.3	78.0	308.6	9.13	1.16	-16.74
6,300.0	34.04	155.25	6,178.1	-999.0	87.8	324.3	9.12	2.13	-16.07
6,350.0	35.59	147.73	6,219.2	-1,024.1	101.4	343.5	9.12	3.11	-15.02
6,400.0	37.58	140.84	6,259.4	-1,048.2	118.8	366.2	9.12	3.97	-13.78
6,450.0	39.93	134.59	6,298.4	-1,071.3	139.9	392.2	9.12	4.70	-12.50
6,500.0	42.58	128.96	6,336.0	-1,093.2	164.5	421.3	9.12	5.30	-11.26
6,550.0	45.47	123.90	6,371.9	-1,113.8	192.5	453.4	9.12	5.80	-10.13
6,574.7	46.98	121.59	6,389.0	-1,123.4	207.4	470.2	9.12	6.11	-9.37
SHARON SPRINGS									
6,598.4	48.48	119.46	6,405.0	-1,132.3	222.6	487.1	9.12	6.29	-8.93
NIOBRARA									
6,600.0	48.58	119.33	6,406.0	-1,132.9	223.6	488.2	9.12	6.37	-8.70
6,629.2	50.47	116.86	6,425.0	-1,143.4	243.2	509.7	9.12	6.47	-8.45
NIO A CHALK									
6,650.0	51.84	115.18	6,438.0	-1,150.5	257.8	525.5	9.12	6.62	-8.06
6,676.4	53.62	113.15	6,454.0	-1,159.1	276.9	546.2	9.12	6.74	-7.72
NIO A MARL									
6,700.0	55.24	111.40	6,467.8	-1,166.3	294.7	565.2	9.12	6.86	-7.39
6,750.0	58.74	107.93	6,495.0	-1,180.4	334.2	606.9	9.12	7.01	-6.95
6,779.8	60.88	105.97	6,510.0	-1,187.9	358.9	632.7	9.12	7.15	-6.54

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
NIO B CHALK									
6,800.0	62.34	104.70	6,519.6	-1,192.6	376.0	650.4	9.12	7.23	-6.31
6,850.0	66.00	101.68	6,541.4	-1,202.9	419.8	695.4	9.12	7.32	-6.04
6,856.5	66.48	101.30	6,544.0	-1,204.1	425.6	701.3	9.12	7.39	-5.83
NIO B MARL									
6,900.0	69.72	98.83	6,560.2	-1,211.1	465.3	741.6	9.12	7.44	-5.68
6,950.0	73.48	96.12	6,576.0	-1,217.3	512.3	788.7	9.12	7.52	-5.43
6,997.2	77.06	93.65	6,588.0	-1,221.1	557.8	833.8	9.12	7.59	-5.23
NIO C CHALK									
7,000.0	77.28	93.51	6,588.6	-1,221.3	560.5	836.5	9.12	7.62	-5.14
7,050.0	81.10	90.97	6,598.0	-1,223.2	609.6	884.6	9.12	7.64	-5.07
7,100.0	84.93	88.49	6,604.1	-1,223.0	659.2	932.7	9.12	7.67	-4.96
7,100.9	85.00	88.45	6,604.2	-1,223.0	660.0	933.5	8.81	7.43	-4.76
Start 50.0 hold at 7100.9 MD - 7" Casing @ 7100.9' MD									
7,150.0	85.00	88.45	6,608.5	-1,221.7	708.9	980.6	0.00	0.00	0.00
7,150.9	85.00	88.45	6,608.6	-1,221.7	709.8	981.5	0.00	0.00	0.00
Start Build 4.00									
7,200.0	86.97	88.45	6,612.0	-1,220.3	758.8	1,028.7	4.00	4.00	0.00
7,250.0	88.97	88.45	6,613.8	-1,219.0	808.7	1,076.9	4.00	4.00	0.00
7,283.4	90.30	88.45	6,614.0	-1,218.1	842.1	1,109.1	4.00	4.00	0.00
Start DLS 0.00 TFO -61.52									
7,300.0	90.30	88.45	6,613.9	-1,217.6	858.7	1,125.1	0.00	0.00	0.00
7,350.0	90.30	88.45	6,613.6	-1,216.3	908.7	1,173.3	0.00	0.00	0.00
7,400.0	90.30	88.45	6,613.4	-1,214.9	958.7	1,221.5	0.00	0.00	0.00
7,450.0	90.30	88.45	6,613.1	-1,213.6	1,008.7	1,269.7	0.00	0.00	0.00
7,500.0	90.30	88.45	6,612.9	-1,212.2	1,058.6	1,317.9	0.00	0.00	0.00
7,550.0	90.30	88.45	6,612.6	-1,210.9	1,108.6	1,366.1	0.00	0.00	0.00
7,600.0	90.30	88.45	6,612.3	-1,209.5	1,158.6	1,414.3	0.00	0.00	0.00
7,650.0	90.30	88.45	6,612.1	-1,208.2	1,208.6	1,462.5	0.00	0.00	0.00
7,700.0	90.30	88.45	6,611.8	-1,206.8	1,258.6	1,510.7	0.00	0.00	0.00
7,750.0	90.30	88.45	6,611.5	-1,205.4	1,308.5	1,559.0	0.00	0.00	0.00
7,800.0	90.30	88.45	6,611.3	-1,204.1	1,358.5	1,607.2	0.00	0.00	0.00
7,850.0	90.30	88.45	6,611.0	-1,202.7	1,408.5	1,655.4	0.00	0.00	0.00
7,900.0	90.30	88.45	6,610.8	-1,201.4	1,458.5	1,703.6	0.00	0.00	0.00
7,950.0	90.30	88.45	6,610.5	-1,200.0	1,508.5	1,751.8	0.00	0.00	0.00
8,000.0	90.30	88.45	6,610.2	-1,198.7	1,558.4	1,800.0	0.00	0.00	0.00
8,050.0	90.30	88.45	6,610.0	-1,197.3	1,608.4	1,848.2	0.00	0.00	0.00
8,100.0	90.30	88.45	6,609.7	-1,196.0	1,658.4	1,896.4	0.00	0.00	0.00
8,150.0	90.30	88.45	6,609.4	-1,194.6	1,708.4	1,944.6	0.00	0.00	0.00
8,200.0	90.30	88.45	6,609.2	-1,193.3	1,758.4	1,992.8	0.00	0.00	0.00
8,250.0	90.30	88.45	6,608.9	-1,191.9	1,808.3	2,041.0	0.00	0.00	0.00
8,300.0	90.30	88.45	6,608.7	-1,190.6	1,858.3	2,089.2	0.00	0.00	0.00
8,350.0	90.30	88.45	6,608.4	-1,189.2	1,908.3	2,137.4	0.00	0.00	0.00
8,400.0	90.30	88.45	6,608.1	-1,187.8	1,958.3	2,185.6	0.00	0.00	0.00
8,450.0	90.30	88.45	6,607.9	-1,186.5	2,008.3	2,233.8	0.00	0.00	0.00
8,500.0	90.30	88.45	6,607.6	-1,185.1	2,058.3	2,282.0	0.00	0.00	0.00
8,550.0	90.30	88.45	6,607.3	-1,183.8	2,108.2	2,330.2	0.00	0.00	0.00
8,600.0	90.30	88.45	6,607.1	-1,182.4	2,158.2	2,378.4	0.00	0.00	0.00
8,650.0	90.30	88.45	6,606.8	-1,181.1	2,208.2	2,426.6	0.00	0.00	0.00
8,700.0	90.30	88.45	6,606.6	-1,179.7	2,258.2	2,474.9	0.00	0.00	0.00
8,750.0	90.30	88.45	6,606.3	-1,178.4	2,308.2	2,523.1	0.00	0.00	0.00
8,800.0	90.30	88.45	6,606.0	-1,177.0	2,358.1	2,571.3	0.00	0.00	0.00
8,850.0	90.30	88.45	6,605.8	-1,175.7	2,408.1	2,619.5	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,900.0	90.30	88.45	6,605.5	-1,174.3	2,458.1	2,667.7	0.00	0.00	0.00
8,950.0	90.30	88.45	6,605.2	-1,172.9	2,508.1	2,715.9	0.00	0.00	0.00
9,000.0	90.30	88.45	6,605.0	-1,171.6	2,558.1	2,764.1	0.00	0.00	0.00
9,050.0	90.30	88.45	6,604.7	-1,170.2	2,608.0	2,812.3	0.00	0.00	0.00
9,100.0	90.30	88.45	6,604.4	-1,168.9	2,658.0	2,860.5	0.00	0.00	0.00
9,150.0	90.30	88.45	6,604.2	-1,167.5	2,708.0	2,908.7	0.00	0.00	0.00
9,200.0	90.30	88.45	6,603.9	-1,166.2	2,758.0	2,956.9	0.00	0.00	0.00
9,250.0	90.30	88.45	6,603.7	-1,164.8	2,808.0	3,005.1	0.00	0.00	0.00
9,300.0	90.30	88.45	6,603.4	-1,163.4	2,857.9	3,053.3	0.00	0.00	0.00
9,350.0	90.30	88.45	6,603.1	-1,162.1	2,907.9	3,101.5	0.00	0.00	0.00
9,400.0	90.30	88.45	6,602.9	-1,160.7	2,957.9	3,149.7	0.00	0.00	0.00
9,450.0	90.30	88.45	6,602.6	-1,159.4	3,007.9	3,197.9	0.00	0.00	0.00
9,500.0	90.30	88.45	6,602.3	-1,158.0	3,057.9	3,246.1	0.00	0.00	0.00
9,550.0	90.30	88.45	6,602.1	-1,156.7	3,107.9	3,294.3	0.00	0.00	0.00
9,600.0	90.30	88.45	6,601.8	-1,155.3	3,157.8	3,342.5	0.00	0.00	0.00
9,650.0	90.30	88.45	6,601.5	-1,154.0	3,207.8	3,390.7	0.00	0.00	0.00
9,700.0	90.30	88.45	6,601.3	-1,152.6	3,257.8	3,438.9	0.00	0.00	0.00
9,750.0	90.30	88.44	6,601.0	-1,151.2	3,307.8	3,487.1	0.00	0.00	0.00
9,800.0	90.30	88.44	6,600.7	-1,149.9	3,357.8	3,535.4	0.00	0.00	0.00
9,850.0	90.30	88.44	6,600.5	-1,148.5	3,407.7	3,583.6	0.00	0.00	0.00
9,900.0	90.30	88.44	6,600.2	-1,147.2	3,457.7	3,631.8	0.00	0.00	0.00
9,950.0	90.30	88.44	6,600.0	-1,145.8	3,507.7	3,680.0	0.00	0.00	0.00
10,000.0	90.30	88.44	6,599.7	-1,144.5	3,557.7	3,728.2	0.00	0.00	0.00
10,050.0	90.30	88.44	6,599.4	-1,143.1	3,607.7	3,776.4	0.00	0.00	0.00
10,100.0	90.30	88.44	6,599.2	-1,141.7	3,657.6	3,824.6	0.00	0.00	0.00
10,150.0	90.30	88.44	6,598.9	-1,140.4	3,707.6	3,872.8	0.00	0.00	0.00
10,200.0	90.30	88.44	6,598.6	-1,139.0	3,757.6	3,921.0	0.00	0.00	0.00
10,250.0	90.30	88.44	6,598.4	-1,137.7	3,807.6	3,969.2	0.00	0.00	0.00
10,300.0	90.30	88.44	6,598.1	-1,136.3	3,857.6	4,017.4	0.00	0.00	0.00
10,350.0	90.30	88.44	6,597.8	-1,134.9	3,907.5	4,065.6	0.00	0.00	0.00
10,400.0	90.30	88.44	6,597.6	-1,133.6	3,957.5	4,113.8	0.00	0.00	0.00
10,450.0	90.30	88.44	6,597.3	-1,132.2	4,007.5	4,162.0	0.00	0.00	0.00
10,500.0	90.30	88.44	6,597.0	-1,130.9	4,057.5	4,210.2	0.00	0.00	0.00
10,550.0	90.30	88.44	6,596.8	-1,129.5	4,107.5	4,258.4	0.00	0.00	0.00
10,600.0	90.30	88.44	6,596.5	-1,128.2	4,157.4	4,306.6	0.00	0.00	0.00
10,650.0	90.30	88.44	6,596.2	-1,126.8	4,207.4	4,354.8	0.00	0.00	0.00
10,700.0	90.30	88.44	6,596.0	-1,125.4	4,257.4	4,403.0	0.00	0.00	0.00
10,750.0	90.30	88.44	6,595.7	-1,124.1	4,307.4	4,451.2	0.00	0.00	0.00
10,800.0	90.30	88.44	6,595.5	-1,122.7	4,357.4	4,499.4	0.00	0.00	0.00
10,850.0	90.30	88.44	6,595.2	-1,121.4	4,407.4	4,547.6	0.00	0.00	0.00
10,900.0	90.30	88.44	6,594.9	-1,120.0	4,457.3	4,595.8	0.00	0.00	0.00
10,950.0	90.30	88.44	6,594.7	-1,118.6	4,507.3	4,644.0	0.00	0.00	0.00
10,979.0	90.30	88.44	6,594.5	-1,117.9	4,536.3	4,672.0	0.00	0.00	0.00
TD at 10979.0 - Wells Ranch USX AE20-62-1HN BHL 330'FSL, 535'FEL									

Noble Energy Inc

Planning Report

Database:	edm10p	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Wells Ranch USX AE20-	0.00	0.00	6,594.5	-1,117.9	4,536.4	1,414,733.13	3,323,004.05	40.466040	-104.339080
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,100.9	6,604.2	7" Casing @ 7100.9' MD	7	8-3/4

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,080.0	1,080.0	PIERRE		0.00		
3,536.8	3,501.0	PARKMAN		0.00		
4,073.5	4,026.0	SUSSEX		0.00		
4,881.2	4,816.0	SHANNON		0.00		
5,940.3	5,852.0	TEEPEE BUTTES		0.00		
6,574.7	6,389.0	SHARON SPRINGS		0.00		
6,598.4	6,405.0	NIOBRARA		0.00		
6,629.2	6,425.0	NIO A CHALK		0.00		
6,676.4	6,454.0	NIO A MARL		0.00		
6,779.8	6,510.0	NIO B CHALK		0.00		
6,856.5	6,544.0	NIO B MARL		0.00		
6,997.2	6,588.0	NIO C CHALK		0.00		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,500.0	1,500.0	0.0	0.0	KOP - Start Build 2.00
5,983.7	5,894.5	-867.9	60.7	Start DLS 9.12 TFO -9.17
6,209.8	6,102.6	-952.1	73.0	Start DLS 9.12 TFO -85.56
7,100.9	6,604.2	-1,223.0	660.0	Start 50.0 hold at 7100.9 MD
7,150.9	6,608.6	-1,221.7	709.8	Start Build 4.00
7,283.4	6,614.0	-1,218.1	842.1	Start DLS 0.00 TFO -61.52
10,979.0	6,594.5	-1,117.9	4,536.3	TD at 10979.0

Northern Region Drilling

Wattenberg Field

AE (06N-62W)

Wells Ranch USX AE20-62-1HN

Original Drilling

APD - Rev 0

Anticollision Summary Report

07 March, 2013

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Wells Ranch USX AE20-62-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4815.0usft (Original Well Elev)
Reference Site:	AE (06N-62W)	MD Reference:	WELL @ 4815.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	edm10p
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 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	3/7/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	10,979.0	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AE (06N-62W)						
Wells Ranch AE20-62HN - Original Drilling - APD - Rev 0	1,469.6	1,471.0	34.7	28.4	5.576	CC
Wells Ranch AE20-62HN - Original Drilling - APD - Rev 0	1,500.0	1,501.5	34.7	28.4	5.476	ES
Wells Ranch AE20-62HN - Original Drilling - APD - Rev 0	10,979.0	11,036.6	340.6	95.2	1.388	Level 3, SF
Wells Ranch AE20-63-1HN - Original Drilling - APD - Re	1,500.0	1,500.0	76.6	70.1	11.868	CC, ES
Wells Ranch AE20-63-1HN - Original Drilling - APD - Re	10,979.0	11,041.6	659.5	407.4	2.616	SF
Wells Ranch AE20-63HN - Original Drilling - APD - Rev 0	1,500.0	1,500.0	113.0	106.5	17.512	CC, ES
Wells Ranch AE20-63HN - Original Drilling - APD - Rev 0	10,979.0	10,722.4	994.1	746.4	4.013	SF
Wells Ranch AE20-64-1HN - Original Drilling - APD - Re	1,500.0	1,500.0	149.4	142.9	23.159	CC, ES
Wells Ranch AE20-64-1HN - Original Drilling - APD - Re	10,979.0	10,753.4	1,322.7	1,074.1	5.321	SF
Wells Ranch AE20-64HN - Original Drilling - APD - Rev 0	1,500.0	1,500.0	185.8	179.4	28.806	CC, ES
Wells Ranch AE20-64HN - Original Drilling - APD - Rev 0	10,979.0	10,687.8	1,652.4	1,404.4	6.662	SF
Wells Ranch AE20-65-1HN - Original Drilling - APD - Re	1,500.0	1,500.0	225.9	219.4	35.018	CC, ES
Wells Ranch AE20-65-1HN - Original Drilling - APD - Re	10,979.0	10,982.5	1,982.2	1,730.6	7.879	SF
Wells Ranch AE20-65HN - Original Drilling - APD - Rev 0	1,500.0	1,500.0	262.4	255.9	40.671	CC, ES
Wells Ranch AE20-65HN - Original Drilling - APD - Rev 0	10,979.0	10,950.1	2,344.2	2,092.9	9.331	SF
Wells Ranch AE29-69HN - Original Drilling - APD - Rev 0	1,000.0	1,000.0	36.4	32.2	8.669	CC, ES
Wells Ranch AE29-69HN - Original Drilling - APD - Rev 0	10,979.0	11,079.6	327.9	77.1	1.308	Level 3, SF

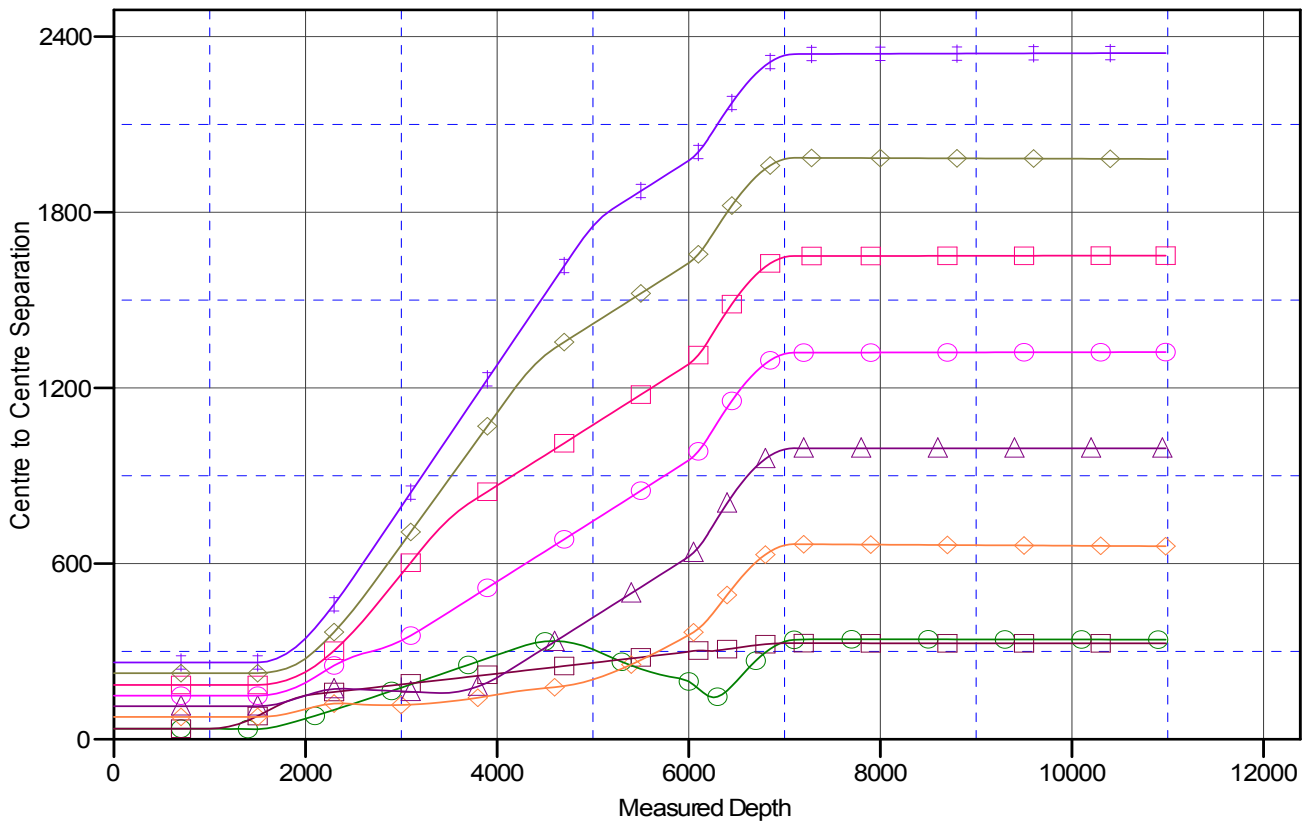
Noble Energy Inc
Anticollision Summary Report

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Reference Well:	Wells Ranch USX AE20-62-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	edm10p
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4815.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch USX AE20-62-1HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°

Ladder Plot



LEGEND

AE20-65HN, Original Drilling, APD - Rev0 V0	Wells Ranch AE20-64-1HN, Original Drilling, APD - Rev0 V0	Wells Ranch AE20-63-1HN, Original Drilling, APD - Rev0 V0
AE20-64HN, Original Drilling, APD - Rev0 V0	Wells Ranch AE29-69HN, Original Drilling, APD - Rev0 V0	Wells Ranch AE20-63HN, Original Drilling, APD - Rev0 V0
AE20-62HN, Original Drilling, APD - Rev0 V0	Wells Ranch AE20-65-1HN, Original Drilling, APD - Rev0 V0	

Noble Energy Inc
Anticollision Summary Report

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Offset Depths are relative to Offset Datum
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Coordinates are relative to: Wells Ranch USX AE20-62-1HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°

