

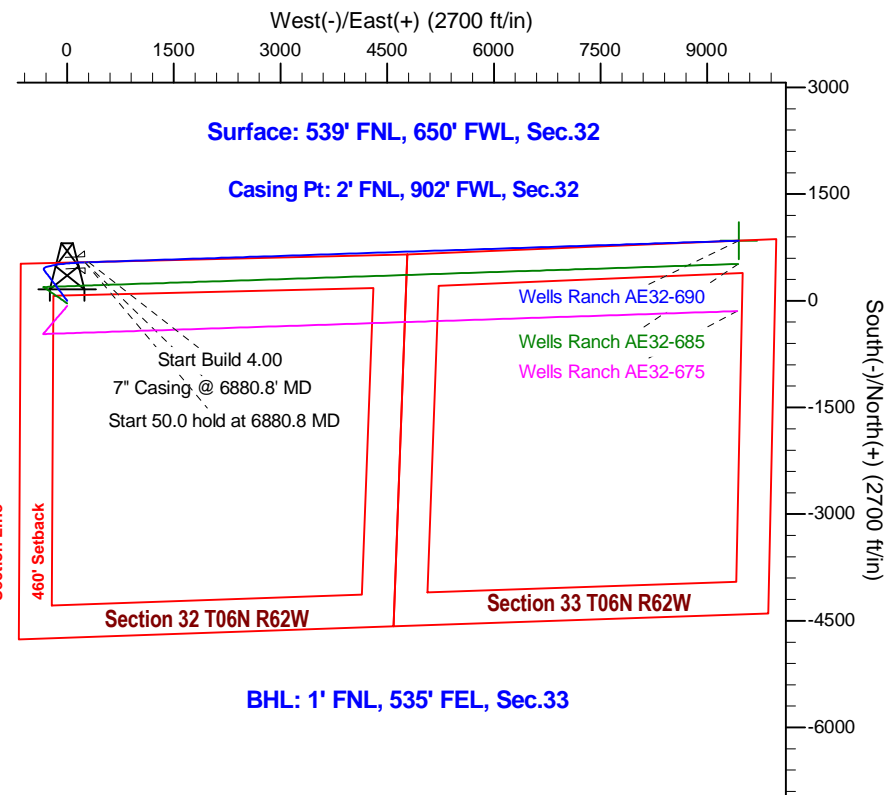
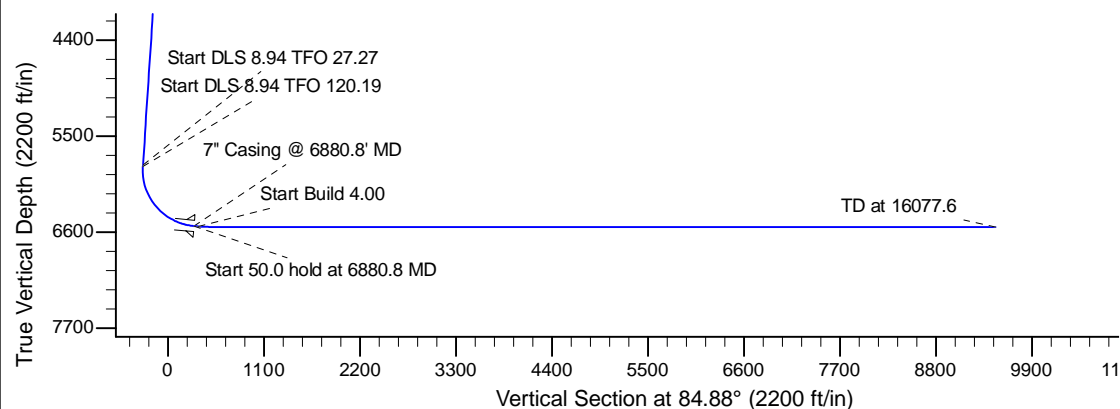
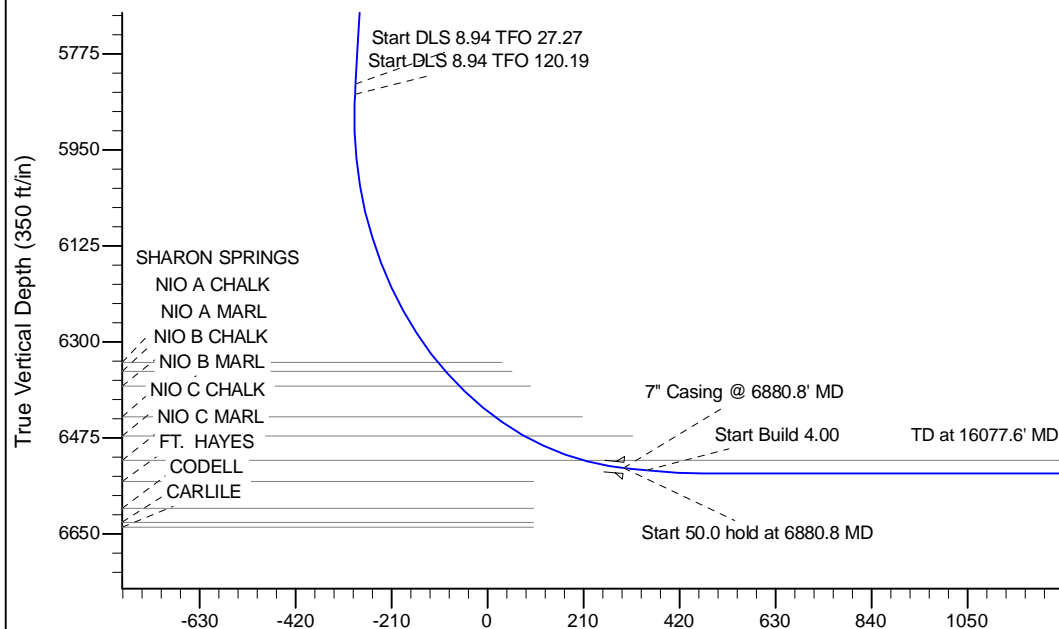
Project: Wattenberg Field
 Site: AE (Sec.32-T06N-R62W) Weld County, CO
 Well: Wells Ranch AE32-690
 Wellbore: Original Drilling
 Design: APD - Rev 0

Northern Region Drilling - Working

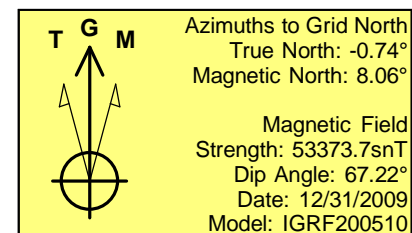
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1550.0	7.00	323.00	1549.1	17.1	-12.9	2.00	323.00	-11.3	
4	5863.0	7.00	323.00	5830.0	436.8	-329.2	0.00	0.00	-288.9	
5	5882.2	8.56	328.28	5849.0	439.0	-330.6	8.94	27.27	-290.2	
6	6880.8	85.00	88.10	6530.0	540.0	250.0	8.94	120.19	297.2	
7	6930.8	85.00	88.10	6534.4	541.7	299.8	0.00	0.00	346.9	
8	7055.8	90.00	88.10	6539.8	545.8	424.6	4.00	0.00	471.5	
9	16077.6	90.00	88.10	6540.0	845.2	9441.3	0.00	-121.81	9479.1	Wells Ranch AE32-690 BHL 1'FNL, 535'FEL



BHL: 1' FNL, 535' FEL, Sec.33



WELL DETAILS: Wells Ranch AE32-690				
Ground Level: 4748.0				
0.0	0.0	Northing	Easting	Latitude
1408452.91	3318869.52	40.448950	-104.354230	
Plan: APD - Rev 0 (Wells Ranch AE32-690/Original Drilling)				
Created By: Shailey Jewell		Date: 9:02, March 26 2015		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region Drilling - Working

Wattenberg Field

AE (06N-62W)

Wells Ranch AE32-690

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

26 March, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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	Latitude:	40.495996
From:	Lat/Long	Easting:	3,326,750.02 usft	Longitude:	-104.325096
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.76 °

Well	Wells Ranch AE32-690					
Well Position	+N/-S	-17,244.2 ft	Northing:	1,408,452.91 usft	Latitude:	40.448950
	+E/-W	-7,880.8 ft	Easting:	3,318,869.53 usft	Longitude:	-104.354230
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,748.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.80	67.22	53,374

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	84.88

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,550.0	7.00	323.00	1,549.1	17.1	-12.9	2.00	2.00	0.00	323.00	
5,863.0	7.00	323.00	5,830.0	436.8	-329.2	0.00	0.00	0.00	0.00	
5,882.2	8.56	328.28	5,849.0	439.0	-330.6	8.94	8.13	27.56	27.27	
6,880.8	85.00	88.10	6,530.0	540.0	250.0	8.94	7.65	12.00	120.19	
6,930.8	85.00	88.10	6,534.4	541.7	299.8	0.00	0.00	0.00	0.00	
7,055.8	90.00	88.10	6,539.8	545.8	424.6	4.00	4.00	0.00	0.00	
16,077.6	90.00	88.10	6,540.0	845.2	9,441.3	0.00	0.00	0.00	-121.81	Wells Ranch AE32-69

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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
KOP - Start Build 2.00									
1,250.0	1.00	323.00	1,250.0	0.3	-0.3	-0.2	2.00	2.00	0.00
1,300.0	2.00	323.00	1,300.0	1.4	-1.1	-0.9	2.00	2.00	0.00
1,350.0	3.00	323.00	1,349.9	3.1	-2.4	-2.1	2.00	2.00	0.00
1,400.0	4.00	323.00	1,399.8	5.6	-4.2	-3.7	2.00	2.00	0.00
1,450.0	5.00	323.00	1,449.7	8.7	-6.6	-5.8	2.00	2.00	0.00
1,500.0	6.00	323.00	1,499.5	12.5	-9.4	-8.3	2.00	2.00	0.00
1,550.0	7.00	323.00	1,549.1	17.1	-12.9	-11.3	2.00	2.00	0.00
1,600.0	7.00	323.00	1,598.8	21.9	-16.5	-14.5	0.00	0.00	0.00
1,650.0	7.00	323.00	1,648.4	26.8	-20.2	-17.7	0.00	0.00	0.00
1,700.0	7.00	323.00	1,698.0	31.7	-23.9	-20.9	0.00	0.00	0.00
1,750.0	7.00	323.00	1,747.6	36.5	-27.5	-24.2	0.00	0.00	0.00
1,800.0	7.00	323.00	1,797.3	41.4	-31.2	-27.4	0.00	0.00	0.00
1,850.0	7.00	323.00	1,846.9	46.3	-34.9	-30.6	0.00	0.00	0.00
1,900.0	7.00	323.00	1,896.5	51.1	-38.5	-33.8	0.00	0.00	0.00
1,950.0	7.00	323.00	1,946.2	56.0	-42.2	-37.0	0.00	0.00	0.00
2,000.0	7.00	323.00	1,995.8	60.9	-45.9	-40.2	0.00	0.00	0.00
2,050.0	7.00	323.00	2,045.4	65.7	-49.5	-43.5	0.00	0.00	0.00
2,100.0	7.00	323.00	2,095.0	70.6	-53.2	-46.7	0.00	0.00	0.00
2,150.0	7.00	323.00	2,144.7	75.5	-56.9	-49.9	0.00	0.00	0.00
2,200.0	7.00	323.00	2,194.3	80.3	-60.5	-53.1	0.00	0.00	0.00
2,250.0	7.00	323.00	2,243.9	85.2	-64.2	-56.3	0.00	0.00	0.00
2,300.0	7.00	323.00	2,293.5	90.1	-67.9	-59.6	0.00	0.00	0.00
2,350.0	7.00	323.00	2,343.2	94.9	-71.5	-62.8	0.00	0.00	0.00
2,400.0	7.00	323.00	2,392.8	99.8	-75.2	-66.0	0.00	0.00	0.00
2,450.0	7.00	323.00	2,442.4	104.7	-78.9	-69.2	0.00	0.00	0.00
2,488.9	7.00	323.00	2,481.0	108.4	-81.7	-71.7	0.00	0.00	0.00
PIERRE									
2,500.0	7.00	323.00	2,492.1	109.5	-82.5	-72.4	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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	323.00	2,541.7	114.4	-86.2	-75.7	0.00	0.00	0.00
2,600.0	7.00	323.00	2,591.3	119.2	-89.9	-78.9	0.00	0.00	0.00
2,650.0	7.00	323.00	2,640.9	124.1	-93.5	-82.1	0.00	0.00	0.00
2,700.0	7.00	323.00	2,690.6	129.0	-97.2	-85.3	0.00	0.00	0.00
2,740.7	7.00	323.00	2,731.0	132.9	-100.2	-87.9	0.00	0.00	0.00
PARKMAN									
2,750.0	7.00	323.00	2,740.2	133.8	-100.9	-88.5	0.00	0.00	0.00
2,800.0	7.00	323.00	2,789.8	138.7	-104.5	-91.7	0.00	0.00	0.00
2,850.0	7.00	323.00	2,839.4	143.6	-108.2	-95.0	0.00	0.00	0.00
2,900.0	7.00	323.00	2,889.1	148.4	-111.9	-98.2	0.00	0.00	0.00
2,950.0	7.00	323.00	2,938.7	153.3	-115.5	-101.4	0.00	0.00	0.00
3,000.0	7.00	323.00	2,988.3	158.2	-119.2	-104.6	0.00	0.00	0.00
3,050.0	7.00	323.00	3,038.0	163.0	-122.9	-107.8	0.00	0.00	0.00
3,100.0	7.00	323.00	3,087.6	167.9	-126.5	-111.1	0.00	0.00	0.00
3,150.0	7.00	323.00	3,137.2	172.8	-130.2	-114.3	0.00	0.00	0.00
3,200.0	7.00	323.00	3,186.8	177.6	-133.9	-117.5	0.00	0.00	0.00
3,250.0	7.00	323.00	3,236.5	182.5	-137.5	-120.7	0.00	0.00	0.00
3,300.0	7.00	323.00	3,286.1	187.4	-141.2	-123.9	0.00	0.00	0.00
3,350.0	7.00	323.00	3,335.7	192.2	-144.9	-127.1	0.00	0.00	0.00
3,400.0	7.00	323.00	3,385.3	197.1	-148.5	-130.4	0.00	0.00	0.00
3,450.0	7.00	323.00	3,435.0	202.0	-152.2	-133.6	0.00	0.00	0.00
3,500.0	7.00	323.00	3,484.6	206.8	-155.9	-136.8	0.00	0.00	0.00
3,550.0	7.00	323.00	3,534.2	211.7	-159.5	-140.0	0.00	0.00	0.00
3,600.0	7.00	323.00	3,583.9	216.6	-163.2	-143.2	0.00	0.00	0.00
3,650.0	7.00	323.00	3,633.5	221.4	-166.9	-146.5	0.00	0.00	0.00
3,700.0	7.00	323.00	3,683.1	226.3	-170.5	-149.7	0.00	0.00	0.00
3,750.0	7.00	323.00	3,732.7	231.2	-174.2	-152.9	0.00	0.00	0.00
3,800.0	7.00	323.00	3,782.4	236.0	-177.9	-156.1	0.00	0.00	0.00
3,850.0	7.00	323.00	3,832.0	240.9	-181.5	-159.3	0.00	0.00	0.00
3,900.0	7.00	323.00	3,881.6	245.8	-185.2	-162.6	0.00	0.00	0.00
3,950.0	7.00	323.00	3,931.2	250.6	-188.9	-165.8	0.00	0.00	0.00
4,000.0	7.00	323.00	3,980.9	255.5	-192.5	-169.0	0.00	0.00	0.00
4,050.0	7.00	323.00	4,030.5	260.4	-196.2	-172.2	0.00	0.00	0.00
4,100.0	7.00	323.00	4,080.1	265.2	-199.9	-175.4	0.00	0.00	0.00
4,150.0	7.00	323.00	4,129.8	270.1	-203.5	-178.6	0.00	0.00	0.00
4,200.0	7.00	323.00	4,179.4	275.0	-207.2	-181.9	0.00	0.00	0.00
4,250.0	7.00	323.00	4,229.0	279.8	-210.9	-185.1	0.00	0.00	0.00
4,292.3	7.00	323.00	4,271.0	284.0	-214.0	-187.8	0.00	0.00	0.00
SUSSEX									
4,300.0	7.00	323.00	4,278.6	284.7	-214.5	-188.3	0.00	0.00	0.00
4,350.0	7.00	323.00	4,328.3	289.6	-218.2	-191.5	0.00	0.00	0.00
4,400.0	7.00	323.00	4,377.9	294.4	-221.9	-194.7	0.00	0.00	0.00
4,450.0	7.00	323.00	4,427.5	299.3	-225.5	-198.0	0.00	0.00	0.00
4,500.0	7.00	323.00	4,477.1	304.2	-229.2	-201.2	0.00	0.00	0.00
4,550.0	7.00	323.00	4,526.8	309.0	-232.9	-204.4	0.00	0.00	0.00
4,600.0	7.00	323.00	4,576.4	313.9	-236.5	-207.6	0.00	0.00	0.00
4,650.0	7.00	323.00	4,626.0	318.8	-240.2	-210.8	0.00	0.00	0.00
4,700.0	7.00	323.00	4,675.7	323.6	-243.9	-214.1	0.00	0.00	0.00
4,750.0	7.00	323.00	4,725.3	328.5	-247.5	-217.3	0.00	0.00	0.00
4,793.0	7.00	323.00	4,768.0	332.7	-250.7	-220.0	0.00	0.00	0.00
SHANNON									
4,800.0	7.00	323.00	4,774.9	333.4	-251.2	-220.5	0.00	0.00	0.00
4,850.0	7.00	323.00	4,824.5	338.2	-254.9	-223.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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)
4,900.0	7.00	323.00	4,874.2	343.1	-258.6	-226.9	0.00	0.00	0.00
4,950.0	7.00	323.00	4,923.8	348.0	-262.2	-230.1	0.00	0.00	0.00
5,000.0	7.00	323.00	4,973.4	352.8	-265.9	-233.4	0.00	0.00	0.00
5,050.0	7.00	323.00	5,023.1	357.7	-269.6	-236.6	0.00	0.00	0.00
5,100.0	7.00	323.00	5,072.7	362.6	-273.2	-239.8	0.00	0.00	0.00
5,150.0	7.00	323.00	5,122.3	367.4	-276.9	-243.0	0.00	0.00	0.00
5,200.0	7.00	323.00	5,171.9	372.3	-280.6	-246.2	0.00	0.00	0.00
5,250.0	7.00	323.00	5,221.6	377.2	-284.2	-249.5	0.00	0.00	0.00
5,300.0	7.00	323.00	5,271.2	382.0	-287.9	-252.7	0.00	0.00	0.00
5,350.0	7.00	323.00	5,320.8	386.9	-291.6	-255.9	0.00	0.00	0.00
5,400.0	7.00	323.00	5,370.4	391.8	-295.2	-259.1	0.00	0.00	0.00
5,450.0	7.00	323.00	5,420.1	396.6	-298.9	-262.3	0.00	0.00	0.00
5,500.0	7.00	323.00	5,469.7	401.5	-302.6	-265.5	0.00	0.00	0.00
5,550.0	7.00	323.00	5,519.3	406.4	-306.2	-268.8	0.00	0.00	0.00
5,600.0	7.00	323.00	5,569.0	411.2	-309.9	-272.0	0.00	0.00	0.00
5,650.0	7.00	323.00	5,618.6	416.1	-313.6	-275.2	0.00	0.00	0.00
5,673.6	7.00	323.00	5,642.0	418.4	-315.3	-276.7	0.00	0.00	0.00
TEEPEE BUTTES									
5,700.0	7.00	323.00	5,668.2	421.0	-317.2	-278.4	0.00	0.00	0.00
5,750.0	7.00	323.00	5,717.8	425.8	-320.9	-281.6	0.00	0.00	0.00
5,800.0	7.00	323.00	5,767.5	430.7	-324.6	-284.9	0.00	0.00	0.00
5,850.0	7.00	323.00	5,817.1	435.6	-328.2	-288.1	0.00	0.00	0.00
5,863.0	7.00	323.00	5,830.0	436.8	-329.2	-288.9	0.00	0.00	0.00
Start DLS 8.94 TFO 27.27									
5,882.2	8.56	328.28	5,849.0	439.0	-330.6	-290.2	8.92	8.12	27.49
Start DLS 8.94 TFO 120.19									
5,900.0	7.88	338.38	5,866.6	441.2	-331.8	-291.1	8.95	-3.82	56.72
5,950.0	7.59	12.01	5,916.2	447.7	-332.4	-291.1	8.94	-0.57	67.26
6,000.0	9.64	38.96	5,965.7	454.2	-329.0	-287.2	8.94	4.10	53.91
6,050.0	12.96	54.45	6,014.7	460.7	-321.8	-279.5	8.94	6.64	30.97
6,100.0	16.82	63.34	6,063.0	467.2	-310.8	-267.9	8.94	7.71	17.78
6,150.0	20.91	68.91	6,110.3	473.6	-296.0	-252.6	8.94	8.19	11.14
6,200.0	25.13	72.70	6,156.3	480.0	-277.5	-233.6	8.94	8.44	7.58
6,250.0	29.42	75.45	6,200.8	486.3	-255.5	-211.1	8.94	8.58	5.51
6,300.0	33.75	77.56	6,243.3	492.3	-230.0	-185.2	8.94	8.67	4.21
6,350.0	38.11	79.23	6,283.8	498.2	-201.3	-156.1	8.94	8.72	3.35
6,400.0	42.50	80.61	6,321.9	503.9	-169.5	-123.9	8.94	8.76	2.76
6,422.1	44.44	81.15	6,338.0	506.3	-154.4	-108.7	8.95	8.79	2.43
SHARON SPRINGS									
6,444.9	46.45	81.67	6,354.0	508.7	-138.4	-92.4	8.94	8.79	2.27
NIO A CHALK									
6,450.0	46.89	81.78	6,357.5	509.2	-134.7	-88.8	8.92	8.78	2.17
6,485.5	50.02	82.51	6,381.0	512.9	-108.4	-62.3	8.94	8.81	2.06
NIO A MARL									
6,500.0	51.30	82.78	6,390.2	514.3	-97.3	-51.0	8.93	8.81	1.92
6,550.0	55.71	83.68	6,419.9	519.0	-57.4	-10.9	8.94	8.83	1.78
6,581.4	58.48	84.19	6,437.0	521.8	-31.1	15.5	8.94	8.84	1.63
NIO B CHALK									
6,600.0	60.13	84.48	6,446.5	523.4	-15.2	31.5	8.93	8.83	1.55
6,650.0	64.55	85.21	6,469.7	527.4	28.9	75.8	8.94	8.85	1.47
6,655.4	65.03	85.29	6,472.0	527.8	33.7	80.7	8.96	8.87	1.41
NIO B MARL									
6,700.0	68.98	85.89	6,489.4	530.9	74.7	121.7	8.94	8.85	1.36

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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)
6,750.0	73.40	86.53	6,505.5	534.0	121.9	169.0	8.94	8.86	1.28
6,791.1	77.04	87.04	6,516.0	536.3	161.5	208.7	8.94	8.86	1.23
NIO C CHALK									
6,800.0	77.84	87.15	6,517.9	536.7	170.2	217.4	8.93	8.85	1.21
6,850.0	82.27	87.74	6,526.6	538.9	219.4	266.6	8.94	8.86	1.19
6,880.8	85.00	88.10	6,530.0	540.0	250.0	297.1	8.94	8.87	1.17
Start 50.0 hold at 6880.8 MD - 7" Casing @ 6880.8' MD									
6,900.0	85.00	88.10	6,531.7	540.6	269.1	316.2	0.01	0.01	0.00
6,930.8	85.00	88.10	6,534.4	541.7	299.8	346.9	0.00	0.00	0.00
Start Build 4.00									
6,950.0	85.77	88.10	6,535.9	542.3	318.9	366.0	4.00	4.00	0.00
7,000.0	87.77	88.10	6,538.7	543.9	368.8	415.8	4.00	4.00	0.00
7,050.0	89.77	88.10	6,539.8	545.6	418.7	465.7	4.00	4.00	0.00
7,055.8	90.00	88.10	6,539.8	545.8	424.6	471.5	4.00	4.00	0.00
7,100.0	90.00	88.10	6,539.8	547.3	468.7	515.7	0.00	0.00	0.00
7,150.0	90.00	88.10	6,539.8	548.9	518.7	565.6	0.00	0.00	0.00
7,200.0	90.00	88.10	6,539.8	550.6	568.7	615.5	0.00	0.00	0.00
7,250.0	90.00	88.10	6,539.8	552.2	618.6	665.4	0.00	0.00	0.00
7,300.0	90.00	88.10	6,539.8	553.9	668.6	715.3	0.00	0.00	0.00
7,350.0	90.00	88.10	6,539.8	555.5	718.6	765.3	0.00	0.00	0.00
7,400.0	90.00	88.10	6,539.8	557.2	768.6	815.2	0.00	0.00	0.00
7,450.0	90.00	88.10	6,539.8	558.9	818.5	865.1	0.00	0.00	0.00
7,500.0	90.00	88.10	6,539.8	560.5	868.5	915.0	0.00	0.00	0.00
7,550.0	90.00	88.10	6,539.8	562.2	918.5	964.9	0.00	0.00	0.00
7,600.0	90.00	88.10	6,539.8	563.8	968.4	1,014.9	0.00	0.00	0.00
7,650.0	90.00	88.10	6,539.8	565.5	1,018.4	1,064.8	0.00	0.00	0.00
7,700.0	90.00	88.10	6,539.8	567.2	1,068.4	1,114.7	0.00	0.00	0.00
7,750.0	90.00	88.10	6,539.8	568.8	1,118.4	1,164.6	0.00	0.00	0.00
7,800.0	90.00	88.10	6,539.8	570.5	1,168.3	1,214.6	0.00	0.00	0.00
7,850.0	90.00	88.10	6,539.8	572.1	1,218.3	1,264.5	0.00	0.00	0.00
7,900.0	90.00	88.10	6,539.8	573.8	1,268.3	1,314.4	0.00	0.00	0.00
7,950.0	90.00	88.10	6,539.8	575.4	1,318.3	1,364.3	0.00	0.00	0.00
8,000.0	90.00	88.10	6,539.8	577.1	1,368.2	1,414.2	0.00	0.00	0.00
8,050.0	90.00	88.10	6,539.8	578.8	1,418.2	1,464.2	0.00	0.00	0.00
8,100.0	90.00	88.10	6,539.8	580.4	1,468.2	1,514.1	0.00	0.00	0.00
8,150.0	90.00	88.10	6,539.8	582.1	1,518.1	1,564.0	0.00	0.00	0.00
8,200.0	90.00	88.10	6,539.8	583.7	1,568.1	1,613.9	0.00	0.00	0.00
8,250.0	90.00	88.10	6,539.8	585.4	1,618.1	1,663.8	0.00	0.00	0.00
8,300.0	90.00	88.10	6,539.8	587.0	1,668.1	1,713.8	0.00	0.00	0.00
8,350.0	90.00	88.10	6,539.8	588.7	1,718.0	1,763.7	0.00	0.00	0.00
8,400.0	90.00	88.10	6,539.8	590.4	1,768.0	1,813.6	0.00	0.00	0.00
8,450.0	90.00	88.10	6,539.8	592.0	1,818.0	1,863.5	0.00	0.00	0.00
8,500.0	90.00	88.10	6,539.8	593.7	1,868.0	1,913.4	0.00	0.00	0.00
8,550.0	90.00	88.10	6,539.8	595.3	1,917.9	1,963.4	0.00	0.00	0.00
8,600.0	90.00	88.10	6,539.8	597.0	1,967.9	2,013.3	0.00	0.00	0.00
8,650.0	90.00	88.10	6,539.8	598.7	2,017.9	2,063.2	0.00	0.00	0.00
8,700.0	90.00	88.10	6,539.8	600.3	2,067.8	2,113.1	0.00	0.00	0.00
8,750.0	90.00	88.10	6,539.8	602.0	2,117.8	2,163.1	0.00	0.00	0.00
8,800.0	90.00	88.10	6,539.8	603.6	2,167.8	2,213.0	0.00	0.00	0.00
8,850.0	90.00	88.10	6,539.8	605.3	2,217.8	2,262.9	0.00	0.00	0.00
8,900.0	90.00	88.10	6,539.8	606.9	2,267.7	2,312.8	0.00	0.00	0.00
8,950.0	90.00	88.10	6,539.8	608.6	2,317.7	2,362.7	0.00	0.00	0.00
9,000.0	90.00	88.10	6,539.8	610.3	2,367.7	2,412.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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)	
9,050.0	90.00	88.10	6,539.8	611.9	2,417.7	2,462.6	0.00	0.00	0.00	
9,100.0	90.00	88.10	6,539.8	613.6	2,467.6	2,512.5	0.00	0.00	0.00	
9,150.0	90.00	88.10	6,539.8	615.2	2,517.6	2,562.4	0.00	0.00	0.00	
9,200.0	90.00	88.10	6,539.8	616.9	2,567.6	2,612.3	0.00	0.00	0.00	
9,250.0	90.00	88.10	6,539.8	618.6	2,617.5	2,662.3	0.00	0.00	0.00	
9,300.0	90.00	88.10	6,539.8	620.2	2,667.5	2,712.2	0.00	0.00	0.00	
9,350.0	90.00	88.10	6,539.8	621.9	2,717.5	2,762.1	0.00	0.00	0.00	
9,400.0	90.00	88.10	6,539.8	623.5	2,767.5	2,812.0	0.00	0.00	0.00	
9,450.0	90.00	88.10	6,539.8	625.2	2,817.4	2,862.0	0.00	0.00	0.00	
9,500.0	90.00	88.10	6,539.8	626.9	2,867.4	2,911.9	0.00	0.00	0.00	
9,550.0	90.00	88.10	6,539.8	628.5	2,917.4	2,961.8	0.00	0.00	0.00	
9,600.0	90.00	88.10	6,539.8	630.2	2,967.4	3,011.7	0.00	0.00	0.00	
9,650.0	90.00	88.10	6,539.8	631.8	3,017.3	3,061.6	0.00	0.00	0.00	
9,700.0	90.00	88.10	6,539.8	633.5	3,067.3	3,111.6	0.00	0.00	0.00	
9,750.0	90.00	88.10	6,539.8	635.1	3,117.3	3,161.5	0.00	0.00	0.00	
9,800.0	90.00	88.10	6,539.8	636.8	3,167.2	3,211.4	0.00	0.00	0.00	
9,850.0	90.00	88.10	6,539.8	638.5	3,217.2	3,261.3	0.00	0.00	0.00	
9,900.0	90.00	88.10	6,539.8	640.1	3,267.2	3,311.2	0.00	0.00	0.00	
9,950.0	90.00	88.10	6,539.8	641.8	3,317.2	3,361.2	0.00	0.00	0.00	
10,000.0	90.00	88.10	6,539.8	643.4	3,367.1	3,411.1	0.00	0.00	0.00	
10,050.0	90.00	88.10	6,539.8	645.1	3,417.1	3,461.0	0.00	0.00	0.00	
10,100.0	90.00	88.10	6,539.8	646.8	3,467.1	3,510.9	0.00	0.00	0.00	
10,150.0	90.00	88.10	6,539.8	648.4	3,517.0	3,560.9	0.00	0.00	0.00	
10,200.0	90.00	88.10	6,539.8	650.1	3,567.0	3,610.8	0.00	0.00	0.00	
10,250.0	90.00	88.10	6,539.8	651.7	3,617.0	3,660.7	0.00	0.00	0.00	
10,300.0	90.00	88.10	6,539.8	653.4	3,667.0	3,710.6	0.00	0.00	0.00	
10,350.0	90.00	88.10	6,539.8	655.1	3,716.9	3,760.5	0.00	0.00	0.00	
10,400.0	90.00	88.10	6,539.8	656.7	3,766.9	3,810.5	0.00	0.00	0.00	
10,450.0	90.00	88.10	6,539.8	658.4	3,816.9	3,860.4	0.00	0.00	0.00	
10,500.0	90.00	88.10	6,539.8	660.0	3,866.9	3,910.3	0.00	0.00	0.00	
10,550.0	90.00	88.10	6,539.8	661.7	3,916.8	3,960.2	0.00	0.00	0.00	
10,600.0	90.00	88.10	6,539.8	663.3	3,966.8	4,010.1	0.00	0.00	0.00	
10,650.0	90.00	88.10	6,539.8	665.0	4,016.8	4,060.1	0.00	0.00	0.00	
10,700.0	90.00	88.10	6,539.8	666.7	4,066.7	4,110.0	0.00	0.00	0.00	
10,750.0	90.00	88.10	6,539.8	668.3	4,116.7	4,159.9	0.00	0.00	0.00	
10,800.0	90.00	88.10	6,539.8	670.0	4,166.7	4,209.8	0.00	0.00	0.00	
10,850.0	90.00	88.10	6,539.8	671.6	4,216.7	4,259.8	0.00	0.00	0.00	
10,900.0	90.00	88.10	6,539.8	673.3	4,266.6	4,309.7	0.00	0.00	0.00	
10,950.0	90.00	88.10	6,539.8	675.0	4,316.6	4,359.6	0.00	0.00	0.00	
11,000.0	90.00	88.10	6,539.8	676.6	4,366.6	4,409.5	0.00	0.00	0.00	
11,050.0	90.00	88.10	6,539.8	678.3	4,416.6	4,459.4	0.00	0.00	0.00	
11,100.0	90.00	88.10	6,539.8	679.9	4,466.5	4,509.4	0.00	0.00	0.00	
11,150.0	90.00	88.10	6,539.8	681.6	4,516.5	4,559.3	0.00	0.00	0.00	
11,200.0	90.00	88.10	6,539.8	683.3	4,566.5	4,609.2	0.00	0.00	0.00	
11,250.0	90.00	88.10	6,539.8	684.9	4,616.4	4,659.1	0.00	0.00	0.00	
11,300.0	90.00	88.10	6,539.9	686.6	4,666.4	4,709.1	0.00	0.00	0.00	
11,350.0	90.00	88.10	6,539.9	688.2	4,716.4	4,759.0	0.00	0.00	0.00	
11,400.0	90.00	88.10	6,539.9	689.9	4,766.4	4,808.9	0.00	0.00	0.00	
11,450.0	90.00	88.10	6,539.9	691.6	4,816.3	4,858.8	0.00	0.00	0.00	
11,500.0	90.00	88.10	6,539.9	693.2	4,866.3	4,908.7	0.00	0.00	0.00	
11,550.0	90.00	88.10	6,539.9	694.9	4,916.3	4,958.7	0.00	0.00	0.00	
11,600.0	90.00	88.10	6,539.9	696.5	4,966.3	5,008.6	0.00	0.00	0.00	
11,650.0	90.00	88.10	6,539.9	698.2	5,016.2	5,058.5	0.00	0.00	0.00	
11,700.0	90.00	88.10	6,539.9	699.9	5,066.2	5,108.4	0.00	0.00	0.00	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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)
11,750.0	90.00	88.10	6,539.9	701.5	5,116.2	5,158.3	0.00	0.00	0.00
11,800.0	90.00	88.10	6,539.9	703.2	5,166.1	5,208.3	0.00	0.00	0.00
11,850.0	90.00	88.10	6,539.9	704.8	5,216.1	5,258.2	0.00	0.00	0.00
11,900.0	90.00	88.10	6,539.9	706.5	5,266.1	5,308.1	0.00	0.00	0.00
11,950.0	90.00	88.10	6,539.9	708.1	5,316.1	5,358.0	0.00	0.00	0.00
12,000.0	90.00	88.10	6,539.9	709.8	5,366.0	5,408.0	0.00	0.00	0.00
12,050.0	90.00	88.10	6,539.9	711.5	5,416.0	5,457.9	0.00	0.00	0.00
12,100.0	90.00	88.10	6,539.9	713.1	5,466.0	5,507.8	0.00	0.00	0.00
12,150.0	90.00	88.10	6,539.9	714.8	5,516.0	5,557.7	0.00	0.00	0.00
12,200.0	90.00	88.10	6,539.9	716.4	5,565.9	5,607.6	0.00	0.00	0.00
12,250.0	90.00	88.10	6,539.9	718.1	5,615.9	5,657.6	0.00	0.00	0.00
12,300.0	90.00	88.10	6,539.9	719.8	5,665.9	5,707.5	0.00	0.00	0.00
12,350.0	90.00	88.10	6,539.9	721.4	5,715.8	5,757.4	0.00	0.00	0.00
12,400.0	90.00	88.10	6,539.9	723.1	5,765.8	5,807.3	0.00	0.00	0.00
12,450.0	90.00	88.10	6,539.9	724.7	5,815.8	5,857.2	0.00	0.00	0.00
12,500.0	90.00	88.10	6,539.9	726.4	5,865.8	5,907.2	0.00	0.00	0.00
12,550.0	90.00	88.10	6,539.9	728.1	5,915.7	5,957.1	0.00	0.00	0.00
12,600.0	90.00	88.10	6,539.9	729.7	5,965.7	6,007.0	0.00	0.00	0.00
12,650.0	90.00	88.10	6,539.9	731.4	6,015.7	6,056.9	0.00	0.00	0.00
12,700.0	90.00	88.10	6,539.9	733.0	6,065.6	6,106.9	0.00	0.00	0.00
12,750.0	90.00	88.10	6,539.9	734.7	6,115.6	6,156.8	0.00	0.00	0.00
12,800.0	90.00	88.10	6,539.9	736.4	6,165.6	6,206.7	0.00	0.00	0.00
12,850.0	90.00	88.10	6,539.9	738.0	6,215.6	6,256.6	0.00	0.00	0.00
12,900.0	90.00	88.10	6,539.9	739.7	6,265.5	6,306.5	0.00	0.00	0.00
12,950.0	90.00	88.10	6,539.9	741.3	6,315.5	6,356.5	0.00	0.00	0.00
13,000.0	90.00	88.10	6,539.9	743.0	6,365.5	6,406.4	0.00	0.00	0.00
13,050.0	90.00	88.10	6,539.9	744.7	6,415.5	6,456.3	0.00	0.00	0.00
13,100.0	90.00	88.10	6,539.9	746.3	6,465.4	6,506.2	0.00	0.00	0.00
13,150.0	90.00	88.10	6,539.9	748.0	6,515.4	6,556.1	0.00	0.00	0.00
13,200.0	90.00	88.10	6,539.9	749.6	6,565.4	6,606.1	0.00	0.00	0.00
13,250.0	90.00	88.10	6,539.9	751.3	6,615.3	6,656.0	0.00	0.00	0.00
13,300.0	90.00	88.10	6,539.9	753.0	6,665.3	6,705.9	0.00	0.00	0.00
13,350.0	90.00	88.10	6,539.9	754.6	6,715.3	6,755.8	0.00	0.00	0.00
13,400.0	90.00	88.10	6,539.9	756.3	6,765.3	6,805.8	0.00	0.00	0.00
13,450.0	90.00	88.10	6,539.9	757.9	6,815.2	6,855.7	0.00	0.00	0.00
13,500.0	90.00	88.10	6,539.9	759.6	6,865.2	6,905.6	0.00	0.00	0.00
13,550.0	90.00	88.10	6,539.9	761.3	6,915.2	6,955.5	0.00	0.00	0.00
13,600.0	90.00	88.10	6,539.9	762.9	6,965.2	7,005.4	0.00	0.00	0.00
13,650.0	90.00	88.10	6,539.9	764.6	7,015.1	7,055.4	0.00	0.00	0.00
13,700.0	90.00	88.10	6,539.9	766.2	7,065.1	7,105.3	0.00	0.00	0.00
13,750.0	90.00	88.10	6,539.9	767.9	7,115.1	7,155.2	0.00	0.00	0.00
13,800.0	90.00	88.10	6,539.9	769.6	7,165.0	7,205.1	0.00	0.00	0.00
13,850.0	90.00	88.10	6,539.9	771.2	7,215.0	7,255.0	0.00	0.00	0.00
13,900.0	90.00	88.10	6,539.9	772.9	7,265.0	7,305.0	0.00	0.00	0.00
13,950.0	90.00	88.10	6,539.9	774.5	7,315.0	7,354.9	0.00	0.00	0.00
14,000.0	90.00	88.10	6,539.9	776.2	7,364.9	7,404.8	0.00	0.00	0.00
14,050.0	90.00	88.10	6,539.9	777.9	7,414.9	7,454.7	0.00	0.00	0.00
14,100.0	90.00	88.10	6,539.9	779.5	7,464.9	7,504.7	0.00	0.00	0.00
14,150.0	90.00	88.10	6,539.9	781.2	7,514.9	7,554.6	0.00	0.00	0.00
14,200.0	90.00	88.10	6,539.9	782.9	7,564.8	7,604.5	0.00	0.00	0.00
14,250.0	90.00	88.10	6,539.9	784.5	7,614.8	7,654.4	0.00	0.00	0.00
14,300.0	90.00	88.10	6,539.9	786.2	7,664.8	7,704.3	0.00	0.00	0.00
14,350.0	90.00	88.10	6,539.9	787.8	7,714.7	7,754.3	0.00	0.00	0.00
14,400.0	90.00	88.10	6,539.9	789.5	7,764.7	7,804.2	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	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)
14,450.0	90.00	88.10	6,539.9	791.2	7,814.7	7,854.1	0.00	0.00	0.00
14,500.0	90.00	88.10	6,539.9	792.8	7,864.7	7,904.0	0.00	0.00	0.00
14,550.0	90.00	88.10	6,539.9	794.5	7,914.6	7,953.9	0.00	0.00	0.00
14,600.0	90.00	88.10	6,539.9	796.1	7,964.6	8,003.9	0.00	0.00	0.00
14,650.0	90.00	88.10	6,539.9	797.8	8,014.6	8,053.8	0.00	0.00	0.00
14,700.0	90.00	88.10	6,539.9	799.5	8,064.6	8,103.7	0.00	0.00	0.00
14,750.0	90.00	88.10	6,539.9	801.1	8,114.5	8,153.6	0.00	0.00	0.00
14,800.0	90.00	88.10	6,539.9	802.8	8,164.5	8,203.6	0.00	0.00	0.00
14,850.0	90.00	88.10	6,540.0	804.4	8,214.5	8,253.5	0.00	0.00	0.00
14,900.0	90.00	88.10	6,540.0	806.1	8,264.4	8,303.4	0.00	0.00	0.00
14,950.0	90.00	88.10	6,540.0	807.8	8,314.4	8,353.3	0.00	0.00	0.00
15,000.0	90.00	88.10	6,540.0	809.4	8,364.4	8,403.2	0.00	0.00	0.00
15,050.0	90.00	88.10	6,540.0	811.1	8,414.4	8,453.2	0.00	0.00	0.00
15,100.0	90.00	88.10	6,540.0	812.7	8,464.3	8,503.1	0.00	0.00	0.00
15,150.0	90.00	88.10	6,540.0	814.4	8,514.3	8,553.0	0.00	0.00	0.00
15,200.0	90.00	88.10	6,540.0	816.1	8,564.3	8,602.9	0.00	0.00	0.00
15,250.0	90.00	88.10	6,540.0	817.7	8,614.2	8,652.8	0.00	0.00	0.00
15,300.0	90.00	88.10	6,540.0	819.4	8,664.2	8,702.8	0.00	0.00	0.00
15,350.0	90.00	88.10	6,540.0	821.0	8,714.2	8,752.7	0.00	0.00	0.00
15,400.0	90.00	88.10	6,540.0	822.7	8,764.2	8,802.6	0.00	0.00	0.00
15,450.0	90.00	88.10	6,540.0	824.4	8,814.1	8,852.5	0.00	0.00	0.00
15,500.0	90.00	88.10	6,540.0	826.0	8,864.1	8,902.5	0.00	0.00	0.00
15,550.0	90.00	88.10	6,540.0	827.7	8,914.1	8,952.4	0.00	0.00	0.00
15,600.0	90.00	88.10	6,540.0	829.4	8,964.1	9,002.3	0.00	0.00	0.00
15,650.0	90.00	88.10	6,540.0	831.0	9,014.0	9,052.2	0.00	0.00	0.00
15,700.0	90.00	88.10	6,540.0	832.7	9,064.0	9,102.1	0.00	0.00	0.00
15,750.0	90.00	88.10	6,540.0	834.3	9,114.0	9,152.1	0.00	0.00	0.00
15,800.0	90.00	88.10	6,540.0	836.0	9,163.9	9,202.0	0.00	0.00	0.00
15,850.0	90.00	88.10	6,540.0	837.7	9,213.9	9,251.9	0.00	0.00	0.00
15,900.0	90.00	88.10	6,540.0	839.3	9,263.9	9,301.8	0.00	0.00	0.00
15,950.0	90.00	88.10	6,540.0	841.0	9,313.9	9,351.8	0.00	0.00	0.00
16,000.0	90.00	88.10	6,540.0	842.6	9,363.8	9,401.7	0.00	0.00	0.00
16,050.0	90.00	88.10	6,540.0	844.3	9,413.8	9,451.6	0.00	0.00	0.00
16,077.6	90.00	88.10	6,540.0	845.2	9,441.3	9,479.1	0.00	0.00	0.00
TD at 16077.6 - Wells Ranch AE32-690 BHL 1'FNL, 535'FEL									

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 AE32-690 f	0.00	0.00	6,540.0	845.2	9,441.3	1,409,298.09	3,328,310.50	40.450930	-104.320270
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,880.8	6,530.0	7" Casing @ 6880.8' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site:	AE (06N-62W)	North Reference:	Grid
Well:	Wells Ranch AE32-690	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,488.9	2,481.0	PIERRE		0.00	
2,740.7	2,731.0	PARKMAN		0.00	
4,292.3	4,271.0	SUSSEX		0.00	
4,793.0	4,768.0	SHANNON		0.00	
5,673.6	5,642.0	TEEPEE BUTTES		0.00	
6,422.1	6,338.0	SHARON SPRINGS		0.00	
6,444.9	6,354.0	NIO A CHALK		0.00	
6,485.5	6,381.0	NIO A MARL		0.00	
6,581.4	6,437.0	NIO B CHALK		0.00	
6,655.4	6,472.0	NIO B MARL		0.00	
6,791.1	6,516.0	NIO C CHALK		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 2.00
5,863.0	5,830.0	17.1	-12.9	Start DLS 8.94 TFO 27.27
5,882.2	5,849.0	436.8	-329.2	Start DLS 8.94 TFO 120.19
6,880.8	6,530.0	439.0	-330.6	Start 50.0 hold at 6880.8 MD
6,930.8	6,534.4	540.0	250.0	Start Build 4.00
16,077.6	6,540.0	541.7	299.8	TD at 16077.6

Northern Region Drilling - Working

Wattenberg Field

AE (06N-62W)

Wells Ranch AE32-690

Original Drilling

APD - Rev 0

Anticollision Summary Report

26 March, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Project:	Wattenberg Field	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Reference Site:	AE (06N-62W)	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE32-690	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	3/26/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	16,077.6	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

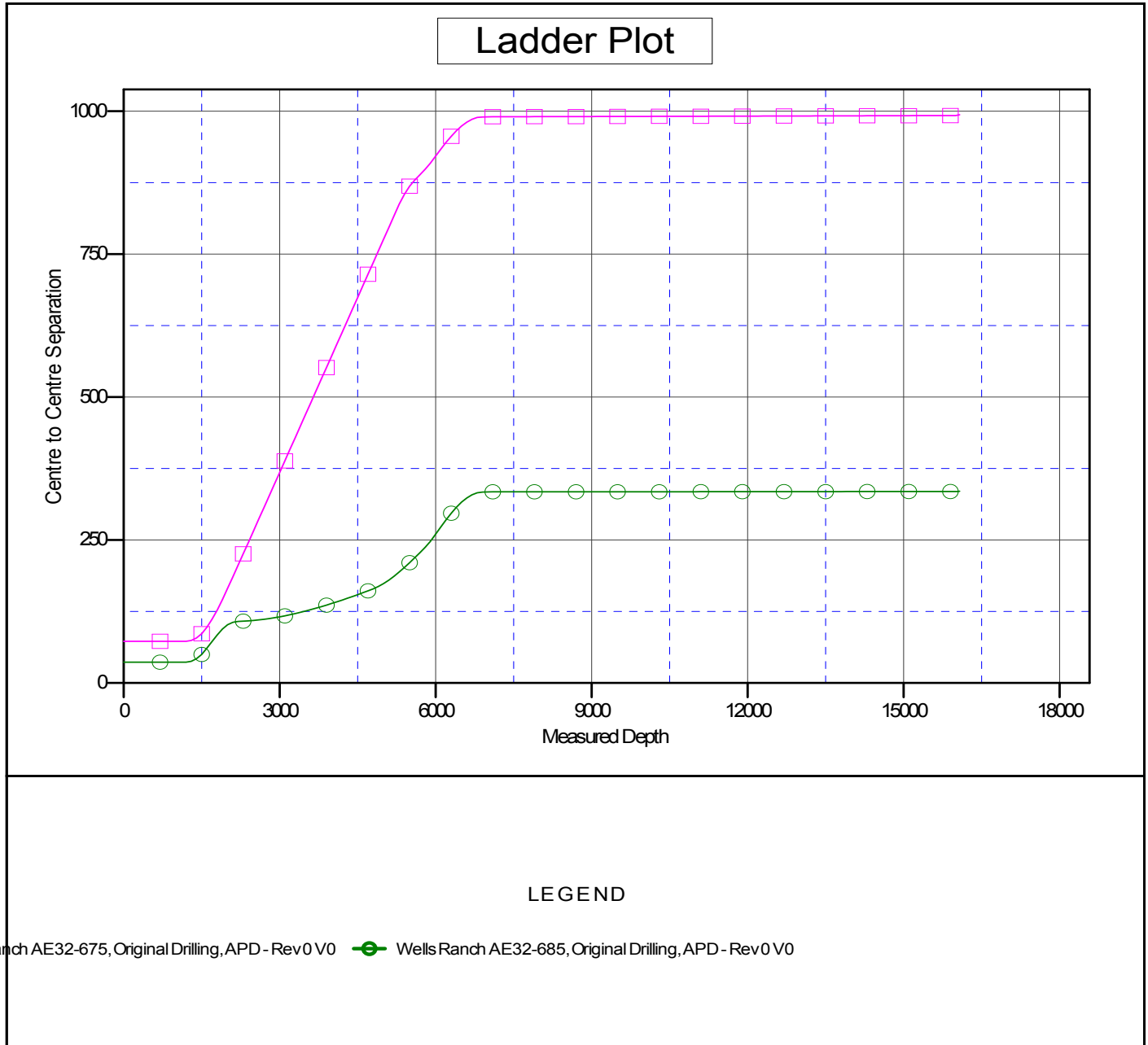
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
AE (06N-62W)						
Wells Ranch AE32-675 - Original Drilling - APD - Rev 0	1,200.0	1,199.0	72.9	67.7	14.249	CC, ES
Wells Ranch AE32-675 - Original Drilling - APD - Rev 0	16,077.6	15,991.7	993.9	457.6	1.853	Level 3, SF
Wells Ranch AE32-685 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	36.4	31.3	7.122	CC
Wells Ranch AE32-685 - Original Drilling - APD - Rev 0	16,077.6	15,992.1	335.5	-191.3	0.637	Level 1, ES, SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Project:	Wattenberg Field	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Reference Site:	AE (06N-62W)	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE32-690	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 @ 4772.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch AE32-690
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°



Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Wells Ranch AE32-690
Project:	Wattenberg Field	TVD Reference:	WELL @ 4772.0ft (Original Well Elev)
Reference Site:	AE (06N-62W)	MD Reference:	WELL @ 4772.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Wells Ranch AE32-690	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 @ 4772.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Wells Ranch AE32-690
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°

