

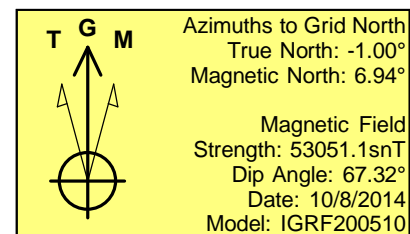
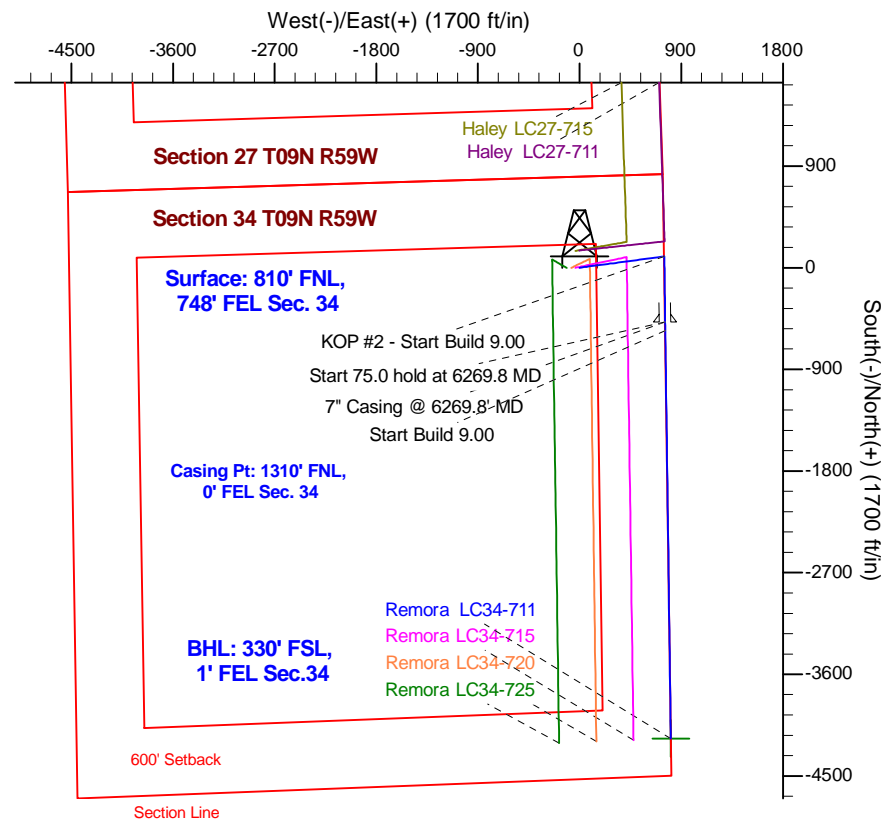
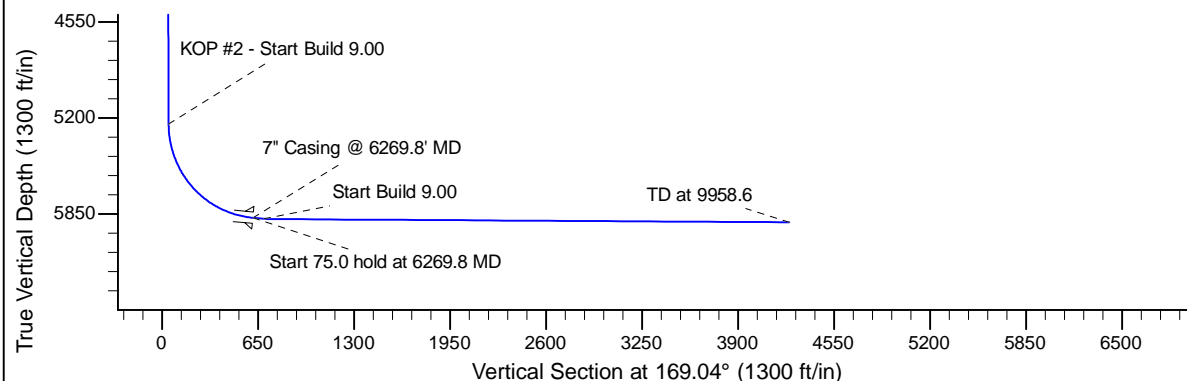
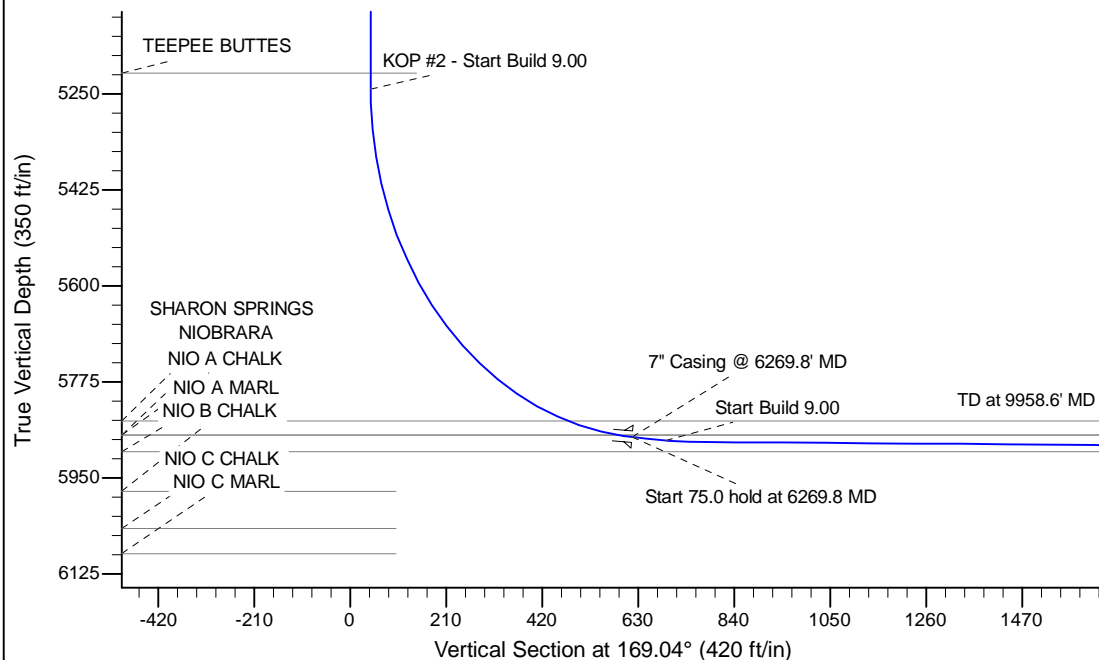
Project: Wattenberg Field
Site: LC (Sec.34-T09N-R59W) Weld County, CO
Well: Remora LC34-711
Wellbore: Original Drilling
Design: APD - Rev 1

Northern Region Drilling - Working

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	1885.6	13.71	82.41	1879.1	10.8	80.9	2.00	82.41	4.8	
4	4388.8	13.71	82.41	4310.9	89.2	669.1	0.00	0.00	39.6	
5	5074.4	0.00	0.00	4990.0	100.0	750.0	2.00	180.00	44.4	
6	5325.4	0.00	0.00	5241.0	100.0	750.0	0.00	0.00	44.4	
7	6269.8	85.00	179.23	5875.2	-481.1	757.8	9.00	179.23	616.4	
8	6344.8	85.00	179.23	5881.7	-555.8	758.8	0.00	0.00	689.9	
9	6396.5	89.65	179.23	5884.1	-607.4	759.5	9.00	0.00	740.7	
10	9958.6	89.65	179.23	5905.9	-4169.1	807.5	0.00	0.00	4246.6	Remora LC34-711 BHL 330'FSL, 1'FEL



WELL DETAILS: Remora LC34-711					
Ground Level: 4814.0					
	North	East	Lat	Long	
0.0	0.0	1505969.19	3427758.30	40.712060	-103.956940
Plan: APD - Rev 1 (Remora LC34-711/Original Drilling)					
Created By: Shailey Jewell			Date: 10/23, November 12 2014		
Checked: _____			Date: _____		
Reviewed: _____			Date: _____		
Approved: _____			Date: _____		

Northern Region Drilling - Working

**Wattenberg Field
LC (09N-59W)
Remora LC34-711**

Original Drilling

Plan: APD - Rev 1

Standard Planning Report

12 November, 2014

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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		LC (09N-59W)			
Site Position:		Northing:	1,527,709.69 usft	Latitude:	40.771436
From:	Lat/Long	Easting:	3,433,728.00 usft	Longitude:	-103.934025
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.01 °

Well	Remora LC34-711					
Well Position	+N/-S	-21,740.6 ft	Northing:	1,505,969.20 usft	Latitude:	40.712060
	+E/-W	-5,969.7 ft	Easting:	3,427,758.29 usft	Longitude:	-103.956940
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,814.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/8/2014	7.94	67.32	53,051

Design	APD - Rev 1			
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	169.04

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,885.6	13.71	82.41	1,879.1	10.8	80.9	2.00	2.00	0.00	82.41	
4,388.8	13.71	82.41	4,310.9	89.2	669.1	0.00	0.00	0.00	0.00	
5,074.4	0.00	0.00	4,990.0	100.0	750.0	2.00	-2.00	0.00	180.00	
5,325.4	0.00	0.00	5,241.0	100.0	750.0	0.00	0.00	0.00	0.00	
6,269.8	85.00	179.23	5,875.2	-481.1	757.8	9.00	9.00	0.00	179.23	
6,344.8	85.00	179.23	5,881.7	-555.8	758.8	0.00	0.00	0.00	0.00	
6,396.5	89.65	179.23	5,884.1	-607.4	759.5	9.00	9.00	0.00	0.00	
9,958.6	89.65	179.23	5,905.9	-4,169.1	807.5	0.00	0.00	0.00	0.00	Remora LC34-711 Bl-

Noble Energy Inc

Planning Report

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Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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
KOP - Start Build 2.00									
1,216.0	0.32	82.41	1,216.0	0.0	0.0	0.0	2.00	2.00	0.00
PIERRE									
1,250.0	1.00	82.41	1,250.0	0.1	0.4	0.0	2.00	2.00	0.00
1,300.0	2.00	82.41	1,300.0	0.2	1.7	0.1	2.00	2.00	0.00
1,350.0	3.00	82.41	1,349.9	0.5	3.9	0.2	2.00	2.00	0.00
1,400.0	4.00	82.41	1,399.8	0.9	6.9	0.4	2.00	2.00	0.00
1,450.0	5.00	82.41	1,449.7	1.4	10.8	0.6	2.00	2.00	0.00
1,500.0	6.00	82.41	1,499.5	2.1	15.6	0.9	2.00	2.00	0.00
1,550.0	7.00	82.41	1,549.1	2.8	21.2	1.3	2.00	2.00	0.00
1,600.0	8.00	82.41	1,598.7	3.7	27.6	1.6	2.00	2.00	0.00
1,650.0	9.00	82.41	1,648.2	4.7	35.0	2.1	2.00	2.00	0.00
1,700.0	10.00	82.41	1,697.5	5.8	43.1	2.6	2.00	2.00	0.00
1,750.0	11.00	82.41	1,746.6	7.0	52.2	3.1	2.00	2.00	0.00
1,800.0	12.00	82.41	1,795.6	8.3	62.1	3.7	2.00	2.00	0.00
1,850.0	13.00	82.41	1,844.4	9.7	72.8	4.3	2.00	2.00	0.00
1,885.6	13.71	82.41	1,879.1	10.8	80.9	4.8	2.00	2.00	0.00
1,900.0	13.71	82.41	1,893.1	11.2	84.3	5.0	0.00	0.00	0.00
1,950.0	13.71	82.41	1,941.6	12.8	96.1	5.7	0.00	0.00	0.00
2,000.0	13.71	82.41	1,990.2	14.4	107.8	6.4	0.00	0.00	0.00
2,050.0	13.71	82.41	2,038.8	15.9	119.6	7.1	0.00	0.00	0.00
2,100.0	13.71	82.41	2,087.4	17.5	131.3	7.8	0.00	0.00	0.00
2,150.0	13.71	82.41	2,135.9	19.1	143.1	8.5	0.00	0.00	0.00
2,200.0	13.71	82.41	2,184.5	20.6	154.8	9.2	0.00	0.00	0.00
2,250.0	13.71	82.41	2,233.1	22.2	166.6	9.9	0.00	0.00	0.00
2,300.0	13.71	82.41	2,281.7	23.8	178.3	10.6	0.00	0.00	0.00
2,350.0	13.71	82.41	2,330.2	25.3	190.0	11.3	0.00	0.00	0.00
2,400.0	13.71	82.41	2,378.8	26.9	201.8	12.0	0.00	0.00	0.00
2,450.0	13.71	82.41	2,427.4	28.5	213.5	12.7	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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	13.71	82.41	2,476.0	30.0	225.3	13.3	0.00	0.00	0.00	
2,550.0	13.71	82.41	2,524.5	31.6	237.0	14.0	0.00	0.00	0.00	
2,600.0	13.71	82.41	2,573.1	33.2	248.8	14.7	0.00	0.00	0.00	
2,650.0	13.71	82.41	2,621.7	34.7	260.5	15.4	0.00	0.00	0.00	
2,700.0	13.71	82.41	2,670.3	36.3	272.3	16.1	0.00	0.00	0.00	
2,750.0	13.71	82.41	2,718.8	37.9	284.0	16.8	0.00	0.00	0.00	
2,800.0	13.71	82.41	2,767.4	39.4	295.8	17.5	0.00	0.00	0.00	
2,850.0	13.71	82.41	2,816.0	41.0	307.5	18.2	0.00	0.00	0.00	
2,900.0	13.71	82.41	2,864.6	42.6	319.3	18.9	0.00	0.00	0.00	
2,950.0	13.71	82.41	2,913.1	44.1	331.0	19.6	0.00	0.00	0.00	
3,000.0	13.71	82.41	2,961.7	45.7	342.8	20.3	0.00	0.00	0.00	
3,050.0	13.71	82.41	3,010.3	47.3	354.5	21.0	0.00	0.00	0.00	
3,100.0	13.71	82.41	3,058.9	48.8	366.3	21.7	0.00	0.00	0.00	
3,150.0	13.71	82.41	3,107.4	50.4	378.0	22.4	0.00	0.00	0.00	
3,200.0	13.71	82.41	3,156.0	52.0	389.8	23.1	0.00	0.00	0.00	
3,250.0	13.71	82.41	3,204.6	53.5	401.5	23.8	0.00	0.00	0.00	
3,300.0	13.71	82.41	3,253.2	55.1	413.3	24.5	0.00	0.00	0.00	
3,350.0	13.71	82.41	3,301.7	56.7	425.0	25.2	0.00	0.00	0.00	
3,363.6	13.71	82.41	3,315.0	57.1	428.2	25.4	0.00	0.00	0.00	
PARKMAN										
3,400.0	13.71	82.41	3,350.3	58.2	436.7	25.9	0.00	0.00	0.00	
3,450.0	13.71	82.41	3,398.9	59.8	448.5	26.6	0.00	0.00	0.00	
3,500.0	13.71	82.41	3,447.5	61.4	460.2	27.3	0.00	0.00	0.00	
3,550.0	13.71	82.41	3,496.0	62.9	472.0	28.0	0.00	0.00	0.00	
3,600.0	13.71	82.41	3,544.6	64.5	483.7	28.7	0.00	0.00	0.00	
3,650.0	13.71	82.41	3,593.2	66.1	495.5	29.4	0.00	0.00	0.00	
3,700.0	13.71	82.41	3,641.8	67.6	507.2	30.0	0.00	0.00	0.00	
3,750.0	13.71	82.41	3,690.3	69.2	519.0	30.7	0.00	0.00	0.00	
3,800.0	13.71	82.41	3,738.9	70.8	530.7	31.4	0.00	0.00	0.00	
3,850.0	13.71	82.41	3,787.5	72.3	542.5	32.1	0.00	0.00	0.00	
3,900.0	13.71	82.41	3,836.1	73.9	554.2	32.8	0.00	0.00	0.00	
3,950.0	13.71	82.41	3,884.6	75.5	566.0	33.5	0.00	0.00	0.00	
4,000.0	13.71	82.41	3,933.2	77.0	577.7	34.2	0.00	0.00	0.00	
4,050.0	13.71	82.41	3,981.8	78.6	589.5	34.9	0.00	0.00	0.00	
4,096.5	13.71	82.41	4,027.0	80.1	600.4	35.6	0.00	0.00	0.00	
SUSSEX										
4,100.0	13.71	82.41	4,030.4	80.2	601.2	35.6	0.00	0.00	0.00	
4,150.0	13.71	82.41	4,078.9	81.7	613.0	36.3	0.00	0.00	0.00	
4,200.0	13.71	82.41	4,127.5	83.3	624.7	37.0	0.00	0.00	0.00	
4,250.0	13.71	82.41	4,176.1	84.9	636.5	37.7	0.00	0.00	0.00	
4,300.0	13.71	82.41	4,224.7	86.4	648.2	38.4	0.00	0.00	0.00	
4,350.0	13.71	82.41	4,273.3	88.0	660.0	39.1	0.00	0.00	0.00	
4,388.8	13.71	82.41	4,310.9	89.2	669.1	39.6	0.00	0.00	0.00	
Start Drop -2.00										
4,400.0	13.49	82.41	4,321.8	89.6	671.7	39.8	2.00	-2.00	0.00	
4,450.0	12.49	82.41	4,370.6	91.0	682.8	40.5	2.00	-2.00	0.00	
4,500.0	11.49	82.41	4,419.5	92.4	693.1	41.1	2.00	-2.00	0.00	
4,512.8	11.23	82.41	4,432.0	92.7	695.6	41.2	2.00	-2.00	0.00	
SHANNON										
4,550.0	10.49	82.41	4,468.5	93.7	702.6	41.6	2.00	-2.00	0.00	
4,600.0	9.49	82.41	4,517.8	94.8	711.2	42.1	2.00	-2.00	0.00	
4,650.0	8.49	82.41	4,567.2	95.9	718.9	42.6	2.00	-2.00	0.00	
4,700.0	7.49	82.41	4,616.7	96.8	725.8	43.0	2.00	-2.00	0.00	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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	6.49	82.41	4,666.3	97.6	731.8	43.4	2.00	-2.00	0.00
4,800.0	5.49	82.41	4,716.0	98.3	737.0	43.7	2.00	-2.00	0.00
4,850.0	4.49	82.41	4,765.8	98.8	741.3	43.9	2.00	-2.00	0.00
4,900.0	3.49	82.41	4,815.7	99.3	744.7	44.1	2.00	-2.00	0.00
4,950.0	2.49	82.41	4,865.7	99.6	747.3	44.3	2.00	-2.00	0.00
5,000.0	1.49	82.41	4,915.6	99.9	749.0	44.4	2.00	-2.00	0.00
5,050.0	0.49	82.41	4,965.6	100.0	749.9	44.4	2.00	-2.00	0.00
5,074.4	0.00	0.00	4,990.0	100.0	750.0	44.4	2.00	-2.00	0.00
5,100.0	0.00	0.00	5,015.6	100.0	750.0	44.4	0.00	0.00	0.00
5,150.0	0.00	0.00	5,065.6	100.0	750.0	44.4	0.00	0.00	0.00
5,200.0	0.00	0.00	5,115.6	100.0	750.0	44.4	0.00	0.00	0.00
5,250.0	0.00	0.00	5,165.6	100.0	750.0	44.4	0.00	0.00	0.00
5,296.4	0.00	0.00	5,212.0	100.0	750.0	44.4	0.00	0.00	0.00
TEEPER BUTTES									
5,300.0	0.00	0.00	5,215.6	100.0	750.0	44.4	0.00	0.00	0.00
5,325.4	0.00	0.00	5,241.0	100.0	750.0	44.4	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,350.0	2.22	179.23	5,265.6	99.5	750.0	44.9	9.00	9.00	0.00
5,400.0	6.72	179.23	5,315.5	95.6	750.1	48.7	9.00	9.00	0.00
5,450.0	11.22	179.23	5,364.8	87.8	750.2	56.4	9.00	9.00	0.00
5,500.0	15.72	179.23	5,413.4	76.2	750.3	67.9	9.00	9.00	0.00
5,550.0	20.22	179.23	5,461.0	60.8	750.5	83.0	9.00	9.00	0.00
5,600.0	24.72	179.23	5,507.2	41.7	750.8	101.8	9.00	9.00	0.00
5,650.0	29.22	179.23	5,551.7	19.0	751.1	124.1	9.00	9.00	0.00
5,700.0	33.72	179.23	5,594.4	-7.1	751.4	149.8	9.00	9.00	0.00
5,750.0	38.22	179.23	5,634.8	-36.4	751.8	178.7	9.00	9.00	0.00
5,800.0	42.72	179.23	5,672.9	-68.9	752.3	210.7	9.00	9.00	0.00
5,850.0	47.22	179.23	5,708.2	-104.2	752.7	245.4	9.00	9.00	0.00
5,900.0	51.72	179.23	5,740.7	-142.2	753.3	282.8	9.00	9.00	0.00
5,950.0	56.22	179.23	5,770.1	-182.6	753.8	322.6	9.00	9.00	0.00
6,000.0	60.72	179.23	5,796.3	-225.2	754.4	364.5	9.00	9.00	0.00
6,050.0	65.22	179.23	5,819.0	-269.7	755.0	408.4	9.00	9.00	0.00
6,100.0	69.72	179.23	5,838.1	-315.9	755.6	453.8	9.00	9.00	0.00
6,123.9	71.87	179.23	5,846.0	-338.5	755.9	476.0	9.00	9.00	0.00
SHARON SPRINGS									
6,150.0	74.22	179.23	5,853.6	-363.4	756.2	500.6	9.00	9.00	0.00
6,200.0	78.72	179.23	5,865.3	-412.0	756.9	548.4	9.00	9.00	0.00
6,240.8	82.38	179.23	5,872.0	-452.2	757.4	588.0	9.00	9.00	0.00
NIOBRARA - NIO A CHALK									
6,250.0	83.22	179.23	5,873.2	-461.4	757.6	597.0	8.99	8.99	0.00
6,269.8	85.00	179.23	5,875.2	-481.1	757.8	616.4	9.01	9.01	0.00
Start 75.0 hold at 6269.8 MD - 7" Casing @ 6269.8' MD									
6,300.0	85.00	179.23	5,877.8	-511.1	758.2	646.0	0.01	0.01	0.00
6,344.8	85.00	179.23	5,881.7	-555.8	758.8	689.9	0.00	0.00	0.00
Start Build 9.00									
6,350.0	85.47	179.23	5,882.2	-561.0	758.9	695.0	8.93	8.93	0.00
6,396.5	89.65	179.23	5,884.1	-607.4	759.5	740.7	9.00	9.00	0.00
6,400.0	89.65	179.23	5,884.2	-610.9	759.6	744.2	0.00	0.00	0.00
6,450.0	89.65	179.23	5,884.5	-660.9	760.2	793.4	0.00	0.00	0.00
6,500.0	89.65	179.23	5,884.8	-710.9	760.9	842.6	0.00	0.00	0.00
6,550.0	89.65	179.23	5,885.1	-760.9	761.6	891.8	0.00	0.00	0.00
6,600.0	89.65	179.23	5,885.4	-810.9	762.3	941.0	0.00	0.00	0.00
6,650.0	89.65	179.23	5,885.7	-860.9	762.9	990.2	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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)
6,700.0	89.65	179.23	5,886.0	-910.9	763.6	1,039.4	0.00	0.00	0.00
6,750.0	89.65	179.23	5,886.3	-960.9	764.3	1,088.7	0.00	0.00	0.00
6,800.0	89.65	179.23	5,886.6	-1,010.9	765.0	1,137.9	0.00	0.00	0.00
6,850.0	89.65	179.23	5,886.9	-1,060.8	765.6	1,187.1	0.00	0.00	0.00
6,900.0	89.65	179.23	5,887.2	-1,110.8	766.3	1,236.3	0.00	0.00	0.00
6,950.0	89.65	179.23	5,887.5	-1,160.8	767.0	1,285.5	0.00	0.00	0.00
7,000.0	89.65	179.23	5,887.8	-1,210.8	767.6	1,334.7	0.00	0.00	0.00
7,050.0	89.65	179.23	5,888.1	-1,260.8	768.3	1,383.9	0.00	0.00	0.00
7,100.0	89.65	179.23	5,888.4	-1,310.8	769.0	1,433.1	0.00	0.00	0.00
7,150.0	89.65	179.23	5,888.7	-1,360.8	769.7	1,482.3	0.00	0.00	0.00
7,200.0	89.65	179.23	5,889.0	-1,410.8	770.3	1,531.5	0.00	0.00	0.00
7,250.0	89.65	179.23	5,889.4	-1,460.8	771.0	1,580.8	0.00	0.00	0.00
7,300.0	89.65	179.23	5,889.7	-1,510.8	771.7	1,630.0	0.00	0.00	0.00
7,350.0	89.65	179.23	5,890.0	-1,560.8	772.4	1,679.2	0.00	0.00	0.00
7,400.0	89.65	179.23	5,890.3	-1,610.8	773.0	1,728.4	0.00	0.00	0.00
7,450.0	89.65	179.23	5,890.6	-1,660.8	773.7	1,777.6	0.00	0.00	0.00
7,500.0	89.65	179.23	5,890.9	-1,710.8	774.4	1,826.8	0.00	0.00	0.00
7,550.0	89.65	179.23	5,891.2	-1,760.8	775.0	1,876.0	0.00	0.00	0.00
7,600.0	89.65	179.23	5,891.5	-1,810.8	775.7	1,925.2	0.00	0.00	0.00
7,650.0	89.65	179.23	5,891.8	-1,860.8	776.4	1,974.4	0.00	0.00	0.00
7,700.0	89.65	179.23	5,892.1	-1,910.8	777.1	2,023.7	0.00	0.00	0.00
7,750.0	89.65	179.23	5,892.4	-1,960.8	777.7	2,072.9	0.00	0.00	0.00
7,800.0	89.65	179.23	5,892.7	-2,010.7	778.4	2,122.1	0.00	0.00	0.00
7,850.0	89.65	179.23	5,893.0	-2,060.7	779.1	2,171.3	0.00	0.00	0.00
7,900.0	89.65	179.23	5,893.3	-2,110.7	779.8	2,220.5	0.00	0.00	0.00
7,950.0	89.65	179.23	5,893.6	-2,160.7	780.4	2,269.7	0.00	0.00	0.00
8,000.0	89.65	179.23	5,893.9	-2,210.7	781.1	2,318.9	0.00	0.00	0.00
8,050.0	89.65	179.23	5,894.2	-2,260.7	781.8	2,368.1	0.00	0.00	0.00
8,100.0	89.65	179.23	5,894.5	-2,310.7	782.4	2,417.3	0.00	0.00	0.00
8,150.0	89.65	179.23	5,894.9	-2,360.7	783.1	2,466.5	0.00	0.00	0.00
8,200.0	89.65	179.23	5,895.2	-2,410.7	783.8	2,515.8	0.00	0.00	0.00
8,250.0	89.65	179.23	5,895.5	-2,460.7	784.5	2,565.0	0.00	0.00	0.00
8,300.0	89.65	179.23	5,895.8	-2,510.7	785.1	2,614.2	0.00	0.00	0.00
8,350.0	89.65	179.23	5,896.1	-2,560.7	785.8	2,663.4	0.00	0.00	0.00
8,400.0	89.65	179.23	5,896.4	-2,610.7	786.5	2,712.6	0.00	0.00	0.00
8,450.0	89.65	179.23	5,896.7	-2,660.7	787.2	2,761.8	0.00	0.00	0.00
8,500.0	89.65	179.23	5,897.0	-2,710.7	787.8	2,811.0	0.00	0.00	0.00
8,550.0	89.65	179.23	5,897.3	-2,760.7	788.5	2,860.2	0.00	0.00	0.00
8,600.0	89.65	179.23	5,897.6	-2,810.7	789.2	2,909.4	0.00	0.00	0.00
8,650.0	89.65	179.23	5,897.9	-2,860.7	789.8	2,958.7	0.00	0.00	0.00
8,700.0	89.65	179.23	5,898.2	-2,910.7	790.5	3,007.9	0.00	0.00	0.00
8,750.0	89.65	179.23	5,898.5	-2,960.6	791.2	3,057.1	0.00	0.00	0.00
8,800.0	89.65	179.23	5,898.8	-3,010.6	791.9	3,106.3	0.00	0.00	0.00
8,850.0	89.65	179.23	5,899.1	-3,060.6	792.5	3,155.5	0.00	0.00	0.00
8,900.0	89.65	179.23	5,899.4	-3,110.6	793.2	3,204.7	0.00	0.00	0.00
8,950.0	89.65	179.23	5,899.7	-3,160.6	793.9	3,253.9	0.00	0.00	0.00
9,000.0	89.65	179.23	5,900.0	-3,210.6	794.6	3,303.1	0.00	0.00	0.00
9,050.0	89.65	179.23	5,900.3	-3,260.6	795.2	3,352.3	0.00	0.00	0.00
9,100.0	89.65	179.23	5,900.7	-3,310.6	795.9	3,401.5	0.00	0.00	0.00
9,150.0	89.65	179.23	5,901.0	-3,360.6	796.6	3,450.8	0.00	0.00	0.00
9,200.0	89.65	179.23	5,901.3	-3,410.6	797.2	3,500.0	0.00	0.00	0.00
9,250.0	89.65	179.23	5,901.6	-3,460.6	797.9	3,549.2	0.00	0.00	0.00
9,300.0	89.65	179.23	5,901.9	-3,510.6	798.6	3,598.4	0.00	0.00	0.00
9,320.1	89.65	179.23	5,902.0	-3,530.7	798.9	3,618.2	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

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)
NIO A MARL									
9,350.0	89.65	179.23	5,902.2	-3,560.6	799.3	3,647.6	0.00	0.00	0.00
9,400.0	89.65	179.23	5,902.5	-3,610.6	799.9	3,696.8	0.00	0.00	0.00
9,450.0	89.65	179.23	5,902.8	-3,660.6	800.6	3,746.0	0.00	0.00	0.00
9,500.0	89.65	179.23	5,903.1	-3,710.6	801.3	3,795.2	0.00	0.00	0.00
9,550.0	89.65	179.23	5,903.4	-3,760.6	802.0	3,844.4	0.00	0.00	0.00
9,600.0	89.65	179.23	5,903.7	-3,810.6	802.6	3,893.7	0.00	0.00	0.00
9,650.0	89.65	179.23	5,904.0	-3,860.5	803.3	3,942.9	0.00	0.00	0.00
9,700.0	89.65	179.23	5,904.3	-3,910.5	804.0	3,992.1	0.00	0.00	0.00
9,750.0	89.65	179.23	5,904.6	-3,960.5	804.6	4,041.3	0.00	0.00	0.00
9,800.0	89.65	179.23	5,904.9	-4,010.5	805.3	4,090.5	0.00	0.00	0.00
9,850.0	89.65	179.23	5,905.2	-4,060.5	806.0	4,139.7	0.00	0.00	0.00
9,900.0	89.65	179.23	5,905.5	-4,110.5	806.7	4,188.9	0.00	0.00	0.00
9,950.0	89.65	179.23	5,905.8	-4,160.5	807.3	4,238.1	0.00	0.00	0.00
9,958.6	89.65	179.23	5,905.9	-4,169.1	807.5	4,246.6	0.00	0.00	0.00
TD at 9958.6 - Remora LC34-711 BHL 330'FSL, 1'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									
Remora LC34-711 BHL :	0.00	0.00	5,905.9	-4,169.1	807.5	1,501,800.16	3,428,565.74	40.700580	-103.954290
- plan hits target center									
- Point									

Casing Points							
Measured Depth (ft)	Vertical Depth (ft)	Name				Casing Diameter (")	Hole Diameter (")
6,269.8	5,875.2	7" Casing @ 6269.8' MD				7	8-3/4

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,216.0	1,216.0	PIERRE		0.00		
3,363.6	3,315.0	PARKMAN		0.00		
4,096.5	4,027.0	SUSSEX		0.00		
4,512.8	4,432.0	SHANNON		0.00		
5,296.4	5,212.0	TEEPEE BUTTES		0.00		
6,123.9	5,846.0	SHARON SPRINGS		0.00		
6,240.8	5,872.0	NIOBRARA		0.00		
6,240.8	5,872.0	NIO A CHALK		0.00		
9,320.1	5,902.0	NIO A MARL		0.00		

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Remora LC34-711
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site:	LC (09N-59W)	North Reference:	Grid
Well:	Remora LC34-711	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.0	1,200.0	0.0	0.0	KOP - Start Build 2.00
4,388.8	4,310.9	89.2	669.1	Start Drop -2.00
5,325.4	5,241.0	100.0	750.0	KOP #2 - Start Build 9.00
6,269.8	5,875.2	-481.1	757.8	Start 75.0 hold at 6269.8 MD
6,344.8	5,881.7	-555.8	758.8	Start Build 9.00
9,958.6	5,905.9	-4,169.1	807.5	TD at 9958.6

Northern Region Drilling - Working

**Wattenberg Field
LC (09N-59W)
Remora LC34-711**

**Original Drilling
APD - Rev 1**

Anticollision Summary Report

12 November, 2014

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Remora LC34-711
Project:	Wattenberg Field	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	LC (09N-59W)	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Remora LC34-711	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 1	Offset TVD Reference:	Offset Datum

Reference	APD - Rev 1		
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	11/11/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,958.6	APD - Rev 1 (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						
LC (09N-59W)						
Haley LC27-711 - Original Drilling - APD - Rev 1	4,879.8	4,868.3	132.3	97.0	3.745	CC
Haley LC27-711 - Original Drilling - APD - Rev 1	5,300.0	5,289.6	133.0	96.6	3.650	ES, SF
Haley LC27-715 - Original Drilling - APD - Rev 0	1,200.0	1,192.0	153.7	148.6	30.090	CC
Haley LC27-715 - Original Drilling - APD - Rev 0	1,300.0	1,292.0	153.9	148.3	27.751	ES
Haley LC27-715 - Original Drilling - APD - Rev 0	5,400.0	5,332.6	359.7	333.3	13.604	SF
Remora LC34-715 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	38.8	33.7	7.587	CC, ES
Remora LC34-715 - Original Drilling - APD - Rev 0	9,958.6	10,011.4	345.7	187.7	2.188	SF
Remora LC34-720 - Original Drilling - APD - Rev 0	1,200.0	1,200.0	74.9	69.7	14.632	CC, ES
Remora LC34-720 - Original Drilling - APD - Rev 0	9,958.6	9,879.9	659.9	496.9	4.049	SF
Remora LC34-725 - Original Drilling - APD - Rev 0	1,200.0	1,201.0	113.7	108.5	22.209	CC, ES
Remora LC34-725 - Original Drilling - APD - Rev 0	9,958.6	9,979.8	995.8	833.4	6.131	SF

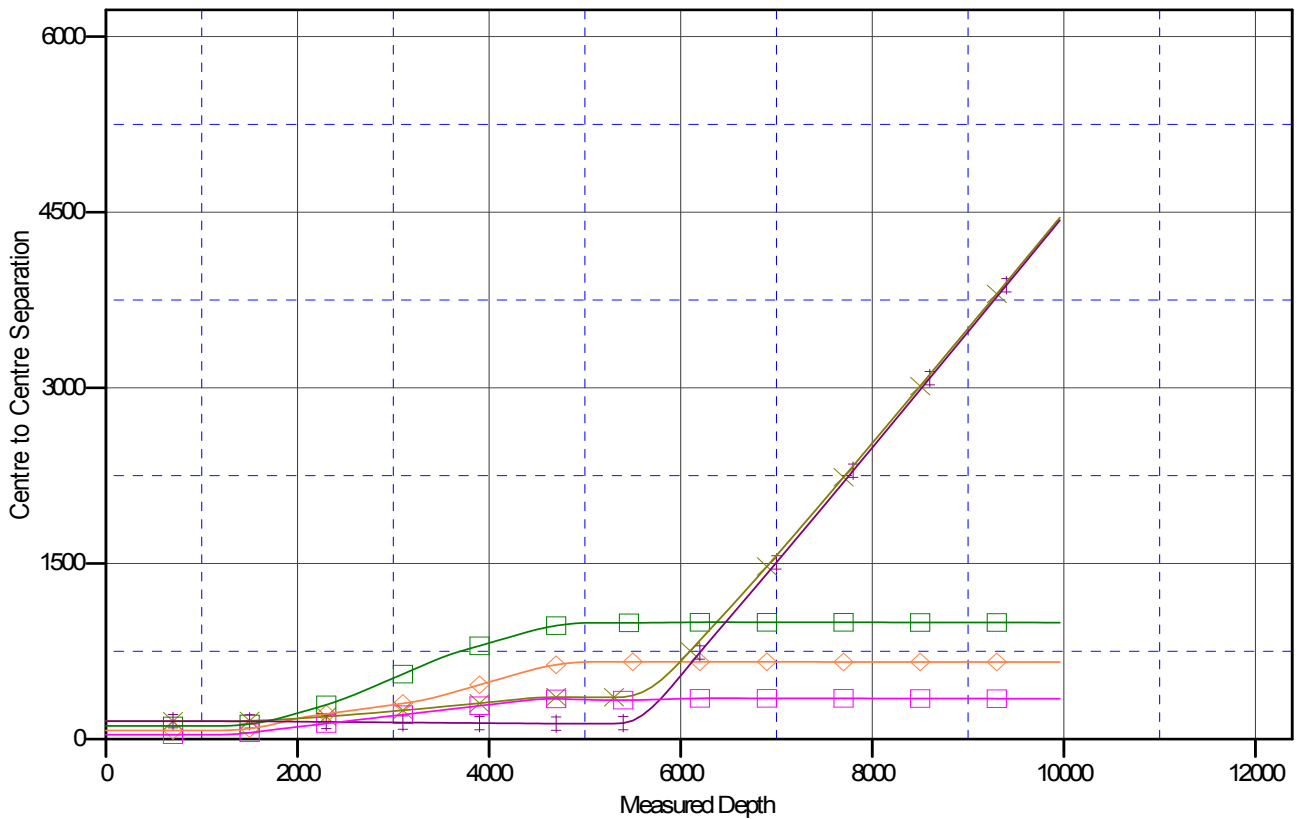
Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Remora LC34-711
Project:	Wattenberg Field	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	LC (09N-59W)	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Remora LC34-711	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 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4838.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Remora LC34-711
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.00°

Ladder Plot



LEGEND

Remora LC34-720, Original Drilling, APD - Rev0 V0 Remora LC34-725, Original Drilling, APD - Rev0 V0 Remora LC34-715, Original Drilling, APD - Rev0 V0
Haley LC27-715, Original Drilling, APD - Rev0 V0 Haley LC27-711, Original Drilling, APD - Rev1 V0

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Remora LC34-711
Project:	Wattenberg Field	TVD Reference:	WELL @ 4838.0ft (Original Well Elev)
Reference Site:	LC (09N-59W)	MD Reference:	WELL @ 4838.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Remora LC34-711	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 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4838.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Remora LC34-711
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.00°

