

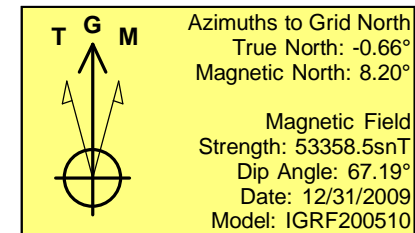
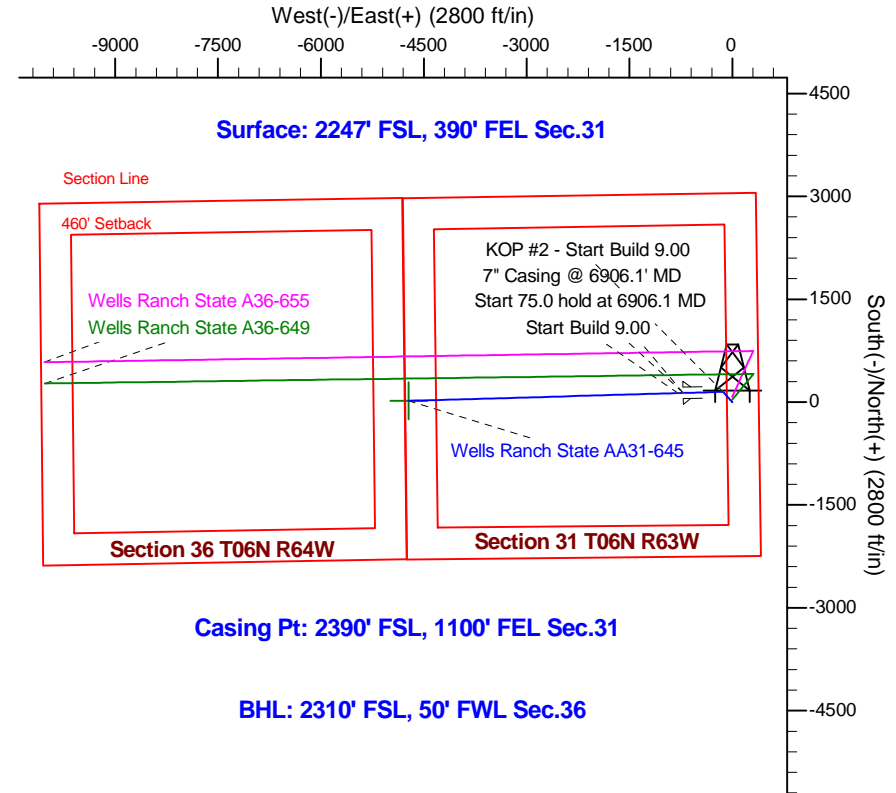
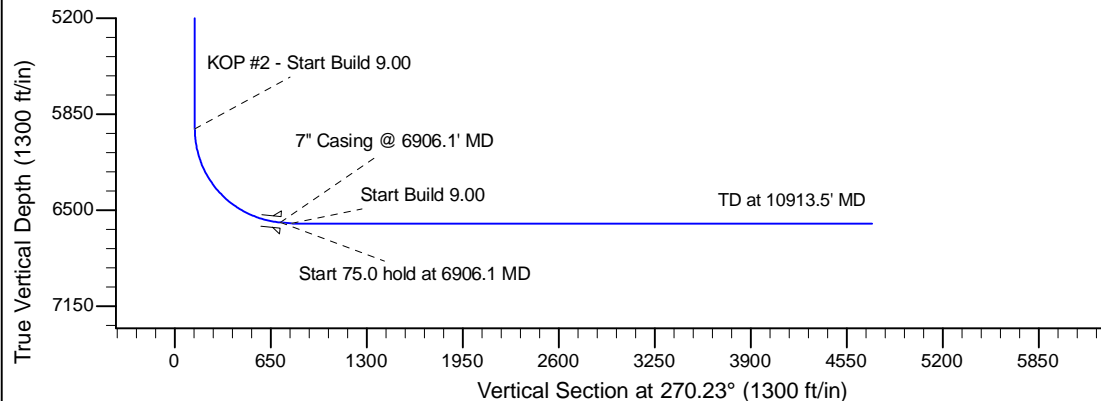
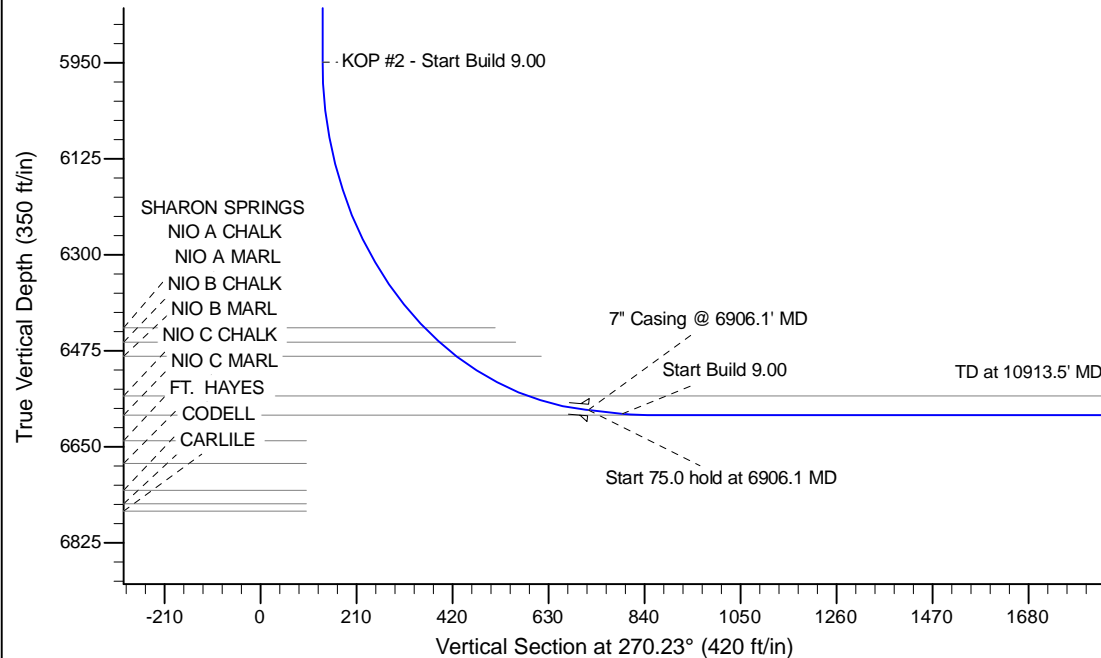
Project: Wattenberg Field
Site: A (Sec.31-T06N-R63W) Weld County, CO
Well: Wells Ranch State AA31-645
Wellbore: Original Drilling
Design: APD - Rev 0

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	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2600.6	8.01	318.01	2599.3	20.8	-18.7	2.00	318.01	18.8	
4	3647.2	8.01	318.01	3635.7	129.2	-116.3	0.00	0.00	116.8	
5	4047.8	0.00	0.00	4035.0	150.0	-135.0	2.00	180.00	135.6	
6	5961.7	0.00	0.00	5948.8	150.0	-135.0	0.00	0.00	135.6	
7	6906.1	85.00	268.36	6583.0	133.4	-715.9	9.00	268.36	716.4	
8	6981.1	85.00	268.36	6589.6	131.2	-790.6	0.00	0.00	791.1	
9	7036.7	90.00	268.36	6592.0	129.6	-846.0	9.00	0.00	846.5	
10	10913.5	90.00	268.36	6592.0	18.6	-4721.3	0.00	0.00	4721.4	Wells Ranch State AA31-645 BHL 2310'FSL, 50'FWL



WELL DETAILS: Wells Ranch State AA31-645					
Ground Level:		4657.0			
0.0	0.0	Northing	Easting	Latitude	Longitude
		1405480.61	3286231.09	40.441890	-104.471620
Plan: APD - Rev 0 (Wells Ranch State AA31-645/Original Drilling)					
Created By: Shailey Jewell		Date: 9:40, January 23 2015			
Checked: _____		Date: _____			
Reviewed: _____		Date: _____			
Approved: _____		Date: _____			

Northern Region Drilling - Working

Wattenberg Field

A (06N-64W)

Wells Ranch State AA31-645

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

23 January, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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		A (06N-64W)			
Site Position:		Northing:	1,408,077.93 usft	Latitude:	40.449320
From:	Lat/Long	Easting:	3,276,618.19 usft	Longitude:	-104.506050
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.64 °

Well	Wells Ranch State AA31-645					
Well Position	+N/-S	-2,597.4 ft	Northing:	1,405,480.62 usft	Latitude:	40.441890
	+E/-W	9,613.3 ft	Easting:	3,286,231.09 usft	Longitude:	-104.471620
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,657.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.87	67.19	53,358

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.23

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	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,600.6	8.01	318.01	2,599.3	20.8	-18.7	2.00	2.00	0.00	318.01	
3,647.2	8.01	318.01	3,635.7	129.2	-116.3	0.00	0.00	0.00	0.00	
4,047.8	0.00	0.00	4,035.0	150.0	-135.0	2.00	-2.00	0.00	180.00	
5,961.7	0.00	0.00	5,948.8	150.0	-135.0	0.00	0.00	0.00	0.00	
6,906.1	85.00	268.36	6,583.0	133.4	-715.9	9.00	9.00	0.00	268.36	
6,981.1	85.00	268.36	6,589.6	131.2	-790.6	0.00	0.00	0.00	0.00	
7,036.7	90.00	268.36	6,592.0	129.6	-846.0	9.00	9.00	0.00	0.00	
10,913.5	90.00	268.36	6,592.0	18.6	-4,721.3	0.00	0.00	0.00	0.00	Wells Ranch State AA

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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
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
KOP - Start Build 2.00									
2,250.0	1.00	318.01	2,250.0	0.3	-0.3	0.3	2.00	2.00	0.00
2,300.0	2.00	318.01	2,300.0	1.3	-1.2	1.2	2.00	2.00	0.00
2,337.1	2.74	318.01	2,337.0	2.4	-2.2	2.2	2.00	2.00	0.00
PIERRE									
2,350.0	3.00	318.01	2,349.9	2.9	-2.6	2.6	2.00	2.00	0.00
2,400.0	4.00	318.01	2,399.8	5.2	-4.7	4.7	2.00	2.00	0.00
2,450.0	5.00	318.01	2,449.7	8.1	-7.3	7.3	2.00	2.00	0.00
2,500.0	6.00	318.01	2,499.5	11.7	-10.5	10.5	2.00	2.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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)
2,550.0	7.00	318.01	2,549.1	15.9	-14.3	14.3	2.00	2.00	0.00
2,600.0	8.00	318.01	2,598.7	20.7	-18.7	18.7	2.00	2.00	0.00
2,600.6	8.01	318.01	2,599.3	20.8	-18.7	18.8	2.00	2.00	0.00
2,650.0	8.01	318.01	2,648.2	25.9	-23.3	23.4	0.00	0.00	0.00
2,700.0	8.01	318.01	2,697.7	31.1	-28.0	28.1	0.00	0.00	0.00
2,750.0	8.01	318.01	2,747.2	36.3	-32.6	32.8	0.00	0.00	0.00
2,800.0	8.01	318.01	2,796.8	41.4	-37.3	37.5	0.00	0.00	0.00
2,850.0	8.01	318.01	2,846.3	46.6	-42.0	42.1	0.00	0.00	0.00
2,900.0	8.01	318.01	2,895.8	51.8	-46.6	46.8	0.00	0.00	0.00
2,950.0	8.01	318.01	2,945.3	57.0	-51.3	51.5	0.00	0.00	0.00
3,000.0	8.01	318.01	2,994.8	62.2	-55.9	56.2	0.00	0.00	0.00
3,050.0	8.01	318.01	3,044.3	67.3	-60.6	60.9	0.00	0.00	0.00
3,100.0	8.01	318.01	3,093.8	72.5	-65.3	65.6	0.00	0.00	0.00
3,150.0	8.01	318.01	3,143.3	77.7	-69.9	70.2	0.00	0.00	0.00
3,200.0	8.01	318.01	3,192.9	82.9	-74.6	74.9	0.00	0.00	0.00
3,250.0	8.01	318.01	3,242.4	88.1	-79.3	79.6	0.00	0.00	0.00
3,300.0	8.01	318.01	3,291.9	93.2	-83.9	84.3	0.00	0.00	0.00
3,350.0	8.01	318.01	3,341.4	98.4	-88.6	89.0	0.00	0.00	0.00
3,400.0	8.01	318.01	3,390.9	103.6	-93.2	93.6	0.00	0.00	0.00
3,450.0	8.01	318.01	3,440.4	108.8	-97.9	98.3	0.00	0.00	0.00
3,488.0	8.01	318.01	3,478.0	112.7	-101.4	101.9	0.00	0.00	0.00
PARKMAN									
3,500.0	8.01	318.01	3,489.9	114.0	-102.6	103.0	0.00	0.00	0.00
3,550.0	8.01	318.01	3,539.4	119.1	-107.2	107.7	0.00	0.00	0.00
3,600.0	8.01	318.01	3,588.9	124.3	-111.9	112.4	0.00	0.00	0.00
3,647.2	8.01	318.01	3,635.7	129.2	-116.3	116.8	0.00	0.00	0.00
Start Drop -2.00									
3,650.0	7.96	318.01	3,638.5	129.5	-116.6	117.1	1.98	-1.98	0.00
3,700.0	6.96	318.01	3,688.0	134.3	-120.9	121.4	2.00	-2.00	0.00
3,750.0	5.96	318.01	3,737.7	138.5	-124.7	125.2	2.00	-2.00	0.00
3,800.0	4.96	318.01	3,787.5	142.0	-127.8	128.4	2.00	-2.00	0.00
3,850.0	3.96	318.01	3,837.3	144.9	-130.4	131.0	2.00	-2.00	0.00
3,900.0	2.96	318.01	3,887.2	147.2	-132.4	133.0	2.00	-2.00	0.00
3,950.0	1.96	318.01	3,937.2	148.8	-133.9	134.5	2.00	-2.00	0.00
4,000.0	0.96	318.01	3,987.2	149.7	-134.7	135.3	2.00	-2.00	0.00
4,047.8	0.00	0.00	4,035.0	150.0	-135.0	135.6	2.00	-2.00	0.00
4,050.0	0.00	0.00	4,037.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,100.0	0.00	0.00	4,087.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,150.0	0.00	0.00	4,137.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,200.0	0.00	0.00	4,187.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,250.0	0.00	0.00	4,237.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,259.8	0.00	0.00	4,247.0	150.0	-135.0	135.6	0.00	0.00	0.00
SUSSEX									
4,300.0	0.00	0.00	4,287.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,350.0	0.00	0.00	4,337.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,400.0	0.00	0.00	4,387.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,450.0	0.00	0.00	4,437.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,500.0	0.00	0.00	4,487.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,550.0	0.00	0.00	4,537.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,600.0	0.00	0.00	4,587.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,650.0	0.00	0.00	4,637.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,700.0	0.00	0.00	4,687.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,750.0	0.00	0.00	4,737.2	150.0	-135.0	135.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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)
4,800.0	0.00	0.00	4,787.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,830.8	0.00	0.00	4,818.0	150.0	-135.0	135.6	0.00	0.00	0.00
SHANNON									
4,850.0	0.00	0.00	4,837.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,900.0	0.00	0.00	4,887.2	150.0	-135.0	135.6	0.00	0.00	0.00
4,950.0	0.00	0.00	4,937.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,000.0	0.00	0.00	4,987.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,050.0	0.00	0.00	5,037.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,100.0	0.00	0.00	5,087.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,150.0	0.00	0.00	5,137.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,200.0	0.00	0.00	5,187.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,250.0	0.00	0.00	5,237.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,300.0	0.00	0.00	5,287.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,350.0	0.00	0.00	5,337.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,387.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,450.0	0.00	0.00	5,437.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,500.0	0.00	0.00	5,487.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,550.0	0.00	0.00	5,537.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,587.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,650.0	0.00	0.00	5,637.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,700.0	0.00	0.00	5,687.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,747.8	0.00	0.00	5,735.0	150.0	-135.0	135.6	0.00	0.00	0.00
TEEPEE BUTTES									
5,750.0	0.00	0.00	5,737.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,787.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,850.0	0.00	0.00	5,837.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,887.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,950.0	0.00	0.00	5,937.2	150.0	-135.0	135.6	0.00	0.00	0.00
5,961.7	0.00	0.00	5,948.9	150.0	-135.0	135.6	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
6,000.0	3.45	268.36	5,987.2	150.0	-136.2	136.7	9.00	9.00	0.00
6,050.0	7.95	268.36	6,036.9	149.8	-141.1	141.7	9.00	9.00	0.00
6,100.0	12.45	268.36	6,086.1	149.6	-150.0	150.6	9.00	9.00	0.00
6,150.0	16.95	268.36	6,134.5	149.2	-162.6	163.2	9.00	9.00	0.00
6,200.0	21.45	268.36	6,181.7	148.7	-179.1	179.7	9.00	9.00	0.00
6,250.0	25.95	268.36	6,227.4	148.2	-199.2	199.7	9.00	9.00	0.00
6,300.0	30.45	268.36	6,271.5	147.5	-222.8	223.4	9.00	9.00	0.00
6,350.0	34.95	268.36	6,313.5	146.7	-249.8	250.3	9.00	9.00	0.00
6,400.0	39.45	268.36	6,353.4	145.8	-280.0	280.6	9.00	9.00	0.00
6,450.0	43.95	268.36	6,390.7	144.9	-313.2	313.8	9.00	9.00	0.00
6,500.0	48.45	268.36	6,425.3	143.9	-349.3	349.9	9.00	9.00	0.00
6,511.8	49.51	268.36	6,433.0	143.6	-358.2	358.7	9.01	9.01	0.00
SHARON SPRINGS									
6,550.0	52.95	268.36	6,456.9	142.8	-388.0	388.5	9.00	9.00	0.00
6,553.4	53.26	268.36	6,459.0	142.7	-390.7	391.3	9.03	9.03	0.00
NIO A CHALK									
6,599.1	57.37	268.36	6,485.0	141.6	-428.2	428.8	9.00	9.00	0.00
NIO A MARL									
6,600.0	57.45	268.36	6,485.5	141.6	-429.0	429.5	8.86	8.86	0.00
6,650.0	61.95	268.36	6,510.7	140.3	-472.1	472.7	9.00	9.00	0.00
6,700.0	66.45	268.36	6,532.4	139.0	-517.1	517.7	9.00	9.00	0.00
6,750.0	70.95	268.36	6,550.6	137.7	-563.7	564.2	9.00	9.00	0.00
6,770.6	72.80	268.36	6,557.0	137.2	-583.2	583.7	9.01	9.01	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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)
NIO B CHALK									
6,800.0	75.45	268.36	6,565.0	136.3	-611.5	612.0	9.00	9.00	0.00
6,850.0	79.95	268.36	6,575.7	134.9	-660.3	660.8	9.00	9.00	0.00
6,900.0	84.45	268.36	6,582.5	133.5	-709.8	710.3	9.00	9.00	0.00
6,906.1	85.00	268.36	6,583.0	133.4	-715.9	716.4	9.02	9.02	0.00
Start 75.0 hold at 6906.1 MD - 7" Casing @ 6906.1' MD									
6,950.0	85.00	268.36	6,586.9	132.1	-759.6	760.1	0.00	0.00	0.00
6,981.1	85.00	268.36	6,589.6	131.2	-790.6	791.1	0.00	0.00	0.00
Start Build 9.00									
7,000.0	86.70	268.36	6,590.9	130.7	-809.4	809.9	8.99	8.99	0.00
7,036.7	90.00	268.36	6,592.0	129.6	-846.0	846.5	9.00	9.00	0.00
NIO B MARL									
7,050.0	90.00	268.36	6,592.0	129.2	-859.4	859.9	0.00	0.00	0.00
7,100.0	90.00	268.36	6,592.0	127.8	-909.4	909.9	0.00	0.00	0.00
7,150.0	90.00	268.36	6,592.0	126.4	-959.3	959.8	0.00	0.00	0.00
7,200.0	90.00	268.36	6,592.0	124.9	-1,009.3	1,009.8	0.00	0.00	0.00
7,250.0	90.00	268.36	6,592.0	123.5	-1,059.3	1,059.8	0.00	0.00	0.00
7,300.0	90.00	268.36	6,592.0	122.1	-1,109.3	1,109.8	0.00	0.00	0.00
7,350.0	90.00	268.36	6,592.0	120.6	-1,159.3	1,159.7	0.00	0.00	0.00
7,400.0	90.00	268.36	6,592.0	119.2	-1,209.2	1,209.7	0.00	0.00	0.00
7,450.0	90.00	268.36	6,592.0	117.8	-1,259.2	1,259.7	0.00	0.00	0.00
7,500.0	90.00	268.36	6,592.0	116.4	-1,309.2	1,309.6	0.00	0.00	0.00
7,550.0	90.00	268.36	6,592.0	114.9	-1,359.2	1,359.6	0.00	0.00	0.00
7,600.0	90.00	268.36	6,592.0	113.5	-1,409.2	1,409.6	0.00	0.00	0.00
7,650.0	90.00	268.36	6,592.0	112.1	-1,459.1	1,459.6	0.00	0.00	0.00
7,700.0	90.00	268.36	6,592.0	110.6	-1,509.1	1,509.5	0.00	0.00	0.00
7,750.0	90.00	268.36	6,592.0	109.2	-1,559.1	1,559.5	0.00	0.00	0.00
7,800.0	90.00	268.36	6,592.0	107.8	-1,609.1	1,609.5	0.00	0.00	0.00
7,850.0	90.00	268.36	6,592.0	106.3	-1,659.1	1,659.5	0.00	0.00	0.00
7,900.0	90.00	268.36	6,592.0	104.9	-1,709.0	1,709.4	0.00	0.00	0.00
7,950.0	90.00	268.36	6,592.0	103.5	-1,759.0	1,759.4	0.00	0.00	0.00
8,000.0	90.00	268.36	6,592.0	102.0	-1,809.0	1,809.4	0.00	0.00	0.00
8,050.0	90.00	268.36	6,592.0	100.6	-1,859.0	1,859.4	0.00	0.00	0.00
8,100.0	90.00	268.36	6,592.0	99.2	-1,909.0	1,909.3	0.00	0.00	0.00
8,150.0	90.00	268.36	6,592.0	97.7	-1,958.9	1,959.3	0.00	0.00	0.00
8,200.0	90.00	268.36	6,592.0	96.3	-2,008.9	2,009.3	0.00	0.00	0.00
8,250.0	90.00	268.36	6,592.0	94.9	-2,058.9	2,059.3	0.00	0.00	0.00
8,300.0	90.00	268.36	6,592.0	93.4	-2,108.9	2,109.2	0.00	0.00	0.00
8,350.0	90.00	268.36	6,592.0	92.0	-2,158.9	2,159.2	0.00	0.00	0.00
8,400.0	90.00	268.36	6,592.0	90.6	-2,208.8	2,209.2	0.00	0.00	0.00
8,450.0	90.00	268.36	6,592.0	89.1	-2,258.8	2,259.1	0.00	0.00	0.00
8,500.0	90.00	268.36	6,592.0	87.7	-2,308.8	2,309.1	0.00	0.00	0.00
8,550.0	90.00	268.36	6,592.0	86.3	-2,358.8	2,359.1	0.00	0.00	0.00
8,600.0	90.00	268.36	6,592.0	84.8	-2,408.8	2,409.1	0.00	0.00	0.00
8,650.0	90.00	268.36	6,592.0	83.4	-2,458.7	2,459.0	0.00	0.00	0.00
8,700.0	90.00	268.36	6,592.0	82.0	-2,508.7	2,509.0	0.00	0.00	0.00
8,750.0	90.00	268.36	6,592.0	80.5	-2,558.7	2,559.0	0.00	0.00	0.00
8,800.0	90.00	268.36	6,592.0	79.1	-2,608.7	2,609.0	0.00	0.00	0.00
8,850.0	90.00	268.36	6,592.0	77.7	-2,658.6	2,658.9	0.00	0.00	0.00
8,900.0	90.00	268.36	6,592.0	76.2	-2,708.6	2,708.9	0.00	0.00	0.00
8,950.0	90.00	268.36	6,592.0	74.8	-2,758.6	2,758.9	0.00	0.00	0.00
9,000.0	90.00	268.36	6,592.0	73.4	-2,808.6	2,808.9	0.00	0.00	0.00
9,050.0	90.00	268.36	6,592.0	71.9	-2,858.6	2,858.8	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	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)	
9,100.0	90.00	268.36	6,592.0	70.5	-2,908.5	2,908.8	0.00	0.00	0.00	
9,150.0	90.00	268.36	6,592.0	69.1	-2,958.5	2,958.8	0.00	0.00	0.00	
9,200.0	90.00	268.36	6,592.0	67.7	-3,008.5	3,008.7	0.00	0.00	0.00	
9,250.0	90.00	268.36	6,592.0	66.2	-3,058.5	3,058.7	0.00	0.00	0.00	
9,300.0	90.00	268.36	6,592.0	64.8	-3,108.5	3,108.7	0.00	0.00	0.00	
9,350.0	90.00	268.36	6,592.0	63.4	-3,158.4	3,158.7	0.00	0.00	0.00	
9,400.0	90.00	268.36	6,592.0	61.9	-3,208.4	3,208.6	0.00	0.00	0.00	
9,450.0	90.00	268.36	6,592.0	60.5	-3,258.4	3,258.6	0.00	0.00	0.00	
9,500.0	90.00	268.36	6,592.0	59.1	-3,308.4	3,308.6	0.00	0.00	0.00	
9,550.0	90.00	268.36	6,592.0	57.6	-3,358.4	3,358.6	0.00	0.00	0.00	
9,600.0	90.00	268.36	6,592.0	56.2	-3,408.3	3,408.5	0.00	0.00	0.00	
9,650.0	90.00	268.36	6,592.0	54.8	-3,458.3	3,458.5	0.00	0.00	0.00	
9,700.0	90.00	268.36	6,592.0	53.3	-3,508.3	3,508.5	0.00	0.00	0.00	
9,750.0	90.00	268.36	6,592.0	51.9	-3,558.3	3,558.5	0.00	0.00	0.00	
9,800.0	90.00	268.36	6,592.0	50.5	-3,608.3	3,608.4	0.00	0.00	0.00	
9,850.0	90.00	268.36	6,592.0	49.0	-3,658.2	3,658.4	0.00	0.00	0.00	
9,900.0	90.00	268.36	6,592.0	47.6	-3,708.2	3,708.4	0.00	0.00	0.00	
9,950.0	90.00	268.36	6,592.0	46.2	-3,758.2	3,758.4	0.00	0.00	0.00	
10,000.0	90.00	268.36	6,592.0	44.7	-3,808.2	3,808.3	0.00	0.00	0.00	
10,050.0	90.00	268.36	6,592.0	43.3	-3,858.2	3,858.3	0.00	0.00	0.00	
10,100.0	90.00	268.36	6,592.0	41.9	-3,908.1	3,908.3	0.00	0.00	0.00	
10,150.0	90.00	268.36	6,592.0	40.4	-3,958.1	3,958.2	0.00	0.00	0.00	
10,200.0	90.00	268.36	6,592.0	39.0	-4,008.1	4,008.2	0.00	0.00	0.00	
10,250.0	90.00	268.36	6,592.0	37.6	-4,058.1	4,058.2	0.00	0.00	0.00	
10,300.0	90.00	268.36	6,592.0	36.1	-4,108.1	4,108.2	0.00	0.00	0.00	
10,350.0	90.00	268.36	6,592.0	34.7	-4,158.0	4,158.1	0.00	0.00	0.00	
10,400.0	90.00	268.36	6,592.0	33.3	-4,208.0	4,208.1	0.00	0.00	0.00	
10,450.0	90.00	268.36	6,592.0	31.8	-4,258.0	4,258.1	0.00	0.00	0.00	
10,500.0	90.00	268.36	6,592.0	30.4	-4,308.0	4,308.1	0.00	0.00	0.00	
10,550.0	90.00	268.36	6,592.0	29.0	-4,358.0	4,358.0	0.00	0.00	0.00	
10,600.0	90.00	268.36	6,592.0	27.5	-4,407.9	4,408.0	0.00	0.00	0.00	
10,650.0	90.00	268.36	6,592.0	26.1	-4,457.9	4,458.0	0.00	0.00	0.00	
10,700.0	90.00	268.36	6,592.0	24.7	-4,507.9	4,508.0	0.00	0.00	0.00	
10,750.0	90.00	268.36	6,592.0	23.3	-4,557.9	4,557.9	0.00	0.00	0.00	
10,800.0	90.00	268.36	6,592.0	21.8	-4,607.9	4,607.9	0.00	0.00	0.00	
10,850.0	90.00	268.36	6,592.0	20.4	-4,657.8	4,657.9	0.00	0.00	0.00	
10,900.0	90.00	268.36	6,592.0	19.0	-4,707.8	4,707.8	0.00	0.00	0.00	
10,913.5	90.00	268.36	6,592.0	18.6	-4,721.3	4,721.3	0.00	0.00	0.00	
TD at 10913.5 - Wells Ranch State AA31-645 BHL 2310'FSL, 50'FWL										

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 State AA31	0.00	0.00	6,592.0	18.6	-4,721.3	1,405,499.18	3,281,509.95	40.442090	-104.488580	
- plan hits target center										
- Point										

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Project:	Wattenberg Field	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site:	A (06N-64W)	North Reference:	Grid
Well:	Wells Ranch State AA31-645	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,906.1	6,583.0	7" Casing @ 6906.1' MD	7	8-3/4

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,337.1	2,337.0	PIERRE		0.00	
3,488.0	3,478.0	PARKMAN		0.00	
4,259.8	4,247.0	SUSSEX		0.00	
4,830.8	4,818.0	SHANNON		0.00	
5,747.8	5,735.0	TEEPEE BUTTES		0.00	
6,511.8	6,433.0	SHARON SPRINGS		0.00	
6,553.4	6,459.0	NIO A CHALK		0.00	
6,599.1	6,485.0	NIO A MARL		0.00	
6,770.6	6,557.0	NIO B CHALK		0.00	
7,036.7	6,592.0	NIO B MARL		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,200.0	2,200.0	0.0	0.0	KOP - Start Build 2.00
3,647.2	3,635.7	129.2	-116.3	Start Drop -2.00
5,961.7	5,948.9	150.0	-135.0	KOP #2 - Start Build 9.00
6,906.1	6,583.0	133.4	-715.9	Start 75.0 hold at 6906.1 MD
6,981.1	6,589.6	131.2	-790.6	Start Build 9.00
10,913.5	6,592.0	18.6	-4,721.3	TD at 10913.5

Northern Region Drilling - Working

Wattenberg Field

A (06N-64W)

Wells Ranch State AA31-645

Original Drilling

APD - Rev 0

Anticollision Summary Report

23 January, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Reference Site:	A (06N-64W)	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA31-645	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	1/23/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,913.4	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

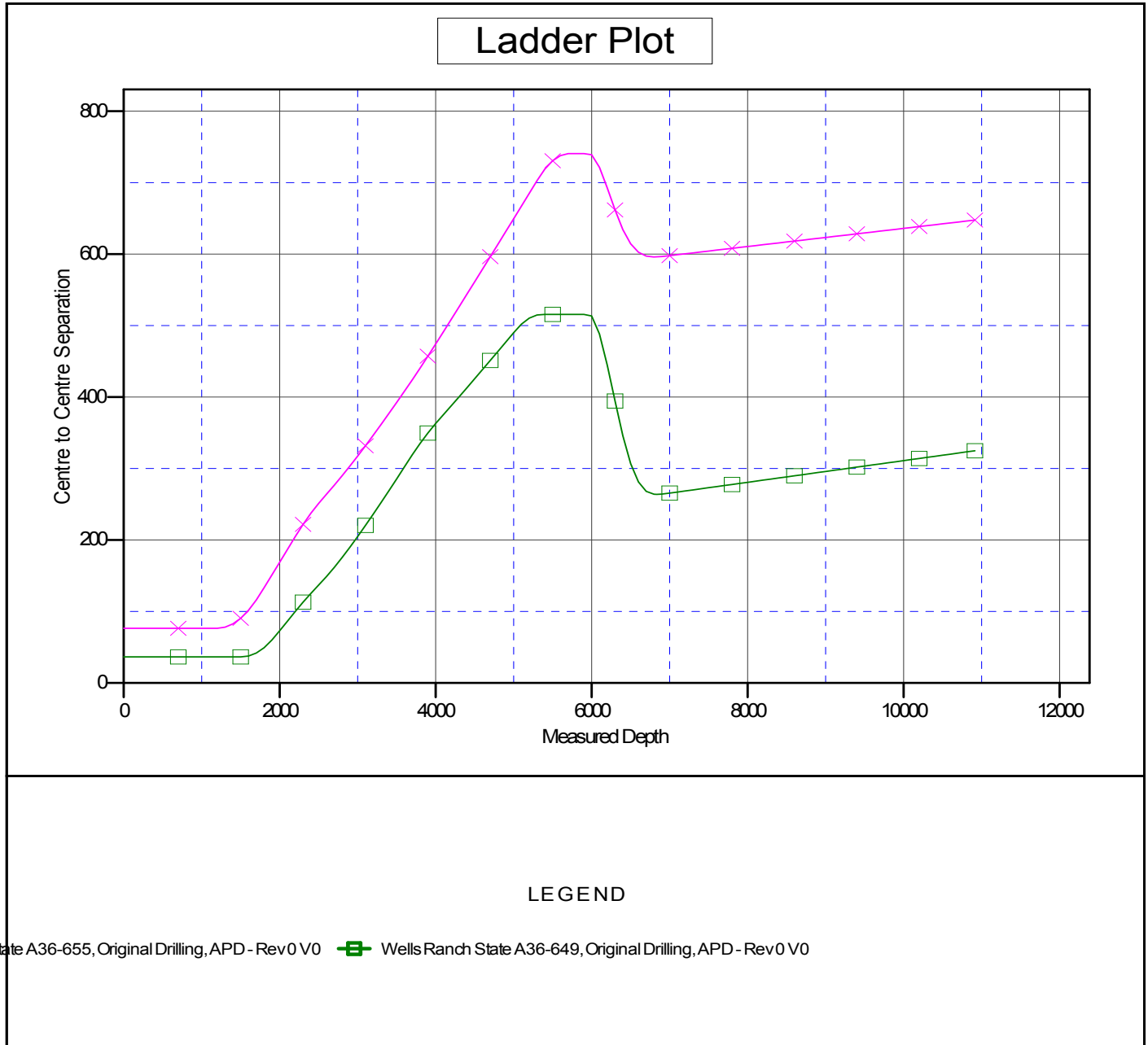
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
A (06N-64W)						
Wells Ranch State A36-649 - Original Drilling - APD - Re	1,500.0	1,500.0	36.4	30.0	5.636	CC, ES
Wells Ranch State A36-649 - Original Drilling - APD - Re	10,914.1	11,382.6	325.0	59.3	1.223	Level 2, SF
Wells Ranch State A36-655 - Original Drilling - APD - Re	1,200.0	1,199.0	76.5	71.4	14.962	CC, ES
Wells Ranch State A36-655 - Original Drilling - APD - Re	10,914.1	11,413.2	647.7	382.1	2.439	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Reference Site:	A (06N-64W)	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA31-645	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 @ 4681.0ft (H&P 273 RKB - 24'
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch State AA31-645
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch State AA31-645
Project:	Wattenberg Field	TVD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Reference Site:	A (06N-64W)	MD Reference:	WELL @ 4681.0ft (H&P 273 RKB - 24')
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch State AA31-645	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 @ 4681.0ft (H&P 273 RKB - 24'
Offset Depths are relative to Offset Datum
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