

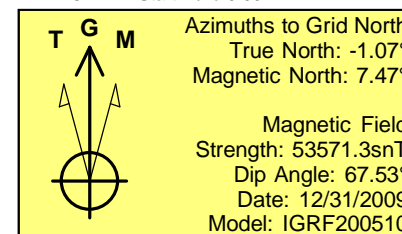
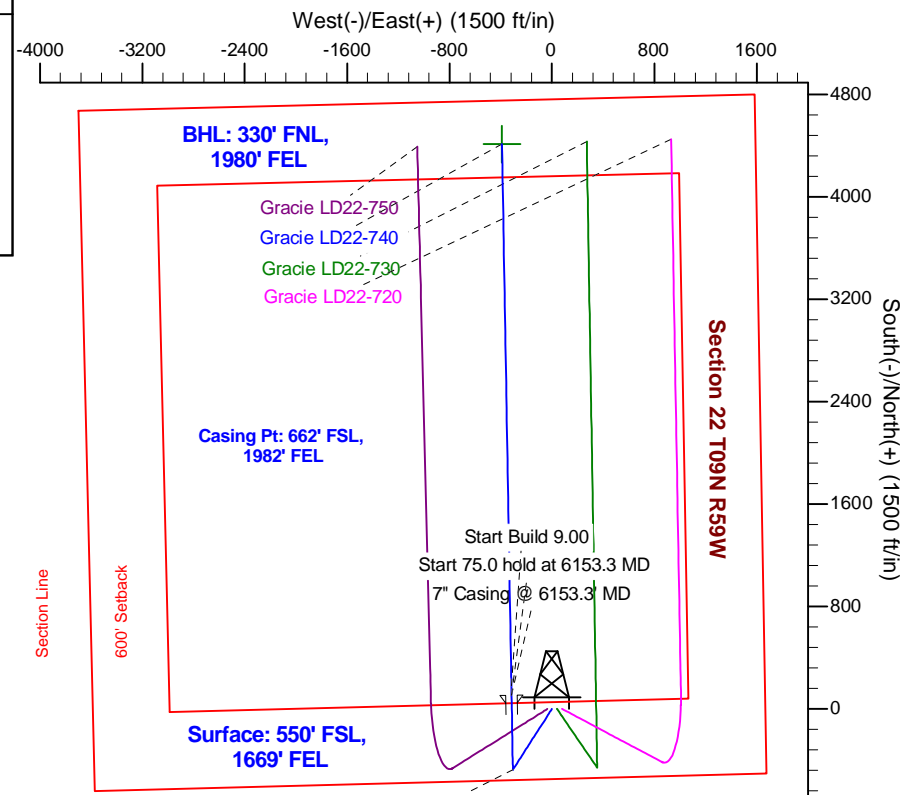
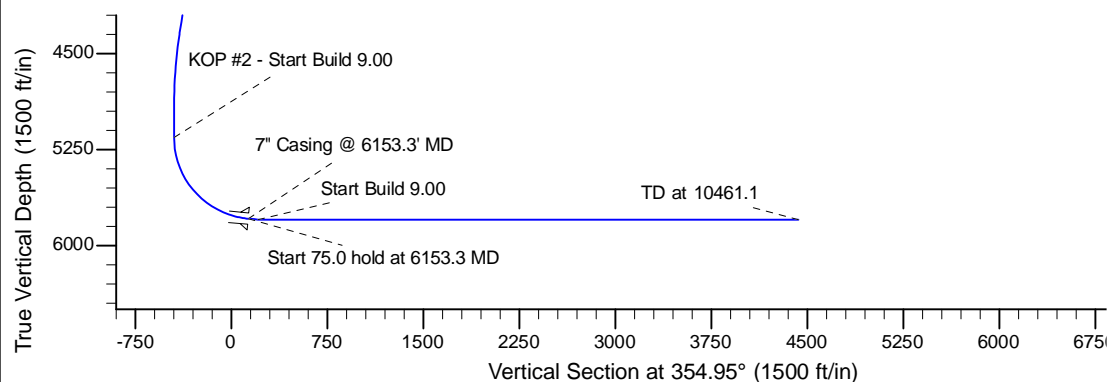
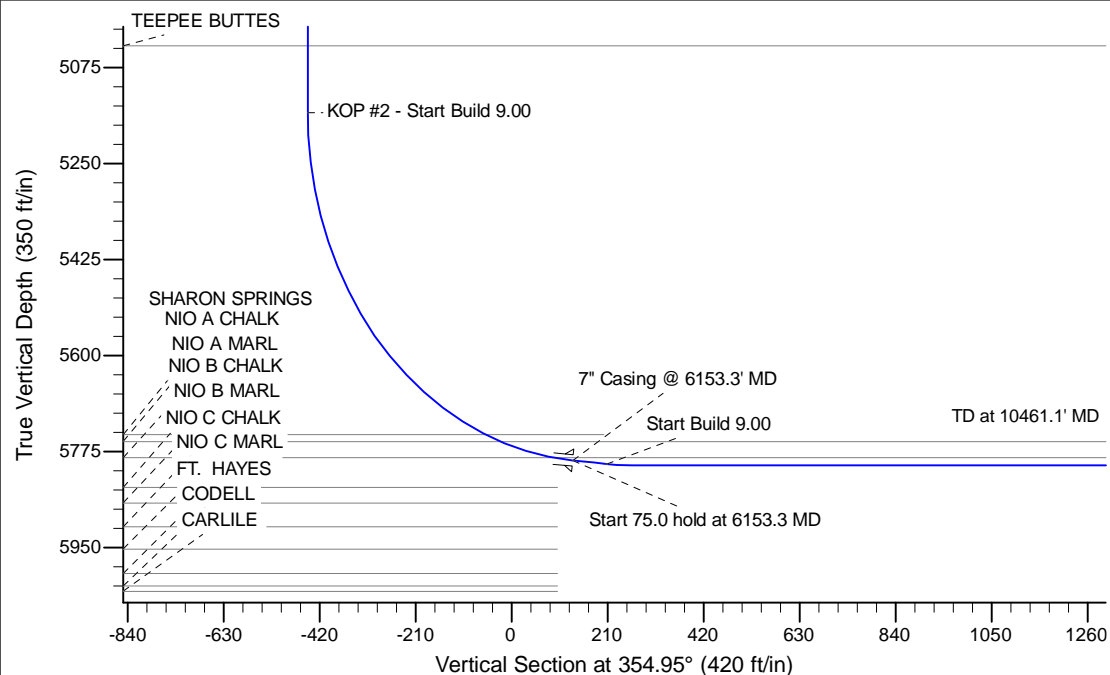
Project: Wattenberg Field
 Site: LD (Sec.28-T09N-R58W) Weld County, CO
 Well: Gracie LD22-740
 Wellbore: Original Drilling
 Design: APD - Rev 0

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	VSecl	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	
3	2063.0	11.26	212.70	2059.4	-46.4	-29.8	2.00	212.70	-43.6	
4	4389.0	11.26	212.70	4340.6	-428.6	-275.2	0.00	0.00	-402.7	
5	4952.0	0.00	0.00	4900.0	-475.0	-305.0	2.00	180.00	-446.3	
6	5208.9	0.00	0.00	5156.8	-475.0	-305.0	0.00	0.00	-446.3	
7	6153.3	85.00	359.00	5791.0	106.0	-315.1	9.00	359.00	133.4	
8	6228.3	85.00	359.00	5797.6	180.8	-316.4	0.00	0.00	207.9	
9	6283.9	90.00	359.00	5800.0	236.2	-317.4	9.00	0.00	263.2	
10	10461.1	90.00	359.00	5800.0	4412.9	-389.9	0.00	0.00	4430.1	Gracie LD22-740 BHL 330'FNL, 1980'FEL



WELL DETAILS: Gracie LD22-740

Ground Level: 4828.0			
North	East	Lat	Long
0.0	0.0	1513431.06	3458238.78
		40.731030	-103.846510

Plan: APD - Rev 0 (Gracie LD22-740/Original Drilling)

Created By: Shailey Jewell	Date: 15:11, March 16 2015
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Gracie LD22-740

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

16 March, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	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 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well		Gracie LD22-740				
Well Position	+N/-S	-10,126.2 ft	Northing:	1,513,431.06 usft	Latitude:	40.731030
	+E/-W	8,897.6 ft	Easting:	3,458,238.78 usft	Longitude:	-103.846510
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,828.0 ft

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

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	354.95

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,063.0	11.26	212.70	2,059.4	-46.4	-29.8	2.00	2.00	0.00	212.70	
4,389.0	11.26	212.70	4,340.6	-428.6	-275.2	0.00	0.00	0.00	0.00	
4,952.0	0.00	0.00	4,900.0	-475.0	-305.0	2.00	-2.00	0.00	180.00	
5,208.9	0.00	0.00	5,156.8	-475.0	-305.0	0.00	0.00	0.00	0.00	
6,153.3	85.00	359.00	5,791.0	106.0	-315.1	9.00	9.00	0.00	359.00	
6,228.3	85.00	359.00	5,797.6	180.8	-316.4	0.00	0.00	0.00	0.00	
6,283.9	90.00	359.00	5,800.0	236.2	-317.4	9.00	9.00	0.00	0.00	
10,461.1	90.00	359.00	5,800.0	4,412.9	-389.9	0.00	0.00	0.00	0.00	Gracie LD22-740 BHL

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
50.0	0.00	0.00	50.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
250.0	0.00	0.00	250.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
350.0	0.00	0.00	350.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
450.0	0.00	0.00	450.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
550.0	0.00	0.00	550.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
950.0	0.00	0.00	950.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,050.0	0.00	0.00	1,050.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
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
KOP - Start Build 2.00									
1,550.0	1.00	212.70	1,550.0	-0.4	-0.2	-0.3	2.00	2.00	0.00
1,561.0	1.22	212.70	1,561.0	-0.5	-0.4	-0.5	2.00	2.00	0.00
PIERRE									
1,600.0	2.00	212.70	1,600.0	-1.5	-0.9	-1.4	2.00	2.00	0.00
1,650.0	3.00	212.70	1,649.9	-3.3	-2.1	-3.1	2.00	2.00	0.00
1,700.0	4.00	212.70	1,699.8	-5.9	-3.8	-5.5	2.00	2.00	0.00
1,750.0	5.00	212.70	1,749.7	-9.2	-5.9	-8.6	2.00	2.00	0.00
1,800.0	6.00	212.70	1,799.5	-13.2	-8.5	-12.4	2.00	2.00	0.00
1,850.0	7.00	212.70	1,849.1	-18.0	-11.5	-16.9	2.00	2.00	0.00
1,900.0	8.00	212.70	1,898.7	-23.5	-15.1	-22.0	2.00	2.00	0.00
1,950.0	9.00	212.70	1,948.2	-29.7	-19.1	-27.9	2.00	2.00	0.00
2,000.0	10.00	212.70	1,997.5	-36.6	-23.5	-34.4	2.00	2.00	0.00
2,050.0	11.00	212.70	2,046.6	-44.3	-28.4	-41.6	2.00	2.00	0.00
2,063.0	11.26	212.70	2,059.4	-46.4	-29.8	-43.6	2.00	2.00	0.00
2,100.0	11.26	212.70	2,095.7	-52.5	-33.7	-49.3	0.00	0.00	0.00
2,150.0	11.26	212.70	2,144.7	-60.7	-39.0	-57.0	0.00	0.00	0.00
2,200.0	11.26	212.70	2,193.7	-68.9	-44.2	-64.8	0.00	0.00	0.00
2,250.0	11.26	212.70	2,242.8	-77.1	-49.5	-72.5	0.00	0.00	0.00
2,300.0	11.26	212.70	2,291.8	-85.3	-54.8	-80.2	0.00	0.00	0.00
2,350.0	11.26	212.70	2,340.9	-93.6	-60.1	-87.9	0.00	0.00	0.00
2,400.0	11.26	212.70	2,389.9	-101.8	-65.4	-95.6	0.00	0.00	0.00
2,450.0	11.26	212.70	2,438.9	-110.0	-70.6	-103.3	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,500.0	11.26	212.70	2,488.0	-118.2	-75.9	-111.1	0.00	0.00	0.00
2,550.0	11.26	212.70	2,537.0	-126.4	-81.2	-118.8	0.00	0.00	0.00
2,600.0	11.26	212.70	2,586.1	-134.6	-86.5	-126.5	0.00	0.00	0.00
2,650.0	11.26	212.70	2,635.1	-142.9	-91.7	-134.2	0.00	0.00	0.00
2,700.0	11.26	212.70	2,684.1	-151.1	-97.0	-141.9	0.00	0.00	0.00
2,750.0	11.26	212.70	2,733.2	-159.3	-102.3	-149.7	0.00	0.00	0.00
2,800.0	11.26	212.70	2,782.2	-167.5	-107.6	-157.4	0.00	0.00	0.00
2,850.0	11.26	212.70	2,831.2	-175.7	-112.8	-165.1	0.00	0.00	0.00
2,900.0	11.26	212.70	2,880.3	-183.9	-118.1	-172.8	0.00	0.00	0.00
2,950.0	11.26	212.70	2,929.3	-192.1	-123.4	-180.5	0.00	0.00	0.00
3,000.0	11.26	212.70	2,978.4	-200.4	-128.7	-188.3	0.00	0.00	0.00
3,050.0	11.26	212.70	3,027.4	-208.6	-133.9	-196.0	0.00	0.00	0.00
3,100.0	11.26	212.70	3,076.4	-216.8	-139.2	-203.7	0.00	0.00	0.00
3,150.0	11.26	212.70	3,125.5	-225.0	-144.5	-211.4	0.00	0.00	0.00
3,200.0	11.26	212.70	3,174.5	-233.2	-149.8	-219.1	0.00	0.00	0.00
3,250.0	11.26	212.70	3,223.5	-241.4	-155.0	-226.9	0.00	0.00	0.00
3,300.0	11.26	212.70	3,272.6	-249.7	-160.3	-234.6	0.00	0.00	0.00
3,350.0	11.26	212.70	3,321.6	-257.9	-165.6	-242.3	0.00	0.00	0.00
3,400.0	11.26	212.70	3,370.7	-266.1	-170.9	-250.0	0.00	0.00	0.00
3,421.8	11.26	212.70	3,392.0	-269.7	-173.2	-253.4	0.00	0.00	0.00
PARKMAN									
3,450.0	11.26	212.70	3,419.7	-274.3	-176.1	-257.7	0.00	0.00	0.00
3,500.0	11.26	212.70	3,468.7	-282.5	-181.4	-265.5	0.00	0.00	0.00
3,550.0	11.26	212.70	3,517.8	-290.7	-186.7	-273.2	0.00	0.00	0.00
3,600.0	11.26	212.70	3,566.8	-299.0	-192.0	-280.9	0.00	0.00	0.00
3,650.0	11.26	212.70	3,615.8	-307.2	-197.2	-288.6	0.00	0.00	0.00
3,700.0	11.26	212.70	3,664.9	-315.4	-202.5	-296.3	0.00	0.00	0.00
3,750.0	11.26	212.70	3,713.9	-323.6	-207.8	-304.1	0.00	0.00	0.00
3,800.0	11.26	212.70	3,763.0	-331.8	-213.1	-311.8	0.00	0.00	0.00
3,850.0	11.26	212.70	3,812.0	-340.0	-218.3	-319.5	0.00	0.00	0.00
3,900.0	11.26	212.70	3,861.0	-348.2	-223.6	-327.2	0.00	0.00	0.00
3,950.0	11.26	212.70	3,910.1	-356.5	-228.9	-334.9	0.00	0.00	0.00
4,000.0	11.26	212.70	3,959.1	-364.7	-234.2	-342.7	0.00	0.00	0.00
4,050.0	11.26	212.70	4,008.1	-372.9	-239.4	-350.4	0.00	0.00	0.00
4,050.9	11.26	212.70	4,009.0	-373.0	-239.5	-350.5	0.00	0.00	0.00
SUSSEX									
4,100.0	11.26	212.70	4,057.2	-381.1	-244.7	-358.1	0.00	0.00	0.00
4,150.0	11.26	212.70	4,106.2	-389.3	-250.0	-365.8	0.00	0.00	0.00
4,200.0	11.26	212.70	4,155.3	-397.5	-255.3	-373.5	0.00	0.00	0.00
4,250.0	11.26	212.70	4,204.3	-405.8	-260.5	-381.3	0.00	0.00	0.00
4,300.0	11.26	212.70	4,253.3	-414.0	-265.8	-389.0	0.00	0.00	0.00
4,350.0	11.26	212.70	4,302.4	-422.2	-271.1	-396.7	0.00	0.00	0.00
4,389.0	11.26	212.70	4,340.6	-428.6	-275.2	-402.7	0.00	0.00	0.00
Start Drop -2.00									
4,400.0	11.04	212.70	4,351.4	-430.4	-276.4	-404.4	2.00	-2.00	0.00
4,450.0	10.04	212.70	4,400.6	-438.1	-281.3	-411.6	2.00	-2.00	0.00
4,456.5	9.91	212.70	4,407.0	-439.0	-281.9	-412.5	2.00	-2.00	0.00
SHANNON									
4,500.0	9.04	212.70	4,449.9	-445.1	-285.8	-418.2	2.00	-2.00	0.00
4,550.0	8.04	212.70	4,499.3	-451.3	-289.8	-424.0	2.00	-2.00	0.00
4,600.0	7.04	212.70	4,548.9	-456.8	-293.3	-429.2	2.00	-2.00	0.00
4,650.0	6.04	212.70	4,598.6	-461.6	-296.4	-433.7	2.00	-2.00	0.00
4,700.0	5.04	212.70	4,648.3	-465.7	-299.0	-437.6	2.00	-2.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,750.0	4.04	212.70	4,698.2	-469.0	-301.2	-440.7	2.00	-2.00	0.00
4,800.0	3.04	212.70	4,748.1	-471.6	-302.8	-443.1	2.00	-2.00	0.00
4,850.0	2.04	212.70	4,798.0	-473.5	-304.0	-444.9	2.00	-2.00	0.00
4,900.0	1.04	212.70	4,848.0	-474.6	-304.7	-445.9	2.00	-2.00	0.00
4,950.0	0.04	212.70	4,898.0	-475.0	-305.0	-446.3	2.00	-2.00	0.00
4,952.0	0.00	0.00	4,900.0	-475.0	-305.0	-446.3	2.00	-2.00	0.00
5,000.0	0.00	0.00	4,948.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
5,050.0	0.00	0.00	4,998.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
5,087.0	0.00	0.00	5,035.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
TEEPEE BUTTES									
5,100.0	0.00	0.00	5,048.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
5,150.0	0.00	0.00	5,098.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
5,200.0	0.00	0.00	5,148.0	-475.0	-305.0	-446.3	0.00	0.00	0.00
5,208.9	0.00	0.00	5,156.9	-475.0	-305.0	-446.3	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,250.0	3.70	359.00	5,198.0	-473.7	-305.0	-445.0	9.01	9.01	0.00
5,300.0	8.20	359.00	5,247.7	-468.5	-305.1	-439.8	9.00	9.00	0.00
5,350.0	12.70	359.00	5,296.8	-459.4	-305.3	-430.8	9.00	9.00	0.00
5,400.0	17.20	359.00	5,345.1	-446.5	-305.5	-417.9	9.00	9.00	0.00
5,450.0	21.70	359.00	5,392.3	-429.9	-305.8	-401.3	9.00	9.00	0.00
5,500.0	26.20	359.00	5,438.0	-409.6	-306.1	-381.0	9.00	9.00	0.00
5,550.0	30.70	359.00	5,481.9	-385.8	-306.6	-357.3	9.00	9.00	0.00
5,600.0	35.20	359.00	5,523.8	-358.6	-307.0	-330.2	9.00	9.00	0.00
5,650.0	39.70	359.00	5,563.5	-328.2	-307.6	-299.8	9.00	9.00	0.00
5,700.0	44.20	359.00	5,600.7	-294.8	-308.1	-266.5	9.00	9.00	0.00
5,750.0	48.70	359.00	5,635.1	-258.5	-308.8	-230.4	9.00	9.00	0.00
5,800.0	53.20	359.00	5,666.6	-219.7	-309.4	-191.6	9.00	9.00	0.00
5,850.0	57.70	359.00	5,695.0	-178.6	-310.2	-150.6	9.00	9.00	0.00
5,900.0	62.20	359.00	5,720.0	-135.3	-310.9	-107.4	9.00	9.00	0.00
5,950.0	66.70	359.00	5,741.6	-90.2	-311.7	-62.4	9.00	9.00	0.00
5,956.2	67.27	359.00	5,744.0	-84.5	-311.8	-56.7	9.02	9.02	0.00
SHARON SPRINGS									
5,992.3	70.51	359.00	5,757.0	-50.8	-312.4	-23.1	9.00	9.00	0.00
NIO A CHALK									
6,000.0	71.20	359.00	5,759.5	-43.6	-312.5	-15.9	8.99	8.99	0.00
6,050.0	75.70	359.00	5,773.7	4.3	-313.3	31.9	9.00	9.00	0.00
6,100.0	80.20	359.00	5,784.2	53.2	-314.2	80.7	9.00	9.00	0.00
6,111.3	81.22	359.00	5,786.0	64.3	-314.4	91.8	9.01	9.01	0.00
NIO A MARL									
6,150.0	84.70	359.00	5,790.7	102.8	-315.0	130.1	9.00	9.00	0.00
6,153.3	85.00	359.00	5,791.0	106.0	-315.1	133.4	9.00	9.00	0.00
Start 75.0 hold at 6153.3 MD - 7" Casing @ 6153.3' MD									
6,200.0	85.00	359.00	5,795.1	152.6	-315.9	179.8	0.00	0.00	0.00
6,228.3	85.00	359.00	5,797.6	180.8	-316.4	207.9	0.00	0.00	0.00
Start Build 9.00									
6,250.0	86.95	359.00	5,799.1	202.4	-316.8	229.5	8.99	8.99	0.00
6,283.9	90.00	359.00	5,800.0	236.2	-317.4	263.2	9.00	9.00	0.00
6,300.0	90.00	359.00	5,800.0	252.4	-317.6	279.4	0.00	0.00	0.00
6,350.0	90.00	359.00	5,800.0	302.4	-318.5	329.2	0.00	0.00	0.00
6,400.0	90.00	359.00	5,800.0	352.4	-319.4	379.1	0.00	0.00	0.00
6,450.0	90.00	359.00	5,800.0	402.4	-320.2	429.0	0.00	0.00	0.00
6,500.0	90.00	359.00	5,800.0	452.4	-321.1	478.9	0.00	0.00	0.00
6,550.0	90.00	359.00	5,800.0	502.3	-322.0	528.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,600.0	90.00	359.00	5,800.0	552.3	-322.9	578.6	0.00	0.00	0.00
6,650.0	90.00	359.00	5,800.0	602.3	-323.7	628.5	0.00	0.00	0.00
6,700.0	90.00	359.00	5,800.0	652.3	-324.6	678.4	0.00	0.00	0.00
6,750.0	90.00	359.00	5,800.0	702.3	-325.5	728.2	0.00	0.00	0.00
6,800.0	90.00	359.00	5,800.0	752.3	-326.3	778.1	0.00	0.00	0.00
6,850.0	90.00	359.00	5,800.0	802.3	-327.2	828.0	0.00	0.00	0.00
6,900.0	90.00	359.00	5,800.0	852.3	-328.1	877.9	0.00	0.00	0.00
6,950.0	90.00	359.00	5,800.0	902.3	-328.9	927.7	0.00	0.00	0.00
7,000.0	90.00	359.00	5,800.0	952.3	-329.8	977.6	0.00	0.00	0.00
7,050.0	90.00	359.00	5,800.0	1,002.3	-330.7	1,027.5	0.00	0.00	0.00
7,100.0	90.00	359.00	5,800.0	1,052.3	-331.5	1,077.4	0.00	0.00	0.00
7,150.0	90.00	359.00	5,800.0	1,102.3	-332.4	1,127.2	0.00	0.00	0.00
7,200.0	90.00	359.00	5,800.0	1,152.2	-333.3	1,177.1	0.00	0.00	0.00
7,250.0	90.00	359.00	5,800.0	1,202.2	-334.1	1,227.0	0.00	0.00	0.00
7,300.0	90.00	359.00	5,800.0	1,252.2	-335.0	1,276.9	0.00	0.00	0.00
7,350.0	90.00	359.00	5,800.0	1,302.2	-335.9	1,326.7	0.00	0.00	0.00
7,400.0	90.00	359.00	5,800.0	1,352.2	-336.8	1,376.6	0.00	0.00	0.00
7,450.0	90.00	359.00	5,800.0	1,402.2	-337.6	1,426.5	0.00	0.00	0.00
7,500.0	90.00	359.00	5,800.0	1,452.2	-338.5	1,476.4	0.00	0.00	0.00
7,550.0	90.00	359.00	5,800.0	1,502.2	-339.4	1,526.2	0.00	0.00	0.00
7,600.0	90.00	359.00	5,800.0	1,552.2	-340.2	1,576.1	0.00	0.00	0.00
7,650.0	90.00	359.00	5,800.0	1,602.2	-341.1	1,626.0	0.00	0.00	0.00
7,700.0	90.00	359.00	5,800.0	1,652.2	-342.0	1,675.9	0.00	0.00	0.00
7,750.0	90.00	359.00	5,800.0	1,702.2	-342.8	1,725.7	0.00	0.00	0.00
7,800.0	90.00	359.00	5,800.0	1,752.2	-343.7	1,775.6	0.00	0.00	0.00
7,850.0	90.00	359.00	5,800.0	1,802.2	-344.6	1,825.5	0.00	0.00	0.00
7,900.0	90.00	359.00	5,800.0	1,852.1	-345.4	1,875.4	0.00	0.00	0.00
7,950.0	90.00	359.00	5,800.0	1,902.1	-346.3	1,925.2	0.00	0.00	0.00
8,000.0	90.00	359.00	5,800.0	1,952.1	-347.2	1,975.1	0.00	0.00	0.00
8,050.0	90.00	359.00	5,800.0	2,002.1	-348.0	2,025.0	0.00	0.00	0.00
8,100.0	90.00	359.00	5,800.0	2,052.1	-348.9	2,074.9	0.00	0.00	0.00
8,150.0	90.00	359.00	5,800.0	2,102.1	-349.8	2,124.7	0.00	0.00	0.00
8,200.0	90.00	359.00	5,800.0	2,152.1	-350.6	2,174.6	0.00	0.00	0.00
8,250.0	90.00	359.00	5,800.0	2,202.1	-351.5	2,224.5	0.00	0.00	0.00
8,300.0	90.00	359.00	5,800.0	2,252.1	-352.4	2,274.4	0.00	0.00	0.00
8,350.0	90.00	359.00	5,800.0	2,302.1	-353.3	2,324.2	0.00	0.00	0.00
8,400.0	90.00	359.00	5,800.0	2,352.1	-354.1	2,374.1	0.00	0.00	0.00
8,450.0	90.00	359.00	5,800.0	2,402.1	-355.0	2,424.0	0.00	0.00	0.00
8,500.0	90.00	359.00	5,800.0	2,452.1	-355.9	2,473.9	0.00	0.00	0.00
8,550.0	90.00	359.00	5,800.0	2,502.0	-356.7	2,523.7	0.00	0.00	0.00
8,600.0	90.00	359.00	5,800.0	2,552.0	-357.6	2,573.6	0.00	0.00	0.00
8,650.0	90.00	359.00	5,800.0	2,602.0	-358.5	2,623.5	0.00	0.00	0.00
8,700.0	90.00	359.00	5,800.0	2,652.0	-359.3	2,673.4	0.00	0.00	0.00
8,750.0	90.00	359.00	5,800.0	2,702.0	-360.2	2,723.2	0.00	0.00	0.00
8,800.0	90.00	359.00	5,800.0	2,752.0	-361.1	2,773.1	0.00	0.00	0.00
8,850.0	90.00	359.00	5,800.0	2,802.0	-361.9	2,823.0	0.00	0.00	0.00
8,900.0	90.00	359.00	5,800.0	2,852.0	-362.8	2,872.9	0.00	0.00	0.00
8,950.0	90.00	359.00	5,800.0	2,902.0	-363.7	2,922.7	0.00	0.00	0.00
9,000.0	90.00	359.00	5,800.0	2,952.0	-364.5	2,972.6	0.00	0.00	0.00
9,050.0	90.00	359.00	5,800.0	3,002.0	-365.4	3,022.5	0.00	0.00	0.00
9,100.0	90.00	359.00	5,800.0	3,052.0	-366.3	3,072.4	0.00	0.00	0.00
9,150.0	90.00	359.00	5,800.0	3,102.0	-367.2	3,122.2	0.00	0.00	0.00
9,200.0	90.00	359.00	5,800.0	3,152.0	-368.0	3,172.1	0.00	0.00	0.00
9,250.0	90.00	359.00	5,800.0	3,201.9	-368.9	3,222.0	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,300.0	90.00	359.00	5,800.0	3,251.9	-369.8	3,271.9	0.00	0.00	0.00	
9,350.0	90.00	359.00	5,800.0	3,301.9	-370.6	3,321.7	0.00	0.00	0.00	
9,400.0	90.00	359.00	5,800.0	3,351.9	-371.5	3,371.6	0.00	0.00	0.00	
9,450.0	90.00	359.00	5,800.0	3,401.9	-372.4	3,421.5	0.00	0.00	0.00	
9,500.0	90.00	359.00	5,800.0	3,451.9	-373.2	3,471.4	0.00	0.00	0.00	
9,550.0	90.00	359.00	5,800.0	3,501.9	-374.1	3,521.2	0.00	0.00	0.00	
9,600.0	90.00	359.00	5,800.0	3,551.9	-375.0	3,571.1	0.00	0.00	0.00	
9,650.0	90.00	359.00	5,800.0	3,601.9	-375.8	3,621.0	0.00	0.00	0.00	
9,700.0	90.00	359.00	5,800.0	3,651.9	-376.7	3,670.9	0.00	0.00	0.00	
9,750.0	90.00	359.00	5,800.0	3,701.9	-377.6	3,720.7	0.00	0.00	0.00	
9,800.0	90.00	359.00	5,800.0	3,751.9	-378.4	3,770.6	0.00	0.00	0.00	
9,850.0	90.00	359.00	5,800.0	3,801.9	-379.3	3,820.5	0.00	0.00	0.00	
9,900.0	90.00	359.00	5,800.0	3,851.8	-380.2	3,870.4	0.00	0.00	0.00	
9,950.0	90.00	359.00	5,800.0	3,901.8	-381.1	3,920.2	0.00	0.00	0.00	
10,000.0	90.00	359.00	5,800.0	3,951.8	-381.9	3,970.1	0.00	0.00	0.00	
10,050.0	90.00	359.00	5,800.0	4,001.8	-382.8	4,020.0	0.00	0.00	0.00	
10,100.0	90.00	359.00	5,800.0	4,051.8	-383.7	4,069.9	0.00	0.00	0.00	
10,150.0	90.00	359.00	5,800.0	4,101.8	-384.5	4,119.7	0.00	0.00	0.00	
10,200.0	90.00	359.00	5,800.0	4,151.8	-385.4	4,169.6	0.00	0.00	0.00	
10,250.0	90.00	359.00	5,800.0	4,201.8	-386.3	4,219.5	0.00	0.00	0.00	
10,300.0	90.00	359.00	5,800.0	4,251.8	-387.1	4,269.4	0.00	0.00	0.00	
10,350.0	90.00	359.00	5,800.0	4,301.8	-388.0	4,319.2	0.00	0.00	0.00	
10,400.0	90.00	359.00	5,800.0	4,351.8	-388.9	4,369.1	0.00	0.00	0.00	
10,450.0	90.00	359.00	5,800.0	4,401.8	-389.7	4,419.0	0.00	0.00	0.00	
10,461.1	90.00	359.00	5,800.0	4,412.8	-389.9	4,430.0	0.00	0.00	0.00	
TD at 10461.1 - Gracie LD22-740 BHL 330'FNL, 1980'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 LD22-740 BHL 3:	0.00	0.00	5,800.0	4,412.9	-389.9	1,517,843.89	3,457,848.85	40.743160	-103.847620	
- plan hits target center										
- Point										

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")						
6,153.3	5,791.0	7" Casing @ 6153.3' MD	7	8-3/4						

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Gracie LD22-740
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,561.0	1,561.0	PIERRE		0.00	
3,421.8	3,392.0	PARKMAN		0.00	
4,050.9	4,009.0	SUSSEX		0.00	
4,456.5	4,407.0	SHANNON		0.00	
5,087.0	5,035.0	TEEPEE BUTTES		0.00	
5,956.2	5,744.0	SHARON SPRINGS		0.00	
5,992.3	5,757.0	NIO A CHALK		0.00	
6,111.3	5,786.0	NIO A MARL		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,500.0	1,500.0	0.0	0.0	KOP - Start Build 2.00	
4,389.0	4,340.6	-428.6	-275.2	Start Drop -2.00	
5,208.9	5,156.9	-475.0	-305.0	KOP #2 - Start Build 9.00	
6,153.3	5,791.0	106.0	-315.1	Start 75.0 hold at 6153.3 MD	
6,228.3	5,797.6	180.8	-316.4	Start Build 9.00	
10,461.1	5,800.0	4,412.8	-389.9	TD at 10461.1	

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Gracie LD22-740**

**Original Drilling
APD - Rev 0**

Anticollision Summary Report

16 March, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Gracie LD22-740
Project:	Wattenberg Field	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	3/16/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,461.1	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

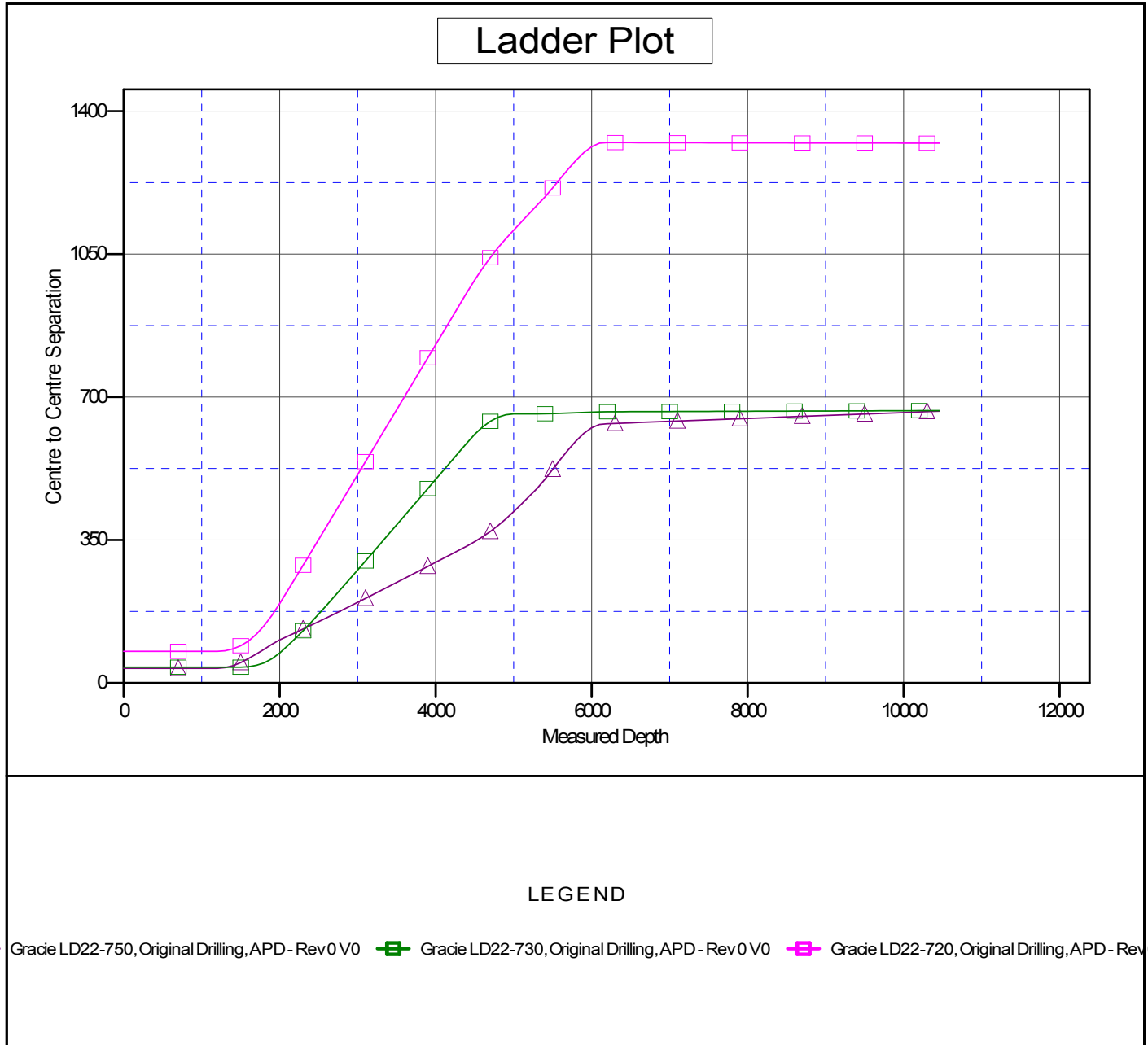
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Gracie LD22-720 - Original Drilling - APD - Rev 0	1,200.0	1,199.0	77.6	72.5	15.176	CC, ES
Gracie LD22-720 - Original Drilling - APD - Rev 0	10,461.7	10,494.0	1,321.8	1,148.7	7.636	SF
Gracie LD22-730 - Original Drilling - APD - Rev 0	1,500.0	1,499.0	38.8	32.3	6.005	CC, ES
Gracie LD22-730 - Original Drilling - APD - Rev 0	10,461.7	10,538.1	667.0	491.1	3.794	SF
Gracie LD22-750 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	36.0	30.9	7.043	CC, ES
Gracie LD22-750 - Original Drilling - APD - Rev 0	10,461.7	10,579.9	665.5	489.7	3.785	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Gracie LD22-740
Project:	Wattenberg Field	TVD Reference:	WELL @ 4852.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4852.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Gracie LD22-740	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	EDM01P
Reference Design:	APD - Rev 0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4852.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Gracie LD22-740
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.07°



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Anticollision Summary Report

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