

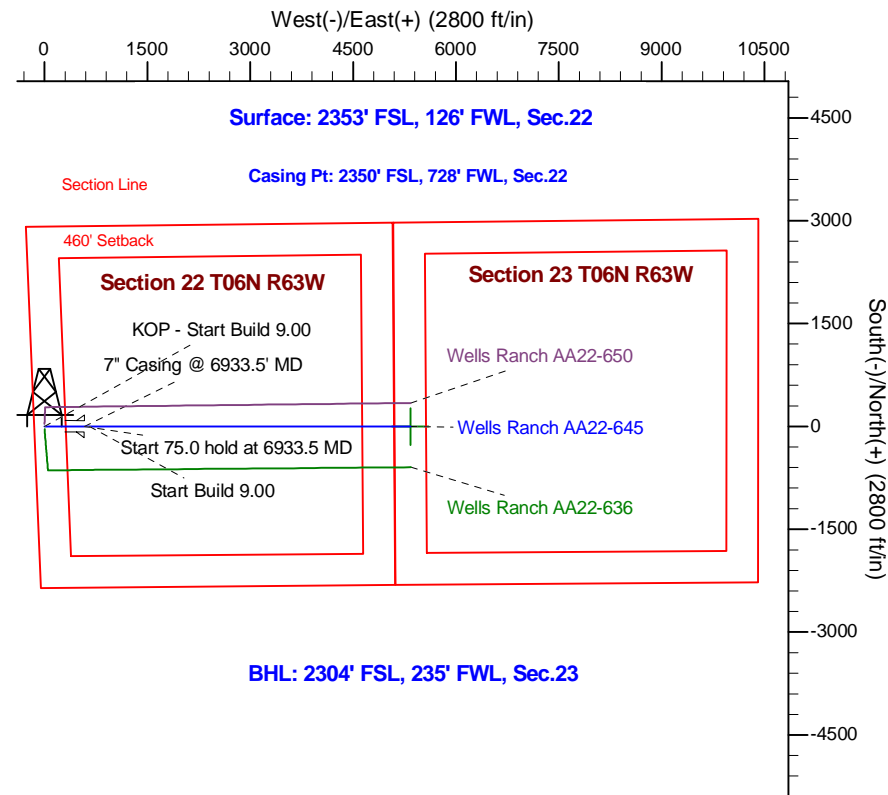
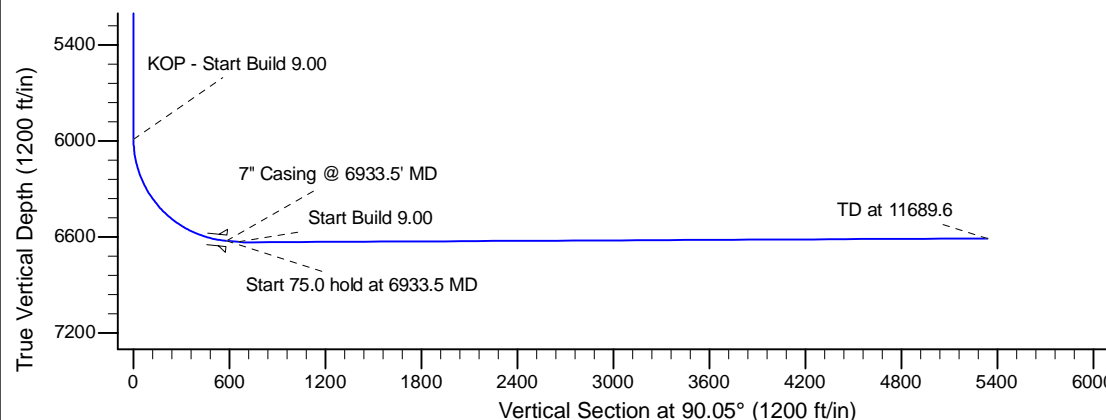
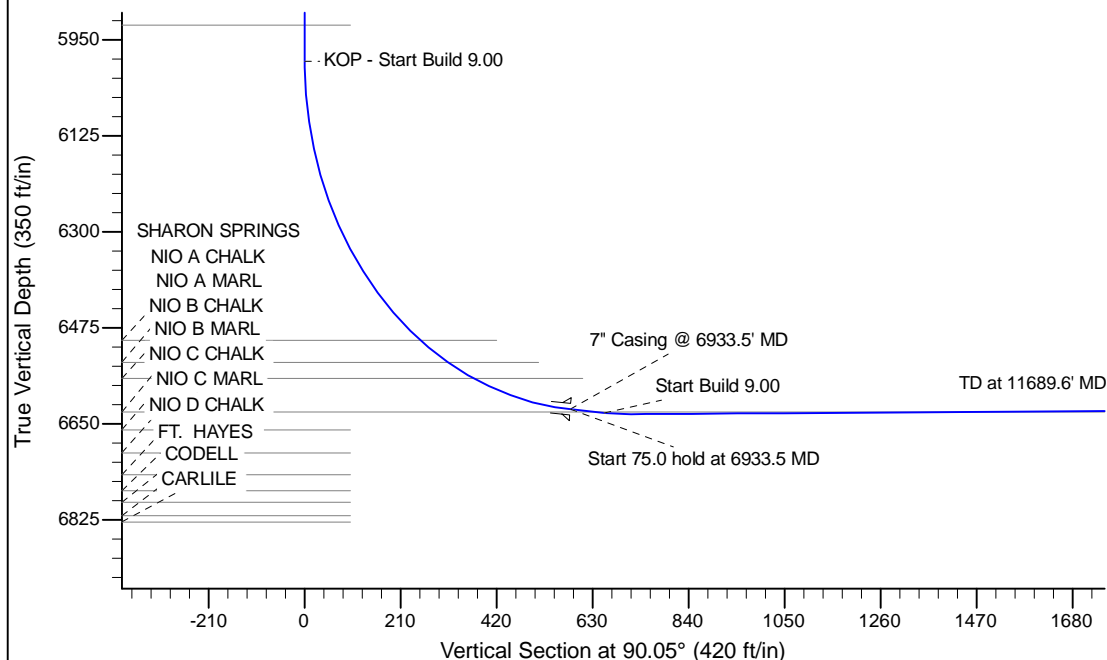
Project: Wattenberg Field
 Site: AA (Sec.22-T06N-R63W) Weld County, CO
 Well: Wells Ranch AA22-645
 Wellbore: Original Drilling
 Design: APD - Rev 0

Northern Region Drilling - Working

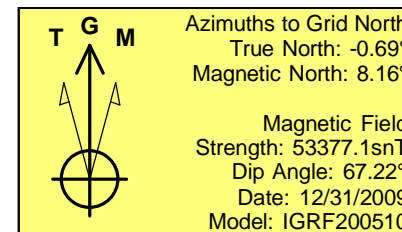
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5989.1	0.00	0.00	5989.1	0.0	0.0	0.00	0.00	0.0	
3	6933.5	85.00	90.05	6623.3	-0.5	581.1	9.00	90.05	581.1	
4	7008.5	85.00	90.05	6629.8	-0.5	655.9	0.00	0.00	655.9	
5	7067.4	90.30	90.05	6632.2	-0.6	714.7	9.00	0.00	714.7	
6	11689.6	90.30	90.05	6608.0	-4.4	5336.9	0.00	0.00	5336.9	Wells Ranch AA22-645 BHL 2304'FSL, 235'FWL



BHL: 2304' FSL, 235' FWL, Sec.23



WELL DETAILS: Wells Ranch AA22-645

	Ground Level:4756.0				
	Northing	Easting	Latitude	Longitude	
0.0	0.0	1416335.56	3297156.73	40.471330	-104.431900

Plan: APD - Rev 0 (Wells Ranch AA22-645/Original Drilling)

Created By: Shailey Jewell Date: 10:08, April 13 2015

OK to submit with 2A as per Noble Drilling
 4/13/2015 10:15

Northern Region Drilling - Working

Wattenberg Field

AA (06N-63W)

Wells Ranch AA22-645

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

13 April, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	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	AA (06N-63W)			
Site Position:		Northing:	1,427,844.88 usft	Latitude: 40.502740
From:	Lat/Long	Easting:	3,302,558.01 usft	Longitude: -104.411980
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.70 °

Well	Wells Ranch AA22-645			
Well Position	+N/-S	-11,509.7 ft	Northing:	1,416,335.56 usft
	+E/-W	-5,401.5 ft	Easting:	3,297,156.73 usft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	4,756.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.85	67.22	53,377

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	90.05

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
5,989.1	0.00	0.00	5,989.1	0.0	0.0	0.00	0.00	0.00	0.00	
6,933.5	85.00	90.05	6,623.3	-0.5	581.1	9.00	9.00	0.00	90.05	
7,008.5	85.00	90.05	6,629.8	-0.5	655.9	0.00	0.00	0.00	0.00	
7,067.4	90.30	90.05	6,632.2	-0.6	714.7	9.00	9.00	0.00	0.00	
11,689.6	90.30	90.05	6,608.0	-4.4	5,336.9	0.00	0.00	0.00	0.00	Wells Ranch AA22-64

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
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 (°/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
491.0	0.00	0.00	491.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
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
1,100.0	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
1,550.0	0.00	0.00	1,550.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,650.0	0.00	0.00	1,650.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,750.0	0.00	0.00	1,750.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,850.0	0.00	0.00	1,850.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,950.0	0.00	0.00	1,950.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,050.0	0.00	0.00	2,050.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,150.0	0.00	0.00	2,150.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,250.0	0.00	0.00	2,250.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,350.0	0.00	0.00	2,350.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,450.0	0.00	0.00	2,450.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,550.0	0.00	0.00	2,550.0	0.0	0.0	0.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,650.0	0.00	0.00	2,650.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,750.0	0.00	0.00	2,750.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,850.0	0.00	0.00	2,850.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,950.0	0.00	0.00	2,950.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,050.0	0.00	0.00	3,050.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,150.0	0.00	0.00	3,150.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,250.0	0.00	0.00	3,250.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,350.0	0.00	0.00	3,350.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,450.0	0.00	0.00	3,450.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,550.0	0.00	0.00	3,550.0	0.0	0.0	0.0	0.00	0.00	0.00
3,582.0	0.00	0.00	3,582.0	0.0	0.0	0.0	0.00	0.00	0.00
PARKMAN									
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,650.0	0.00	0.00	3,650.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,750.0	0.00	0.00	3,750.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,850.0	0.00	0.00	3,850.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,950.0	0.00	0.00	3,950.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,050.0	0.00	0.00	4,050.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,150.0	0.00	0.00	4,150.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,250.0	0.00	0.00	4,250.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,350.0	0.00	0.00	4,350.0	0.0	0.0	0.0	0.00	0.00	0.00
4,398.0	0.00	0.00	4,398.0	0.0	0.0	0.0	0.00	0.00	0.00
SUSSEX									
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,450.0	0.00	0.00	4,450.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,550.0	0.00	0.00	4,550.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,650.0	0.00	0.00	4,650.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,750.0	0.00	0.00	4,750.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,850.0	0.00	0.00	4,850.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,950.0	0.00	0.00	4,950.0	0.0	0.0	0.0	0.00	0.00	0.00
4,955.0	0.00	0.00	4,955.0	0.0	0.0	0.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
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Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHANNON									
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,050.0	0.00	0.00	5,050.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,150.0	0.00	0.00	5,150.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,250.0	0.00	0.00	5,250.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,350.0	0.00	0.00	5,350.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,450.0	0.00	0.00	5,450.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,550.0	0.00	0.00	5,550.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,650.0	0.00	0.00	5,650.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,750.0	0.00	0.00	5,750.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,850.0	0.00	0.00	5,850.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,923.0	0.00	0.00	5,923.0	0.0	0.0	0.0	0.00	0.00	0.00
TEEPEE BUTTES									
5,950.0	0.00	0.00	5,950.0	0.0	0.0	0.0	0.00	0.00	0.00
5,989.1	0.00	0.00	5,989.1	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 9.00									
6,000.0	0.99	90.05	6,000.0	0.0	0.1	0.1	8.99	8.99	0.00
6,050.0	5.49	90.05	6,049.9	0.0	2.9	2.9	9.00	9.00	0.00
6,100.0	9.99	90.05	6,099.5	0.0	9.6	9.6	9.00	9.00	0.00
6,150.0	14.49	90.05	6,148.3	0.0	20.2	20.2	9.00	9.00	0.00
6,200.0	18.99	90.05	6,196.2	0.0	34.6	34.6	9.00	9.00	0.00
6,250.0	23.49	90.05	6,242.8	0.0	52.7	52.7	9.00	9.00	0.00
6,300.0	27.99	90.05	6,287.8	-0.1	74.4	74.4	9.00	9.00	0.00
6,350.0	32.49	90.05	6,331.0	-0.1	99.6	99.6	9.00	9.00	0.00
6,400.0	36.99	90.05	6,372.1	-0.1	128.1	128.1	9.00	9.00	0.00
6,450.0	41.49	90.05	6,410.8	-0.1	159.7	159.7	9.00	9.00	0.00
6,500.0	45.99	90.05	6,446.9	-0.2	194.3	194.3	9.00	9.00	0.00
6,550.0	50.49	90.05	6,480.2	-0.2	231.6	231.6	9.00	9.00	0.00
6,578.8	53.08	90.05	6,498.0	-0.2	254.2	254.2	9.00	9.00	0.00
SHARON SPRINGS									
6,600.0	54.99	90.05	6,510.5	-0.2	271.3	271.3	8.99	8.99	0.00
6,650.0	59.49	90.05	6,537.5	-0.3	313.4	313.4	9.00	9.00	0.00
6,651.0	59.57	90.05	6,538.0	-0.3	314.2	314.2	9.12	9.12	0.00
NIO A CHALK									
6,700.0	63.99	90.05	6,561.2	-0.3	357.4	357.4	9.00	9.00	0.00
6,713.6	65.21	90.05	6,567.0	-0.3	369.7	369.7	9.01	9.01	0.00
NIO A MARL									
6,750.0	68.49	90.05	6,581.3	-0.3	403.2	403.2	9.00	9.00	0.00
6,800.0	72.99	90.05	6,597.8	-0.4	450.3	450.3	9.00	9.00	0.00
6,850.0	77.49	90.05	6,610.6	-0.4	498.7	498.7	9.00	9.00	0.00
6,900.0	81.99	90.05	6,619.5	-0.4	547.9	547.9	9.00	9.00	0.00
6,933.5	85.00	90.05	6,623.3	-0.5	581.1	581.1	9.00	9.00	0.00
Start 75.0 hold at 6933.5 MD - 7" Casing @ 6933.5' MD									
6,950.0	85.00	90.05	6,624.7	-0.5	597.6	597.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,988.0	85.00	90.05	6,628.0	-0.5	635.4	635.4	0.00	0.00	0.00
NIO B CHALK									
7,000.0	85.00	90.05	6,629.0	-0.5	647.4	647.4	0.00	0.00	0.00
7,008.5	85.00	90.05	6,629.8	-0.5	655.9	655.9	0.00	0.00	0.00
Start Build 9.00									
7,050.0	88.74	90.05	6,632.1	-0.6	697.3	697.3	9.00	9.00	0.00
7,067.4	90.30	90.05	6,632.2	-0.6	714.7	714.7	9.01	9.01	0.00
7,100.0	90.30	90.05	6,632.0	-0.6	747.3	747.3	0.00	0.00	0.00
7,150.0	90.30	90.05	6,631.8	-0.7	797.3	797.3	0.00	0.00	0.00
7,200.0	90.30	90.05	6,631.5	-0.7	847.3	847.3	0.00	0.00	0.00
7,250.0	90.30	90.05	6,631.2	-0.7	897.3	897.3	0.00	0.00	0.00
7,300.0	90.30	90.05	6,631.0	-0.8	947.3	947.3	0.00	0.00	0.00
7,350.0	90.30	90.05	6,630.7	-0.8	997.3	997.3	0.00	0.00	0.00
7,400.0	90.30	90.05	6,630.5	-0.9	1,047.3	1,047.3	0.00	0.00	0.00
7,450.0	90.30	90.05	6,630.2	-0.9	1,097.3	1,097.3	0.00	0.00	0.00
7,500.0	90.30	90.05	6,629.9	-0.9	1,147.3	1,147.3	0.00	0.00	0.00
7,550.0	90.30	90.05	6,629.7	-1.0	1,197.3	1,197.3	0.00	0.00	0.00
7,600.0	90.30	90.05	6,629.4	-1.0	1,247.3	1,247.3	0.00	0.00	0.00
7,650.0	90.30	90.05	6,629.2	-1.1	1,297.3	1,297.3	0.00	0.00	0.00
7,700.0	90.30	90.05	6,628.9	-1.1	1,347.3	1,347.3	0.00	0.00	0.00
7,750.0	90.30	90.05	6,628.6	-1.1	1,397.3	1,397.3	0.00	0.00	0.00
7,800.0	90.30	90.05	6,628.4	-1.2	1,447.3	1,447.3	0.00	0.00	0.00
7,850.0	90.30	90.05	6,628.1	-1.2	1,497.3	1,497.3	0.00	0.00	0.00
7,900.0	90.30	90.05	6,627.8	-1.3	1,547.3	1,547.3	0.00	0.00	0.00
7,950.0	90.30	90.05	6,627.6	-1.3	1,597.3	1,597.3	0.00	0.00	0.00
8,000.0	90.30	90.05	6,627.3	-1.3	1,647.3	1,647.3	0.00	0.00	0.00
8,050.0	90.30	90.05	6,627.1	-1.4	1,697.3	1,697.3	0.00	0.00	0.00
8,100.0	90.30	90.05	6,626.8	-1.4	1,747.3	1,747.3	0.00	0.00	0.00
8,150.0	90.30	90.05	6,626.5	-1.5	1,797.3	1,797.3	0.00	0.00	0.00
8,200.0	90.30	90.05	6,626.3	-1.5	1,847.3	1,847.3	0.00	0.00	0.00
8,250.0	90.30	90.05	6,626.0	-1.5	1,897.3	1,897.3	0.00	0.00	0.00
8,300.0	90.30	90.05	6,625.7	-1.6	1,947.3	1,947.3	0.00	0.00	0.00
8,350.0	90.30	90.05	6,625.5	-1.6	1,997.3	1,997.3	0.00	0.00	0.00
8,400.0	90.30	90.05	6,625.2	-1.7	2,047.3	2,047.3	0.00	0.00	0.00
8,450.0	90.30	90.05	6,625.0	-1.7	2,097.3	2,097.3	0.00	0.00	0.00
8,500.0	90.30	90.05	6,624.7	-1.8	2,147.3	2,147.3	0.00	0.00	0.00
8,550.0	90.30	90.05	6,624.4	-1.8	2,197.3	2,197.3	0.00	0.00	0.00
8,600.0	90.30	90.05	6,624.2	-1.8	2,247.3	2,247.3	0.00	0.00	0.00
8,650.0	90.30	90.05	6,623.9	-1.9	2,297.3	2,297.3	0.00	0.00	0.00
8,700.0	90.30	90.05	6,623.7	-1.9	2,347.3	2,347.3	0.00	0.00	0.00
8,750.0	90.30	90.05	6,623.4	-2.0	2,397.3	2,397.3	0.00	0.00	0.00
8,800.0	90.30	90.05	6,623.1	-2.0	2,447.3	2,447.3	0.00	0.00	0.00
8,850.0	90.30	90.05	6,622.9	-2.0	2,497.3	2,497.3	0.00	0.00	0.00
8,900.0	90.30	90.05	6,622.6	-2.1	2,547.3	2,547.3	0.00	0.00	0.00
8,950.0	90.30	90.05	6,622.3	-2.1	2,597.3	2,597.3	0.00	0.00	0.00
9,000.0	90.30	90.05	6,622.1	-2.2	2,647.3	2,647.3	0.00	0.00	0.00
9,050.0	90.30	90.05	6,621.8	-2.2	2,697.3	2,697.3	0.00	0.00	0.00
9,100.0	90.30	90.05	6,621.6	-2.2	2,747.3	2,747.3	0.00	0.00	0.00
9,150.0	90.30	90.05	6,621.3	-2.3	2,797.3	2,797.3	0.00	0.00	0.00
9,200.0	90.30	90.05	6,621.0	-2.3	2,847.3	2,847.3	0.00	0.00	0.00
9,250.0	90.30	90.05	6,620.8	-2.4	2,897.3	2,897.3	0.00	0.00	0.00
9,300.0	90.30	90.05	6,620.5	-2.4	2,947.3	2,947.3	0.00	0.00	0.00
9,350.0	90.30	90.05	6,620.3	-2.4	2,997.3	2,997.3	0.00	0.00	0.00
9,400.0	90.30	90.05	6,620.0	-2.5	3,047.3	3,047.3	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
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 (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,450.0	90.30	90.05	6,619.7	-2.5	3,097.3	3,097.3	0.00	0.00	0.00	
9,500.0	90.30	90.05	6,619.5	-2.6	3,147.3	3,147.3	0.00	0.00	0.00	
9,550.0	90.30	90.05	6,619.2	-2.6	3,197.3	3,197.3	0.00	0.00	0.00	
9,600.0	90.30	90.05	6,618.9	-2.7	3,247.3	3,247.3	0.00	0.00	0.00	
9,650.0	90.30	90.05	6,618.7	-2.7	3,297.3	3,297.3	0.00	0.00	0.00	
9,700.0	90.30	90.05	6,618.4	-2.7	3,347.3	3,347.3	0.00	0.00	0.00	
9,750.0	90.30	90.05	6,618.2	-2.8	3,397.3	3,397.3	0.00	0.00	0.00	
9,800.0	90.30	90.05	6,617.9	-2.8	3,447.3	3,447.3	0.00	0.00	0.00	
9,850.0	90.30	90.05	6,617.6	-2.9	3,497.3	3,497.3	0.00	0.00	0.00	
9,900.0	90.30	90.05	6,617.4	-2.9	3,547.3	3,547.3	0.00	0.00	0.00	
9,950.0	90.30	90.05	6,617.1	-2.9	3,597.3	3,597.3	0.00	0.00	0.00	
10,000.0	90.30	90.05	6,616.8	-3.0	3,647.3	3,647.3	0.00	0.00	0.00	
10,050.0	90.30	90.05	6,616.6	-3.0	3,697.3	3,697.3	0.00	0.00	0.00	
10,100.0	90.30	90.05	6,616.3	-3.1	3,747.3	3,747.3	0.00	0.00	0.00	
10,150.0	90.30	90.05	6,616.1	-3.1	3,797.3	3,797.3	0.00	0.00	0.00	
10,200.0	90.30	90.05	6,615.8	-3.1	3,847.3	3,847.3	0.00	0.00	0.00	
10,250.0	90.30	90.05	6,615.5	-3.2	3,897.3	3,897.3	0.00	0.00	0.00	
10,300.0	90.30	90.05	6,615.3	-3.2	3,947.3	3,947.3	0.00	0.00	0.00	
10,350.0	90.30	90.05	6,615.0	-3.3	3,997.3	3,997.3	0.00	0.00	0.00	
10,400.0	90.30	90.05	6,614.8	-3.3	4,047.3	4,047.3	0.00	0.00	0.00	
10,450.0	90.30	90.05	6,614.5	-3.3	4,097.3	4,097.3	0.00	0.00	0.00	
10,500.0	90.30	90.05	6,614.2	-3.4	4,147.3	4,147.3	0.00	0.00	0.00	
10,550.0	90.30	90.05	6,614.0	-3.4	4,197.3	4,197.3	0.00	0.00	0.00	
10,600.0	90.30	90.05	6,613.7	-3.5	4,247.3	4,247.3	0.00	0.00	0.00	
10,650.0	90.30	90.05	6,613.4	-3.5	4,297.3	4,297.3	0.00	0.00	0.00	
10,700.0	90.30	90.05	6,613.2	-3.5	4,347.3	4,347.3	0.00	0.00	0.00	
10,750.0	90.30	90.05	6,612.9	-3.6	4,397.3	4,397.3	0.00	0.00	0.00	
10,800.0	90.30	90.05	6,612.7	-3.6	4,447.2	4,447.3	0.00	0.00	0.00	
10,850.0	90.30	90.05	6,612.4	-3.7	4,497.2	4,497.3	0.00	0.00	0.00	
10,900.0	90.30	90.05	6,612.1	-3.7	4,547.2	4,547.2	0.00	0.00	0.00	
10,950.0	90.30	90.05	6,611.9	-3.8	4,597.2	4,597.2	0.00	0.00	0.00	
11,000.0	90.30	90.05	6,611.6	-3.8	4,647.2	4,647.2	0.00	0.00	0.00	
11,050.0	90.30	90.05	6,611.3	-3.8	4,697.2	4,697.2	0.00	0.00	0.00	
11,100.0	90.30	90.05	6,611.1	-3.9	4,747.2	4,747.2	0.00	0.00	0.00	
11,150.0	90.30	90.05	6,610.8	-3.9	4,797.2	4,797.2	0.00	0.00	0.00	
11,200.0	90.30	90.05	6,610.6	-4.0	4,847.2	4,847.2	0.00	0.00	0.00	
11,250.0	90.30	90.05	6,610.3	-4.0	4,897.2	4,897.2	0.00	0.00	0.00	
11,300.0	90.30	90.05	6,610.0	-4.0	4,947.2	4,947.2	0.00	0.00	0.00	
11,350.0	90.30	90.05	6,609.8	-4.1	4,997.2	4,997.2	0.00	0.00	0.00	
11,400.0	90.30	90.05	6,609.5	-4.1	5,047.2	5,047.2	0.00	0.00	0.00	
11,450.0	90.30	90.05	6,609.3	-4.2	5,097.2	5,097.2	0.00	0.00	0.00	
11,500.0	90.30	90.05	6,609.0	-4.2	5,147.2	5,147.2	0.00	0.00	0.00	
11,550.0	90.30	90.05	6,608.7	-4.2	5,197.2	5,197.2	0.00	0.00	0.00	
11,600.0	90.30	90.05	6,608.5	-4.3	5,247.2	5,247.2	0.00	0.00	0.00	
11,650.0	90.30	90.05	6,608.2	-4.3	5,297.2	5,297.2	0.00	0.00	0.00	
11,689.6	90.30	90.05	6,608.0	-4.4	5,336.8	5,336.8	0.00	0.00	0.00	
TD at 11689.6 - Wells Ranch AA22-645 BHL 2304'FSL, 235'FWL										

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site:	AA (06N-63W)	North Reference:	Grid
Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Wells Ranch AA22-645 I	0.00	0.00	6,608.0	-4.4	5,336.9	1,416,331.21	3,302,493.39	40.471140	-104.412720
- plan hits target center									
- Point									

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,933.5	6,623.3	7" Casing @ 6933.5' MD	7	8-3/4

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
491.0	491.0	PIERRE		0.00	
3,582.0	3,582.0	PARKMAN		0.00	
4,398.0	4,398.0	SUSSEX		0.00	
4,955.0	4,955.0	SHANNON		0.00	
5,923.0	5,923.0	TEEPEE BUTTES		0.00	
6,578.8	6,498.0	SHARON SPRINGS		0.00	
6,651.0	6,538.0	NIO A CHALK		0.00	
6,713.6	6,567.0	NIO A MARL		0.00	
6,988.0	6,628.0	NIO B CHALK		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,989.1	5,989.1	0.0	0.0	KOP - Start Build 9.00
6,933.5	6,623.3	-0.5	581.1	Start 75.0 hold at 6933.5 MD
7,008.5	6,629.8	-0.5	655.9	Start Build 9.00
11,689.6	6,608.0	-4.4	5,336.8	TD at 11689.6

Northern Region Drilling - Working

Wattenberg Field

AA (06N-63W)

Wells Ranch AA22-645

Original Drilling

APD - Rev 0

Anticollision Summary Report

13 April, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Reference Site:	AA (06N-63W)	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
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:	MD Interval 100.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	4/13/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	11,689.6	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

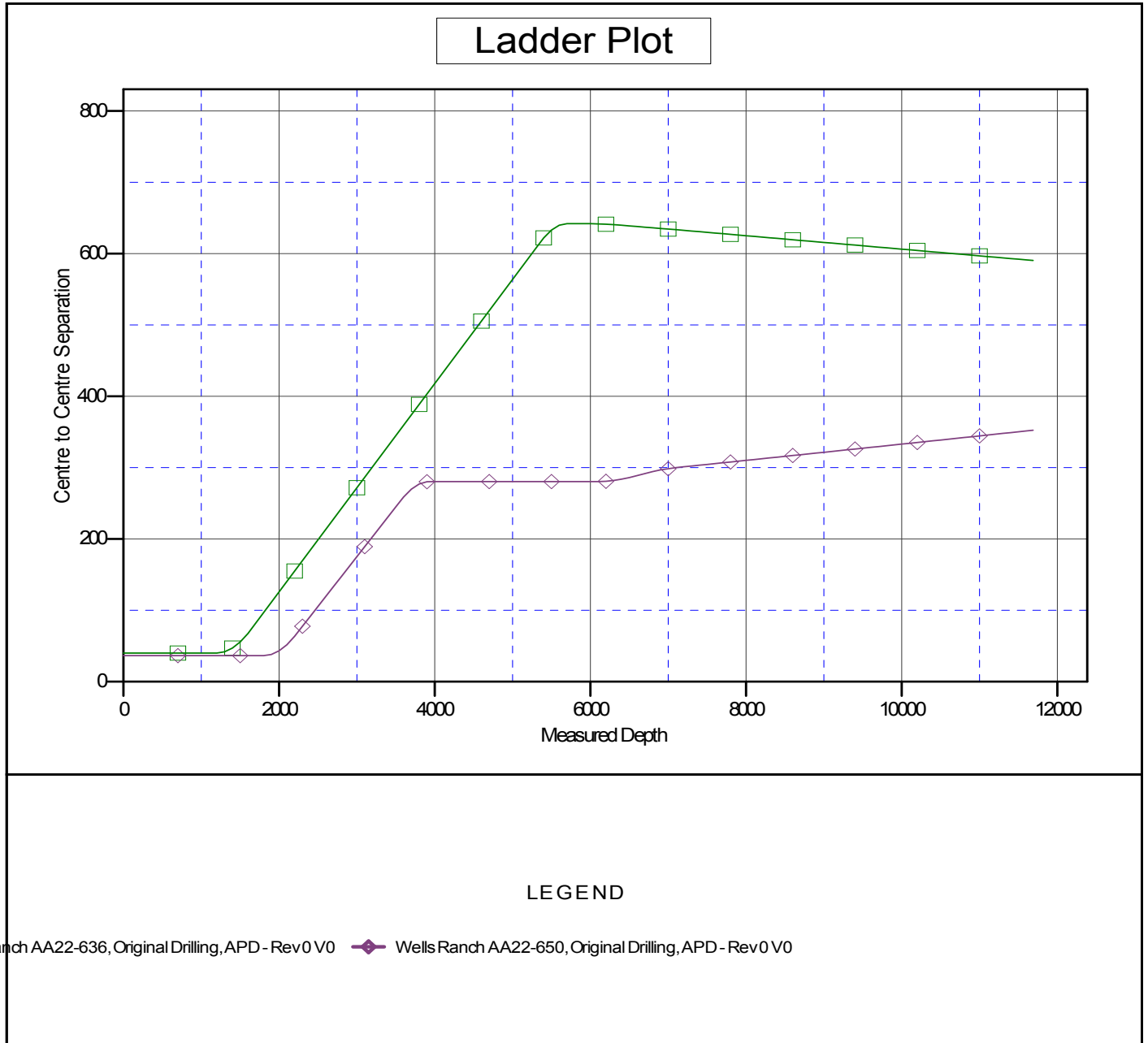
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AA (06N-63W)						
Wells Ranch AA22-636 - Original Drilling - APD - Rev 0	1,166.3	1,167.3	40.1	35.1	8.092	CC
Wells Ranch AA22-636 - Original Drilling - APD - Rev 0	1,200.0	1,201.0	40.1	35.0	7.852	ES
Wells Ranch AA22-636 - Original Drilling - APD - Rev 0	11,689.6	11,704.2	590.4	294.6	1.996	Level 3, SF
Wells Ranch AA22-650 - Original Drilling - APD - Rev 0	1,800.0	1,799.0	36.4	28.6	4.672	CC, ES
Wells Ranch AA22-650 - Original Drilling - APD - Rev 0	11,689.6	11,770.9	352.5	61.3	1.210	Level 2, SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Reference Site:	AA (06N-63W)	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4786.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch AA22-645
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.69°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AA22-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4786.0ft (Original Well Elev)
Reference Site:	AA (06N-63W)	MD Reference:	WELL @ 4786.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AA22-645	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4786.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch AA22-645
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.69°

