

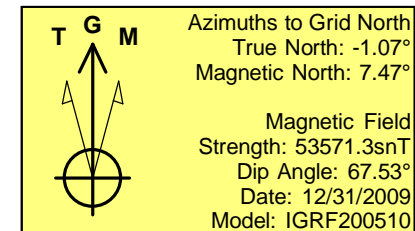
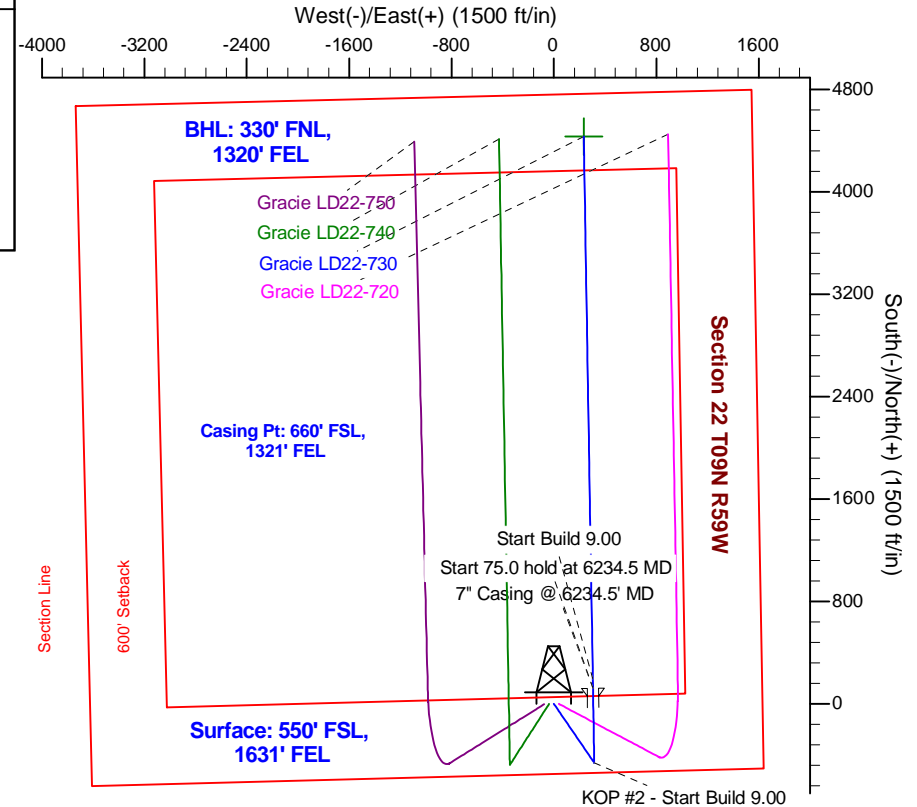
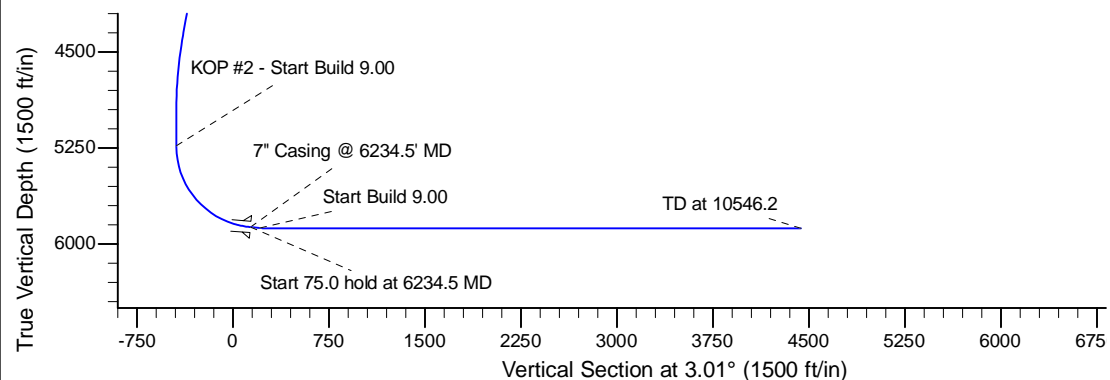
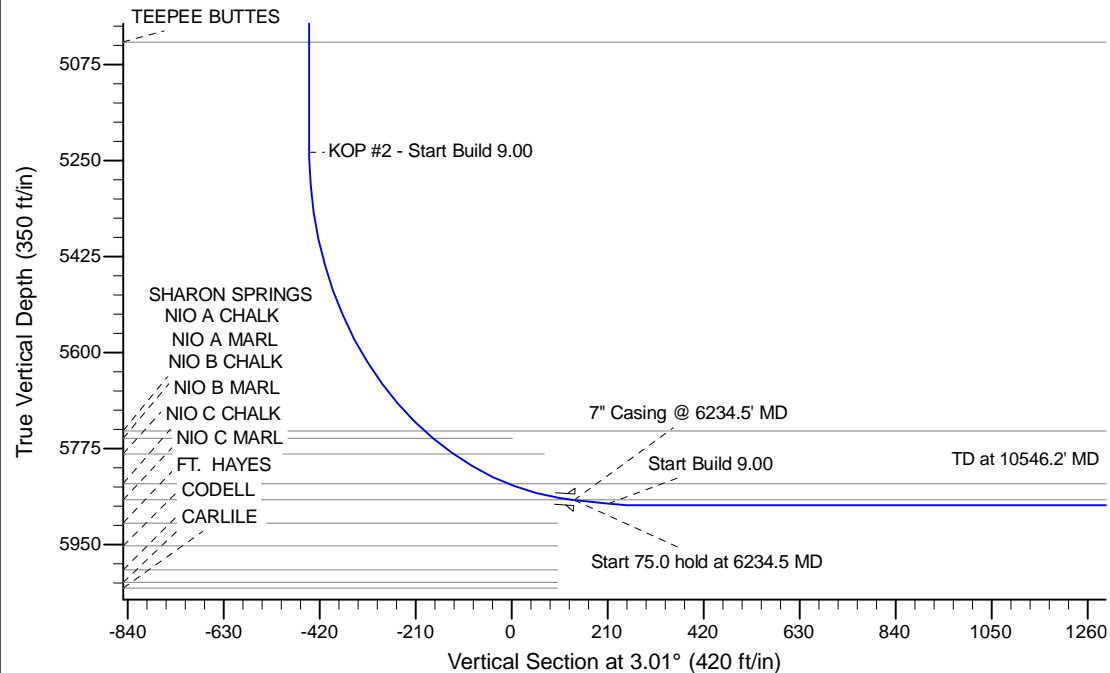
Project: Wattenberg Field  
 Site: LD (Sec.28-T09N-R58W) Weld County, CO  
 Well: Gracie LD22-730  
 Wellbore: Original Drilling  
 Design: APD - Rev 0

# 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	2413.3	12.27	145.60	2408.6	-54.0	36.9	2.00	145.60	-51.9	
4	4421.9	12.27	145.60	4371.4	-406.0	278.1	0.00	0.00	-390.9	
5	5035.2	0.00	0.00	4980.0	-460.0	315.0	2.00	180.00	-442.8	
6	5290.0	0.00	0.00	5234.8	-460.0	315.0	0.00	0.00	-442.8	
7	6234.5	85.00	359.04	5869.0	121.1	305.3	9.00	359.04	136.9	
8	6309.5	85.00	359.04	5875.6	195.8	304.0	0.00	0.00	211.5	
9	6365.0	90.00	359.04	5878.0	251.2	303.1	9.00	0.00	266.8	
10	10546.2	90.00	359.04	5878.0	4431.8	233.3	0.00	0.00	4437.9	Gracie LD22-730 BHL 330'FNL, 1320'FEL



WELL DETAILS: Gracie LD22-730					
Ground Level: 4827.0					
0.0	0.0	Northing	Easting	Latitude	Longitude
		1513431.78	3458277.57	40.731030	-103.846370
Plan: APD - Rev 0 (Gracie LD22-730/Original Drilling)					
Created By: Shailey Jewell			Date: 15:03, March 16 2015		
Checked: _____			Date: _____		
Reviewed: _____			Date: _____		
Approved: _____			Date: _____		

# **Northern Region Drilling - Working**

**Wattenberg Field**

**LD (09N-58W)**

**Gracie LD22-730**

**Original Drilling**

**Plan: APD - Rev 0**

## **Standard Planning Report**

**16 March, 2015**

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

<b>Project</b>	Wattenberg Field, Weld County CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well	Gracie LD22-730					
Well Position	+N/-S	-10,125.5 ft	Northing:	1,513,431.79 usft	Latitude:	40.731030
	+E/-W	8,936.4 ft	Easting:	3,458,277.57 usft	Longitude:	-103.846370
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,827.0 ft

<b>Wellbore</b>	Original Drilling				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	8.54	67.53	53,571

<b>Design</b>	APD - Rev 0			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	3.01

<b>Plan Sections</b>										
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	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,413.3	12.27	145.60	2,408.6	-54.0	36.9	2.00	2.00	0.00	145.60	
4,421.9	12.27	145.60	4,371.4	-406.0	278.1	0.00	0.00	0.00	0.00	
5,035.2	0.00	0.00	4,980.0	-460.0	315.0	2.00	-2.00	0.00	180.00	
5,290.0	0.00	0.00	5,234.8	-460.0	315.0	0.00	0.00	0.00	0.00	
6,234.5	85.00	359.04	5,869.0	121.1	305.3	9.00	9.00	0.00	359.04	
6,309.5	85.00	359.04	5,875.6	195.8	304.0	0.00	0.00	0.00	0.00	
6,365.0	90.00	359.04	5,878.0	251.2	303.1	9.00	9.00	0.00	0.00	
10,546.2	90.00	359.04	5,878.0	4,431.8	233.3	0.00	0.00	0.00	0.00	Gracie LD22-730 BHL

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,250.0	0.00	0.00	1,250.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,350.0	0.00	0.00	1,350.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,450.0	0.00	0.00	1,450.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,550.0	0.00	0.00	1,550.0	0.0	0.0	0.0	0.00	0.00	0.00
1,560.0	0.00	0.00	1,560.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
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	145.60	1,850.0	-0.4	0.2	-0.3	2.00	2.00	0.00
1,900.0	2.00	145.60	1,900.0	-1.4	1.0	-1.4	2.00	2.00	0.00
1,950.0	3.00	145.60	1,949.9	-3.2	2.2	-3.1	2.00	2.00	0.00
2,000.0	4.00	145.60	1,999.8	-5.8	3.9	-5.5	2.00	2.00	0.00
2,050.0	5.00	145.60	2,049.7	-9.0	6.2	-8.7	2.00	2.00	0.00
2,100.0	6.00	145.60	2,099.5	-12.9	8.9	-12.5	2.00	2.00	0.00
2,150.0	7.00	145.60	2,149.1	-17.6	12.1	-17.0	2.00	2.00	0.00
2,200.0	8.00	145.60	2,198.7	-23.0	15.8	-22.1	2.00	2.00	0.00
2,250.0	9.00	145.60	2,248.2	-29.1	19.9	-28.0	2.00	2.00	0.00
2,300.0	10.00	145.60	2,297.5	-35.9	24.6	-34.6	2.00	2.00	0.00
2,350.0	11.00	145.60	2,346.6	-43.4	29.7	-41.8	2.00	2.00	0.00
2,400.0	12.00	145.60	2,395.6	-51.7	35.4	-49.7	2.00	2.00	0.00
2,413.3	12.27	145.60	2,408.6	-54.0	36.9	-51.9	2.00	2.00	0.00
2,450.0	12.27	145.60	2,444.5	-60.4	41.4	-58.1	0.00	0.00	0.00

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)
2,500.0	12.27	145.60	2,493.4	-69.2	47.4	-66.6	0.00	0.00	0.00
2,550.0	12.27	145.60	2,542.2	-77.9	53.4	-75.0	0.00	0.00	0.00
2,600.0	12.27	145.60	2,591.1	-86.7	59.4	-83.4	0.00	0.00	0.00
2,650.0	12.27	145.60	2,639.9	-95.5	65.4	-91.9	0.00	0.00	0.00
2,700.0	12.27	145.60	2,688.8	-104.2	71.4	-100.3	0.00	0.00	0.00
2,750.0	12.27	145.60	2,737.6	-113.0	77.4	-108.8	0.00	0.00	0.00
2,800.0	12.27	145.60	2,786.5	-121.7	83.4	-117.2	0.00	0.00	0.00
2,850.0	12.27	145.60	2,835.4	-130.5	89.4	-125.6	0.00	0.00	0.00
2,900.0	12.27	145.60	2,884.2	-139.3	95.4	-134.1	0.00	0.00	0.00
2,950.0	12.27	145.60	2,933.1	-148.0	101.4	-142.5	0.00	0.00	0.00
3,000.0	12.27	145.60	2,981.9	-156.8	107.4	-150.9	0.00	0.00	0.00
3,050.0	12.27	145.60	3,030.8	-165.6	113.4	-159.4	0.00	0.00	0.00
3,100.0	12.27	145.60	3,079.7	-174.3	119.4	-167.8	0.00	0.00	0.00
3,150.0	12.27	145.60	3,128.5	-183.1	125.4	-176.2	0.00	0.00	0.00
3,200.0	12.27	145.60	3,177.4	-191.9	131.4	-184.7	0.00	0.00	0.00
3,250.0	12.27	145.60	3,226.2	-200.6	137.4	-193.1	0.00	0.00	0.00
3,300.0	12.27	145.60	3,275.1	-209.4	143.4	-201.6	0.00	0.00	0.00
3,350.0	12.27	145.60	3,324.0	-218.2	149.4	-210.0	0.00	0.00	0.00
3,400.0	12.27	145.60	3,372.8	-226.9	155.4	-218.4	0.00	0.00	0.00
3,418.6	12.27	145.60	3,391.0	-230.2	157.6	-221.6	0.00	0.00	0.00
<b>PARKMAN</b>									
3,450.0	12.27	145.60	3,421.7	-235.7	161.4	-226.9	0.00	0.00	0.00
3,500.0	12.27	145.60	3,470.5	-244.4	167.4	-235.3	0.00	0.00	0.00
3,550.0	12.27	145.60	3,519.4	-253.2	173.4	-243.7	0.00	0.00	0.00
3,600.0	12.27	145.60	3,568.2	-262.0	179.4	-252.2	0.00	0.00	0.00
3,650.0	12.27	145.60	3,617.1	-270.7	185.4	-260.6	0.00	0.00	0.00
3,700.0	12.27	145.60	3,666.0	-279.5	191.4	-269.1	0.00	0.00	0.00
3,750.0	12.27	145.60	3,714.8	-288.3	197.4	-277.5	0.00	0.00	0.00
3,800.0	12.27	145.60	3,763.7	-297.0	203.4	-285.9	0.00	0.00	0.00
3,850.0	12.27	145.60	3,812.5	-305.8	209.4	-294.4	0.00	0.00	0.00
3,900.0	12.27	145.60	3,861.4	-314.6	215.4	-302.8	0.00	0.00	0.00
3,950.0	12.27	145.60	3,910.3	-323.3	221.4	-311.2	0.00	0.00	0.00
4,000.0	12.27	145.60	3,959.1	-332.1	227.4	-319.7	0.00	0.00	0.00
4,050.0	12.27	145.60	4,008.0	-340.9	233.4	-328.1	0.00	0.00	0.00
<b>SUSSEX</b>									
4,100.0	12.27	145.60	4,056.8	-349.6	239.4	-336.5	0.00	0.00	0.00
4,150.0	12.27	145.60	4,105.7	-358.4	245.4	-345.0	0.00	0.00	0.00
4,200.0	12.27	145.60	4,154.5	-367.1	251.4	-353.4	0.00	0.00	0.00
4,250.0	12.27	145.60	4,203.4	-375.9	257.4	-361.9	0.00	0.00	0.00
4,300.0	12.27	145.60	4,252.3	-384.7	263.4	-370.3	0.00	0.00	0.00
4,350.0	12.27	145.60	4,301.1	-393.4	269.4	-378.7	0.00	0.00	0.00
4,400.0	12.27	145.60	4,350.0	-402.2	275.4	-387.2	0.00	0.00	0.00
4,421.9	12.27	145.60	4,371.4	-406.0	278.0	-390.9	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
4,450.0	11.70	145.60	4,398.9	-410.9	281.3	-395.5	2.00	-2.00	0.00
4,457.3	11.56	145.60	4,406.0	-412.1	282.2	-396.7	2.00	-2.00	0.00
<b>SHANNON</b>									
4,500.0	10.70	145.60	4,447.9	-418.9	286.8	-403.2	2.00	-2.00	0.00
4,550.0	9.70	145.60	4,497.1	-426.2	291.8	-410.2	2.00	-2.00	0.00
4,600.0	8.70	145.60	4,546.5	-432.8	296.4	-416.6	2.00	-2.00	0.00
4,650.0	7.70	145.60	4,596.0	-438.7	300.4	-422.3	2.00	-2.00	0.00
4,700.0	6.70	145.60	4,645.6	-443.8	303.9	-427.2	2.00	-2.00	0.00
4,750.0	5.70	145.60	4,695.3	-448.3	307.0	-431.5	2.00	-2.00	0.00

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.0	4.70	145.60	4,745.1	-452.0	309.5	-435.1	2.00	-2.00	0.00
4,850.0	3.70	145.60	4,794.9	-455.1	311.6	-438.1	2.00	-2.00	0.00
4,900.0	2.70	145.60	4,844.9	-457.4	313.2	-440.3	2.00	-2.00	0.00
4,950.0	1.70	145.60	4,894.8	-459.0	314.3	-441.8	2.00	-2.00	0.00
5,000.0	0.70	145.60	4,944.8	-459.8	314.9	-442.6	2.00	-2.00	0.00
5,035.2	0.00	0.00	4,980.0	-460.0	315.0	-442.8	2.00	-2.00	0.00
5,050.0	0.00	0.00	4,994.8	-460.0	315.0	-442.8	0.00	0.00	0.00
5,089.2	0.00	0.00	5,034.0	-460.0	315.0	-442.8	0.00	0.00	0.00
TEEPEE BUTTES									
5,100.0	0.00	0.00	5,044.8	-460.0	315.0	-442.8	0.00	0.00	0.00
5,150.0	0.00	0.00	5,094.8	-460.0	315.0	-442.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,144.8	-460.0	315.0	-442.8	0.00	0.00	0.00
5,250.0	0.00	0.00	5,194.8	-460.0	315.0	-442.8	0.00	0.00	0.00
5,290.0	0.00	0.00	5,234.8	-460.0	315.0	-442.8	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,300.0	0.90	359.04	5,244.8	-459.9	315.0	-442.7	8.95	8.95	0.00
5,350.0	5.40	359.04	5,294.7	-457.2	315.0	-440.0	9.00	9.00	0.00
5,400.0	9.90	359.04	5,344.3	-450.5	314.8	-433.4	9.00	9.00	0.00
5,450.0	14.40	359.04	5,393.1	-440.0	314.7	-422.9	9.00	9.00	0.00
5,500.0	18.90	359.04	5,441.0	-425.7	314.4	-408.6	9.00	9.00	0.00
5,550.0	23.40	359.04	5,487.6	-407.7	314.1	-390.6	9.00	9.00	0.00
5,600.0	27.90	359.04	5,532.7	-386.0	313.8	-369.0	9.00	9.00	0.00
5,650.0	32.40	359.04	5,575.9	-360.9	313.3	-344.0	9.00	9.00	0.00
5,700.0	36.90	359.04	5,617.1	-332.5	312.9	-315.6	9.00	9.00	0.00
5,750.0	41.40	359.04	5,655.8	-301.0	312.3	-284.1	9.00	9.00	0.00
5,800.0	45.90	359.04	5,692.0	-266.5	311.8	-249.7	9.00	9.00	0.00
5,850.0	50.40	359.04	5,725.3	-229.2	311.1	-212.6	9.00	9.00	0.00
5,878.5	52.96	359.04	5,743.0	-206.9	310.8	-190.3	9.00	9.00	0.00
SHARON SPRINGS									
5,900.0	54.90	359.04	5,755.7	-189.5	310.5	-172.9	9.00	9.00	0.00
5,900.6	54.95	359.04	5,756.0	-189.0	310.5	-172.5	9.19	9.19	0.00
NIO A CHALK									
5,950.0	59.40	359.04	5,782.8	-147.5	309.8	-131.0	9.00	9.00	0.00
5,954.4	59.79	359.04	5,785.0	-143.8	309.7	-127.3	9.02	9.02	0.00
NIO A MARL									
6,000.0	63.90	359.04	5,806.5	-103.5	309.0	-87.1	9.00	9.00	0.00
6,050.0	68.40	359.04	5,826.7	-57.8	308.3	-41.5	9.00	9.00	0.00
6,085.9	71.62	359.04	5,839.0	-24.1	307.7	-7.9	9.00	9.00	0.00
NIO B CHALK									
6,100.0	72.90	359.04	5,843.3	-10.7	307.5	5.5	8.99	8.99	0.00
6,150.0	77.40	359.04	5,856.1	37.6	306.7	53.7	9.00	9.00	0.00
6,200.0	81.90	359.04	5,865.1	86.8	305.9	102.8	9.00	9.00	0.00
6,223.6	84.02	359.04	5,868.0	110.2	305.5	126.1	9.00	9.00	0.00
NIO B MARL									
6,234.5	85.00	359.04	5,869.0	121.1	305.3	136.9	8.99	8.99	0.00
Start 75.0 hold at 6234.5 MD - 7" Casing @ 6234.5' MD									
6,250.0	85.00	359.04	5,870.4	136.5	305.0	152.4	0.00	0.00	0.00
6,300.0	85.00	359.04	5,874.8	186.3	304.2	202.1	0.00	0.00	0.00
6,309.5	85.00	359.04	5,875.6	195.8	304.0	211.5	0.00	0.00	0.00
Start Build 9.00									
6,350.0	88.65	359.04	5,877.8	236.2	303.4	251.8	9.00	9.00	0.00
6,365.0	90.00	359.04	5,878.0	251.2	303.1	266.8	9.01	9.01	0.00
6,400.0	90.00	359.04	5,878.0	286.2	302.5	301.7	0.00	0.00	0.00

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)
6,450.0	90.00	359.04	5,878.0	336.2	301.7	351.6	0.00	0.00	0.00
6,500.0	90.00	359.04	5,878.0	386.2	300.9	401.5	0.00	0.00	0.00
6,550.0	90.00	359.04	5,878.0	436.2	300.0	451.3	0.00	0.00	0.00
6,600.0	90.00	359.04	5,878.0	486.2	299.2	501.2	0.00	0.00	0.00
6,650.0	90.00	359.04	5,878.0	536.2	298.4	551.1	0.00	0.00	0.00
6,700.0	90.00	359.04	5,878.0	586.2	297.5	601.0	0.00	0.00	0.00
6,750.0	90.00	359.04	5,878.0	636.2	296.7	650.9	0.00	0.00	0.00
6,800.0	90.00	359.04	5,878.0	686.1	295.9	700.8	0.00	0.00	0.00
6,850.0	90.00	359.04	5,878.0	736.1	295.0	750.6	0.00	0.00	0.00
6,900.0	90.00	359.04	5,878.0	786.1	294.2	800.5	0.00	0.00	0.00
6,950.0	90.00	359.04	5,878.0	836.1	293.4	850.4	0.00	0.00	0.00
7,000.0	90.00	359.04	5,878.0	886.1	292.5	900.3	0.00	0.00	0.00
7,050.0	90.00	359.04	5,878.0	936.1	291.7	950.2	0.00	0.00	0.00
7,100.0	90.00	359.04	5,878.0	986.1	290.8	1,000.0	0.00	0.00	0.00
7,150.0	90.00	359.04	5,878.0	1,036.1	290.0	1,049.9	0.00	0.00	0.00
7,200.0	90.00	359.04	5,878.0	1,086.1	289.2	1,099.8	0.00	0.00	0.00
7,250.0	90.00	359.04	5,878.0	1,136.1	288.3	1,149.7	0.00	0.00	0.00
7,300.0	90.00	359.04	5,878.0	1,186.1	287.5	1,199.6	0.00	0.00	0.00
7,350.0	90.00	359.04	5,878.0	1,236.1	286.7	1,249.4	0.00	0.00	0.00
7,400.0	90.00	359.04	5,878.0	1,286.1	285.8	1,299.3	0.00	0.00	0.00
7,450.0	90.00	359.04	5,878.0	1,336.1	285.0	1,349.2	0.00	0.00	0.00
7,500.0	90.00	359.04	5,878.0	1,386.0	284.2	1,399.1	0.00	0.00	0.00
7,550.0	90.00	359.04	5,878.0	1,436.0	283.3	1,449.0	0.00	0.00	0.00
7,600.0	90.00	359.04	5,878.0	1,486.0	282.5	1,498.8	0.00	0.00	0.00
7,650.0	90.00	359.04	5,878.0	1,536.0	281.7	1,548.7	0.00	0.00	0.00
7,700.0	90.00	359.04	5,878.0	1,586.0	280.8	1,598.6	0.00	0.00	0.00
7,750.0	90.00	359.04	5,878.0	1,636.0	280.0	1,648.5	0.00	0.00	0.00
7,800.0	90.00	359.04	5,878.0	1,686.0	279.2	1,698.4	0.00	0.00	0.00
7,850.0	90.00	359.04	5,878.0	1,736.0	278.3	1,748.2	0.00	0.00	0.00
7,900.0	90.00	359.04	5,878.0	1,786.0	277.5	1,798.1	0.00	0.00	0.00
7,950.0	90.00	359.04	5,878.0	1,836.0	276.7	1,848.0	0.00	0.00	0.00
8,000.0	90.00	359.04	5,878.0	1,886.0	275.8	1,897.9	0.00	0.00	0.00
8,050.0	90.00	359.04	5,878.0	1,936.0	275.0	1,947.8	0.00	0.00	0.00
8,100.0	90.00	359.04	5,878.0	1,986.0	274.1	1,997.6	0.00	0.00	0.00
8,150.0	90.00	359.04	5,878.0	2,036.0	273.3	2,047.5	0.00	0.00	0.00
8,200.0	90.00	359.04	5,878.0	2,086.0	272.5	2,097.4	0.00	0.00	0.00
8,250.0	90.00	359.04	5,878.0	2,135.9	271.6	2,147.3	0.00	0.00	0.00
8,300.0	90.00	359.04	5,878.0	2,185.9	270.8	2,197.2	0.00	0.00	0.00
8,350.0	90.00	359.04	5,878.0	2,235.9	270.0	2,247.0	0.00	0.00	0.00
8,400.0	90.00	359.04	5,878.0	2,285.9	269.1	2,296.9	0.00	0.00	0.00
8,450.0	90.00	359.04	5,878.0	2,335.9	268.3	2,346.8	0.00	0.00	0.00
8,500.0	90.00	359.04	5,878.0	2,385.9	267.5	2,396.7	0.00	0.00	0.00
8,550.0	90.00	359.04	5,878.0	2,435.9	266.6	2,446.6	0.00	0.00	0.00
8,600.0	90.00	359.04	5,878.0	2,485.9	265.8	2,496.4	0.00	0.00	0.00
8,650.0	90.00	359.04	5,878.0	2,535.9	265.0	2,546.3	0.00	0.00	0.00
8,700.0	90.00	359.04	5,878.0	2,585.9	264.1	2,596.2	0.00	0.00	0.00
8,750.0	90.00	359.04	5,878.0	2,635.9	263.3	2,646.1	0.00	0.00	0.00
8,800.0	90.00	359.04	5,878.0	2,685.9	262.5	2,696.0	0.00	0.00	0.00
8,850.0	90.00	359.04	5,878.0	2,735.9	261.6	2,745.8	0.00	0.00	0.00
8,900.0	90.00	359.04	5,878.0	2,785.9	260.8	2,795.7	0.00	0.00	0.00
8,950.0	90.00	359.04	5,878.0	2,835.9	260.0	2,845.6	0.00	0.00	0.00
9,000.0	90.00	359.04	5,878.0	2,885.8	259.1	2,895.5	0.00	0.00	0.00
9,050.0	90.00	359.04	5,878.0	2,935.8	258.3	2,945.4	0.00	0.00	0.00
9,100.0	90.00	359.04	5,878.0	2,985.8	257.4	2,995.2	0.00	0.00	0.00

# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)	
9,150.0	90.00	359.04	5,878.0	3,035.8	256.6	3,045.1	0.00	0.00	0.00	
9,200.0	90.00	359.04	5,878.0	3,085.8	255.8	3,095.0	0.00	0.00	0.00	
9,250.0	90.00	359.04	5,878.0	3,135.8	254.9	3,144.9	0.00	0.00	0.00	
9,300.0	90.00	359.04	5,878.0	3,185.8	254.1	3,194.8	0.00	0.00	0.00	
9,350.0	90.00	359.04	5,878.0	3,235.8	253.3	3,244.6	0.00	0.00	0.00	
9,400.0	90.00	359.04	5,878.0	3,285.8	252.4	3,294.5	0.00	0.00	0.00	
9,450.0	90.00	359.04	5,878.0	3,335.8	251.6	3,344.4	0.00	0.00	0.00	
9,500.0	90.00	359.04	5,878.0	3,385.8	250.8	3,394.3	0.00	0.00	0.00	
9,550.0	90.00	359.04	5,878.0	3,435.8	249.9	3,444.2	0.00	0.00	0.00	
9,600.0	90.00	359.04	5,878.0	3,485.8	249.1	3,494.0	0.00	0.00	0.00	
9,650.0	90.00	359.04	5,878.0	3,535.8	248.3	3,543.9	0.00	0.00	0.00	
9,700.0	90.00	359.04	5,878.0	3,585.7	247.4	3,593.8	0.00	0.00	0.00	
9,750.0	90.00	359.04	5,878.0	3,635.7	246.6	3,643.7	0.00	0.00	0.00	
9,800.0	90.00	359.04	5,878.0	3,685.7	245.8	3,693.6	0.00	0.00	0.00	
9,850.0	90.00	359.04	5,878.0	3,735.7	244.9	3,743.4	0.00	0.00	0.00	
9,900.0	90.00	359.04	5,878.0	3,785.7	244.1	3,793.3	0.00	0.00	0.00	
9,950.0	90.00	359.04	5,878.0	3,835.7	243.3	3,843.2	0.00	0.00	0.00	
10,000.0	90.00	359.04	5,878.0	3,885.7	242.4	3,893.1	0.00	0.00	0.00	
10,050.0	90.00	359.04	5,878.0	3,935.7	241.6	3,943.0	0.00	0.00	0.00	
10,100.0	90.00	359.04	5,878.0	3,985.7	240.7	3,992.8	0.00	0.00	0.00	
10,150.0	90.00	359.04	5,878.0	4,035.7	239.9	4,042.7	0.00	0.00	0.00	
10,200.0	90.00	359.04	5,878.0	4,085.7	239.1	4,092.6	0.00	0.00	0.00	
10,250.0	90.00	359.04	5,878.0	4,135.7	238.2	4,142.5	0.00	0.00	0.00	
10,300.0	90.00	359.04	5,878.0	4,185.7	237.4	4,192.4	0.00	0.00	0.00	
10,350.0	90.00	359.04	5,878.0	4,235.7	236.6	4,242.2	0.00	0.00	0.00	
10,400.0	90.00	359.04	5,878.0	4,285.7	235.7	4,292.1	0.00	0.00	0.00	
10,450.0	90.00	359.04	5,878.0	4,335.6	234.9	4,342.0	0.00	0.00	0.00	
10,500.0	90.00	359.04	5,878.0	4,385.6	234.1	4,391.9	0.00	0.00	0.00	
10,546.2	90.00	359.04	5,878.0	4,431.8	233.3	4,437.9	0.00	0.00	0.00	
TD at 10546.2 - Gracie LD22-730 BHL 330°FNL, 1320°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										
Gracie LD22-730 BHL 3:	0.00	0.00	5,878.0	4,431.8	233.3	1,517,863.53	3,458,510.87	40.743180	-103.845230	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,234.5	5,869.0	7" Casing @ 6234.5' MD	7	8-3/4	



# Noble Energy Inc

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,560.0	1,560.0	PIERRE		0.00	
3,418.6	3,391.0	PARKMAN		0.00	
4,050.0	4,008.0	SUSSEX		0.00	
4,457.3	4,406.0	SHANNON		0.00	
5,089.2	5,034.0	TEEPEE BUTTES		0.00	
5,878.5	5,743.0	SHARON SPRINGS		0.00	
5,900.6	5,756.0	NIO A CHALK		0.00	
5,954.4	5,785.0	NIO A MARL		0.00	
6,085.9	5,839.0	NIO B CHALK		0.00	
6,223.6	5,868.0	NIO B MARL		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 2.00
4,421.9	4,371.4	-406.0	278.0	Start Drop -2.00
5,290.0	5,234.8	-460.0	315.0	KOP #2 - Start Build 9.00
6,234.5	5,869.0	121.1	305.3	Start 75.0 hold at 6234.5 MD
6,309.5	5,875.6	195.8	304.0	Start Build 9.00
10,546.2	5,878.0	4,431.8	233.3	TD at 10546.2

# **Northern Region Drilling - Working**

**Wattenberg Field  
LD (09N-58W)  
Gracie LD22-730**

**Original Drilling  
APD - Rev 0**

## **Anticollision Summary Report**

**16 March, 2015**

**Noble Energy Inc**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	APD - Rev 0		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	3/16/2015		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	10,546.2	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

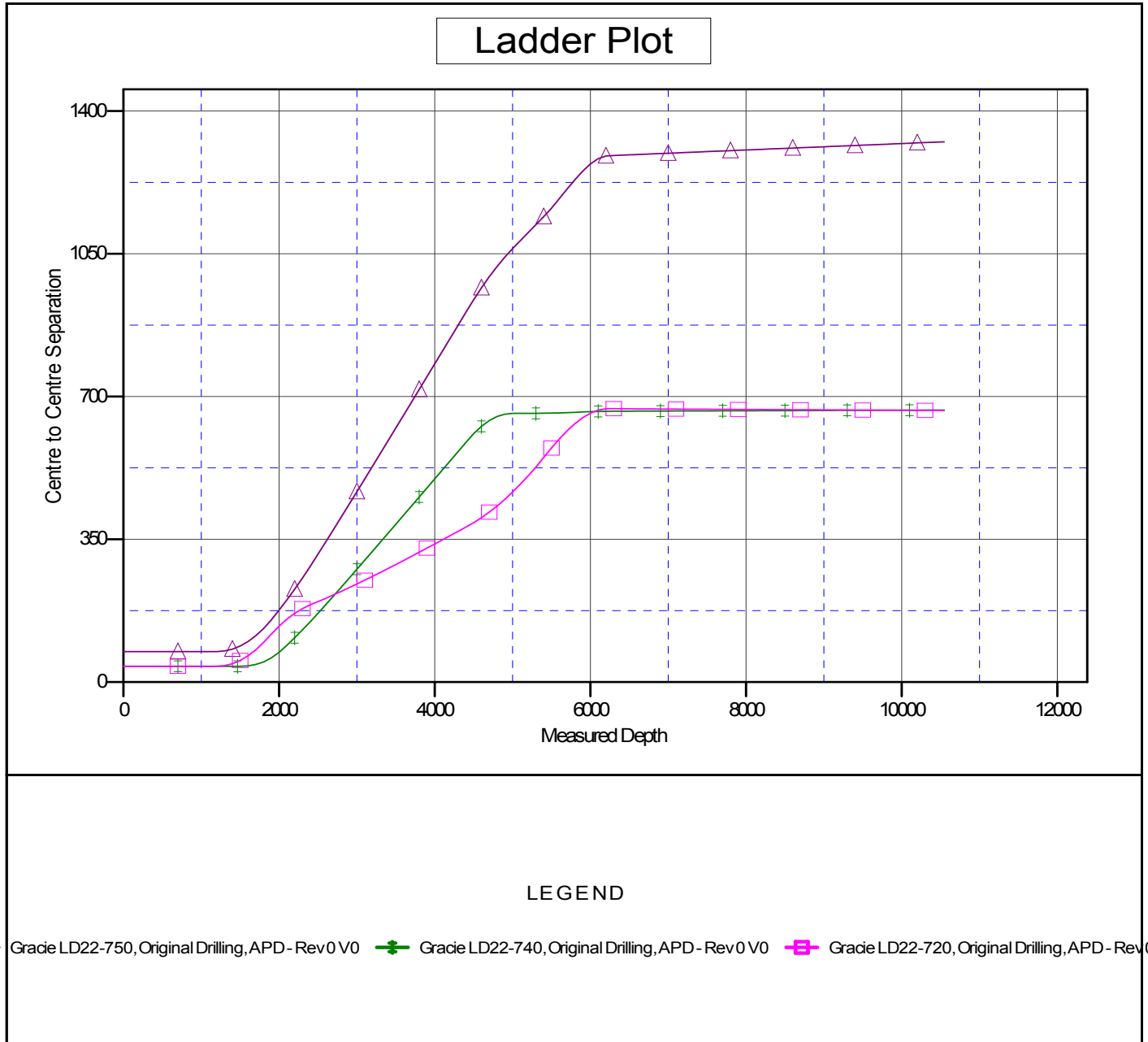
<b>Summary</b>						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
LD (09N-58W)						
Gracie LD22-720 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	38.8	33.7	7.585	CC, ES
Gracie LD22-720 - Original Drilling - APD - Rev 0	10,546.2	10,501.5	666.0	493.3	3.856	SF
Gracie LD22-740 - Original Drilling - APD - Rev 0	1,466.3	1,467.3	38.8	32.5	6.144	CC
Gracie LD22-740 - Original Drilling - APD - Rev 0	1,500.0	1,501.0	38.8	32.3	6.001	ES
Gracie LD22-740 - Original Drilling - APD - Rev 0	10,546.2	10,461.7	667.0	491.0	3.791	SF
Gracie LD22-750 - Original Drilling - APD - Rev 0	1,166.3	1,167.3	74.8	69.9	15.067	CC
Gracie LD22-750 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	74.8	69.7	14.629	ES
Gracie LD22-750 - Original Drilling - APD - Rev 0	10,546.2	10,579.9	1,324.7	1,147.5	7.476	SF

**Noble Energy Inc**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4851.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Gracie LD22-730  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.07°



**Noble Energy Inc**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Gracie LD22-730
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4851.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gracie LD22-730	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 0	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4851.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Gracie LD22-730  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.07°

