

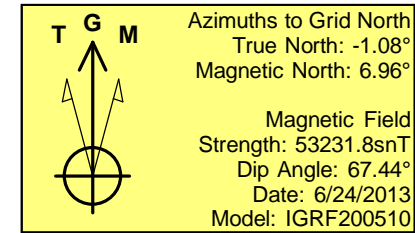
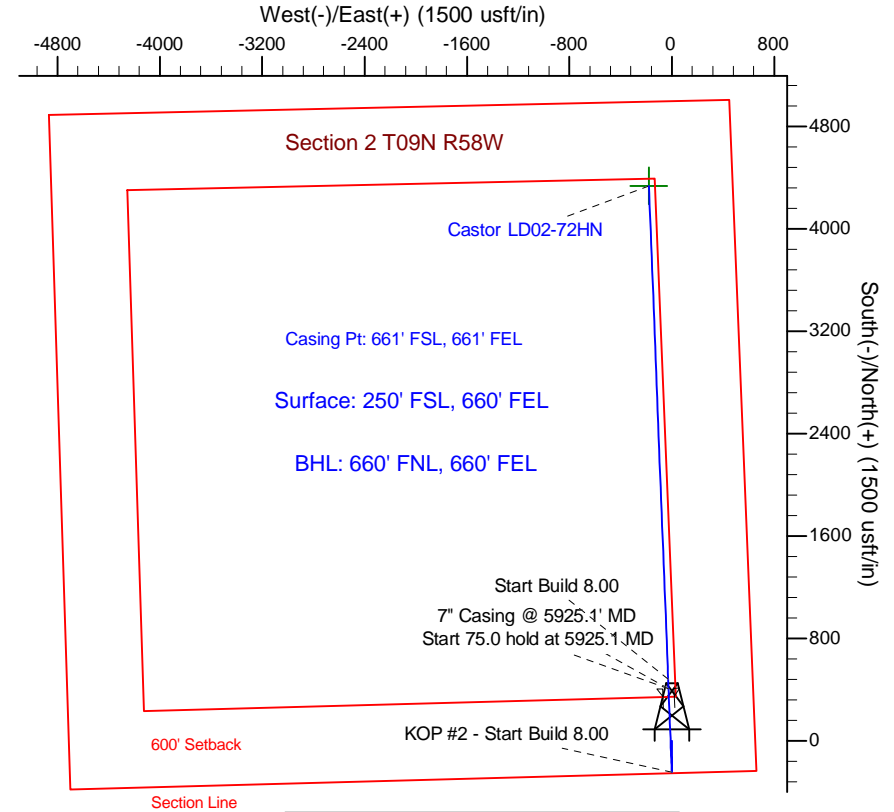
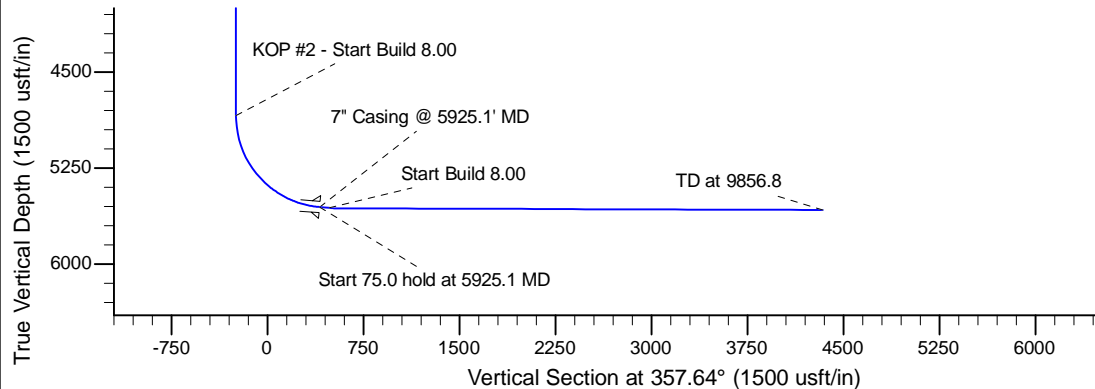
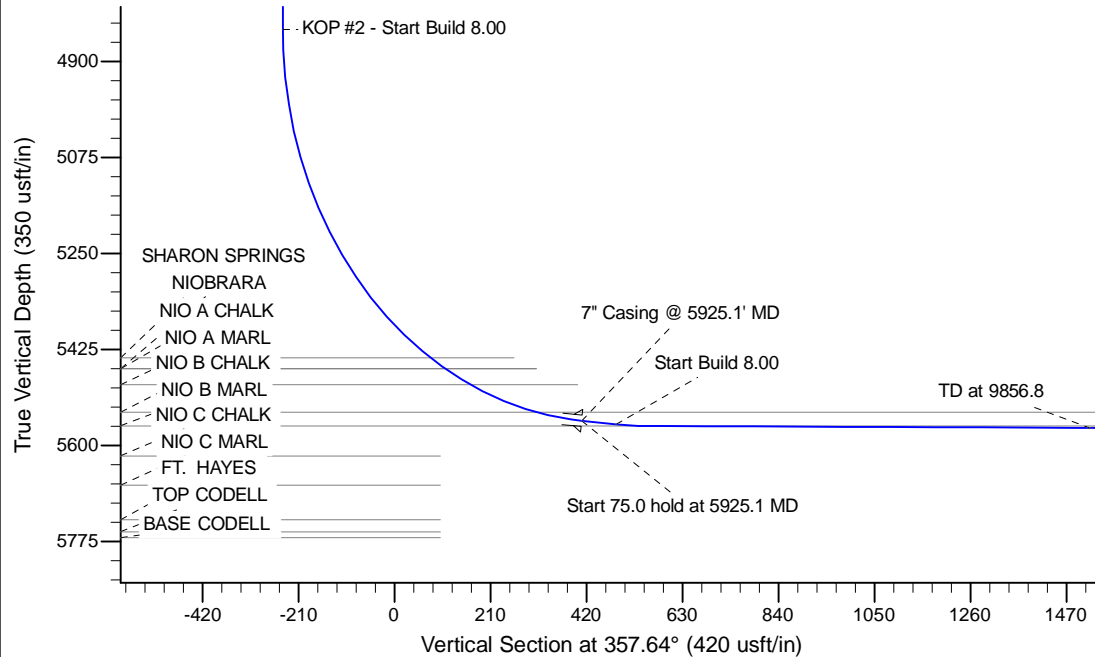
Project: Wattenberg Field
Site: LD (Sec.2-T09N-R58W) Weld County, CO
Well: Castor LD02-72HN
Wellbore: Original Drilling
Design: APD - Rev 0

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	1800.0	0.00	0.00	1800.0	0.0	0.0	0.00	0.00	0.0	
3	2399.8	12.00	180.00	2395.5	-62.6	0.0	2.00	180.00	-62.5	
4	2976.5	12.00	180.00	2959.5	-182.4	0.0	0.00	0.00	-182.3	
5	3576.3	0.00	0.00	3555.0	-245.0	0.0	2.00	180.00	-244.8	
6	4862.6	0.00	0.00	4841.2	-245.0	0.0	0.00	0.00	-244.8	
7	5925.1	85.00	357.76	5554.7	408.3	-25.5	8.00	357.76	409.0	
8	6000.1	85.00	357.76	5561.2	482.9	-28.4	0.00	0.00	483.7	
9	6060.1	89.80	357.76	5563.9	542.8	-30.8	8.00	0.00	543.6	
10	9856.8	89.80	357.76	5577.2	4336.6	-178.9	0.00	0.00	4340.3	Castor LD02-72HN BHL 660'FNL, 660'FEL



WELL DETAILS: Castor LD02-72HN

Ground Level: 4661.0			
0.0	0.0	Northing	East
1529215.19	3464174.64	Latitude	Longitude
40.774040	-103.824020		

Plan: APD - Rev 0 (Castor LD02-72HN/Original Drilling)

Created By: Shailey Jewell	Date: 10:54, June 24 2013
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Castor LD02-72HN

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

24 June, 2013

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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	Latitude:	40.759270
From:	Lat/Long	Easting:	3,449,341.23 usft	Longitude:	-103.877940
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well	Castor LD02-72HN					
Well Position	+N/-S	5,658.0 usft	Northing:	1,529,215.19 usft	Latitude:	40.774040
	+E/-W	14,833.5 usft	Easting:	3,464,174.64 usft	Longitude:	-103.824020
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	4,661.0 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/24/2013	8.05	67.44	53,232

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	357.64

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	
2,399.8	12.00	180.00	2,395.5	-62.6	0.0	2.00	2.00	0.00	180.00	
2,976.5	12.00	180.00	2,959.5	-182.4	0.0	0.00	0.00	0.00	0.00	
3,576.3	0.00	0.00	3,555.0	-245.0	0.0	2.00	-2.00	0.00	180.00	
4,862.6	0.00	0.00	4,841.2	-245.0	0.0	0.00	0.00	0.00	0.00	
5,925.1	85.00	357.76	5,554.7	408.3	-25.5	8.00	8.00	0.00	357.76	
6,000.1	85.00	357.76	5,561.2	482.9	-28.4	0.00	0.00	0.00	0.00	
6,060.1	89.80	357.76	5,563.9	542.8	-30.8	8.00	8.00	0.00	0.00	
9,856.8	89.80	357.76	5,577.2	4,336.6	-178.9	0.00	0.00	0.00	0.00	Castor LD02-72HN BI

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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
1,350.0	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	180.00	1,850.0	-0.4	0.0	-0.4	2.00	2.00	0.00
1,900.0	2.00	180.00	1,900.0	-1.7	0.0	-1.7	2.00	2.00	0.00
1,950.0	3.00	180.00	1,949.9	-3.9	0.0	-3.9	2.00	2.00	0.00
2,000.0	4.00	180.00	1,999.8	-7.0	0.0	-7.0	2.00	2.00	0.00
2,050.0	5.00	180.00	2,049.7	-10.9	0.0	-10.9	2.00	2.00	0.00
2,100.0	6.00	180.00	2,099.5	-15.7	0.0	-15.7	2.00	2.00	0.00
2,150.0	7.00	180.00	2,149.1	-21.4	0.0	-21.3	2.00	2.00	0.00
2,200.0	8.00	180.00	2,198.7	-27.9	0.0	-27.9	2.00	2.00	0.00
2,250.0	9.00	180.00	2,248.2	-35.3	0.0	-35.2	2.00	2.00	0.00
2,300.0	10.00	180.00	2,297.5	-43.5	0.0	-43.5	2.00	2.00	0.00
2,350.0	11.00	180.00	2,346.6	-52.6	0.0	-52.6	2.00	2.00	0.00
2,399.8	12.00	180.00	2,395.5	-62.6	0.0	-62.5	2.00	2.00	0.00
2,400.0	12.00	180.00	2,395.6	-62.6	0.0	-62.6	0.00	0.00	0.00
2,450.0	12.00	180.00	2,444.5	-73.0	0.0	-72.9	0.00	0.00	0.00
2,500.0	12.00	180.00	2,493.4	-83.4	0.0	-83.3	0.00	0.00	0.00
2,550.0	12.00	180.00	2,542.3	-93.8	0.0	-93.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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)
2,600.0	12.00	180.00	2,591.3	-104.2	0.0	-104.1	0.00	0.00	0.00
2,650.0	12.00	180.00	2,640.2	-114.6	0.0	-114.5	0.00	0.00	0.00
2,700.0	12.00	180.00	2,689.1	-125.0	0.0	-124.9	0.00	0.00	0.00
2,750.0	12.00	180.00	2,738.0	-135.4	0.0	-135.2	0.00	0.00	0.00
2,800.0	12.00	180.00	2,786.9	-145.7	0.0	-145.6	0.00	0.00	0.00
2,850.0	12.00	180.00	2,835.8	-156.1	0.0	-156.0	0.00	0.00	0.00
2,900.0	12.00	180.00	2,884.7	-166.5	0.0	-166.4	0.00	0.00	0.00
2,950.0	12.00	180.00	2,933.6	-176.9	0.0	-176.8	0.00	0.00	0.00
2,976.5	12.00	180.00	2,959.5	-182.4	0.0	-182.3	0.00	0.00	0.00
Start Drop -2.00									
3,000.0	11.53	180.00	2,982.5	-187.2	0.0	-187.1	2.00	-2.00	0.00
3,050.0	10.53	180.00	3,031.6	-196.8	0.0	-196.6	2.00	-2.00	0.00
3,100.0	9.53	180.00	3,080.9	-205.5	0.0	-205.3	2.00	-2.00	0.00
3,150.0	8.53	180.00	3,130.2	-213.3	0.0	-213.2	2.00	-2.00	0.00
3,200.0	7.53	180.00	3,179.7	-220.3	0.0	-220.1	2.00	-2.00	0.00
3,250.0	6.53	180.00	3,229.4	-226.4	0.0	-226.2	2.00	-2.00	0.00
3,300.0	5.53	180.00	3,279.1	-231.7	0.0	-231.5	2.00	-2.00	0.00
3,350.0	4.53	180.00	3,328.9	-236.1	0.0	-235.9	2.00	-2.00	0.00
3,400.0	3.53	180.00	3,378.8	-239.6	0.0	-239.4	2.00	-2.00	0.00
3,450.0	2.53	180.00	3,428.7	-242.2	0.0	-242.0	2.00	-2.00	0.00
3,500.0	1.53	180.00	3,478.7	-244.0	0.0	-243.8	2.00	-2.00	0.00
3,550.0	0.53	180.00	3,528.7	-244.9	0.0	-244.7	2.00	-2.00	0.00
3,576.3	0.00	0.00	3,555.0	-245.0	0.0	-244.8	2.00	-2.00	0.00
3,600.0	0.00	0.00	3,578.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,650.0	0.00	0.00	3,628.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,700.0	0.00	0.00	3,678.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,750.0	0.00	0.00	3,728.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,800.0	0.00	0.00	3,778.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,850.0	0.00	0.00	3,828.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,900.0	0.00	0.00	3,878.7	-245.0	0.0	-244.8	0.00	0.00	0.00
3,950.0	0.00	0.00	3,928.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,000.0	0.00	0.00	3,978.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,050.0	0.00	0.00	4,028.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,100.0	0.00	0.00	4,078.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,150.0	0.00	0.00	4,128.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,200.0	0.00	0.00	4,178.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,250.0	0.00	0.00	4,228.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,300.0	0.00	0.00	4,278.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,350.0	0.00	0.00	4,328.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,400.0	0.00	0.00	4,378.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,450.0	0.00	0.00	4,428.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,500.0	0.00	0.00	4,478.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,550.0	0.00	0.00	4,528.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,600.0	0.00	0.00	4,578.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,650.0	0.00	0.00	4,628.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,700.0	0.00	0.00	4,678.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,750.0	0.00	0.00	4,728.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,778.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,850.0	0.00	0.00	4,828.7	-245.0	0.0	-244.8	0.00	0.00	0.00
4,862.6	0.00	0.00	4,841.3	-245.0	0.0	-244.8	0.00	0.00	0.00
KOP #2 - Start Build 8.00									
4,900.0	3.00	357.76	4,878.6	-244.0	0.0	-243.8	8.01	8.01	0.00
4,950.0	7.00	357.76	4,928.4	-239.7	-0.2	-239.5	8.00	8.00	0.00
5,000.0	11.00	357.76	4,977.8	-231.9	-0.5	-231.6	8.00	8.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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)
5,050.0	15.00	357.76	5,026.5	-220.6	-1.0	-220.4	8.00	8.00	0.00
5,100.0	19.00	357.76	5,074.3	-206.0	-1.5	-205.8	8.00	8.00	0.00
5,150.0	23.00	357.76	5,121.0	-188.1	-2.2	-187.9	8.00	8.00	0.00
5,200.0	27.00	357.76	5,166.3	-167.0	-3.0	-166.8	8.00	8.00	0.00
5,250.0	31.00	357.76	5,210.0	-142.8	-4.0	-142.5	8.00	8.00	0.00
5,300.0	35.00	357.76	5,252.0	-115.6	-5.1	-115.3	8.00	8.00	0.00
5,350.0	39.00	357.76	5,291.9	-85.6	-6.2	-85.2	8.00	8.00	0.00
5,400.0	43.00	357.76	5,329.6	-52.8	-7.5	-52.4	8.00	8.00	0.00
5,450.0	47.00	357.76	5,365.0	-17.5	-8.9	-17.1	8.00	8.00	0.00
5,500.0	51.00	357.76	5,397.8	20.2	-10.4	20.6	8.00	8.00	0.00
5,550.0	55.00	357.76	5,427.9	60.1	-11.9	60.6	8.00	8.00	0.00
5,571.6	56.72	357.76	5,440.0	78.0	-12.6	78.5	8.00	8.00	0.00
SHARON SPRINGS									
5,600.0	59.00	357.76	5,455.1	102.0	-13.6	102.5	8.00	8.00	0.00
5,609.6	59.77	357.76	5,460.0	110.3	-13.9	110.8	8.00	8.00	0.00
NIOBRARA - NIO A CHALK									
5,650.0	63.00	357.76	5,479.3	145.7	-15.3	146.2	8.00	8.00	0.00
5,671.9	64.75	357.76	5,489.0	165.4	-16.0	165.9	8.00	8.00	0.00
NIO A MARL									
5,700.0	67.00	357.76	5,500.5	191.0	-17.0	191.5	8.00	8.00	0.00
5,750.0	71.00	357.76	5,518.4	237.6	-18.8	238.2	8.00	8.00	0.00
5,800.0	75.00	357.76	5,533.0	285.4	-20.7	286.0	8.00	8.00	0.00
5,824.7	76.98	357.76	5,539.0	309.4	-21.6	310.0	8.00	8.00	0.00
NIO B CHALK									
5,850.0	79.00	357.76	5,544.2	334.0	-22.6	334.7	8.00	8.00	0.00
5,900.0	83.00	357.76	5,552.1	383.4	-24.5	384.1	8.00	8.00	0.00
5,925.1	85.00	357.76	5,554.7	408.3	-25.5	409.0	7.99	7.99	0.00
Start 75.0 hold at 5925.1 MD - 7" Casing @ 5925.1' MD									
5,950.0	85.00	357.76	5,556.9	433.1	-26.5	433.8	0.00	0.00	0.00
6,000.0	85.00	357.76	5,561.2	482.9	-28.4	483.6	0.00	0.00	0.00
6,000.1	85.00	357.76	5,561.2	483.0	-28.4	483.7	0.00	0.00	0.00
Start Build 8.00									
6,050.0	89.00	357.76	5,563.8	532.8	-30.4	533.6	8.01	8.01	0.00
6,060.1	89.80	357.76	5,563.9	542.8	-30.8	543.6	8.00	8.00	0.00
6,072.1	89.80	357.76	5,564.0	554.8	-31.2	555.6	0.00	0.00	0.00
NIO B MARL									
6,100.0	89.80	357.76	5,564.1	582.7	-32.3	583.6	0.00	0.00	0.00
6,150.0	89.80	357.76	5,564.3	632.7	-34.3	633.6	0.00	0.00	0.00
6,200.0	89.80	357.76	5,564.4	682.6	-36.2	683.6	0.00	0.00	0.00
6,250.0	89.80	357.76	5,564.6	732.6	-38.2	733.6	0.00	0.00	0.00
6,300.0	89.80	357.76	5,564.8	782.6	-40.1	783.6	0.00	0.00	0.00
6,350.0	89.80	357.76	5,565.0	832.5	-42.1	833.6	0.00	0.00	0.00
6,400.0	89.80	357.76	5,565.1	882.5	-44.0	883.6	0.00	0.00	0.00
6,450.0	89.80	357.76	5,565.3	932.5	-46.0	933.6	0.00	0.00	0.00
6,500.0	89.80	357.76	5,565.5	982.4	-47.9	983.6	0.00	0.00	0.00
6,550.0	89.80	357.76	5,565.7	1,032.4	-49.9	1,033.6	0.00	0.00	0.00
6,600.0	89.80	357.76	5,565.8	1,082.3	-51.8	1,083.6	0.00	0.00	0.00
6,650.0	89.80	357.76	5,566.0	1,132.3	-53.8	1,133.6	0.00	0.00	0.00
6,700.0	89.80	357.76	5,566.2	1,182.3	-55.7	1,183.6	0.00	0.00	0.00
6,750.0	89.80	357.76	5,566.4	1,232.2	-57.7	1,233.6	0.00	0.00	0.00
6,800.0	89.80	357.76	5,566.5	1,282.2	-59.6	1,283.6	0.00	0.00	0.00
6,850.0	89.80	357.76	5,566.7	1,332.1	-61.6	1,333.6	0.00	0.00	0.00
6,900.0	89.80	357.76	5,566.9	1,382.1	-63.5	1,383.6	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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)
6,950.0	89.80	357.76	5,567.1	1,432.1	-65.5	1,433.6	0.00	0.00	0.00
7,000.0	89.80	357.76	5,567.2	1,482.0	-67.4	1,483.6	0.00	0.00	0.00
7,050.0	89.80	357.76	5,567.4	1,532.0	-69.4	1,533.6	0.00	0.00	0.00
7,100.0	89.80	357.76	5,567.6	1,582.0	-71.3	1,583.6	0.00	0.00	0.00
7,150.0	89.80	357.76	5,567.8	1,631.9	-73.3	1,633.6	0.00	0.00	0.00
7,200.0	89.80	357.76	5,567.9	1,681.9	-75.2	1,683.6	0.00	0.00	0.00
7,250.0	89.80	357.76	5,568.1	1,731.8	-77.2	1,733.5	0.00	0.00	0.00
7,300.0	89.80	357.76	5,568.3	1,781.8	-79.1	1,783.5	0.00	0.00	0.00
7,350.0	89.80	357.76	5,568.4	1,831.8	-81.1	1,833.5	0.00	0.00	0.00
7,400.0	89.80	357.76	5,568.6	1,881.7	-83.0	1,883.5	0.00	0.00	0.00
7,450.0	89.80	357.76	5,568.8	1,931.7	-85.0	1,933.5	0.00	0.00	0.00
7,500.0	89.80	357.76	5,569.0	1,981.6	-87.0	1,983.5	0.00	0.00	0.00
7,550.0	89.80	357.76	5,569.1	2,031.6	-88.9	2,033.5	0.00	0.00	0.00
7,600.0	89.80	357.76	5,569.3	2,081.6	-90.9	2,083.5	0.00	0.00	0.00
7,650.0	89.80	357.76	5,569.5	2,131.5	-92.8	2,133.5	0.00	0.00	0.00
7,700.0	89.80	357.76	5,569.7	2,181.5	-94.8	2,183.5	0.00	0.00	0.00
7,750.0	89.80	357.76	5,569.8	2,231.5	-96.7	2,233.5	0.00	0.00	0.00
7,800.0	89.80	357.76	5,570.0	2,281.4	-98.7	2,283.5	0.00	0.00	0.00
7,850.0	89.80	357.76	5,570.2	2,331.4	-100.6	2,333.5	0.00	0.00	0.00
7,900.0	89.80	357.76	5,570.4	2,381.3	-102.6	2,383.5	0.00	0.00	0.00
7,950.0	89.80	357.76	5,570.5	2,431.3	-104.5	2,433.5	0.00	0.00	0.00
8,000.0	89.80	357.76	5,570.7	2,481.3	-106.5	2,483.5	0.00	0.00	0.00
8,050.0	89.80	357.76	5,570.9	2,531.2	-108.4	2,533.5	0.00	0.00	0.00
8,100.0	89.80	357.76	5,571.1	2,581.2	-110.4	2,583.5	0.00	0.00	0.00
8,150.0	89.80	357.76	5,571.2	2,631.1	-112.3	2,633.5	0.00	0.00	0.00
8,200.0	89.80	357.76	5,571.4	2,681.1	-114.3	2,683.5	0.00	0.00	0.00
8,250.0	89.80	357.76	5,571.6	2,731.1	-116.2	2,733.5	0.00	0.00	0.00
8,300.0	89.80	357.76	5,571.8	2,781.0	-118.2	2,783.5	0.00	0.00	0.00
8,350.0	89.80	357.76	5,571.9	2,831.0	-120.1	2,833.5	0.00	0.00	0.00
8,400.0	89.80	357.76	5,572.1	2,881.0	-122.1	2,883.5	0.00	0.00	0.00
8,450.0	89.80	357.76	5,572.3	2,930.9	-124.0	2,933.5	0.00	0.00	0.00
8,500.0	89.80	357.76	5,572.5	2,980.9	-126.0	2,983.5	0.00	0.00	0.00
8,550.0	89.80	357.76	5,572.6	3,030.8	-127.9	3,033.5	0.00	0.00	0.00
8,600.0	89.80	357.76	5,572.8	3,080.8	-129.9	3,083.5	0.00	0.00	0.00
8,650.0	89.80	357.76	5,573.0	3,130.8	-131.8	3,133.5	0.00	0.00	0.00
8,700.0	89.80	357.76	5,573.2	3,180.7	-133.8	3,183.5	0.00	0.00	0.00
8,750.0	89.80	357.76	5,573.3	3,230.7	-135.7	3,233.5	0.00	0.00	0.00
8,800.0	89.80	357.76	5,573.5	3,280.6	-137.7	3,283.5	0.00	0.00	0.00
8,850.0	89.80	357.76	5,573.7	3,330.6	-139.6	3,333.5	0.00	0.00	0.00
8,900.0	89.80	357.76	5,573.9	3,380.6	-141.6	3,383.5	0.00	0.00	0.00
8,950.0	89.80	357.76	5,574.0	3,430.5	-143.5	3,433.5	0.00	0.00	0.00
9,000.0	89.80	357.76	5,574.2	3,480.5	-145.5	3,483.5	0.00	0.00	0.00
9,050.0	89.80	357.76	5,574.4	3,530.5	-147.4	3,533.5	0.00	0.00	0.00
9,100.0	89.80	357.76	5,574.6	3,580.4	-149.4	3,583.5	0.00	0.00	0.00
9,150.0	89.80	357.76	5,574.7	3,630.4	-151.3	3,633.5	0.00	0.00	0.00
9,200.0	89.80	357.76	5,574.9	3,680.3	-153.3	3,683.5	0.00	0.00	0.00
9,250.0	89.80	357.76	5,575.1	3,730.3	-155.2	3,733.5	0.00	0.00	0.00
9,300.0	89.80	357.76	5,575.3	3,780.3	-157.2	3,783.5	0.00	0.00	0.00
9,350.0	89.80	357.76	5,575.4	3,830.2	-159.1	3,833.5	0.00	0.00	0.00
9,400.0	89.80	357.76	5,575.6	3,880.2	-161.1	3,883.5	0.00	0.00	0.00
9,450.0	89.80	357.76	5,575.8	3,930.2	-163.0	3,933.5	0.00	0.00	0.00
9,500.0	89.80	357.76	5,576.0	3,980.1	-165.0	3,983.5	0.00	0.00	0.00
9,550.0	89.80	357.76	5,576.1	4,030.1	-166.9	4,033.5	0.00	0.00	0.00
9,600.0	89.80	357.76	5,576.3	4,080.0	-168.9	4,083.5	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM Production	Local Co-ordinate Reference:	Well Castor LD02-72HN
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4685.0usft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4685.0usft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Castor LD02-72HN	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)
9,650.0	89.80	357.76	5,576.5	4,130.0	-170.8	4,133.5	0.00	0.00	0.00
9,700.0	89.80	357.76	5,576.7	4,180.0	-172.8	4,183.5	0.00	0.00	0.00
9,750.0	89.80	357.76	5,576.8	4,229.9	-174.7	4,233.5	0.00	0.00	0.00
9,800.0	89.80	357.76	5,577.0	4,279.9	-176.7	4,283.5	0.00	0.00	0.00
9,850.0	89.80	357.76	5,577.2	4,329.8	-178.6	4,333.5	0.00	0.00	0.00
9,856.8	89.80	357.76	5,577.2	4,336.6	-178.9	4,340.3	0.00	0.00	0.00
TD at 9856.8 - Castor LD02-72HN BHL 660°FNL, 660°FEL									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Castor LD02-72HN BHL - plan hits target center - Point	0.00	0.00	5,577.2	4,336.6	-178.9	1,533,551.82	3,463,995.73	40.785950	-103.824370

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,925.1	5,554.7	7" Casing @ 5925.1' MD	7	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,571.6	5,440.0	SHARON SPRINGS		0.00	
5,609.6	5,460.0	NIOBRARA		0.00	
5,609.6	5,460.0	NIO A CHALK		0.00	
5,671.9	5,489.0	NIO A MARL		0.00	
5,824.7	5,539.0	NIO B CHALK		0.00	
6,072.1	5,564.0	NIO B MARL		0.00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 2.00
2,976.5	2,959.5	-62.6	0.0	Start Drop -2.00
4,862.6	4,841.2	-182.4	0.0	KOP #2 - Start Build 8.00
5,925.1	5,554.7	-245.0	0.0	Start 75.0 hold at 5925.1 MD
6,000.1	5,561.2	-245.0	0.0	Start Build 8.00
9,856.8	5,577.2	408.3	-25.5	TD at 9856.8