

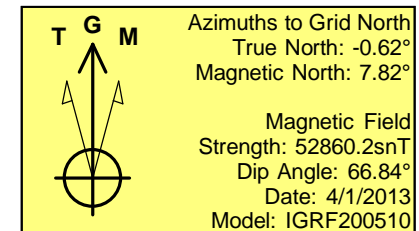
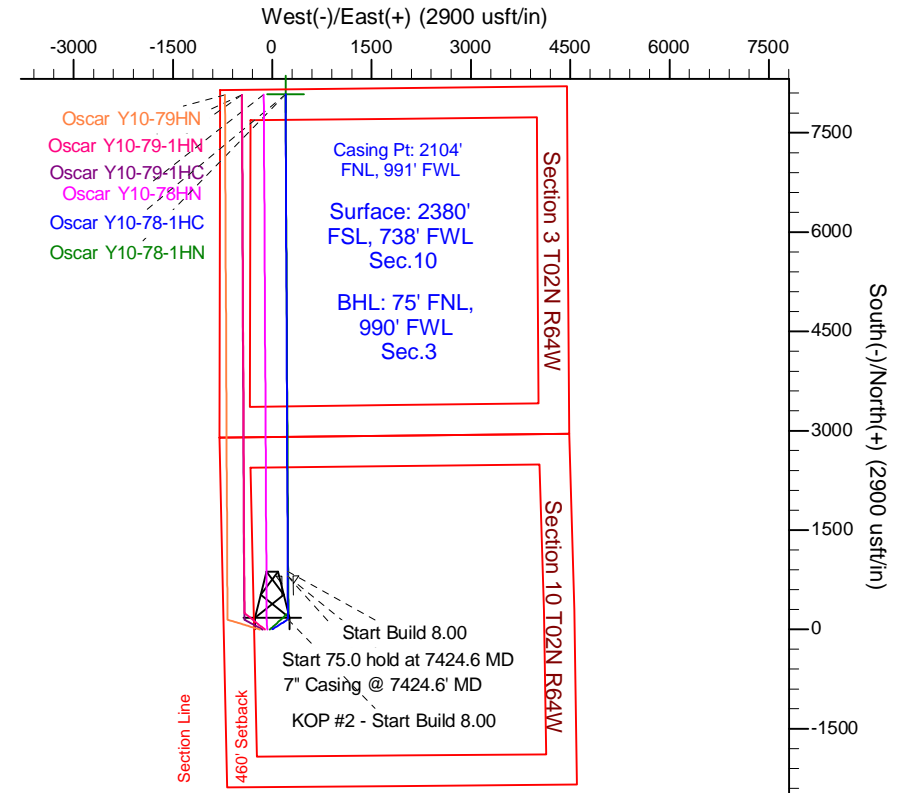
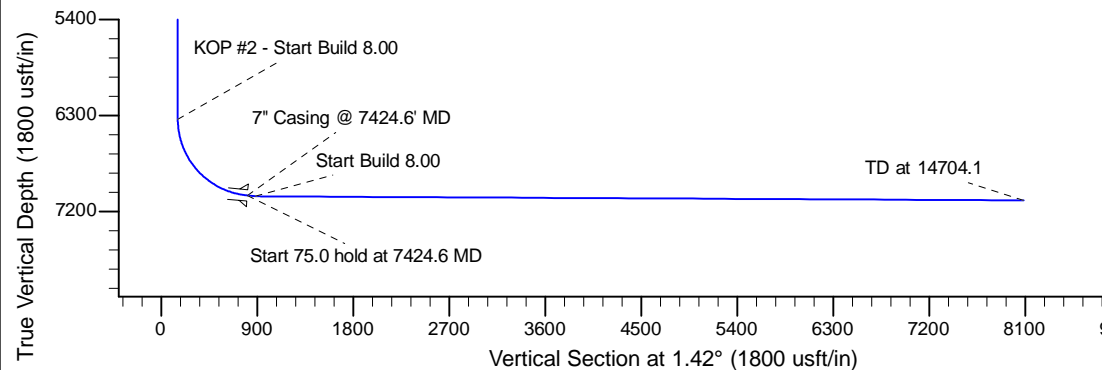
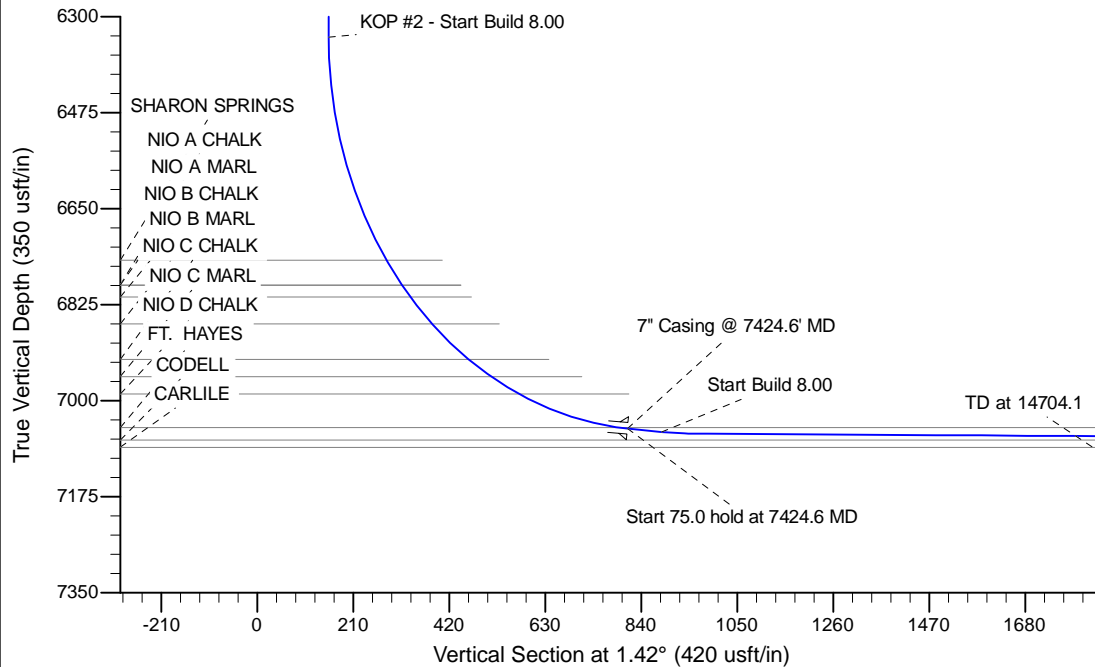
Project: Wattenberg Field
Site: Y (Sec.10-T02N-R64W) Weld County, CO
Well: Oscar Y10-78-1HC
Wellbore: Original Drilling
Design: APD - Rev 2

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	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1603.1	12.06	57.45	1598.7	34.0	53.3	2.00	57.45	35.3	
4	2331.9	12.06	57.45	2311.3	116.0	181.7	0.00	0.00	120.4	
5	2935.0	0.00	0.00	2910.0	150.0	235.0	2.00	180.00	155.8	
6	6362.1	0.00	0.00	6337.2	150.0	235.0	0.00	0.00	155.8	
7	7424.6	85.00	359.75	7050.6	803.8	232.2	8.00	359.75	809.3	
8	7499.6	85.00	359.75	7057.2	878.5	231.9	0.00	0.00	884.0	
9	7558.4	89.70	359.75	7059.9	937.2	231.6	8.00	0.00	942.6	
10	14704.1	89.70	359.75	7097.3	8082.7	200.7	0.00	0.00	8085.2	Oscar Y10-78-1HC BHL 75'FNL & 990'FWL



WELL DETAILS: Oscar Y10-78-1HC				
Ground Level: 4943.0				
0.0	0.0	Northing	Easting	Latitude
		1299747.15	3267100.75	40.152250
				Longitude
				-104.544440
Plan: APD - Rev 2 (Oscar Y10-78-1HC/Original Drilling)				
Created By: Shailey Jewell		Date: 10:52, October 17 2013		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region Drilling - Working

Wattenberg Field

Y (02N-64W)

Oscar Y10-78-1HC

Original Drilling

Plan: APD - Rev 2

Standard Planning Report

17 October, 2013

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

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	Y (02N-64W)				
Site Position:		Northing:	1,294,473.45 usft	Latitude:	40.137940
From:	Lat/Long	Easting:	3,261,420.12 usft	Longitude:	-104.564960
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.60 °

Well	Oscar Y10-78-1HC					
Well Position	+N/-S	5,273.9 usft	Northing:	1,299,747.15 usft	Latitude:	40.152250
	+E/-W	5,680.9 usft	Easting:	3,267,100.75 usft	Longitude:	-104.544440
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level:	4,943.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/1/2013	8.44	66.84	52,860

Design	APD - Rev 2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	1.42

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,603.1	12.06	57.45	1,598.7	34.0	53.3	2.00	2.00	0.00	57.45	
2,331.9	12.06	57.45	2,311.3	116.0	181.7	0.00	0.00	0.00	0.00	
2,935.0	0.00	0.00	2,910.0	150.0	235.0	2.00	-2.00	0.00	180.00	
6,362.1	0.00	0.00	6,337.2	150.0	235.0	0.00	0.00	0.00	0.00	
7,424.6	85.00	359.75	7,050.6	803.8	232.2	8.00	8.00	0.00	359.75	
7,499.6	85.00	359.75	7,057.2	878.5	231.9	0.00	0.00	0.00	0.00	
7,558.4	89.70	359.75	7,059.9	937.2	231.6	8.00	8.00	0.00	0.00	
14,704.1	89.70	359.75	7,097.3	8,082.7	200.7	0.00	0.00	0.00	0.00	Oscar Y10-78-1HC BI

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - Start Build 2.00									
1,050.0	1.00	57.45	1,050.0	0.2	0.4	0.2	2.00	2.00	0.00
1,100.0	2.00	57.45	1,100.0	0.9	1.5	1.0	2.00	2.00	0.00
1,150.0	3.00	57.45	1,149.9	2.1	3.3	2.2	2.00	2.00	0.00
1,200.0	4.00	57.45	1,199.8	3.8	5.9	3.9	2.00	2.00	0.00
1,250.0	5.00	57.45	1,249.7	5.9	9.2	6.1	2.00	2.00	0.00
1,251.3	5.03	57.45	1,251.0	5.9	9.3	6.2	2.00	2.00	0.00
PIERRE									
1,300.0	6.00	57.45	1,299.5	8.4	13.2	8.8	2.00	2.00	0.00
1,350.0	7.00	57.45	1,349.1	11.5	18.0	11.9	2.00	2.00	0.00
1,400.0	8.00	57.45	1,398.7	15.0	23.5	15.6	2.00	2.00	0.00
1,450.0	9.00	57.45	1,448.2	19.0	29.7	19.7	2.00	2.00	0.00
1,500.0	10.00	57.45	1,497.5	23.4	36.7	24.3	2.00	2.00	0.00
1,550.0	11.00	57.45	1,546.6	28.3	44.4	29.4	2.00	2.00	0.00
1,600.0	12.00	57.45	1,595.6	33.7	52.8	35.0	2.00	2.00	0.00
1,603.1	12.06	57.45	1,598.7	34.0	53.3	35.3	2.00	2.00	0.00
1,650.0	12.06	57.45	1,644.5	39.3	61.6	40.8	0.00	0.00	0.00
1,700.0	12.06	57.45	1,693.4	44.9	70.4	46.7	0.00	0.00	0.00
1,750.0	12.06	57.45	1,742.3	50.5	79.2	52.5	0.00	0.00	0.00
1,800.0	12.06	57.45	1,791.2	56.2	88.0	58.3	0.00	0.00	0.00
1,850.0	12.06	57.45	1,840.1	61.8	96.8	64.2	0.00	0.00	0.00
1,900.0	12.06	57.45	1,889.0	67.4	105.6	70.0	0.00	0.00	0.00
1,950.0	12.06	57.45	1,937.9	73.0	114.4	75.9	0.00	0.00	0.00
2,000.0	12.06	57.45	1,986.8	78.7	123.2	81.7	0.00	0.00	0.00
2,050.0	12.06	57.45	2,035.7	84.3	132.0	87.5	0.00	0.00	0.00
2,100.0	12.06	57.45	2,084.6	89.9	140.8	93.4	0.00	0.00	0.00
2,150.0	12.06	57.45	2,133.5	95.5	149.6	99.2	0.00	0.00	0.00
2,200.0	12.06	57.45	2,182.4	101.1	158.5	105.0	0.00	0.00	0.00
2,250.0	12.06	57.45	2,231.3	106.8	167.3	110.9	0.00	0.00	0.00
2,300.0	12.06	57.45	2,280.2	112.4	176.1	116.7	0.00	0.00	0.00
2,331.9	12.06	57.45	2,311.4	116.0	181.7	120.4	0.00	0.00	0.00
Start Drop -2.00									

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,350.0	11.70	57.45	2,329.1	118.0	184.8	122.5	2.00	-2.00	0.00
2,400.0	10.70	57.45	2,378.1	123.2	193.0	128.0	2.00	-2.00	0.00
2,450.0	9.70	57.45	2,427.3	128.0	200.5	132.9	2.00	-2.00	0.00
2,500.0	8.70	57.45	2,476.7	132.3	207.2	137.4	2.00	-2.00	0.00
2,550.0	7.70	57.45	2,526.2	136.1	213.2	141.4	2.00	-2.00	0.00
2,600.0	6.70	57.45	2,575.8	139.5	218.5	144.9	2.00	-2.00	0.00
2,650.0	5.70	57.45	2,625.5	142.4	223.1	147.9	2.00	-2.00	0.00
2,700.0	4.70	57.45	2,675.3	144.8	226.9	150.4	2.00	-2.00	0.00
2,750.0	3.70	57.45	2,725.1	146.8	230.0	152.5	2.00	-2.00	0.00
2,800.0	2.70	57.45	2,775.1	148.3	232.3	154.0	2.00	-2.00	0.00
2,850.0	1.70	57.45	2,825.0	149.3	233.9	155.1	2.00	-2.00	0.00
2,900.0	0.70	57.45	2,875.0	149.9	234.8	155.7	2.00	-2.00	0.00
2,935.0	0.00	0.00	2,910.0	150.0	235.0	155.8	2.00	-2.00	0.00
2,950.0	0.00	0.00	2,925.0	150.0	235.0	155.8	0.00	0.00	0.00
3,000.0	0.00	0.00	2,975.0	150.0	235.0	155.8	0.00	0.00	0.00
3,050.0	0.00	0.00	3,025.0	150.0	235.0	155.8	0.00	0.00	0.00
3,100.0	0.00	0.00	3,075.0	150.0	235.0	155.8	0.00	0.00	0.00
3,150.0	0.00	0.00	3,125.0	150.0	235.0	155.8	0.00	0.00	0.00
3,200.0	0.00	0.00	3,175.0	150.0	235.0	155.8	0.00	0.00	0.00
3,250.0	0.00	0.00	3,225.0	150.0	235.0	155.8	0.00	0.00	0.00
3,300.0	0.00	0.00	3,275.0	150.0	235.0	155.8	0.00	0.00	0.00
3,350.0	0.00	0.00	3,325.0	150.0	235.0	155.8	0.00	0.00	0.00
3,400.0	0.00	0.00	3,375.0	150.0	235.0	155.8	0.00	0.00	0.00
3,450.0	0.00	0.00	3,425.0	150.0	235.0	155.8	0.00	0.00	0.00
3,500.0	0.00	0.00	3,475.0	150.0	235.0	155.8	0.00	0.00	0.00
3,550.0	0.00	0.00	3,525.0	150.0	235.0	155.8	0.00	0.00	0.00
3,600.0	0.00	0.00	3,575.0	150.0	235.0	155.8	0.00	0.00	0.00
3,650.0	0.00	0.00	3,625.0	150.0	235.0	155.8	0.00	0.00	0.00
3,700.0	0.00	0.00	3,675.0	150.0	235.0	155.8	0.00	0.00	0.00
3,750.0	0.00	0.00	3,725.0	150.0	235.0	155.8	0.00	0.00	0.00
3,800.0	0.00	0.00	3,775.0	150.0	235.0	155.8	0.00	0.00	0.00
3,829.0	0.00	0.00	3,804.0	150.0	235.0	155.8	0.00	0.00	0.00
PARKMAN									
3,850.0	0.00	0.00	3,825.0	150.0	235.0	155.8	0.00	0.00	0.00
3,900.0	0.00	0.00	3,875.0	150.0	235.0	155.8	0.00	0.00	0.00
3,950.0	0.00	0.00	3,925.0	150.0	235.0	155.8	0.00	0.00	0.00
4,000.0	0.00	0.00	3,975.0	150.0	235.0	155.8	0.00	0.00	0.00
4,050.0	0.00	0.00	4,025.0	150.0	235.0	155.8	0.00	0.00	0.00
4,100.0	0.00	0.00	4,075.0	150.0	235.0	155.8	0.00	0.00	0.00
4,150.0	0.00	0.00	4,125.0	150.0	235.0	155.8	0.00	0.00	0.00
4,161.0	0.00	0.00	4,136.0	150.0	235.0	155.8	0.00	0.00	0.00
SUSSEX									
4,200.0	0.00	0.00	4,175.0	150.0	235.0	155.8	0.00	0.00	0.00
4,250.0	0.00	0.00	4,225.0	150.0	235.0	155.8	0.00	0.00	0.00
4,300.0	0.00	0.00	4,275.0	150.0	235.0	155.8	0.00	0.00	0.00
4,350.0	0.00	0.00	4,325.0	150.0	235.0	155.8	0.00	0.00	0.00
4,400.0	0.00	0.00	4,375.0	150.0	235.0	155.8	0.00	0.00	0.00
4,450.0	0.00	0.00	4,425.0	150.0	235.0	155.8	0.00	0.00	0.00
4,500.0	0.00	0.00	4,475.0	150.0	235.0	155.8	0.00	0.00	0.00
4,550.0	0.00	0.00	4,525.0	150.0	235.0	155.8	0.00	0.00	0.00
4,600.0	0.00	0.00	4,575.0	150.0	235.0	155.8	0.00	0.00	0.00
4,650.0	0.00	0.00	4,625.0	150.0	235.0	155.8	0.00	0.00	0.00
4,700.0	0.00	0.00	4,675.0	150.0	235.0	155.8	0.00	0.00	0.00
4,750.0	0.00	0.00	4,725.0	150.0	235.0	155.8	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.0	0.00	0.00	4,775.0	150.0	235.0	155.8	0.00	0.00	0.00
4,850.0	0.00	0.00	4,825.0	150.0	235.0	155.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,875.0	150.0	235.0	155.8	0.00	0.00	0.00
4,950.0	0.00	0.00	4,925.0	150.0	235.0	155.8	0.00	0.00	0.00
4,975.0	0.00	0.00	4,950.0	150.0	235.0	155.8	0.00	0.00	0.00
SHANNON									
5,000.0	0.00	0.00	4,975.0	150.0	235.0	155.8	0.00	0.00	0.00
5,050.0	0.00	0.00	5,025.0	150.0	235.0	155.8	0.00	0.00	0.00
5,100.0	0.00	0.00	5,075.0	150.0	235.0	155.8	0.00	0.00	0.00
5,150.0	0.00	0.00	5,125.0	150.0	235.0	155.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,175.0	150.0	235.0	155.8	0.00	0.00	0.00
5,250.0	0.00	0.00	5,225.0	150.0	235.0	155.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,275.0	150.0	235.0	155.8	0.00	0.00	0.00
5,350.0	0.00	0.00	5,325.0	150.0	235.0	155.8	0.00	0.00	0.00
5,400.0	0.00	0.00	5,375.0	150.0	235.0	155.8	0.00	0.00	0.00
5,450.0	0.00	0.00	5,425.0	150.0	235.0	155.8	0.00	0.00	0.00
5,500.0	0.00	0.00	5,475.0	150.0	235.0	155.8	0.00	0.00	0.00
5,550.0	0.00	0.00	5,525.0	150.0	235.0	155.8	0.00	0.00	0.00
5,600.0	0.00	0.00	5,575.0	150.0	235.0	155.8	0.00	0.00	0.00
5,650.0	0.00	0.00	5,625.0	150.0	235.0	155.8	0.00	0.00	0.00
5,700.0	0.00	0.00	5,675.0	150.0	235.0	155.8	0.00	0.00	0.00
5,750.0	0.00	0.00	5,725.0	150.0	235.0	155.8	0.00	0.00	0.00
5,800.0	0.00	0.00	5,775.0	150.0	235.0	155.8	0.00	0.00	0.00
5,850.0	0.00	0.00	5,825.0	150.0	235.0	155.8	0.00	0.00	0.00
5,900.0	0.00	0.00	5,875.0	150.0	235.0	155.8	0.00	0.00	0.00
5,950.0	0.00	0.00	5,925.0	150.0	235.0	155.8	0.00	0.00	0.00
6,000.0	0.00	0.00	5,975.0	150.0	235.0	155.8	0.00	0.00	0.00
6,047.0	0.00	0.00	6,022.0	150.0	235.0	155.8	0.00	0.00	0.00
TEEPEE BUTTES									
6,050.0	0.00	0.00	6,025.0	150.0	235.0	155.8	0.00	0.00	0.00
6,100.0	0.00	0.00	6,075.0	150.0	235.0	155.8	0.00	0.00	0.00
6,150.0	0.00	0.00	6,125.0	150.0	235.0	155.8	0.00	0.00	0.00
6,200.0	0.00	0.00	6,175.0	150.0	235.0	155.8	0.00	0.00	0.00
6,250.0	0.00	0.00	6,225.0	150.0	235.0	155.8	0.00	0.00	0.00
6,300.0	0.00	0.00	6,275.0	150.0	235.0	155.8	0.00	0.00	0.00
6,350.0	0.00	0.00	6,325.0	150.0	235.0	155.8	0.00	0.00	0.00
6,362.1	0.00	0.00	6,337.1	150.0	235.0	155.8	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
6,400.0	3.03	359.75	6,375.0	151.0	235.0	156.8	7.99	7.99	0.00
6,450.0	7.03	359.75	6,424.8	155.4	235.0	161.2	8.00	8.00	0.00
6,500.0	11.03	359.75	6,474.2	163.2	234.9	169.0	8.00	8.00	0.00
6,550.0	15.03	359.75	6,522.9	174.5	234.9	180.3	8.00	8.00	0.00
6,600.0	19.03	359.75	6,570.7	189.1	234.8	194.9	8.00	8.00	0.00
6,650.0	23.03	359.75	6,617.3	207.1	234.8	212.8	8.00	8.00	0.00
6,700.0	27.03	359.75	6,662.6	228.2	234.7	234.0	8.00	8.00	0.00
6,750.0	31.03	359.75	6,706.3	252.5	234.6	258.2	8.00	8.00	0.00
6,794.8	34.61	359.75	6,744.0	276.8	234.5	282.5	8.00	8.00	0.00
SHARON SPRINGS									
6,800.0	35.03	359.75	6,748.2	279.7	234.4	285.5	8.00	8.00	0.00
6,850.0	39.03	359.75	6,788.2	309.8	234.3	315.6	8.00	8.00	0.00
6,851.1	39.12	359.75	6,789.0	310.5	234.3	316.2	8.00	8.00	0.00
NIO A CHALK - NIO A MARL									
6,879.9	41.42	359.75	6,811.0	329.2	234.2	334.9	8.00	8.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
NIO B CHALK									
6,900.0	43.03	359.75	6,825.9	342.6	234.2	348.4	8.00	8.00	0.00
6,948.2	46.89	359.75	6,860.0	376.7	234.0	382.4	8.00	8.00	0.00
NIO B MARL									
6,950.0	47.03	359.75	6,861.2	378.0	234.0	383.7	8.00	8.00	0.00
7,000.0	51.03	359.75	6,894.0	415.8	233.9	421.4	8.00	8.00	0.00
7,050.0	55.03	359.75	6,924.0	455.7	233.7	461.4	8.00	8.00	0.00
7,051.7	55.16	359.75	6,925.0	457.1	233.7	462.7	8.00	8.00	0.00
NIO C CHALK									
7,100.0	59.03	359.75	6,951.2	497.6	233.5	503.3	8.00	8.00	0.00
7,109.3	59.78	359.75	6,956.0	505.7	233.5	511.3	8.00	8.00	0.00
NIO C MARL									
7,150.0	63.03	359.75	6,975.5	541.4	233.3	547.0	8.00	8.00	0.00
7,178.8	65.33	359.75	6,988.0	567.3	233.2	572.9	8.00	8.00	0.00
NIO D CHALK									
7,200.0	67.03	359.75	6,996.6	586.7	233.1	592.3	8.00	8.00	0.00
7,250.0	71.03	359.75	7,014.5	633.4	232.9	638.9	8.00	8.00	0.00
7,300.0	75.03	359.75	7,029.0	681.2	232.7	686.7	8.00	8.00	0.00
7,350.0	79.03	359.75	7,040.3	729.9	232.5	735.4	8.00	8.00	0.00
7,400.0	83.03	359.75	7,048.1	779.3	232.3	784.8	8.00	8.00	0.00
7,408.1	83.68	359.75	7,049.0	787.3	232.2	792.8	8.00	8.00	0.00
FT. HAYES									
7,424.6	85.00	359.75	7,050.6	803.7	232.2	809.2	8.00	8.00	0.00
Start 75.0 hold at 7424.6 MD - 7" Casing @ 7424.6" MD									
7,450.0	85.00	359.75	7,052.8	829.0	232.1	834.5	0.01	0.01	0.00
7,499.6	85.00	359.75	7,057.2	878.4	231.9	883.9	0.00	0.00	0.00
Start Build 8.00									
7,500.0	85.03	359.75	7,057.2	878.8	231.9	884.3	7.17	7.17	0.00
7,550.0	89.03	359.75	7,059.8	928.8	231.6	934.2	8.00	8.00	0.00
7,558.4	89.70	359.75	7,059.9	937.2	231.6	942.6	8.00	8.00	0.00
7,600.0	89.70	359.75	7,060.1	978.8	231.4	984.2	0.00	0.00	0.00
7,650.0	89.70	359.75	7,060.4	1,028.8	231.2	1,034.2	0.00	0.00	0.00
7,700.0	89.70	359.75	7,060.6	1,078.8	231.0	1,084.2	0.00	0.00	0.00
7,750.0	89.70	359.75	7,060.9	1,128.8	230.8	1,134.1	0.00	0.00	0.00
7,800.0	89.70	359.75	7,061.2	1,178.8	230.6	1,184.1	0.00	0.00	0.00
7,850.0	89.70	359.75	7,061.4	1,228.8	230.3	1,234.1	0.00	0.00	0.00
7,900.0	89.70	359.75	7,061.7	1,278.8	230.1	1,284.1	0.00	0.00	0.00
7,950.0	89.70	359.75	7,061.9	1,328.8	229.9	1,334.1	0.00	0.00	0.00
8,000.0	89.70	359.75	7,062.2	1,378.8	229.7	1,384.0	0.00	0.00	0.00
8,050.0	89.70	359.75	7,062.5	1,428.8	229.5	1,434.0	0.00	0.00	0.00
8,100.0	89.70	359.75	7,062.7	1,478.8	229.3	1,484.0	0.00	0.00	0.00
8,150.0	89.70	359.75	7,063.0	1,528.7	229.0	1,534.0	0.00	0.00	0.00
8,200.0	89.70	359.75	7,063.2	1,578.7	228.8	1,583.9	0.00	0.00	0.00
8,250.0	89.70	359.75	7,063.5	1,628.7	228.6	1,633.9	0.00	0.00	0.00
8,300.0	89.70	359.75	7,063.8	1,678.7	228.4	1,683.9	0.00	0.00	0.00
8,350.0	89.70	359.75	7,064.0	1,728.7	228.2	1,733.9	0.00	0.00	0.00
8,400.0	89.70	359.75	7,064.3	1,778.7	228.0	1,783.9	0.00	0.00	0.00
8,450.0	89.70	359.75	7,064.6	1,828.7	227.8	1,833.8	0.00	0.00	0.00
8,500.0	89.70	359.75	7,064.8	1,878.7	227.5	1,883.8	0.00	0.00	0.00
8,550.0	89.70	359.75	7,065.1	1,928.7	227.3	1,933.8	0.00	0.00	0.00
8,600.0	89.70	359.75	7,065.3	1,978.7	227.1	1,983.8	0.00	0.00	0.00
8,650.0	89.70	359.75	7,065.6	2,028.7	226.9	2,033.7	0.00	0.00	0.00
8,700.0	89.70	359.75	7,065.9	2,078.7	226.7	2,083.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,750.0	89.70	359.75	7,066.1	2,128.7	226.5	2,133.7	0.00	0.00	0.00
8,800.0	89.70	359.75	7,066.4	2,178.7	226.2	2,183.7	0.00	0.00	0.00
8,850.0	89.70	359.75	7,066.6	2,228.7	226.0	2,233.7	0.00	0.00	0.00
8,900.0	89.70	359.75	7,066.9	2,278.7	225.8	2,283.6	0.00	0.00	0.00
8,950.0	89.70	359.75	7,067.2	2,328.7	225.6	2,333.6	0.00	0.00	0.00
9,000.0	89.70	359.75	7,067.4	2,378.7	225.4	2,383.6	0.00	0.00	0.00
9,050.0	89.70	359.75	7,067.7	2,428.7	225.2	2,433.6	0.00	0.00	0.00
9,100.0	89.70	359.75	7,068.0	2,478.7	224.9	2,483.5	0.00	0.00	0.00
9,150.0	89.70	359.75	7,068.2	2,528.7	224.7	2,533.5	0.00	0.00	0.00
9,200.0	89.70	359.75	7,068.5	2,578.7	224.5	2,583.5	0.00	0.00	0.00
9,250.0	89.70	359.75	7,068.7	2,628.7	224.3	2,633.5	0.00	0.00	0.00
9,300.0	89.70	359.75	7,069.0	2,678.7	224.1	2,683.5	0.00	0.00	0.00
9,350.0	89.70	359.75	7,069.3	2,728.7	223.9	2,733.4	0.00	0.00	0.00
9,400.0	89.70	359.75	7,069.5	2,778.7	223.6	2,783.4	0.00	0.00	0.00
9,450.0	89.70	359.75	7,069.8	2,828.7	223.4	2,833.4	0.00	0.00	0.00
9,500.0	89.70	359.75	7,070.1	2,878.7	223.2	2,883.4	0.00	0.00	0.00
9,550.0	89.70	359.75	7,070.3	2,928.7	223.0	2,933.4	0.00	0.00	0.00
9,600.0	89.70	359.75	7,070.6	2,978.7	222.8	2,983.3	0.00	0.00	0.00
9,650.0	89.70	359.75	7,070.8	3,028.7	222.6	3,033.3	0.00	0.00	0.00
9,700.0	89.70	359.75	7,071.1	3,078.7	222.4	3,083.3	0.00	0.00	0.00
9,750.0	89.70	359.75	7,071.4	3,128.7	222.1	3,133.3	0.00	0.00	0.00
9,800.0	89.70	359.75	7,071.6	3,178.7	221.9	3,183.2	0.00	0.00	0.00
9,850.0	89.70	359.75	7,071.9	3,228.7	221.7	3,233.2	0.00	0.00	0.00
9,872.2	89.70	359.75	7,072.0	3,250.9	221.6	3,255.4	0.00	0.00	0.00
CODELL									
9,900.0	89.70	359.75	7,072.1	3,278.7	221.5	3,283.2	0.00	0.00	0.00
9,950.0	89.70	359.75	7,072.4	3,328.7	221.3	3,333.2	0.00	0.00	0.00
10,000.0	89.70	359.75	7,072.7	3,378.7	221.1	3,383.2	0.00	0.00	0.00
10,050.0	89.70	359.75	7,072.9	3,428.7	220.8	3,433.1	0.00	0.00	0.00
10,100.0	89.70	359.75	7,073.2	3,478.7	220.6	3,483.1	0.00	0.00	0.00
10,150.0	89.70	359.75	7,073.5	3,528.7	220.4	3,533.1	0.00	0.00	0.00
10,200.0	89.70	359.75	7,073.7	3,578.7	220.2	3,583.1	0.00	0.00	0.00
10,250.0	89.70	359.75	7,074.0	3,628.7	220.0	3,633.0	0.00	0.00	0.00
10,300.0	89.70	359.75	7,074.2	3,678.7	219.8	3,683.0	0.00	0.00	0.00
10,350.0	89.70	359.75	7,074.5	3,728.7	219.5	3,733.0	0.00	0.00	0.00
10,400.0	89.70	359.75	7,074.8	3,778.7	219.3	3,783.0	0.00	0.00	0.00
10,450.0	89.70	359.75	7,075.0	3,828.7	219.1	3,833.0	0.00	0.00	0.00
10,500.0	89.70	359.75	7,075.3	3,878.7	218.9	3,882.9	0.00	0.00	0.00
10,550.0	89.70	359.75	7,075.5	3,928.7	218.7	3,932.9	0.00	0.00	0.00
10,600.0	89.70	359.75	7,075.8	3,978.7	218.5	3,982.9	0.00	0.00	0.00
10,650.0	89.70	359.75	7,076.1	4,028.7	218.3	4,032.9	0.00	0.00	0.00
10,700.0	89.70	359.75	7,076.3	4,078.7	218.0	4,082.8	0.00	0.00	0.00
10,750.0	89.70	359.75	7,076.6	4,128.7	217.8	4,132.8	0.00	0.00	0.00
10,800.0	89.70	359.75	7,076.9	4,178.7	217.6	4,182.8	0.00	0.00	0.00
10,850.0	89.70	359.75	7,077.1	4,228.7	217.4	4,232.8	0.00	0.00	0.00
10,900.0	89.70	359.75	7,077.4	4,278.7	217.2	4,282.8	0.00	0.00	0.00
10,950.0	89.70	359.75	7,077.6	4,328.7	217.0	4,332.7	0.00	0.00	0.00
11,000.0	89.70	359.75	7,077.9	4,378.7	216.7	4,382.7	0.00	0.00	0.00
11,050.0	89.70	359.75	7,078.2	4,428.7	216.5	4,432.7	0.00	0.00	0.00
11,100.0	89.70	359.75	7,078.4	4,478.7	216.3	4,482.7	0.00	0.00	0.00
11,150.0	89.70	359.75	7,078.7	4,528.7	216.1	4,532.6	0.00	0.00	0.00
11,200.0	89.70	359.75	7,079.0	4,578.7	215.9	4,582.6	0.00	0.00	0.00
11,250.0	89.70	359.75	7,079.2	4,628.7	215.7	4,632.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
11,300.0	89.70	359.75	7,079.5	4,678.7	215.4	4,682.6	0.00	0.00	0.00	
11,350.0	89.70	359.75	7,079.7	4,728.7	215.2	4,732.6	0.00	0.00	0.00	
11,400.0	89.70	359.75	7,080.0	4,778.7	215.0	4,782.5	0.00	0.00	0.00	
11,450.0	89.70	359.75	7,080.3	4,828.7	214.8	4,832.5	0.00	0.00	0.00	
11,500.0	89.70	359.75	7,080.5	4,878.7	214.6	4,882.5	0.00	0.00	0.00	
11,550.0	89.70	359.75	7,080.8	4,928.7	214.4	4,932.5	0.00	0.00	0.00	
11,600.0	89.70	359.75	7,081.0	4,978.7	214.1	4,982.5	0.00	0.00	0.00	
11,650.0	89.70	359.75	7,081.3	5,028.7	213.9	5,032.4	0.00	0.00	0.00	
11,700.0	89.70	359.75	7,081.6	5,078.7	213.7	5,082.4	0.00	0.00	0.00	
11,750.0	89.70	359.75	7,081.8	5,128.7	213.5	5,132.4	0.00	0.00	0.00	
11,800.0	89.70	359.75	7,082.1	5,178.7	213.3	5,182.4	0.00	0.00	0.00	
11,850.0	89.70	359.75	7,082.4	5,228.7	213.1	5,232.3	0.00	0.00	0.00	
11,900.0	89.70	359.75	7,082.6	5,278.7	212.9	5,282.3	0.00	0.00	0.00	
11,950.0	89.70	359.75	7,082.9	5,328.7	212.6	5,332.3	0.00	0.00	0.00	
12,000.0	89.70	359.75	7,083.1	5,378.7	212.4	5,382.3	0.00	0.00	0.00	
12,050.0	89.70	359.75	7,083.4	5,428.7	212.2	5,432.3	0.00	0.00	0.00	
12,100.0	89.70	359.75	7,083.7	5,478.7	212.0	5,482.2	0.00	0.00	0.00	
12,150.0	89.70	359.75	7,083.9	5,528.7	211.8	5,532.2	0.00	0.00	0.00	
12,200.0	89.70	359.75	7,084.2	5,578.7	211.6	5,582.2	0.00	0.00	0.00	
12,250.0	89.70	359.75	7,084.5	5,628.7	211.3	5,632.2	0.00	0.00	0.00	
12,300.0	89.70	359.75	7,084.7	5,678.7	211.1	5,682.1	0.00	0.00	0.00	
12,350.0	89.70	359.75	7,085.0	5,728.7	210.9	5,732.1	0.00	0.00	0.00	
12,355.0	89.70	359.75	7,085.0	5,733.7	210.9	5,737.1	0.00	0.00	0.00	
CARLILE										
12,400.0	89.70	359.75	7,085.2	5,778.7	210.7	5,782.1	0.00	0.00	0.00	
12,450.0	89.70	359.75	7,085.5	5,828.7	210.5	5,832.1	0.00	0.00	0.00	
12,500.0	89.70	359.75	7,085.8	5,878.6	210.3	5,882.1	0.00	0.00	0.00	
12,550.0	89.70	359.75	7,086.0	5,928.6	210.0	5,932.0	0.00	0.00	0.00	
12,600.0	89.70	359.75	7,086.3	5,978.6	209.8	5,982.0	0.00	0.00	0.00	
12,650.0	89.70	359.75	7,086.5	6,028.6	209.6	6,032.0	0.00	0.00	0.00	
12,700.0	89.70	359.75	7,086.8	6,078.6	209.4	6,082.0	0.00	0.00	0.00	
12,750.0	89.70	359.75	7,087.1	6,128.6	209.2	6,131.9	0.00	0.00	0.00	
12,800.0	89.70	359.75	7,087.3	6,178.6	209.0	6,181.9	0.00	0.00	0.00	
12,850.0	89.70	359.75	7,087.6	6,228.6	208.8	6,231.9	0.00	0.00	0.00	
12,900.0	89.70	359.75	7,087.9	6,278.6	208.5	6,281.9	0.00	0.00	0.00	
12,950.0	89.70	359.75	7,088.1	6,328.6	208.3	6,331.9	0.00	0.00	0.00	
13,000.0	89.70	359.75	7,088.4	6,378.6	208.1	6,381.8	0.00	0.00	0.00	
13,050.0	89.70	359.75	7,088.6	6,428.6	207.9	6,431.8	0.00	0.00	0.00	
13,100.0	89.70	359.75	7,088.9	6,478.6	207.7	6,481.8	0.00	0.00	0.00	
13,150.0	89.70	359.75	7,089.2	6,528.6	207.5	6,531.8	0.00	0.00	0.00	
13,200.0	89.70	359.75	7,089.4	6,578.6	207.2	6,581.8	0.00	0.00	0.00	
13,250.0	89.70	359.75	7,089.7	6,628.6	207.0	6,631.7	0.00	0.00	0.00	
13,300.0	89.70	359.75	7,089.9	6,678.6	206.8	6,681.7	0.00	0.00	0.00	
13,350.0	89.70	359.75	7,090.2	6,728.6	206.6	6,731.7	0.00	0.00	0.00	
13,400.0	89.70	359.75	7,090.5	6,778.6	206.4	6,781.7	0.00	0.00	0.00	
13,450.0	89.70	359.75	7,090.7	6,828.6	206.2	6,831.6	0.00	0.00	0.00	
13,500.0	89.70	359.75	7,091.0	6,878.6	205.9	6,881.6	0.00	0.00	0.00	
13,550.0	89.70	359.75	7,091.3	6,928.6	205.7	6,931.6	0.00	0.00	0.00	
13,600.0	89.70	359.75	7,091.5	6,978.6	205.5	6,981.6	0.00	0.00	0.00	
13,650.0	89.70	359.75	7,091.8	7,028.6	205.3	7,031.6	0.00	0.00	0.00	
13,700.0	89.70	359.75	7,092.0	7,078.6	205.1	7,081.5	0.00	0.00	0.00	
13,750.0	89.70	359.75	7,092.3	7,128.6	204.9	7,131.5	0.00	0.00	0.00	
13,800.0	89.70	359.75	7,092.6	7,178.6	204.6	7,181.5	0.00	0.00	0.00	
13,850.0	89.70	359.75	7,092.8	7,228.6	204.4	7,231.5	0.00	0.00	0.00	

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,900.0	89.70	359.75	7,093.1	7,278.6	204.2	7,281.4	0.00	0.00	0.00
13,950.0	89.70	359.75	7,093.4	7,328.6	204.0	7,331.4	0.00	0.00	0.00
14,000.0	89.70	359.75	7,093.6	7,378.6	203.8	7,381.4	0.00	0.00	0.00
14,050.0	89.70	359.75	7,093.9	7,428.6	203.6	7,431.4	0.00	0.00	0.00
14,100.0	89.70	359.75	7,094.1	7,478.6	203.4	7,481.4	0.00	0.00	0.00
14,150.0	89.70	359.75	7,094.4	7,528.6	203.1	7,531.3	0.00	0.00	0.00
14,200.0	89.70	359.75	7,094.7	7,578.6	202.9	7,581.3	0.00	0.00	0.00
14,250.0	89.70	359.75	7,094.9	7,628.6	202.7	7,631.3	0.00	0.00	0.00
14,300.0	89.70	359.75	7,095.2	7,678.6	202.5	7,681.3	0.00	0.00	0.00
14,350.0	89.70	359.75	7,095.4	7,728.6	202.3	7,731.2	0.00	0.00	0.00
14,400.0	89.70	359.75	7,095.7	7,778.6	202.1	7,781.2	0.00	0.00	0.00
14,450.0	89.70	359.75	7,096.0	7,828.6	201.8	7,831.2	0.00	0.00	0.00
14,500.0	89.70	359.75	7,096.2	7,878.6	201.6	7,881.2	0.00	0.00	0.00
14,550.0	89.70	359.75	7,096.5	7,928.6	201.4	7,931.2	0.00	0.00	0.00
14,600.0	89.70	359.75	7,096.8	7,978.6	201.2	7,981.1	0.00	0.00	0.00
14,650.0	89.70	359.75	7,097.0	8,028.6	201.0	8,031.1	0.00	0.00	0.00
14,700.0	89.70	359.75	7,097.3	8,078.6	200.8	8,081.1	0.00	0.00	0.00
14,704.1	89.70	359.75	7,097.3	8,082.7	200.7	8,085.2	0.00	0.00	0.00
TD at 14704.1 - Oscar Y10-78-1HC BHL 75'FNL & 990'FWL - Oscar Y10-78-1HC BHL 75'FNL, 990'FWL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Oscar Y10-78-1HC BHL	0.00	0.00	7,097.3	8,082.7	200.7	1,307,829.54	3,267,301.49	40.174430	-104.543410
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
7,424.6	7,050.6	7" Casing @ 7424.6' MD		7	8-3/4

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site:	Y (02N-64W)	North Reference:	Grid
Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,251.3	1,251.0	PIERRE		0.00		
3,829.0	3,804.0	PARKMAN		0.00		
4,161.0	4,136.0	SUSSEX		0.00		
4,975.0	4,950.0	SHANNON		0.00		
6,047.0	6,022.0	TEEPEE BUTTES		0.00		
6,794.8	6,744.0	SHARON SPRINGS		0.00		
6,851.1	6,789.0	NIO A CHALK		0.00		
6,851.1	6,789.0	NIO A MARL		0.00		
6,879.9	6,811.0	NIO B CHALK		0.00		
6,948.2	6,860.0	NIO B MARL		0.00		
7,051.7	6,925.0	NIO C CHALK		0.00		
7,109.3	6,956.0	NIO C MARL		0.00		
7,178.8	6,988.0	NIO D CHALK		0.00		
7,408.1	7,049.0	FT. HAYES		0.00		
9,872.2	7,072.0	CODELL		0.00		
12,355.0	7,085.0	CARLILE		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,000.0	1,000.0	0.0	0.0	KOP - Start Build 2.00	
2,331.9	2,311.4	116.0	181.7	Start Drop -2.00	
6,362.1	6,337.1	150.0	235.0	KOP #2 - Start Build 8.00	
7,424.6	7,050.6	803.7	232.2	Start 75.0 hold at 7424.6 MD	
7,499.6	7,057.2	878.4	231.9	Start Build 8.00	
14,704.1	7,097.3	8,082.7	200.7	TD at 14704.1	

Northern Region Drilling - Working

Wattenberg Field

Y (02N-64W)

Oscar Y10-78-1HC

Original Drilling

APD - Rev 2

Anticollision Summary Report

17 October, 2013

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Project:	Wattenberg Field	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Reference Site:	Y (02N-64W)	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	10/17/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	14,704.1	APD - Rev 2 (Original Drilling)	MWD	MWD - Standard

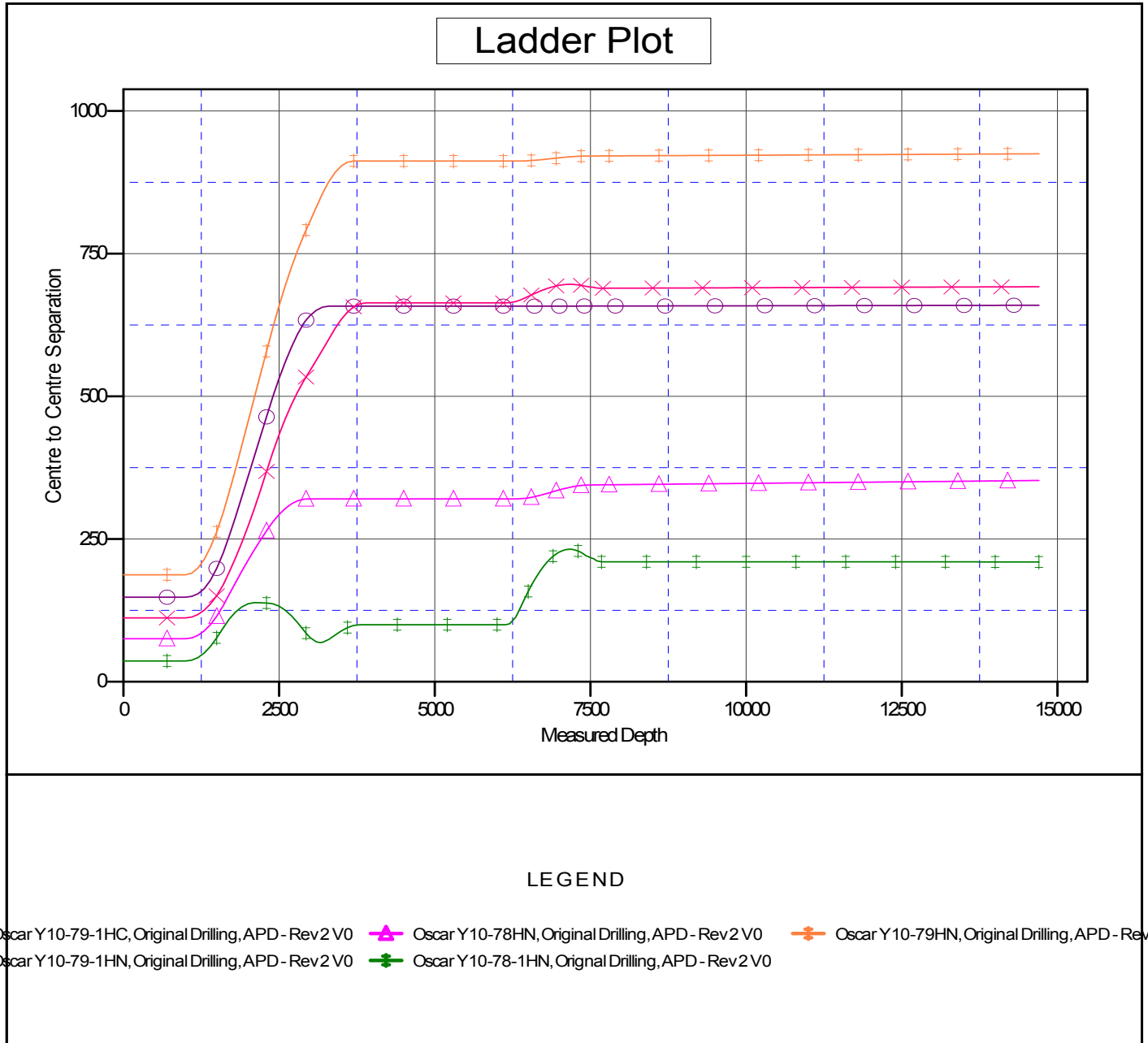
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Y (02N-64W)						
Oscar Y10-78-1HN - Original Drilling - APD - Rev 2	1,000.0	1,000.0	36.3	32.1	8.582	CC, ES
Oscar Y10-78-1HN - Original Drilling - APD - Rev 2	14,704.1	14,407.4	210.0	94.7	1.822	Level 3, SF
Oscar Y10-78HN - Original Drilling - APD - Rev 2	1,000.0	1,000.0	75.5	71.2	17.824	CC
Oscar Y10-78HN - Original Drilling - APD - Rev 2	14,704.1	14,564.6	352.6	60.7	1.208	Level 2, ES, SF
Oscar Y10-79-1HC - Original Drilling - APD - Rev 2	1,000.0	1,000.0	148.2	143.9	34.987	CC, ES
Oscar Y10-79-1HC - Original Drilling - APD - Rev 2	14,704.1	14,705.8	659.6	350.3	2.132	SF
Oscar Y10-79-1HN - Original Drilling - APD - Rev 2	1,000.0	1,000.0	111.8	107.6	26.405	CC, ES
Oscar Y10-79-1HN - Original Drilling - APD - Rev 2	14,704.1	14,405.5	692.1	395.3	2.332	SF
Oscar Y10-79HN - Original Drilling - APD - Rev 2	1,000.0	1,000.0	187.3	183.1	44.229	CC, ES
Oscar Y10-79HN - Original Drilling - APD - Rev 2	14,704.1	14,607.2	925.1	618.0	3.012	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Project:	Wattenberg Field	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Reference Site:	Y (02N-64W)	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4959.0usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Oscar Y10-78-1HC
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.62°



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

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Oscar Y10-78-1HC
Project:	Wattenberg Field	TVD Reference:	WELL @ 4959.0usft (Original Well Elev)
Reference Site:	Y (02N-64W)	MD Reference:	WELL @ 4959.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Oscar Y10-78-1HC	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4959.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Oscar Y10-78-1HC
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.62°

