

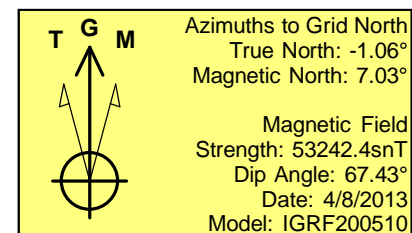
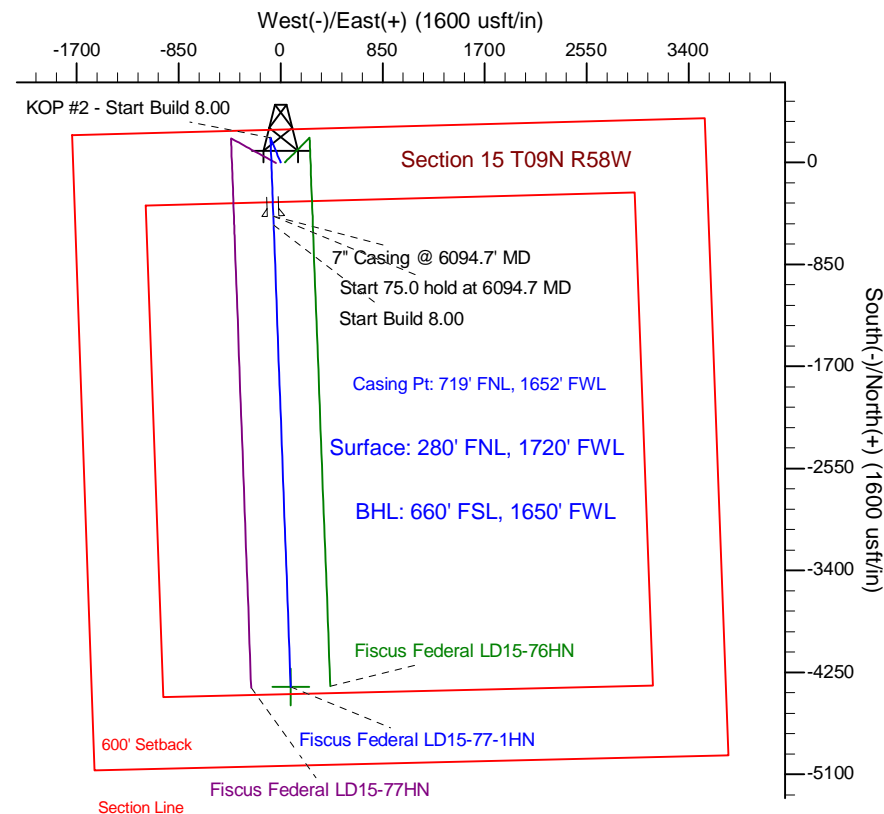
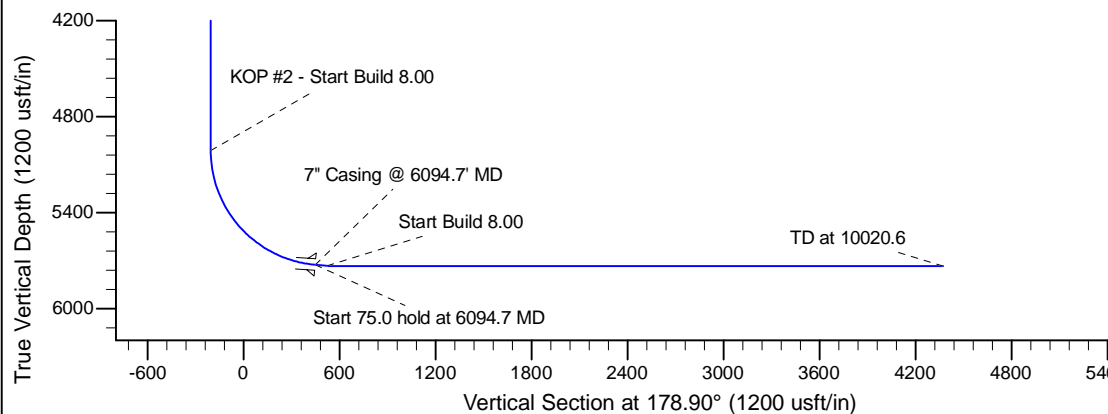
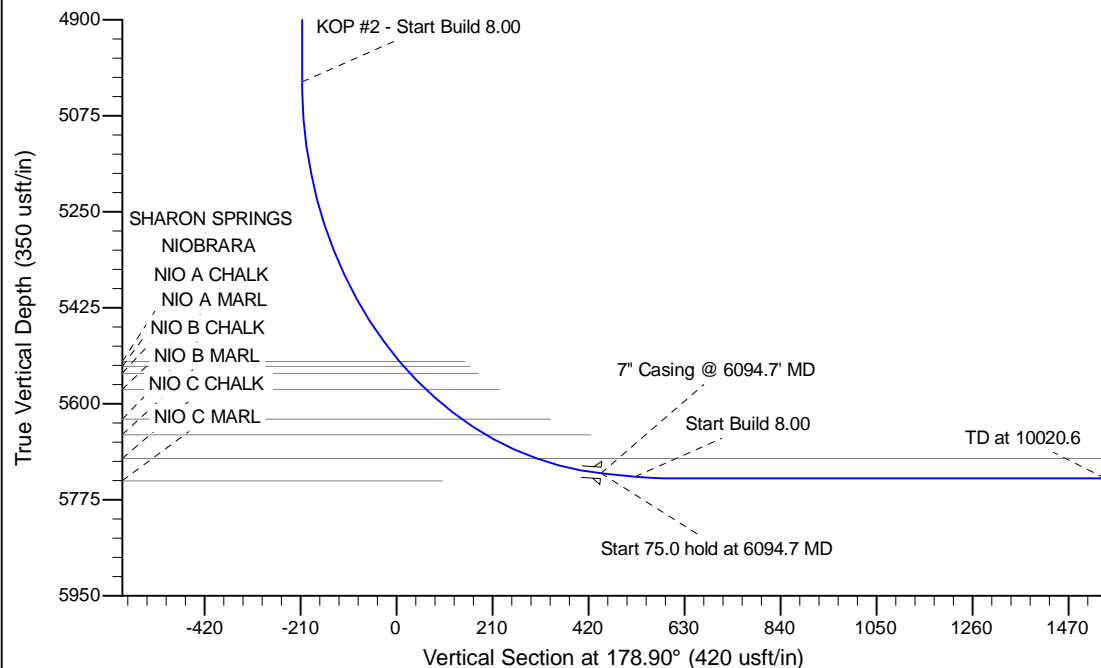
Project: Wattenberg Field
Site: LD (Sec.15-T09N-R58W) Weld County, CO
Well: Fiscus Federal LD15-77-1HN
Wellbore: Original Drilling
Design: APD - Rev 0

Northern Region Drilling

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	
3	2401.6	12.03	337.48	2397.2	58.1	-24.1	2.00	337.48	-58.6	
4	2862.3	12.03	337.48	2847.8	146.9	-60.9	0.00	0.00	-148.0	
5	3463.9	0.00	0.00	3445.0	205.0	-85.0	2.00	180.00	-206.6	
6	5032.2	0.00	0.00	5013.3	205.0	-85.0	0.00	0.00	-206.6	
7	6094.7	85.00	177.89	5726.7	-448.3	-60.9	8.00	177.89	447.1	
8	6169.7	85.00	177.89	5733.3	-523.0	-58.1	0.00	0.00	521.8	
9	6232.2	90.00	177.89	5736.0	-585.4	-55.8	8.00	0.00	584.2	
10	10020.6	90.00	177.89	5736.0	-4371.2	83.9	0.00	0.00	4372.0	Fiscus Federal LD15-77-1HN BHL 660'FSL, 1650'FWL



WELL DETAILS: Fiscus Federal LD15-77-1HN				
Ground Level: 4701.0				
0.0	0.0	Northing	Easting	Latitude
		1523167.66	3456084.33	40.757860
				Longitude
				-103.853630
Plan: APD - Rev 0 (Fiscus Federal LD15-77-1HN/Original Drilling)				
Created By: Shailey Jewell		Date: 16:58, April 08 2013		
Checked: _____		Date: _____		
Reviewed: _____		Date: _____		
Approved: _____		Date: _____		

Northern Region Drilling

Wattenberg Field

LD (09N-58W)

Fiscus Federal LD15-77-1HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

08 April, 2013

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

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

Site	LD (09N-58W)		
Site Position:		Northing:	1,523,557.18 usft
From:	Lat/Long	Easting:	3,449,341.23 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40.759270
		Longitude:	-103.877940
		Grid Convergence:	1.05 °

Well	Fiscus Federal LD15-77-1HN		
Well Position	+N/-S	-389.5 usft	Northing: 1,523,167.67 usft
	+E/-W	6,743.1 usft	Easting: 3,456,084.33 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Latitude: 40.757860
			Longitude: -103.853630
			Ground Level: 4,701.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/8/2013	8.09	67.43	53,242

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	178.90

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	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,401.6	12.03	337.48	2,397.2	58.1	-24.1	2.00	2.00	0.00	337.48	
2,862.3	12.03	337.48	2,847.8	146.9	-60.9	0.00	0.00	0.00	0.00	
3,463.9	0.00	0.00	3,445.0	205.0	-85.0	2.00	-2.00	0.00	180.00	
5,032.2	0.00	0.00	5,013.3	205.0	-85.0	0.00	0.00	0.00	0.00	
6,094.7	85.00	177.89	5,726.7	-448.3	-60.9	8.00	8.00	0.00	177.89	
6,169.7	85.00	177.89	5,733.3	-523.0	-58.1	0.00	0.00	0.00	0.00	
6,232.2	90.00	177.89	5,736.0	-585.4	-55.8	8.00	8.00	0.00	0.00	
10,020.6	90.00	177.89	5,736.0	-4,371.2	83.9	0.00	0.00	0.00	0.00	Fiscus Federal LD15-

Noble Energy Inc

Planning Report

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Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	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
1,349.0	0.00	0.00	1,349.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
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
KOP - Start Build 2.00									
1,850.0	1.00	337.48	1,850.0	0.4	-0.2	-0.4	2.00	2.00	0.00
1,900.0	2.00	337.48	1,900.0	1.6	-0.7	-1.6	2.00	2.00	0.00
1,950.0	3.00	337.48	1,949.9	3.6	-1.5	-3.7	2.00	2.00	0.00
2,000.0	4.00	337.48	1,999.8	6.4	-2.7	-6.5	2.00	2.00	0.00
2,050.0	5.00	337.48	2,049.7	10.1	-4.2	-10.1	2.00	2.00	0.00
2,100.0	6.00	337.48	2,099.5	14.5	-6.0	-14.6	2.00	2.00	0.00
2,150.0	7.00	337.48	2,149.1	19.7	-8.2	-19.9	2.00	2.00	0.00
2,200.0	8.00	337.48	2,198.7	25.8	-10.7	-26.0	2.00	2.00	0.00
2,250.0	9.00	337.48	2,248.2	32.6	-13.5	-32.8	2.00	2.00	0.00
2,300.0	10.00	337.48	2,297.5	40.2	-16.7	-40.5	2.00	2.00	0.00
2,350.0	11.00	337.48	2,346.6	48.6	-20.2	-49.0	2.00	2.00	0.00
2,400.0	12.00	337.48	2,395.6	57.8	-24.0	-58.3	2.00	2.00	0.00
2,401.6	12.03	337.48	2,397.2	58.1	-24.1	-58.6	2.00	2.00	0.00
2,450.0	12.03	337.48	2,444.5	67.5	-28.0	-68.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,500.0	12.03	337.48	2,493.4	77.1	-32.0	-77.7	0.00	0.00	0.00
2,550.0	12.03	337.48	2,542.3	86.7	-36.0	-87.4	0.00	0.00	0.00
2,600.0	12.03	337.48	2,591.2	96.3	-39.9	-97.1	0.00	0.00	0.00
2,650.0	12.03	337.48	2,640.1	106.0	-43.9	-106.8	0.00	0.00	0.00
2,700.0	12.03	337.48	2,689.0	115.6	-47.9	-116.5	0.00	0.00	0.00
2,750.0	12.03	337.48	2,737.9	125.2	-51.9	-126.2	0.00	0.00	0.00
2,800.0	12.03	337.48	2,786.8	134.9	-55.9	-135.9	0.00	0.00	0.00
2,850.0	12.03	337.48	2,835.7	144.5	-59.9	-145.6	0.00	0.00	0.00
2,862.3	12.03	337.48	2,847.8	146.9	-60.9	-148.0	0.00	0.00	0.00
Start Drop -2.00									
2,900.0	11.28	337.48	2,884.7	153.9	-63.8	-155.1	2.00	-2.00	0.00
2,950.0	10.28	337.48	2,933.8	162.5	-67.4	-163.8	2.00	-2.00	0.00
3,000.0	9.28	337.48	2,983.1	170.4	-70.6	-171.7	2.00	-2.00	0.00
3,050.0	8.28	337.48	3,032.5	177.4	-73.6	-178.8	2.00	-2.00	0.00
3,100.0	7.28	337.48	3,082.0	183.7	-76.2	-185.1	2.00	-2.00	0.00
3,150.0	6.28	337.48	3,131.7	189.1	-78.4	-190.6	2.00	-2.00	0.00
3,198.6	5.31	337.48	3,180.0	193.7	-80.3	-195.2	2.00	-2.00	0.00
PARKMAN									
3,200.0	5.28	337.48	3,181.4	193.8	-80.3	-195.3	2.00	-2.00	0.00
3,250.0	4.28	337.48	3,231.3	197.6	-81.9	-199.2	2.00	-2.00	0.00
3,300.0	3.28	337.48	3,281.1	200.7	-83.2	-202.2	2.00	-2.00	0.00
3,350.0	2.28	337.48	3,331.1	202.9	-84.1	-204.5	2.00	-2.00	0.00
3,400.0	1.28	337.48	3,381.1	204.3	-84.7	-205.9	2.00	-2.00	0.00
3,450.0	0.28	337.48	3,431.1	205.0	-85.0	-206.6	2.00	-2.00	0.00
3,463.9	0.00	0.00	3,445.0	205.0	-85.0	-206.6	2.00	-2.00	0.00
3,500.0	0.00	0.00	3,481.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,550.0	0.00	0.00	3,531.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,600.0	0.00	0.00	3,581.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,650.0	0.00	0.00	3,631.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,700.0	0.00	0.00	3,681.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,750.0	0.00	0.00	3,731.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,800.0	0.00	0.00	3,781.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,815.9	0.00	0.00	3,797.0	205.0	-85.0	-206.6	0.00	0.00	0.00
SUSSEX									
3,850.0	0.00	0.00	3,831.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,900.0	0.00	0.00	3,881.1	205.0	-85.0	-206.6	0.00	0.00	0.00
3,950.0	0.00	0.00	3,931.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,000.0	0.00	0.00	3,981.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,050.0	0.00	0.00	4,031.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,100.0	0.00	0.00	4,081.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,150.0	0.00	0.00	4,131.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,200.0	0.00	0.00	4,181.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,213.9	0.00	0.00	4,195.0	205.0	-85.0	-206.6	0.00	0.00	0.00
SHANNON									
4,250.0	0.00	0.00	4,231.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,300.0	0.00	0.00	4,281.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,350.0	0.00	0.00	4,331.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,400.0	0.00	0.00	4,381.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,450.0	0.00	0.00	4,431.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,500.0	0.00	0.00	4,481.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,550.0	0.00	0.00	4,531.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,600.0	0.00	0.00	4,581.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,650.0	0.00	0.00	4,631.1	205.0	-85.0	-206.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.0	0.00	0.00	4,681.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,750.0	0.00	0.00	4,731.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,800.0	0.00	0.00	4,781.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,850.0	0.00	0.00	4,831.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,900.0	0.00	0.00	4,881.1	205.0	-85.0	-206.6	0.00	0.00	0.00
4,913.9	0.00	0.00	4,895.0	205.0	-85.0	-206.6	0.00	0.00	0.00
TEEPEE BUTTES									
4,950.0	0.00	0.00	4,931.1	205.0	-85.0	-206.6	0.00	0.00	0.00
5,000.0	0.00	0.00	4,981.1	205.0	-85.0	-206.6	0.00	0.00	0.00
5,032.2	0.00	0.00	5,013.3	205.0	-85.0	-206.6	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
5,050.0	1.42	177.89	5,031.1	204.8	-85.0	-206.4	7.99	7.99	0.00
5,100.0	5.42	177.89	5,081.0	201.8	-84.9	-203.4	8.00	8.00	0.00
5,150.0	9.42	177.89	5,130.5	195.3	-84.6	-196.9	8.00	8.00	0.00
5,200.0	13.42	177.89	5,179.5	185.4	-84.3	-187.0	8.00	8.00	0.00
5,250.0	17.42	177.89	5,227.7	172.2	-83.8	-173.7	8.00	8.00	0.00
5,300.0	21.42	177.89	5,274.9	155.6	-83.2	-157.1	8.00	8.00	0.00
5,350.0	25.42	177.89	5,320.7	135.7	-82.4	-137.3	8.00	8.00	0.00
5,400.0	29.42	177.89	5,365.1	112.7	-81.6	-114.2	8.00	8.00	0.00
5,450.0	33.42	177.89	5,407.8	86.6	-80.6	-88.2	8.00	8.00	0.00
5,500.0	37.42	177.89	5,448.5	57.7	-79.6	-59.2	8.00	8.00	0.00
5,550.0	41.42	177.89	5,487.1	26.0	-78.4	-27.5	8.00	8.00	0.00
5,599.4	45.38	177.89	5,523.0	-8.0	-77.1	6.5	8.00	8.00	0.00
SHARON SPRINGS									
5,600.0	45.42	177.89	5,523.4	-8.4	-77.1	6.9	8.00	8.00	0.00
5,612.3	46.41	177.89	5,532.0	-17.2	-76.8	15.8	8.00	8.00	0.00
NIOBRARA									
5,631.5	47.94	177.89	5,545.0	-31.2	-76.3	29.8	8.00	8.00	0.00
NIO A CHALK									
5,650.0	49.42	177.89	5,557.2	-45.2	-75.8	43.7	8.00	8.00	0.00
5,676.3	51.53	177.89	5,574.0	-65.5	-75.0	64.0	8.00	8.00	0.00
NIO A MARL									
5,700.0	53.42	177.89	5,588.4	-84.2	-74.3	82.8	8.00	8.00	0.00
5,750.0	57.42	177.89	5,616.8	-125.3	-72.8	123.9	8.00	8.00	0.00
5,771.3	59.13	177.89	5,628.0	-143.5	-72.1	142.1	8.00	8.00	0.00
NIO B CHALK									
5,800.0	61.42	177.89	5,642.2	-168.4	-71.2	167.0	8.00	8.00	0.00
5,832.3	64.00	177.89	5,657.0	-197.0	-70.2	195.6	8.00	8.00	0.00
NIO B MARL									
5,850.0	65.42	177.89	5,664.6	-213.0	-69.6	211.7	8.00	8.00	0.00
5,900.0	69.42	177.89	5,683.8	-259.2	-67.9	257.8	8.00	8.00	0.00
5,950.0	73.42	177.89	5,699.7	-306.5	-66.1	305.2	8.00	8.00	0.00
5,951.1	73.51	177.89	5,700.0	-307.5	-66.1	306.2	8.00	8.00	0.00
NIO C CHALK									
6,000.0	77.42	177.89	5,712.3	-354.9	-64.3	353.6	8.00	8.00	0.00
6,050.0	81.42	177.89	5,721.5	-404.0	-62.5	402.7	8.00	8.00	0.00
6,094.7	85.00	177.89	5,726.7	-448.3	-60.9	447.1	8.00	8.00	0.00
Start 75.0 hold at 6094.7 MD - 7" Casing @ 6094.7" MD									
6,100.0	85.00	177.89	5,727.2	-453.6	-60.7	452.3	0.02	0.02	0.00
6,150.0	85.00	177.89	5,731.6	-503.4	-58.8	502.1	0.00	0.00	0.00
6,169.7	85.00	177.89	5,733.3	-523.0	-58.1	521.8	0.00	0.00	0.00
Start Build 8.00									
6,200.0	87.42	177.89	5,735.3	-553.2	-57.0	552.0	8.00	8.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,232.2	90.00	177.89	5,736.0	-585.4	-55.8	584.2	8.00	8.00	0.00
6,250.0	90.00	177.89	5,736.0	-603.1	-55.2	602.0	0.00	0.00	0.00
6,300.0	90.00	177.89	5,736.0	-653.1	-53.3	652.0	0.00	0.00	0.00
6,350.0	90.00	177.89	5,736.0	-703.1	-51.5	702.0	0.00	0.00	0.00
6,400.0	90.00	177.89	5,736.0	-753.0	-49.6	752.0	0.00	0.00	0.00
6,450.0	90.00	177.89	5,736.0	-803.0	-47.8	801.9	0.00	0.00	0.00
6,500.0	90.00	177.89	5,736.0	-853.0	-45.9	851.9	0.00	0.00	0.00
6,550.0	90.00	177.89	5,736.0	-902.9	-44.1	901.9	0.00	0.00	0.00
6,600.0	90.00	177.89	5,736.0	-952.9	-42.3	951.9	0.00	0.00	0.00
6,650.0	90.00	177.89	5,736.0	-1,002.9	-40.4	1,001.9	0.00	0.00	0.00
6,700.0	90.00	177.89	5,736.0	-1,052.8	-38.6	1,051.9	0.00	0.00	0.00
6,750.0	90.00	177.89	5,736.0	-1,102.8	-36.7	1,101.9	0.00	0.00	0.00
6,800.0	90.00	177.89	5,736.0	-1,152.8	-34.9	1,151.9	0.00	0.00	0.00
6,850.0	90.00	177.89	5,736.0	-1,202.7	-33.0	1,201.9	0.00	0.00	0.00
6,900.0	90.00	177.89	5,736.0	-1,252.7	-31.2	1,251.9	0.00	0.00	0.00
6,950.0	90.00	177.89	5,736.0	-1,302.7	-29.3	1,301.9	0.00	0.00	0.00
7,000.0	90.00	177.89	5,736.0	-1,352.6	-27.5	1,351.9	0.00	0.00	0.00
7,050.0	90.00	177.89	5,736.0	-1,402.6	-25.7	1,401.9	0.00	0.00	0.00
7,100.0	90.00	177.89	5,736.0	-1,452.6	-23.8	1,451.8	0.00	0.00	0.00
7,150.0	90.00	177.89	5,736.0	-1,502.5	-22.0	1,501.8	0.00	0.00	0.00
7,200.0	90.00	177.89	5,736.0	-1,552.5	-20.1	1,551.8	0.00	0.00	0.00
7,250.0	90.00	177.89	5,736.0	-1,602.5	-18.3	1,601.8	0.00	0.00	0.00
7,300.0	90.00	177.89	5,736.0	-1,652.4	-16.4	1,651.8	0.00	0.00	0.00
7,350.0	90.00	177.89	5,736.0	-1,702.4	-14.6	1,701.8	0.00	0.00	0.00
7,400.0	90.00	177.89	5,736.0	-1,752.4	-12.7	1,751.8	0.00	0.00	0.00
7,450.0	90.00	177.89	5,736.0	-1,802.3	-10.9	1,801.8	0.00	0.00	0.00
7,500.0	90.00	177.89	5,736.0	-1,852.3	-9.1	1,851.8	0.00	0.00	0.00
7,550.0	90.00	177.89	5,736.0	-1,902.3	-7.2	1,901.8	0.00	0.00	0.00
7,600.0	90.00	177.89	5,736.0	-1,952.2	-5.4	1,951.8	0.00	0.00	0.00
7,650.0	90.00	177.89	5,736.0	-2,002.2	-3.5	2,001.8	0.00	0.00	0.00
7,700.0	90.00	177.89	5,736.0	-2,052.2	-1.7	2,051.8	0.00	0.00	0.00
7,750.0	90.00	177.89	5,736.0	-2,102.1	0.2	2,101.7	0.00	0.00	0.00
7,800.0	90.00	177.89	5,736.0	-2,152.1	2.0	2,151.7	0.00	0.00	0.00
7,850.0	90.00	177.89	5,736.0	-2,202.1	3.9	2,201.7	0.00	0.00	0.00
7,900.0	90.00	177.89	5,736.0	-2,252.0	5.7	2,251.7	0.00	0.00	0.00
7,950.0	90.00	177.89	5,736.0	-2,302.0	7.5	2,301.7	0.00	0.00	0.00
8,000.0	90.00	177.89	5,736.0	-2,352.0	9.4	2,351.7	0.00	0.00	0.00
8,050.0	90.00	177.89	5,736.0	-2,401.9	11.2	2,401.7	0.00	0.00	0.00
8,100.0	90.00	177.89	5,736.0	-2,451.9	13.1	2,451.7	0.00	0.00	0.00
8,150.0	90.00	177.89	5,736.0	-2,501.9	14.9	2,501.7	0.00	0.00	0.00
8,200.0	90.00	177.89	5,736.0	-2,551.8	16.8	2,551.7	0.00	0.00	0.00
8,250.0	90.00	177.89	5,736.0	-2,601.8	18.6	2,601.7	0.00	0.00	0.00
8,300.0	90.00	177.89	5,736.0	-2,651.8	20.5	2,651.7	0.00	0.00	0.00
8,350.0	90.00	177.89	5,736.0	-2,701.7	22.3	2,701.6	0.00	0.00	0.00
8,400.0	90.00	177.89	5,736.0	-2,751.7	24.2	2,751.6	0.00	0.00	0.00
8,450.0	90.00	177.89	5,736.0	-2,801.7	26.0	2,801.6	0.00	0.00	0.00
8,500.0	90.00	177.89	5,736.0	-2,851.6	27.8	2,851.6	0.00	0.00	0.00
8,550.0	90.00	177.89	5,736.0	-2,901.6	29.7	2,901.6	0.00	0.00	0.00
8,600.0	90.00	177.89	5,736.0	-2,951.5	31.5	2,951.6	0.00	0.00	0.00
8,650.0	90.00	177.89	5,736.0	-3,001.5	33.4	3,001.6	0.00	0.00	0.00
8,700.0	90.00	177.89	5,736.0	-3,051.5	35.2	3,051.6	0.00	0.00	0.00
8,750.0	90.00	177.89	5,736.0	-3,101.4	37.1	3,101.6	0.00	0.00	0.00
8,800.0	90.00	177.89	5,736.0	-3,151.4	38.9	3,151.6	0.00	0.00	0.00
8,850.0	90.00	177.89	5,736.0	-3,201.4	40.8	3,201.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,900.0	90.00	177.89	5,736.0	-3,251.3	42.6	3,251.6	0.00	0.00	0.00	
8,950.0	90.00	177.89	5,736.0	-3,301.3	44.4	3,301.6	0.00	0.00	0.00	
9,000.0	90.00	177.89	5,736.0	-3,351.3	46.3	3,351.5	0.00	0.00	0.00	
9,050.0	90.00	177.89	5,736.0	-3,401.2	48.1	3,401.5	0.00	0.00	0.00	
9,100.0	90.00	177.89	5,736.0	-3,451.2	50.0	3,451.5	0.00	0.00	0.00	
9,150.0	90.00	177.89	5,736.0	-3,501.2	51.8	3,501.5	0.00	0.00	0.00	
9,200.0	90.00	177.89	5,736.0	-3,551.1	53.7	3,551.5	0.00	0.00	0.00	
9,250.0	90.00	177.89	5,736.0	-3,601.1	55.5	3,601.5	0.00	0.00	0.00	
9,300.0	90.00	177.89	5,736.0	-3,651.1	57.4	3,651.5	0.00	0.00	0.00	
9,350.0	90.00	177.89	5,736.0	-3,701.0	59.2	3,701.5	0.00	0.00	0.00	
9,400.0	90.00	177.89	5,736.0	-3,751.0	61.0	3,751.5	0.00	0.00	0.00	
9,450.0	90.00	177.89	5,736.0	-3,801.0	62.9	3,801.5	0.00	0.00	0.00	
9,500.0	90.00	177.89	5,736.0	-3,850.9	64.7	3,851.5	0.00	0.00	0.00	
9,550.0	90.00	177.89	5,736.0	-3,900.9	66.6	3,901.5	0.00	0.00	0.00	
9,600.0	90.00	177.89	5,736.0	-3,950.9	68.4	3,951.5	0.00	0.00	0.00	
9,650.0	90.00	177.89	5,736.0	-4,000.8	70.3	4,001.4	0.00	0.00	0.00	
9,700.0	90.00	177.89	5,736.0	-4,050.8	72.1	4,051.4	0.00	0.00	0.00	
9,750.0	90.00	177.89	5,736.0	-4,100.8	74.0	4,101.4	0.00	0.00	0.00	
9,800.0	90.00	177.89	5,736.0	-4,150.7	75.8	4,151.4	0.00	0.00	0.00	
9,850.0	90.00	177.89	5,736.0	-4,200.7	77.6	4,201.4	0.00	0.00	0.00	
9,900.0	90.00	177.89	5,736.0	-4,250.7	79.5	4,251.4	0.00	0.00	0.00	
9,950.0	90.00	177.89	5,736.0	-4,300.6	81.3	4,301.4	0.00	0.00	0.00	
10,000.0	90.00	177.89	5,736.0	-4,350.6	83.2	4,351.4	0.00	0.00	0.00	
10,020.6	90.00	177.89	5,736.0	-4,371.2	83.9	4,372.0	0.00	0.00	0.00	
TD at 10020.6 - Fiscus Federal LD15-77-1HN BHL 660'FSL, 1650'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										
Fiscus Federal LD15-77	0.00	0.01	5,736.0	-4,371.2	83.9	1,518,796.49	3,456,168.27	40.745860	-103.853620	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,094.7	5,726.7	7" Casing @ 6094.7' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Company:	Northern Region Drilling	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,349.0	1,349.0	PIERRE		0.00		
3,198.6	3,180.0	PARKMAN		0.00		
3,815.9	3,797.0	SUSSEX		0.00		
4,213.9	4,195.0	SHANNON		0.00		
4,913.9	4,895.0	TEEPEE BUTTES		0.00		
5,599.4	5,523.0	SHARON SPRINGS		0.00		
5,612.3	5,532.0	NIOBRARA		0.00		
5,631.5	5,545.0	NIO A CHALK		0.00		
5,676.3	5,574.0	NIO A MARL		0.00		
5,771.3	5,628.0	NIO B CHALK		0.00		
5,832.3	5,657.0	NIO B MARL		0.00		
5,951.1	5,700.0	NIO C CHALK		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 2.00	
2,862.3	2,847.8	146.9	-60.9	Start Drop -2.00	
5,032.2	5,013.3	205.0	-85.0	KOP #2 - Start Build 8.00	
6,094.7	5,726.7	-448.3	-60.9	Start 75.0 hold at 6094.7 MD	
6,169.7	5,733.3	-523.0	-58.1	Start Build 8.00	
10,020.6	5,736.0	-4,371.2	83.9	TD at 10020.6	

Northern Region Drilling

Wattenberg Field

LD (09N-58W)

Fiscus Federal LD15-77-1HN

Original Drilling

APD - Rev 0

Anticollision Summary Report

08 April, 2013

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	4/8/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	10,020.6	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

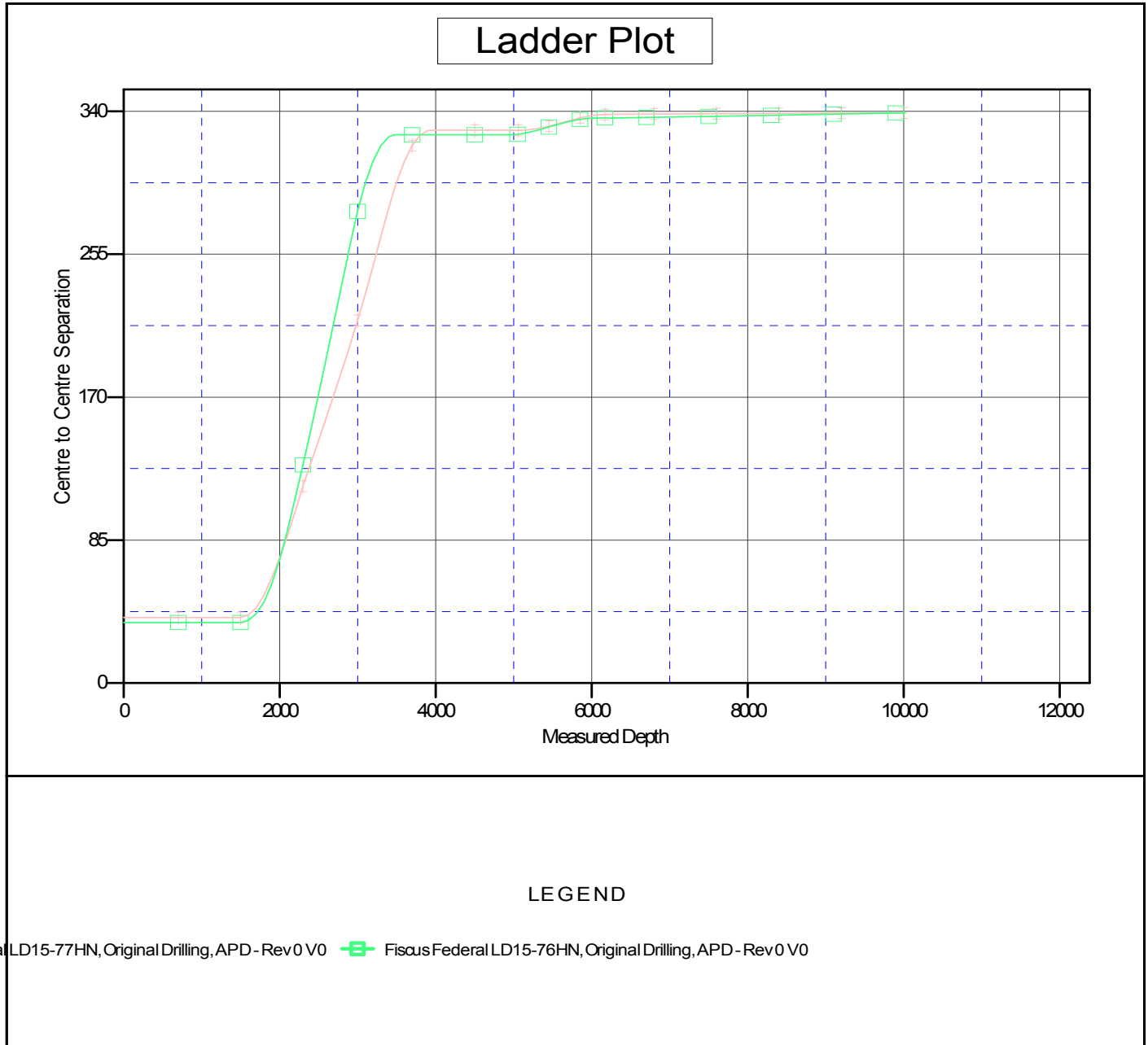
Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Fiscus Federal LD15-76HN - Original Drilling - APD - Rev	1,500.0	1,499.0	36.0	29.6	5.585	CC, ES
Fiscus Federal LD15-76HN - Original Drilling - APD - Rev	10,020.6	9,936.1	339.0	171.1	2.019	SF
Fiscus Federal LD15-77HN - Original Drilling - APD - Rev	1,500.0	1,500.0	39.0	32.5	6.039	CC, ES
Fiscus Federal LD15-77HN - Original Drilling - APD - Rev	10,020.6	9,970.4	339.1	170.9	2.016	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling	Local Co-ordinate Reference:	Well Fiscus Federal LD15-77-1HN
Project:	Wattenberg Field	TVD Reference:	WELL @ 4731.0usft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4731.0usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Fiscus Federal LD15-77-1HN	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.54 sigma
Reference Wellbore	Original Drilling	Database:	EDM Production
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4731.0usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Fiscus Federal LD15-77-1HN
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°



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