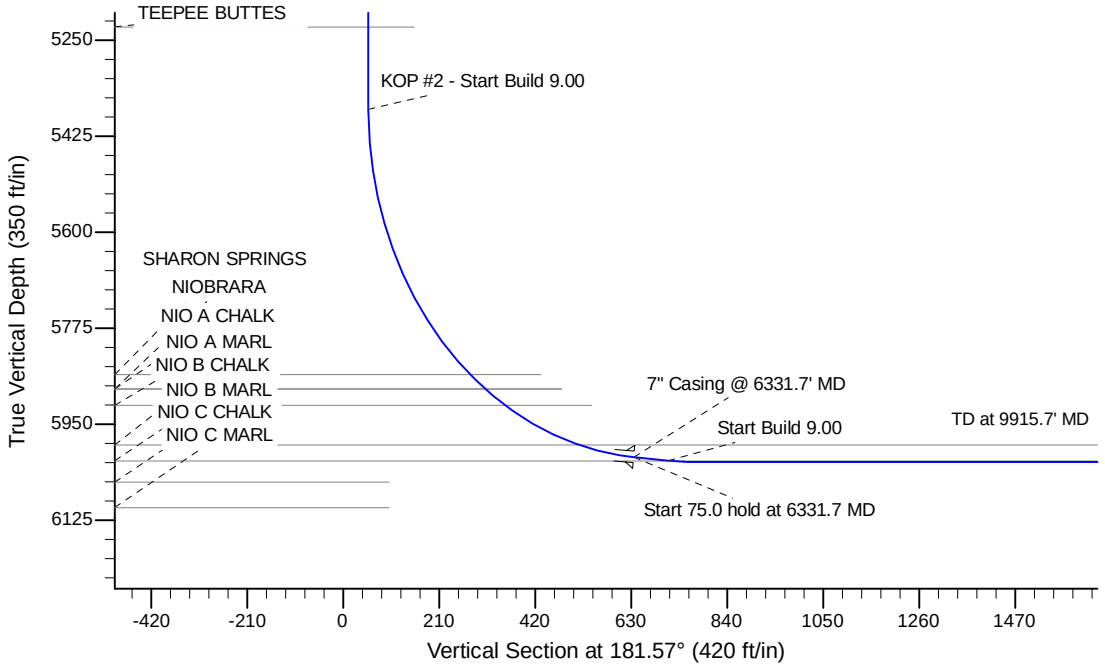
Project: Wattenberg Field
Site: LC (Sec.34-T09N-R59W) Weld County, CO
Well: Remora LC34-735
Wellbore: Original Drilling
Design: APD - Rev 1

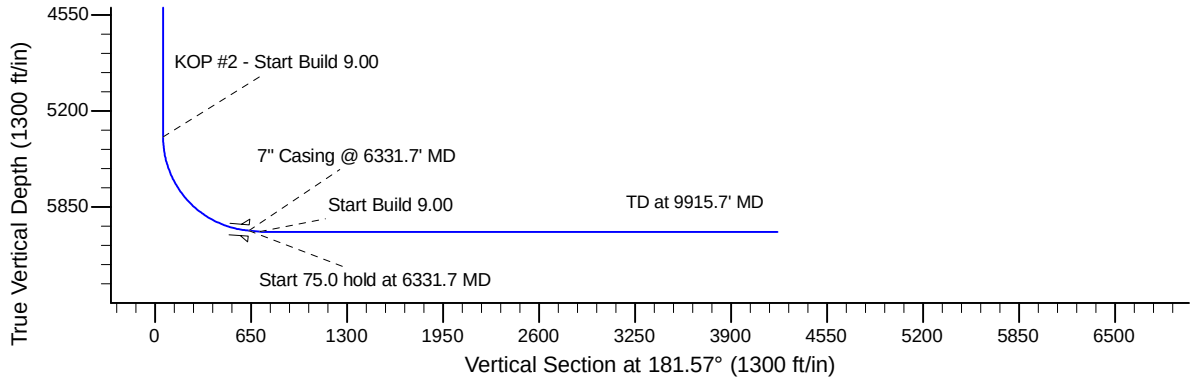
Northern Region Drilling - Working

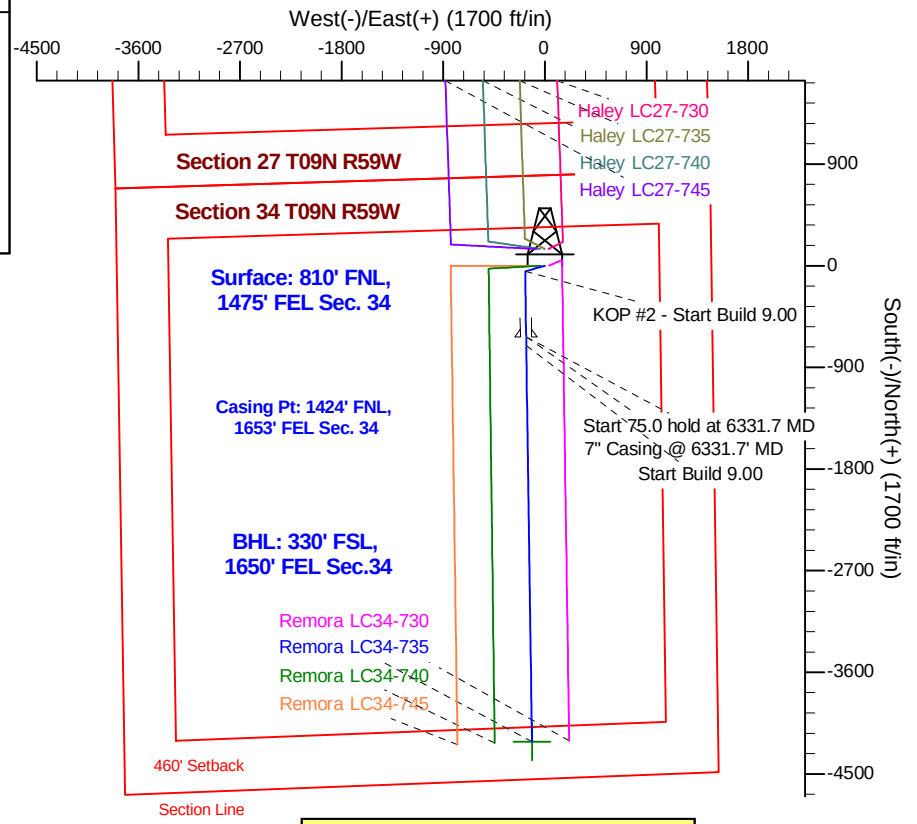
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

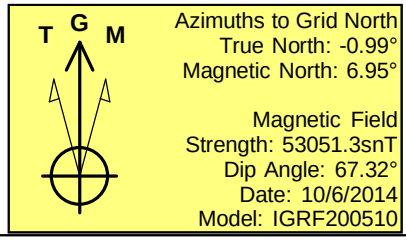
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	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	2200.3	8.01	254.05	2199.0	-7.7	-26.8	2.00	254.05	8.4	
4	3106.1	8.01	254.05	3096.0	-42.3	-148.2	0.00	0.00	46.4	
5	3506.4	0.00	0.00	3495.0	-50.0	-175.0	2.00	180.00	54.8	
6	5387.3	0.00	0.00	5375.8	-50.0	-175.0	0.00	0.00	54.8	
7	6331.7	85.00	179.18	6010.0	-631.1	-166.7	9.00	179.18	635.4	
8	6406.7	85.00	179.18	6016.6	-705.8	-165.6	0.00	0.00	710.1	
9	6462.3	90.00	179.18	6019.0	-761.3	-164.8	9.00	0.00	765.5	
10	9915.7	90.00	179.18	6019.0	-4214.3	-115.4	0.00	0.00	4215.9	Remora LC34-735 BHL 330'FSL, 1650'FEL









WELL DETAILS: Remora LC34-735

Ground Level:4816.0

		Northing	Easting	Latitude	Longitude
0.0	0.0	1505952.92	3427032.13	40.712050	-103.959560

Plan: APD - Rev 1 (Remora LC34-735/Original Drilling)

Created By: Shailey Jewell Date: 16:18, October 07 2014

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Working

Wattenberg Field
LC (09N-59W)
Remora LC34-735

Original Drilling

Plan: APD - Rev 1

Standard Planning Report

07 October, 2014

Database:	EDM01P	**Local Co-ordinate Reference:**	Well Remora LC34-735
Company:	Northern Region Drilling - Working	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Project:	Wattenberg Field	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**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 LC34-735					
Well Position	**+N/-S**	-21,756.9 ft	**Northing:**	1,505,952.92 usft	**Latitude:**	40.712050
	+E/-W	-6,695.9 ft	**Easting:**	3,427,032.13 usft	**Longitude:**	-103.959560
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	0.0 ft	**Ground Level:**	4,816.0 ft

Wellbore	Original Drilling			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	10/6/2014	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	181.57

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	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,200.3	8.01	254.05	2,199.0	-7.7	-26.8	2.00	2.00	0.00	254.05	
3,106.1	8.01	254.05	3,096.0	-42.3	-148.2	0.00	0.00	0.00	0.00	
3,506.4	0.00	0.00	3,495.0	-50.0	-175.0	2.00	-2.00	0.00	180.00	
5,387.3	0.00	0.00	5,375.8	-50.0	-175.0	0.00	0.00	0.00	0.00	
6,331.7	85.00	179.18	6,010.0	-631.1	-166.7	9.00	9.00	0.00	179.18	
6,406.7	85.00	179.18	6,016.6	-705.8	-165.6	0.00	0.00	0.00	0.00	
6,462.3	90.00	179.18	6,019.0	-761.3	-164.8	9.00	9.00	0.00	0.00	
9,915.7	90.00	179.18	6,019.0	-4,214.3	-115.4	0.00	0.00	0.00	0.00	Remora LC34-735 BH

Database:	EDM01P	**Local Co-ordinate Reference:**	Well Remora LC34-735
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Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**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
1,230.0	0.00	0.00	1,230.0	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE									
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	254.05	1,850.0	-0.1	-0.4	0.1	2.00	2.00	0.00
1,900.0	2.00	254.05	1,900.0	-0.5	-1.7	0.5	2.00	2.00	0.00
1,950.0	3.00	254.05	1,949.9	-1.1	-3.8	1.2	2.00	2.00	0.00
2,000.0	4.00	254.05	1,999.8	-1.9	-6.7	2.1	2.00	2.00	0.00
2,050.0	5.00	254.05	2,049.7	-3.0	-10.5	3.3	2.00	2.00	0.00
2,100.0	6.00	254.05	2,099.5	-4.3	-15.1	4.7	2.00	2.00	0.00
2,150.0	7.00	254.05	2,149.1	-5.9	-20.5	6.4	2.00	2.00	0.00
2,200.0	8.00	254.05	2,198.7	-7.7	-26.8	8.4	2.00	2.00	0.00
2,200.3	8.01	254.05	2,199.0	-7.7	-26.8	8.4	2.00	2.00	0.00
2,250.0	8.01	254.05	2,248.2	-9.6	-33.5	10.5	0.00	0.00	0.00
2,300.0	8.01	254.05	2,297.7	-11.5	-40.2	12.6	0.00	0.00	0.00
2,350.0	8.01	254.05	2,347.2	-13.4	-46.9	14.7	0.00	0.00	0.00
2,400.0	8.01	254.05	2,396.8	-15.3	-53.6	16.8	0.00	0.00	0.00
2,450.0	8.01	254.05	2,446.3	-17.2	-60.3	18.9	0.00	0.00	0.00

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Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**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	8.01	254.05	2,495.8	-19.1	-67.0	21.0	0.00	0.00	0.00
2,550.0	8.01	254.05	2,545.3	-21.1	-73.7	23.1	0.00	0.00	0.00
2,600.0	8.01	254.05	2,594.8	-23.0	-80.4	25.2	0.00	0.00	0.00
2,650.0	8.01	254.05	2,644.3	-24.9	-87.1	27.3	0.00	0.00	0.00
2,700.0	8.01	254.05	2,693.8	-26.8	-93.8	29.3	0.00	0.00	0.00
2,750.0	8.01	254.05	2,743.3	-28.7	-100.5	31.4	0.00	0.00	0.00
2,800.0	8.01	254.05	2,792.9	-30.6	-107.2	33.5	0.00	0.00	0.00
2,850.0	8.01	254.05	2,842.4	-32.5	-113.9	35.6	0.00	0.00	0.00
2,900.0	8.01	254.05	2,891.9	-34.4	-120.5	37.7	0.00	0.00	0.00
2,950.0	8.01	254.05	2,941.4	-36.4	-127.2	39.8	0.00	0.00	0.00
3,000.0	8.01	254.05	2,990.9	-38.3	-133.9	41.9	0.00	0.00	0.00
3,050.0	8.01	254.05	3,040.4	-40.2	-140.6	44.0	0.00	0.00	0.00
3,100.0	8.01	254.05	3,089.9	-42.1	-147.3	46.1	0.00	0.00	0.00
3,106.1	8.01	254.05	3,096.0	-42.3	-148.1	46.4	0.00	0.00	0.00
Start Drop -2.00									
3,150.0	7.13	254.05	3,139.5	-43.9	-153.7	48.1	2.00	-2.00	0.00
3,200.0	6.13	254.05	3,189.2	-45.5	-159.3	49.8	2.00	-2.00	0.00
3,250.0	5.13	254.05	3,238.9	-46.8	-164.0	51.3	2.00	-2.00	0.00
3,300.0	4.13	254.05	3,288.8	-48.0	-167.9	52.5	2.00	-2.00	0.00
3,340.3	3.32	254.05	3,329.0	-48.7	-170.4	53.3	2.00	-2.00	0.00
PARKMAN									
3,350.0	3.13	254.05	3,338.7	-48.8	-170.9	53.5	2.00	-2.00	0.00
3,400.0	2.13	254.05	3,388.6	-49.5	-173.1	54.2	2.00	-2.00	0.00
3,450.0	1.13	254.05	3,438.6	-49.8	-174.5	54.6	2.00	-2.00	0.00
3,500.0	0.13	254.05	3,488.6	-50.0	-175.0	54.8	2.00	-2.00	0.00
3,506.4	0.00	0.00	3,495.0	-50.0	-175.0	54.8	2.00	-2.00	0.00
3,550.0	0.00	0.00	3,538.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,600.0	0.00	0.00	3,588.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,650.0	0.00	0.00	3,638.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,700.0	0.00	0.00	3,688.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,750.0	0.00	0.00	3,738.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,800.0	0.00	0.00	3,788.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,850.0	0.00	0.00	3,838.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,900.0	0.00	0.00	3,888.6	-50.0	-175.0	54.8	0.00	0.00	0.00
3,950.0	0.00	0.00	3,938.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,000.0	0.00	0.00	3,988.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,050.0	0.00	0.00	4,038.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,052.4	0.00	0.00	4,041.0	-50.0	-175.0	54.8	0.00	0.00	0.00
SUSSEX									
4,100.0	0.00	0.00	4,088.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,150.0	0.00	0.00	4,138.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,200.0	0.00	0.00	4,188.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,250.0	0.00	0.00	4,238.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,300.0	0.00	0.00	4,288.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,350.0	0.00	0.00	4,338.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,400.0	0.00	0.00	4,388.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,450.0	0.00	0.00	4,438.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,457.4	0.00	0.00	4,446.0	-50.0	-175.0	54.8	0.00	0.00	0.00
SHANNON									
4,500.0	0.00	0.00	4,488.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,550.0	0.00	0.00	4,538.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,600.0	0.00	0.00	4,588.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,650.0	0.00	0.00	4,638.6	-50.0	-175.0	54.8	0.00	0.00	0.00

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Well:	Remora LC34-735	**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)
4,700.0	0.00	0.00	4,688.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,750.0	0.00	0.00	4,738.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,800.0	0.00	0.00	4,788.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,850.0	0.00	0.00	4,838.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,900.0	0.00	0.00	4,888.6	-50.0	-175.0	54.8	0.00	0.00	0.00
4,950.0	0.00	0.00	4,938.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,000.0	0.00	0.00	4,988.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,050.0	0.00	0.00	5,038.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,100.0	0.00	0.00	5,088.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,150.0	0.00	0.00	5,138.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,200.0	0.00	0.00	5,188.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,237.4	0.00	0.00	5,226.0	-50.0	-175.0	54.8	0.00	0.00	0.00
TEEPEE BUTTES									
5,250.0	0.00	0.00	5,238.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,300.0	0.00	0.00	5,288.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,350.0	0.00	0.00	5,338.6	-50.0	-175.0	54.8	0.00	0.00	0.00
5,387.3	0.00	0.00	5,375.9	-50.0	-175.0	54.8	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,400.0	1.15	179.18	5,388.6	-50.1	-175.0	54.9	9.01	9.01	0.00
5,450.0	5.65	179.18	5,438.5	-53.1	-175.0	57.9	9.00	9.00	0.00
5,500.0	10.15	179.18	5,488.0	-60.0	-174.9	64.7	9.00	9.00	0.00
5,550.0	14.65	179.18	5,536.8	-70.7	-174.7	75.4	9.00	9.00	0.00
5,600.0	19.15	179.18	5,584.6	-85.2	-174.5	90.0	9.00	9.00	0.00
5,650.0	23.65	179.18	5,631.2	-103.4	-174.2	108.2	9.00	9.00	0.00
5,700.0	28.15	179.18	5,676.2	-125.3	-173.9	130.0	9.00	9.00	0.00
5,750.0	32.65	179.18	5,719.3	-150.6	-173.6	155.3	9.00	9.00	0.00
5,800.0	37.15	179.18	5,760.3	-179.2	-173.2	183.8	9.00	9.00	0.00
5,850.0	41.65	179.18	5,798.9	-210.9	-172.7	215.5	9.00	9.00	0.00
5,900.0	46.15	179.18	5,834.9	-245.5	-172.2	250.2	9.00	9.00	0.00
5,937.4	49.51	179.18	5,860.0	-273.2	-171.8	277.8	9.00	9.00	0.00
SHARON SPRINGS									
5,950.0	50.65	179.18	5,868.1	-282.9	-171.7	287.5	8.99	8.99	0.00
5,979.0	53.26	179.18	5,886.0	-305.8	-171.3	310.3	9.00	9.00	0.00
NIOBRARA - NIO A CHALK									
6,000.0	55.15	179.18	5,898.3	-322.8	-171.1	327.3	8.99	8.99	0.00
6,032.2	58.05	179.18	5,916.0	-349.7	-170.7	354.2	9.00	9.00	0.00
NIO A MARL									
6,050.0	59.65	179.18	5,925.2	-364.9	-170.5	369.4	8.99	8.99	0.00
6,100.0	64.15	179.18	5,948.7	-409.0	-169.9	413.5	9.00	9.00	0.00
6,150.0	68.65	179.18	5,968.8	-454.8	-169.2	459.2	9.00	9.00	0.00
6,200.0	73.15	179.18	5,985.1	-502.0	-168.5	506.4	9.00	9.00	0.00
6,210.2	74.06	179.18	5,988.0	-511.8	-168.4	516.2	9.01	9.01	0.00
NIO B CHALK									
6,250.0	77.65	179.18	5,997.7	-550.4	-167.8	554.8	9.00	9.00	0.00
6,300.0	82.15	179.18	6,006.5	-599.6	-167.1	603.9	9.00	9.00	0.00
6,331.7	85.00	179.18	6,010.0	-631.1	-166.7	635.4	9.00	9.00	0.00
Start 75.0 hold at 6331.7 MD - 7" Casing @ 6331.7' MD									
6,350.0	85.00	179.18	6,011.6	-649.3	-166.4	653.6	0.01	0.01	0.00
6,400.0	85.00	179.18	6,016.0	-699.1	-165.7	703.4	0.00	0.00	0.00
6,406.7	85.00	179.18	6,016.6	-705.8	-165.6	710.0	0.00	0.00	0.00
Start Build 9.00									
6,411.8	85.46	179.18	6,017.0	-710.8	-165.5	715.1	8.97	8.97	0.00
NIO B MARL									

Database:	EDM01P	**Local Co-ordinate Reference:**	Well Remora LC34-735
Company:	Northern Region Drilling - Working	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Project:	Wattenberg Field	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**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)
6,450.0	88.90	179.18	6,018.9	-749.0	-165.0	753.2	9.00	9.00	0.00
6,462.3	90.00	179.18	6,019.0	-761.3	-164.8	765.5	9.01	9.01	0.00
6,500.0	90.00	179.18	6,019.0	-799.0	-164.3	803.2	0.00	0.00	0.00
6,550.0	90.00	179.18	6,019.0	-849.0	-163.6	853.1	0.00	0.00	0.00
6,600.0	90.00	179.18	6,019.0	-899.0	-162.8	903.1	0.00	0.00	0.00
6,650.0	90.00	179.18	6,019.0	-949.0	-162.1	953.1	0.00	0.00	0.00
6,700.0	90.00	179.18	6,019.0	-999.0	-161.4	1,003.0	0.00	0.00	0.00
6,750.0	90.00	179.18	6,019.0	-1,049.0	-160.7	1,053.0	0.00	0.00	0.00
6,800.0	90.00	179.18	6,019.0	-1,099.0	-160.0	1,102.9	0.00	0.00	0.00
6,850.0	90.00	179.18	6,019.0	-1,149.0	-159.3	1,152.9	0.00	0.00	0.00
6,900.0	90.00	179.18	6,019.0	-1,199.0	-158.5	1,202.8	0.00	0.00	0.00
6,950.0	90.00	179.18	6,019.0	-1,249.0	-157.8	1,252.8	0.00	0.00	0.00
7,000.0	90.00	179.18	6,019.0	-1,298.9	-157.1	1,302.8	0.00	0.00	0.00
7,050.0	90.00	179.18	6,019.0	-1,348.9	-156.4	1,352.7	0.00	0.00	0.00
7,100.0	90.00	179.18	6,019.0	-1,398.9	-155.7	1,402.7	0.00	0.00	0.00
7,150.0	90.00	179.18	6,019.0	-1,448.9	-155.0	1,452.6	0.00	0.00	0.00
7,200.0	90.00	179.18	6,019.0	-1,498.9	-154.2	1,502.6	0.00	0.00	0.00
7,250.0	90.00	179.18	6,019.0	-1,548.9	-153.5	1,552.5	0.00	0.00	0.00
7,300.0	90.00	179.18	6,019.0	-1,598.9	-152.8	1,602.5	0.00	0.00	0.00
7,350.0	90.00	179.18	6,019.0	-1,648.9	-152.1	1,652.5	0.00	0.00	0.00
7,400.0	90.00	179.18	6,019.0	-1,698.9	-151.4	1,702.4	0.00	0.00	0.00
7,450.0	90.00	179.18	6,019.0	-1,748.9	-150.7	1,752.4	0.00	0.00	0.00
7,500.0	90.00	179.18	6,019.0	-1,798.9	-150.0	1,802.3	0.00	0.00	0.00
7,550.0	90.00	179.18	6,019.0	-1,848.9	-149.2	1,852.3	0.00	0.00	0.00
7,600.0	90.00	179.18	6,019.0	-1,898.9	-148.5	1,902.2	0.00	0.00	0.00
7,650.0	90.00	179.18	6,019.0	-1,948.9	-147.8	1,952.2	0.00	0.00	0.00
7,700.0	90.00	179.18	6,019.0	-1,998.9	-147.1	2,002.2	0.00	0.00	0.00
7,750.0	90.00	179.18	6,019.0	-2,048.9	-146.4	2,052.1	0.00	0.00	0.00
7,800.0	90.00	179.18	6,019.0	-2,098.9	-145.7	2,102.1	0.00	0.00	0.00
7,850.0	90.00	179.18	6,019.0	-2,148.9	-144.9	2,152.0	0.00	0.00	0.00
7,900.0	90.00	179.18	6,019.0	-2,198.9	-144.2	2,202.0	0.00	0.00	0.00
7,950.0	90.00	179.18	6,019.0	-2,248.9	-143.5	2,251.9	0.00	0.00	0.00
8,000.0	90.00	179.18	6,019.0	-2,298.8	-142.8	2,301.9	0.00	0.00	0.00
8,050.0	90.00	179.18	6,019.0	-2,348.8	-142.1	2,351.8	0.00	0.00	0.00
8,100.0	90.00	179.18	6,019.0	-2,398.8	-141.4	2,401.8	0.00	0.00	0.00
8,150.0	90.00	179.18	6,019.0	-2,448.8	-140.6	2,451.8	0.00	0.00	0.00
8,200.0	90.00	179.18	6,019.0	-2,498.8	-139.9	2,501.7	0.00	0.00	0.00
8,250.0	90.00	179.18	6,019.0	-2,548.8	-139.2	2,551.7	0.00	0.00	0.00
8,300.0	90.00	179.18	6,019.0	-2,598.8	-138.5	2,601.6	0.00	0.00	0.00
8,350.0	90.00	179.18	6,019.0	-2,648.8	-137.8	2,651.6	0.00	0.00	0.00
8,400.0	90.00	179.18	6,019.0	-2,698.8	-137.1	2,701.5	0.00	0.00	0.00
8,450.0	90.00	179.18	6,019.0	-2,748.8	-136.3	2,751.5	0.00	0.00	0.00
8,500.0	90.00	179.18	6,019.0	-2,798.8	-135.6	2,801.5	0.00	0.00	0.00
8,550.0	90.00	179.18	6,019.0	-2,848.8	-134.9	2,851.4	0.00	0.00	0.00
8,600.0	90.00	179.18	6,019.0	-2,898.8	-134.2	2,901.4	0.00	0.00	0.00
8,650.0	90.00	179.18	6,019.0	-2,948.8	-133.5	2,951.3	0.00	0.00	0.00
8,700.0	90.00	179.18	6,019.0	-2,998.8	-132.8	3,001.3	0.00	0.00	0.00
8,750.0	90.00	179.18	6,019.0	-3,048.8	-132.1	3,051.2	0.00	0.00	0.00
8,800.0	90.00	179.18	6,019.0	-3,098.8	-131.3	3,101.2	0.00	0.00	0.00
8,850.0	90.00	179.18	6,019.0	-3,148.8	-130.6	3,151.2	0.00	0.00	0.00
8,900.0	90.00	179.18	6,019.0	-3,198.8	-129.9	3,201.1	0.00	0.00	0.00
8,950.0	90.00	179.18	6,019.0	-3,248.8	-129.2	3,251.1	0.00	0.00	0.00
9,000.0	90.00	179.18	6,019.0	-3,298.7	-128.5	3,301.0	0.00	0.00	0.00
9,050.0	90.00	179.18	6,019.0	-3,348.7	-127.8	3,351.0	0.00	0.00	0.00

Database:	EDM01P	**Local Co-ordinate Reference:**	Well Remora LC34-735
Company:	Northern Region Drilling - Working	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Project:	Wattenberg Field	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**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)
9,100.0	90.00	179.18	6,019.0	-3,398.7	-127.0	3,400.9	0.00	0.00	0.00
9,150.0	90.00	179.18	6,019.0	-3,448.7	-126.3	3,450.9	0.00	0.00	0.00
9,200.0	90.00	179.18	6,019.0	-3,498.7	-125.6	3,500.9	0.00	0.00	0.00
9,250.0	90.00	179.18	6,019.0	-3,548.7	-124.9	3,550.8	0.00	0.00	0.00
9,300.0	90.00	179.18	6,019.0	-3,598.7	-124.2	3,600.8	0.00	0.00	0.00
9,350.0	90.00	179.18	6,019.0	-3,648.7	-123.5	3,650.7	0.00	0.00	0.00
9,400.0	90.00	179.18	6,019.0	-3,698.7	-122.7	3,700.7	0.00	0.00	0.00
9,450.0	90.00	179.18	6,019.0	-3,748.7	-122.0	3,750.6	0.00	0.00	0.00
9,500.0	90.00	179.18	6,019.0	-3,798.7	-121.3	3,800.6	0.00	0.00	0.00
9,550.0	90.00	179.18	6,019.0	-3,848.7	-120.6	3,850.5	0.00	0.00	0.00
9,600.0	90.00	179.18	6,019.0	-3,898.7	-119.9	3,900.5	0.00	0.00	0.00
9,650.0	90.00	179.18	6,019.0	-3,948.7	-119.2	3,950.5	0.00	0.00	0.00
9,700.0	90.00	179.18	6,019.0	-3,998.7	-118.4	4,000.4	0.00	0.00	0.00
9,750.0	90.00	179.18	6,019.0	-4,048.7	-117.7	4,050.4	0.00	0.00	0.00
9,800.0	90.00	179.18	6,019.0	-4,098.7	-117.0	4,100.3	0.00	0.00	0.00
9,850.0	90.00	179.18	6,019.0	-4,148.7	-116.3	4,150.3	0.00	0.00	0.00
9,900.0	90.00	179.18	6,019.0	-4,198.7	-115.6	4,200.2	0.00	0.00	0.00
9,915.7	90.00	179.18	6,019.0	-4,214.3	-115.4	4,215.9	0.00	0.00	0.00
TD at 9915.7 - Remora LC34-735 BHL 330'FSL, 1650'FEL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Remora LC34-735 BHL - plan hits target center - Point	0.00	0.00	6,019.0	-4,214.3	-115.4	1,501,738.68	3,426,916.77	40.700490	-103.960240

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
6,331.7	6,010.0	7" Casing @ 6331.7' MD	7	8-3/4

Database:	EDM01P	**Local Co-ordinate Reference:**	Well Remora LC34-735
Company:	Northern Region Drilling - Working	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Project:	Wattenberg Field	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site:	LC (09N-59W)	**North Reference:**	Grid
Well:	Remora LC34-735	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,230.0	1,230.0	PIERRE		0.00	
3,340.3	3,329.0	PARKMAN		0.00	
4,052.4	4,041.0	SUSSEX		0.00	
4,457.4	4,446.0	SHANNON		0.00	
5,237.4	5,226.0	TEEPEE BUTTES		0.00	
5,937.4	5,860.0	SHARON SPRINGS		0.00	
5,979.0	5,886.0	NIOBRARA		0.00	
5,979.0	5,886.0	NIO A CHALK		0.00	
6,032.2	5,916.0	NIO A MARL		0.00	
6,210.2	5,988.0	NIO B CHALK		0.00	
6,411.8	6,017.0	NIO B MARL		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,800.0	1,800.0	0.0	0.0	KOP - Start Build 2.00
3,106.1	3,096.0	-42.3	-148.1	Start Drop -2.00
5,387.3	5,375.9	-50.0	-175.0	KOP #2 - Start Build 9.00
6,331.7	6,010.0	-631.1	-166.7	Start 75.0 hold at 6331.7 MD
6,406.7	6,016.6	-705.8	-165.6	Start Build 9.00
9,915.7	6,019.0	-4,214.3	-115.4	TD at 9915.7

Northern Region Drilling - Working

Wattenberg Field
LC (09N-59W)
Remora LC34-735

Original Drilling
APD - Rev 1

Anticollision Summary Report

07 October, 2014

Noble Energy Inc

Anticollision Summary Report

Company:	Northern Region Drilling - Working	**Local Co-ordinate Reference:**	Well Remora LC34-735
Project:	Wattenberg Field	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	LC (09N-59W)	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	Remora LC34-735	**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** 10/7/2014

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,914.7	APD - Rev 1 (Original Drilling)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
LC (09N-59W)						
Haley LC27-730 - Original Drilling - APD - Rev 0	1,800.0	1,800.0	153.7	145.9	19.702	CC, ES
Haley LC27-730 - Original Drilling - APD - Rev 0	2,200.0	2,198.7	168.8	159.3	17.781	SF
Haley LC27-735 - Original Drilling - APD - Rev 0	1,800.0	1,800.0	149.4	141.6	19.153	CC, ES
Haley LC27-735 - Original Drilling - APD - Rev 0	5,400.0	5,390.9	290.1	265.9	12.016	SF
Haley LC27-740 - Original Drilling - APD - Rev 0	1,500.0	1,500.0	154.3	147.9	23.926	CC, ES
Haley LC27-740 - Original Drilling - APD - Rev 0	3,400.0	3,384.4	260.5	244.2	15.993	SF
Haley LC27-745 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	167.1	162.9	39.753	CC, ES
Haley LC27-745 - Original Drilling - APD - Rev 0	3,300.0	3,258.7	394.9	378.9	24.732	SF
Remora LC34-730 - Original Drilling - APD - Rev 0	1,800.0	1,800.0	36.0	28.2	4.621	CC, ES
Remora LC34-730 - Original Drilling - APD - Rev 0	9,915.7	9,908.6	343.4	185.5	2.175	SF
Remora LC34-740 - Original Drilling - APD - Rev 0	1,500.0	1,500.0	38.8	32.4	6.017	CC, ES
Remora LC34-740 - Original Drilling - APD - Rev 0	9,915.7	9,870.4	343.3	184.9	2.167	SF
Remora LC34-745 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	74.9	70.6	17.809	CC, ES
Remora LC34-745 - Original Drilling - APD - Rev 0	9,915.7	10,038.9	659.9	496.1	4.030	SF

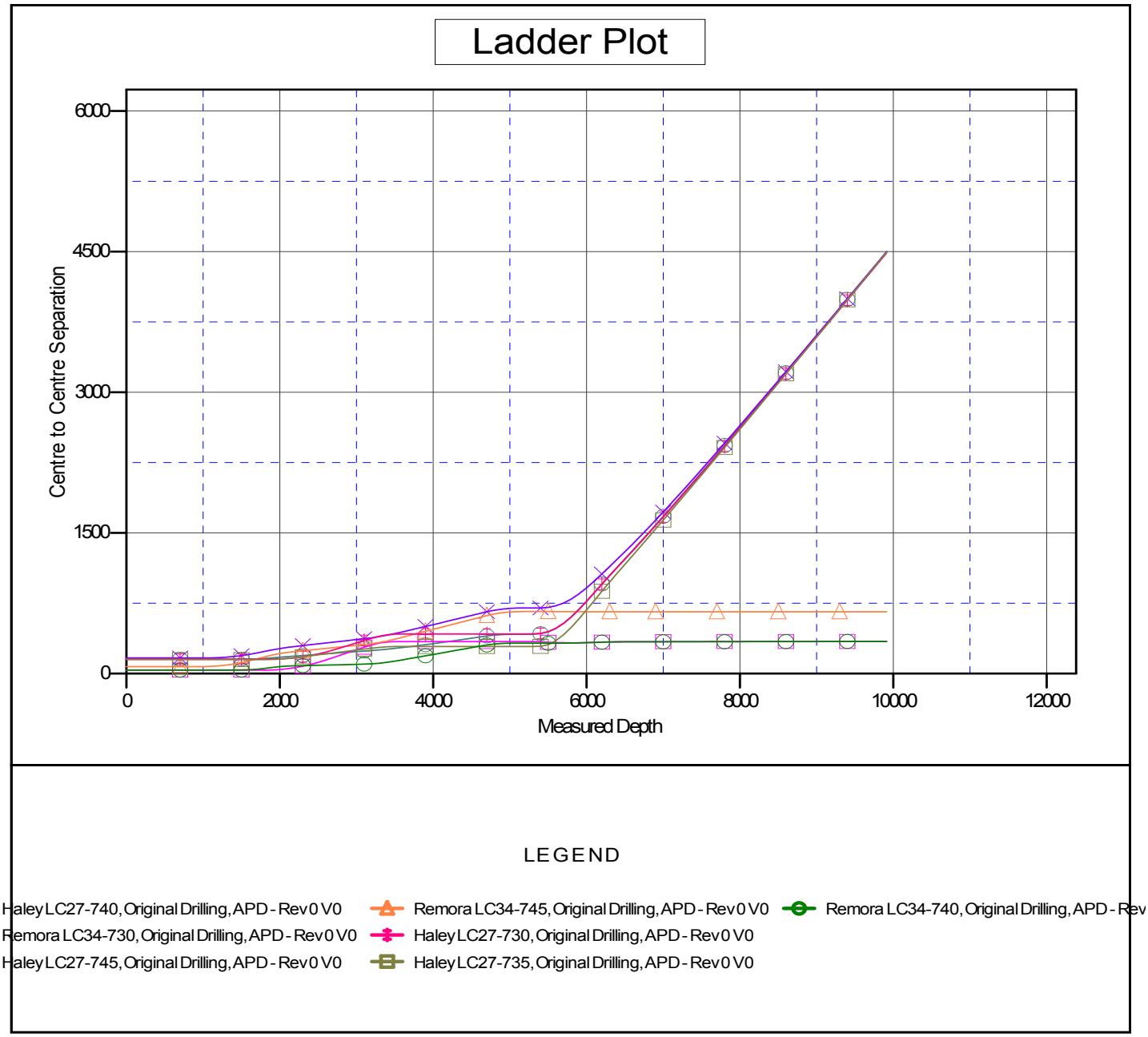
Noble Energy Inc

Anticollision Summary Report

Company:	Northern Region Drilling - Working	**Local Co-ordinate Reference:**	Well Remora LC34-735
Project:	Wattenberg Field	**TVD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	LC (09N-59W)	**MD Reference:**	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	**North Reference:**	Grid
Reference Well:	Remora LC34-735	**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 @ 4846.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Remora LC34-735
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.00°



Company:	Northern Region Drilling - Working	**Local Co-ordinate Reference:**	Well Remora LC34-735
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Reference Well:	Remora LC34-735	**Survey Calculation Method:**	Minimum Curvature
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Reference Wellbore	Original Drilling	**Database:**	EDM01P
Reference Design:	APD - Rev 1	**Offset TVD Reference:**	Offset Datum

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