

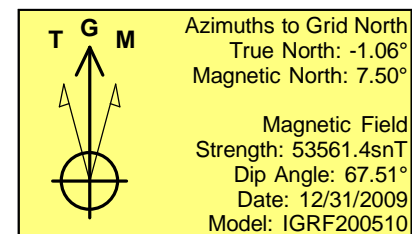
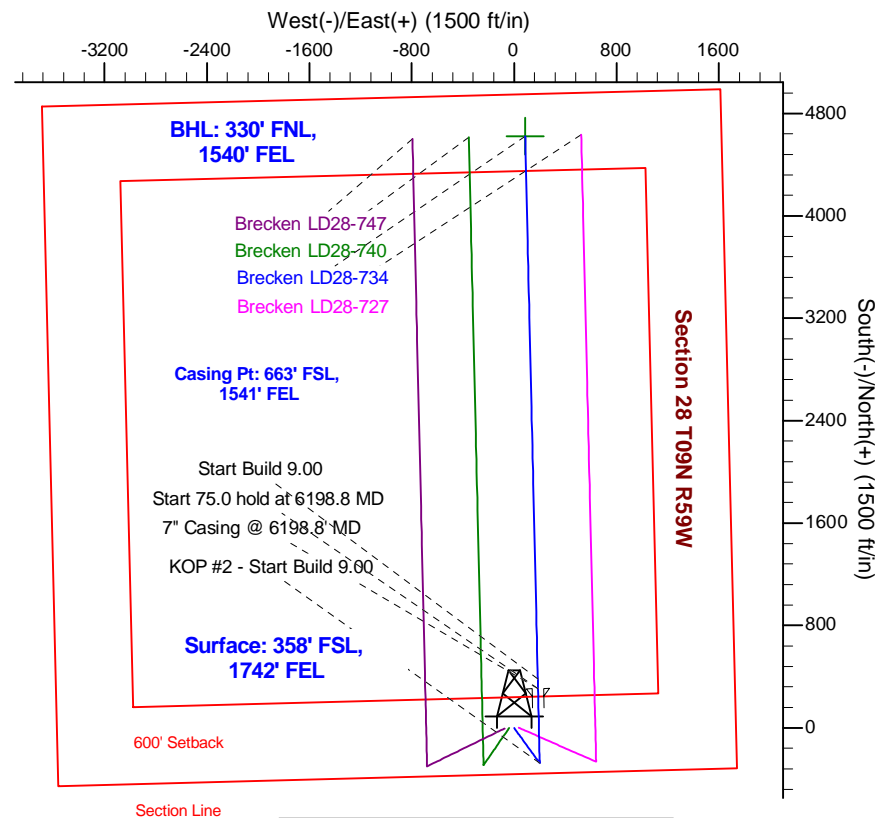
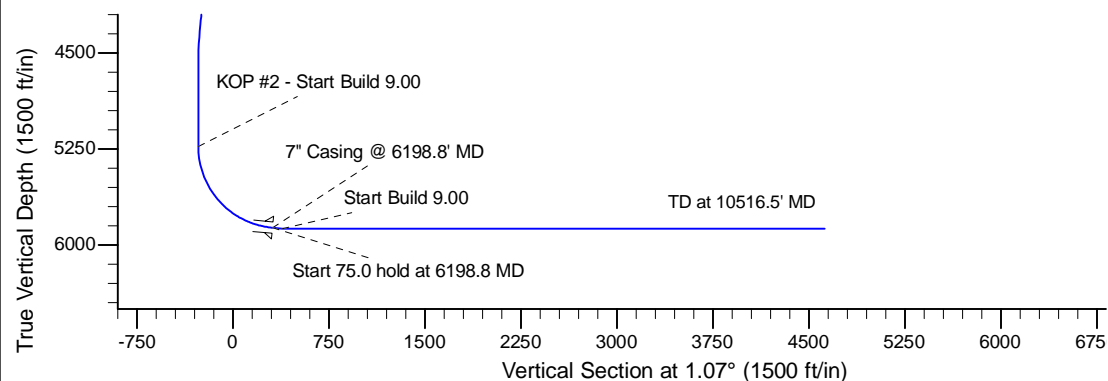
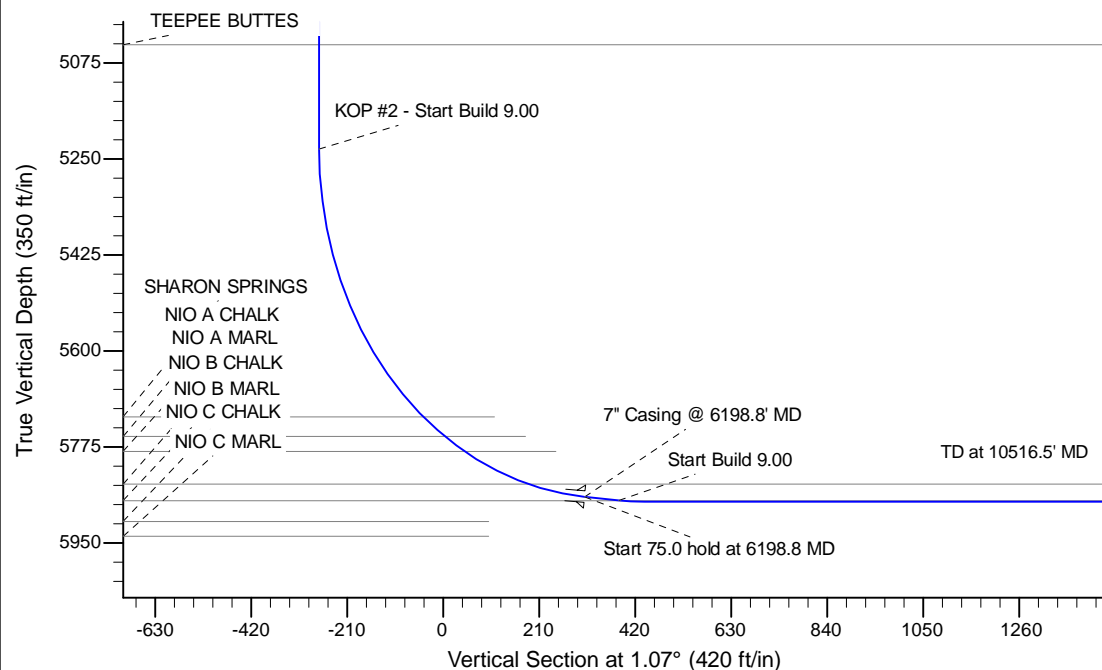
Project: Wattenberg Field
 Site: LD (Sec.28-T09N-R58W) Weld County, CO
 Well: Brecken LD28-734
 Wellbore: Original Drilling
 Design: APD - Rev 0

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	2201.0	8.02	143.97	2199.7	-22.7	16.5	2.00	143.97	-22.3	
4	4236.5	8.02	143.97	4215.3	-252.3	183.5	0.00	0.00	-248.9	
5	4637.5	0.00	0.00	4615.0	-275.0	200.0	2.00	180.00	-271.2	
6	5254.4	0.00	0.00	5231.8	-275.0	200.0	0.00	0.00	-271.2	
7	6198.8	85.00	358.67	5866.0	306.0	186.6	9.00	358.67	309.4	
8	6273.8	85.00	358.67	5872.6	380.7	184.8	0.00	0.00	384.1	
9	6329.4	90.00	358.67	5875.0	436.1	183.5	9.00	0.00	439.5	
10	10516.5	90.00	358.67	5875.0	4622.1	86.7	0.00	0.00	4622.9	Brecken LD28-734 BHL 330'FNL, 1540'FEL



WELL DETAILS: Brecken LD28-734

Ground Level: 4831.0			
North	East	Lat	Long
0.0	0.0	1507796.13	3453050.95
		40.715830	-103.865600

Plan: APD - Rev 0 (Brecken LD28-734/Original Drilling)

Created By: Shailey Jewell Date: 10:37, March 09 2015

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Brecken LD28-734

Original Drilling

Plan: APD - Rev 0

Standard Planning Report

09 March, 2015

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Brecken LD28-734
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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	Brecken LD28-734			
Well Position	+N/-S	-15,761.1 ft	Northing:	1,507,796.13 usft
	+E/-W	3,709.7 ft	Easting:	3,453,050.95 usft
Position Uncertainty	0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level: 4,831.0 ft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	8.55	67.51	53,561

Design	APD - Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	1.07

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	
2,201.0	8.02	143.97	2,199.7	-22.7	16.5	2.00	2.00	0.00	143.97	
4,236.5	8.02	143.97	4,215.3	-252.3	183.5	0.00	0.00	0.00	0.00	
4,637.5	0.00	0.00	4,615.0	-275.0	200.0	2.00	-2.00	0.00	180.00	
5,254.4	0.00	0.00	5,231.8	-275.0	200.0	0.00	0.00	0.00	0.00	
6,198.8	85.00	358.67	5,866.0	306.0	186.6	9.00	9.00	0.00	358.67	
6,273.8	85.00	358.67	5,872.6	380.7	184.8	0.00	0.00	0.00	0.00	
6,329.4	90.00	358.67	5,875.0	436.1	183.5	9.00	9.00	0.00	0.00	
10,516.5	90.00	358.67	5,875.0	4,622.1	86.7	0.00	0.00	0.00	0.00	Brecken LD28-734 Bl

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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
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	143.97	1,850.0	-0.4	0.3	-0.3	2.00	2.00	0.00
1,900.0	2.00	143.97	1,900.0	-1.4	1.0	-1.4	2.00	2.00	0.00
1,950.0	3.00	143.97	1,949.9	-3.2	2.3	-3.1	2.00	2.00	0.00
2,000.0	4.00	143.97	1,999.8	-5.6	4.1	-5.6	2.00	2.00	0.00
2,050.0	5.00	143.97	2,049.7	-8.8	6.4	-8.7	2.00	2.00	0.00
2,100.0	6.00	143.97	2,099.5	-12.7	9.2	-12.5	2.00	2.00	0.00
2,150.0	7.00	143.97	2,149.1	-17.3	12.6	-17.0	2.00	2.00	0.00
2,200.0	8.00	143.97	2,198.7	-22.5	16.4	-22.2	2.00	2.00	0.00
2,201.0	8.02	143.97	2,199.7	-22.7	16.5	-22.3	2.00	2.00	0.00
2,250.0	8.02	143.97	2,248.2	-28.2	20.5	-27.8	0.00	0.00	0.00
2,300.0	8.02	143.97	2,297.7	-33.8	24.6	-33.4	0.00	0.00	0.00
2,350.0	8.02	143.97	2,347.2	-39.5	28.7	-38.9	0.00	0.00	0.00
2,400.0	8.02	143.97	2,396.8	-45.1	32.8	-44.5	0.00	0.00	0.00
2,410.4	8.02	143.97	2,407.0	-46.3	33.7	-45.6	0.00	0.00	0.00
PIERRE									
2,450.0	8.02	143.97	2,446.3	-50.8	36.9	-50.1	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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	8.02	143.97	2,495.8	-56.4	41.0	-55.6	0.00	0.00	0.00
2,550.0	8.02	143.97	2,545.3	-62.0	45.1	-61.2	0.00	0.00	0.00
2,600.0	8.02	143.97	2,594.8	-67.7	49.2	-66.7	0.00	0.00	0.00
2,650.0	8.02	143.97	2,644.3	-73.3	53.3	-72.3	0.00	0.00	0.00
2,700.0	8.02	143.97	2,693.8	-79.0	57.4	-77.9	0.00	0.00	0.00
2,750.0	8.02	143.97	2,743.3	-84.6	61.5	-83.4	0.00	0.00	0.00
2,800.0	8.02	143.97	2,792.8	-90.2	65.6	-89.0	0.00	0.00	0.00
2,850.0	8.02	143.97	2,842.3	-95.9	69.7	-94.6	0.00	0.00	0.00
2,900.0	8.02	143.97	2,891.9	-101.5	73.8	-100.1	0.00	0.00	0.00
2,950.0	8.02	143.97	2,941.4	-107.2	77.9	-105.7	0.00	0.00	0.00
3,000.0	8.02	143.97	2,990.9	-112.8	82.0	-111.3	0.00	0.00	0.00
3,050.0	8.02	143.97	3,040.4	-118.5	86.2	-116.8	0.00	0.00	0.00
3,100.0	8.02	143.97	3,089.9	-124.1	90.3	-122.4	0.00	0.00	0.00
3,150.0	8.02	143.97	3,139.4	-129.7	94.4	-128.0	0.00	0.00	0.00
3,200.0	8.02	143.97	3,188.9	-135.4	98.5	-133.5	0.00	0.00	0.00
3,250.0	8.02	143.97	3,238.4	-141.0	102.6	-139.1	0.00	0.00	0.00
3,300.0	8.02	143.97	3,287.9	-146.7	106.7	-144.6	0.00	0.00	0.00
3,336.4	8.02	143.97	3,324.0	-150.8	109.7	-148.7	0.00	0.00	0.00
PARKMAN									
3,350.0	8.02	143.97	3,337.5	-152.3	110.8	-150.2	0.00	0.00	0.00
3,400.0	8.02	143.97	3,387.0	-158.0	114.9	-155.8	0.00	0.00	0.00
3,450.0	8.02	143.97	3,436.5	-163.6	119.0	-161.3	0.00	0.00	0.00
3,500.0	8.02	143.97	3,486.0	-169.2	123.1	-166.9	0.00	0.00	0.00
3,550.0	8.02	143.97	3,535.5	-174.9	127.2	-172.5	0.00	0.00	0.00
3,600.0	8.02	143.97	3,585.0	-180.5	131.3	-178.0	0.00	0.00	0.00
3,650.0	8.02	143.97	3,634.5	-186.2	135.4	-183.6	0.00	0.00	0.00
3,700.0	8.02	143.97	3,684.0	-191.8	139.5	-189.2	0.00	0.00	0.00
3,750.0	8.02	143.97	3,733.5	-197.4	143.6	-194.7	0.00	0.00	0.00
3,800.0	8.02	143.97	3,783.1	-203.1	147.7	-200.3	0.00	0.00	0.00
3,850.0	8.02	143.97	3,832.6	-208.7	151.8	-205.8	0.00	0.00	0.00
3,900.0	8.02	143.97	3,882.1	-214.4	155.9	-211.4	0.00	0.00	0.00
3,950.0	8.02	143.97	3,931.6	-220.0	160.0	-217.0	0.00	0.00	0.00
4,000.0	8.02	143.97	3,981.1	-225.7	164.1	-222.5	0.00	0.00	0.00
4,019.1	8.02	143.97	4,000.0	-227.8	165.7	-224.7	0.00	0.00	0.00
SUSSEX									
4,050.0	8.02	143.97	4,030.6	-231.3	168.2	-228.1	0.00	0.00	0.00
4,100.0	8.02	143.97	4,080.1	-236.9	172.3	-233.7	0.00	0.00	0.00
4,150.0	8.02	143.97	4,129.6	-242.6	176.4	-239.2	0.00	0.00	0.00
4,200.0	8.02	143.97	4,179.1	-248.2	180.5	-244.8	0.00	0.00	0.00
4,236.5	8.02	143.97	4,215.3	-252.3	183.5	-248.9	0.00	0.00	0.00
Start Drop -2.00									
4,250.0	7.75	143.97	4,228.7	-253.8	184.6	-250.3	2.00	-2.00	0.00
4,300.0	6.75	143.97	4,278.3	-258.9	188.3	-255.4	2.00	-2.00	0.00
4,350.0	5.75	143.97	4,328.0	-263.3	191.5	-259.7	2.00	-2.00	0.00
4,400.0	4.75	143.97	4,377.8	-267.0	194.2	-263.4	2.00	-2.00	0.00
4,450.0	3.75	143.97	4,427.6	-270.0	196.4	-266.3	2.00	-2.00	0.00
4,482.4	3.10	143.97	4,460.0	-271.6	197.5	-267.9	2.00	-2.00	0.00
SHANNON									
4,500.0	2.75	143.97	4,477.5	-272.3	198.1	-268.6	2.00	-2.00	0.00
4,550.0	1.75	143.97	4,527.5	-273.9	199.2	-270.1	2.00	-2.00	0.00
4,600.0	0.75	143.97	4,577.5	-274.8	199.9	-271.0	2.00	-2.00	0.00
4,637.5	0.00	0.00	4,615.0	-275.0	200.0	-271.2	2.00	-2.00	0.00
4,650.0	0.00	0.00	4,627.5	-275.0	200.0	-271.2	0.00	0.00	0.00

Noble Energy Inc

Planning Report

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Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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)
4,700.0	0.00	0.00	4,677.5	-275.0	200.0	-271.2	0.00	0.00	0.00
4,750.0	0.00	0.00	4,727.5	-275.0	200.0	-271.2	0.00	0.00	0.00
4,800.0	0.00	0.00	4,777.5	-275.0	200.0	-271.2	0.00	0.00	0.00
4,850.0	0.00	0.00	4,827.5	-275.0	200.0	-271.2	0.00	0.00	0.00
4,900.0	0.00	0.00	4,877.5	-275.0	200.0	-271.2	0.00	0.00	0.00
4,950.0	0.00	0.00	4,927.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,000.0	0.00	0.00	4,977.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,050.0	0.00	0.00	5,027.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,064.5	0.00	0.00	5,042.0	-275.0	200.0	-271.2	0.00	0.00	0.00
TEEPEE BUTTES									
5,100.0	0.00	0.00	5,077.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,150.0	0.00	0.00	5,127.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,200.0	0.00	0.00	5,177.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,250.0	0.00	0.00	5,227.5	-275.0	200.0	-271.2	0.00	0.00	0.00
5,254.4	0.00	0.00	5,231.9	-275.0	200.0	-271.2	0.00	0.00	0.00
KOP #2 - Start Build 9.00									
5,300.0	4.11	358.67	5,277.4	-273.4	200.0	-269.6	9.00	9.00	0.00
5,350.0	8.61	358.67	5,327.1	-267.8	199.8	-264.0	9.00	9.00	0.00
5,400.0	13.11	358.67	5,376.2	-258.4	199.6	-254.6	9.00	9.00	0.00
5,450.0	17.61	358.67	5,424.4	-245.2	199.3	-241.4	9.00	9.00	0.00
5,500.0	22.11	358.67	5,471.4	-228.2	198.9	-224.4	9.00	9.00	0.00
5,550.0	26.61	358.67	5,517.0	-207.6	198.4	-203.8	9.00	9.00	0.00
5,600.0	31.11	358.67	5,560.8	-183.5	197.9	-179.7	9.00	9.00	0.00
5,650.0	35.61	358.67	5,602.5	-156.0	197.2	-152.3	9.00	9.00	0.00
5,700.0	40.11	358.67	5,642.0	-125.3	196.5	-121.6	9.00	9.00	0.00
5,750.0	44.61	358.67	5,678.9	-91.7	195.8	-88.0	9.00	9.00	0.00
5,800.0	49.11	358.67	5,713.1	-55.2	194.9	-51.5	9.00	9.00	0.00
5,810.7	50.07	358.67	5,720.0	-47.1	194.7	-43.4	9.01	9.01	0.00
SHARON SPRINGS									
5,850.0	53.61	358.67	5,744.3	-16.2	194.0	-12.5	9.00	9.00	0.00
5,870.2	55.42	358.67	5,756.0	0.2	193.6	3.9	9.01	9.01	0.00
NIO A CHALK									
5,900.0	58.11	358.67	5,772.4	25.2	193.1	28.8	9.00	9.00	0.00
5,920.7	59.97	358.67	5,783.0	42.9	192.6	46.5	9.01	9.01	0.00
NIO A MARL									
5,950.0	62.61	358.67	5,797.1	68.6	192.0	72.2	9.00	9.00	0.00
6,000.0	67.11	358.67	5,818.3	113.9	191.0	117.4	9.00	9.00	0.00
6,050.0	71.61	358.67	5,835.9	160.6	189.9	164.2	9.00	9.00	0.00
6,073.7	73.74	358.67	5,843.0	183.2	189.4	186.8	9.00	9.00	0.00
NIO B CHALK									
6,100.0	76.11	358.67	5,849.8	208.6	188.8	212.1	9.00	9.00	0.00
6,150.0	80.61	358.67	5,859.9	257.6	187.7	261.1	9.00	9.00	0.00
6,198.8	85.00	358.67	5,866.0	306.0	186.6	309.4	9.00	9.00	0.00
Start 75.0 hold at 6198.8 MD - 7" Casing @ 6198.8' MD									
6,200.0	85.00	358.67	5,866.1	307.2	186.5	310.6	0.11	0.11	0.00
6,250.0	85.00	358.67	5,870.5	357.0	185.4	360.4	0.00	0.00	0.00
6,273.8	85.00	358.67	5,872.6	380.7	184.8	384.1	0.00	0.00	0.00
Start Build 9.00									
6,278.9	85.46	358.67	5,873.0	385.7	184.7	389.1	8.97	8.97	0.00
NIO B MARL									
6,300.0	87.36	358.67	5,874.3	406.8	184.2	410.2	8.99	8.99	0.00
6,329.4	90.00	358.67	5,875.0	436.1	183.5	439.5	9.00	9.00	0.00
6,350.0	90.00	358.67	5,875.0	456.8	183.1	460.1	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Brecken LD28-734
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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)
6,400.0	90.00	358.67	5,875.0	506.8	181.9	510.1	0.00	0.00	0.00
6,450.0	90.00	358.67	5,875.0	556.8	180.8	560.0	0.00	0.00	0.00
6,500.0	90.00	358.67	5,875.0	606.7	179.6	610.0	0.00	0.00	0.00
6,550.0	90.00	358.67	5,875.0	656.7	178.4	660.0	0.00	0.00	0.00
6,600.0	90.00	358.67	5,875.0	706.7	177.3	709.9	0.00	0.00	0.00
6,650.0	90.00	358.67	5,875.0	756.7	176.1	759.9	0.00	0.00	0.00
6,700.0	90.00	358.67	5,875.0	806.7	175.0	809.8	0.00	0.00	0.00
6,750.0	90.00	358.67	5,875.0	856.7	173.8	859.8	0.00	0.00	0.00
6,800.0	90.00	358.67	5,875.0	906.7	172.7	909.7	0.00	0.00	0.00
6,850.0	90.00	358.67	5,875.0	956.6	171.5	959.7	0.00	0.00	0.00
6,900.0	90.00	358.67	5,875.0	1,006.6	170.3	1,009.7	0.00	0.00	0.00
6,950.0	90.00	358.67	5,875.0	1,056.6	169.2	1,059.6	0.00	0.00	0.00
7,000.0	90.00	358.67	5,875.0	1,106.6	168.0	1,109.6	0.00	0.00	0.00
7,050.0	90.00	358.67	5,875.0	1,156.6	166.9	1,159.5	0.00	0.00	0.00
7,100.0	90.00	358.67	5,875.0	1,206.6	165.7	1,209.5	0.00	0.00	0.00
7,150.0	90.00	358.67	5,875.0	1,256.6	164.6	1,259.4	0.00	0.00	0.00
7,200.0	90.00	358.67	5,875.0	1,306.6	163.4	1,309.4	0.00	0.00	0.00
7,250.0	90.00	358.67	5,875.0	1,356.5	162.2	1,359.3	0.00	0.00	0.00
7,300.0	90.00	358.67	5,875.0	1,406.5	161.1	1,409.3	0.00	0.00	0.00
7,350.0	90.00	358.67	5,875.0	1,456.5	159.9	1,459.3	0.00	0.00	0.00
7,400.0	90.00	358.67	5,875.0	1,506.5	158.8	1,509.2	0.00	0.00	0.00
7,450.0	90.00	358.67	5,875.0	1,556.5	157.6	1,559.2	0.00	0.00	0.00
7,500.0	90.00	358.67	5,875.0	1,606.5	156.5	1,609.1	0.00	0.00	0.00
7,550.0	90.00	358.67	5,875.0	1,656.5	155.3	1,659.1	0.00	0.00	0.00
7,600.0	90.00	358.67	5,875.0	1,706.5	154.1	1,709.0	0.00	0.00	0.00
7,650.0	90.00	358.67	5,875.0	1,756.4	153.0	1,759.0	0.00	0.00	0.00
7,700.0	90.00	358.67	5,875.0	1,806.4	151.8	1,809.0	0.00	0.00	0.00
7,750.0	90.00	358.67	5,875.0	1,856.4	150.7	1,858.9	0.00	0.00	0.00
7,800.0	90.00	358.67	5,875.0	1,906.4	149.5	1,908.9	0.00	0.00	0.00
7,850.0	90.00	358.67	5,875.0	1,956.4	148.4	1,958.8	0.00	0.00	0.00
7,900.0	90.00	358.67	5,875.0	2,006.4	147.2	2,008.8	0.00	0.00	0.00
7,950.0	90.00	358.67	5,875.0	2,056.4	146.0	2,058.7	0.00	0.00	0.00
8,000.0	90.00	358.67	5,875.0	2,106.3	144.9	2,108.7	0.00	0.00	0.00
8,050.0	90.00	358.67	5,875.0	2,156.3	143.7	2,158.6	0.00	0.00	0.00
8,100.0	90.00	358.67	5,875.0	2,206.3	142.6	2,208.6	0.00	0.00	0.00
8,150.0	90.00	358.67	5,875.0	2,256.3	141.4	2,258.6	0.00	0.00	0.00
8,200.0	90.00	358.67	5,875.0	2,306.3	140.3	2,308.5	0.00	0.00	0.00
8,250.0	90.00	358.67	5,875.0	2,356.3	139.1	2,358.5	0.00	0.00	0.00
8,300.0	90.00	358.67	5,875.0	2,406.3	137.9	2,408.4	0.00	0.00	0.00
8,350.0	90.00	358.67	5,875.0	2,456.3	136.8	2,458.4	0.00	0.00	0.00
8,400.0	90.00	358.67	5,875.0	2,506.2	135.6	2,508.3	0.00	0.00	0.00
8,450.0	90.00	358.67	5,875.0	2,556.2	134.5	2,558.3	0.00	0.00	0.00
8,500.0	90.00	358.67	5,875.0	2,606.2	133.3	2,608.3	0.00	0.00	0.00
8,550.0	90.00	358.67	5,875.0	2,656.2	132.2	2,658.2	0.00	0.00	0.00
8,600.0	90.00	358.67	5,875.0	2,706.2	131.0	2,708.2	0.00	0.00	0.00
8,650.0	90.00	358.67	5,875.0	2,756.2	129.9	2,758.1	0.00	0.00	0.00
8,700.0	90.00	358.67	5,875.0	2,806.2	128.7	2,808.1	0.00	0.00	0.00
8,750.0	90.00	358.67	5,875.0	2,856.1	127.5	2,858.0	0.00	0.00	0.00
8,800.0	90.00	358.67	5,875.0	2,906.1	126.4	2,908.0	0.00	0.00	0.00
8,850.0	90.00	358.67	5,875.0	2,956.1	125.2	2,957.9	0.00	0.00	0.00
8,900.0	90.00	358.67	5,875.0	3,006.1	124.1	3,007.9	0.00	0.00	0.00
8,950.0	90.00	358.67	5,875.0	3,056.1	122.9	3,057.9	0.00	0.00	0.00
9,000.0	90.00	358.67	5,875.0	3,106.1	121.8	3,107.8	0.00	0.00	0.00
9,050.0	90.00	358.67	5,875.0	3,156.1	120.6	3,157.8	0.00	0.00	0.00

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Brecken LD28-734
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	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)	
9,100.0	90.00	358.67	5,875.0	3,206.1	119.4	3,207.7	0.00	0.00	0.00	
9,150.0	90.00	358.67	5,875.0	3,256.0	118.3	3,257.7	0.00	0.00	0.00	
9,200.0	90.00	358.67	5,875.0	3,306.0	117.1	3,307.6	0.00	0.00	0.00	
9,250.0	90.00	358.67	5,875.0	3,356.0	116.0	3,357.6	0.00	0.00	0.00	
9,300.0	90.00	358.67	5,875.0	3,406.0	114.8	3,407.6	0.00	0.00	0.00	
9,350.0	90.00	358.67	5,875.0	3,456.0	113.7	3,457.5	0.00	0.00	0.00	
9,400.0	90.00	358.67	5,875.0	3,506.0	112.5	3,507.5	0.00	0.00	0.00	
9,450.0	90.00	358.67	5,875.0	3,556.0	111.3	3,557.4	0.00	0.00	0.00	
9,500.0	90.00	358.67	5,875.0	3,605.9	110.2	3,607.4	0.00	0.00	0.00	
9,550.0	90.00	358.67	5,875.0	3,655.9	109.0	3,657.3	0.00	0.00	0.00	
9,600.0	90.00	358.67	5,875.0	3,705.9	107.9	3,707.3	0.00	0.00	0.00	
9,650.0	90.00	358.67	5,875.0	3,755.9	106.7	3,757.2	0.00	0.00	0.00	
9,700.0	90.00	358.67	5,875.0	3,805.9	105.6	3,807.2	0.00	0.00	0.00	
9,750.0	90.00	358.67	5,875.0	3,855.9	104.4	3,857.2	0.00	0.00	0.00	
9,800.0	90.00	358.67	5,875.0	3,905.9	103.2	3,907.1	0.00	0.00	0.00	
9,850.0	90.00	358.67	5,875.0	3,955.9	102.1	3,957.1	0.00	0.00	0.00	
9,900.0	90.00	358.67	5,875.0	4,005.8	100.9	4,007.0	0.00	0.00	0.00	
9,950.0	90.00	358.67	5,875.0	4,055.8	99.8	4,057.0	0.00	0.00	0.00	
10,000.0	90.00	358.67	5,875.0	4,105.8	98.6	4,106.9	0.00	0.00	0.00	
10,050.0	90.00	358.67	5,875.0	4,155.8	97.5	4,156.9	0.00	0.00	0.00	
10,100.0	90.00	358.67	5,875.0	4,205.8	96.3	4,206.9	0.00	0.00	0.00	
10,150.0	90.00	358.67	5,875.0	4,255.8	95.1	4,256.8	0.00	0.00	0.00	
10,200.0	90.00	358.67	5,875.0	4,305.8	94.0	4,306.8	0.00	0.00	0.00	
10,250.0	90.00	358.67	5,875.0	4,355.7	92.8	4,356.7	0.00	0.00	0.00	
10,300.0	90.00	358.67	5,875.0	4,405.7	91.7	4,406.7	0.00	0.00	0.00	
10,350.0	90.00	358.67	5,875.0	4,455.7	90.5	4,456.6	0.00	0.00	0.00	
10,400.0	90.00	358.67	5,875.0	4,505.7	89.4	4,506.6	0.00	0.00	0.00	
10,450.0	90.00	358.67	5,875.0	4,555.7	88.2	4,556.5	0.00	0.00	0.00	
10,500.0	90.00	358.67	5,875.0	4,605.7	87.0	4,606.5	0.00	0.00	0.00	
10,516.5	90.00	358.67	5,875.0	4,622.1	86.7	4,622.9	0.00	0.00	0.00	
TD at 10516.5 - Brecken LD28-734 BHL 330'FNL, 1540'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										
Brecken LD28-734 BHL	0.00	0.00	5,875.0	4,622.1	86.7	1,512,418.20	3,453,137.62	40.728510	-103.864980	
- plan hits target center										
- Point										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
6,198.8	5,866.0	7" Casing @ 6198.8' MD	7	8-3/4	

Noble Energy Inc

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Brecken LD28-734
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Brecken LD28-734	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD - Rev 0		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,410.4	2,407.0	PIERRE		0.00	
3,336.4	3,324.0	PARKMAN		0.00	
4,019.1	4,000.0	SUSSEX		0.00	
4,482.4	4,460.0	SHANNON		0.00	
5,064.5	5,042.0	TEEPEE BUTTES		0.00	
5,810.7	5,720.0	SHARON SPRINGS		0.00	
5,870.2	5,756.0	NIO A CHALK		0.00	
5,920.7	5,783.0	NIO A MARL		0.00	
6,073.7	5,843.0	NIO B CHALK		0.00	
6,278.9	5,873.0	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
4,236.5	4,215.3	-252.3	183.5	Start Drop -2.00
5,254.4	5,231.9	-275.0	200.0	KOP #2 - Start Build 9.00
6,198.8	5,866.0	306.0	186.6	Start 75.0 hold at 6198.8 MD
6,273.8	5,872.6	380.7	184.8	Start Build 9.00
10,516.5	5,875.0	4,622.1	86.7	TD at 10516.5

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Brecken LD28-734**

**Original Drilling
APD - Rev 0**

Anticollision Summary Report

09 March, 2015

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Brecken LD28-734
Project:	Wattenberg Field	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Brecken LD28-734	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	3/9/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,516.1	APD - Rev 0 (Original Drilling)	MWD	MWD - Standard

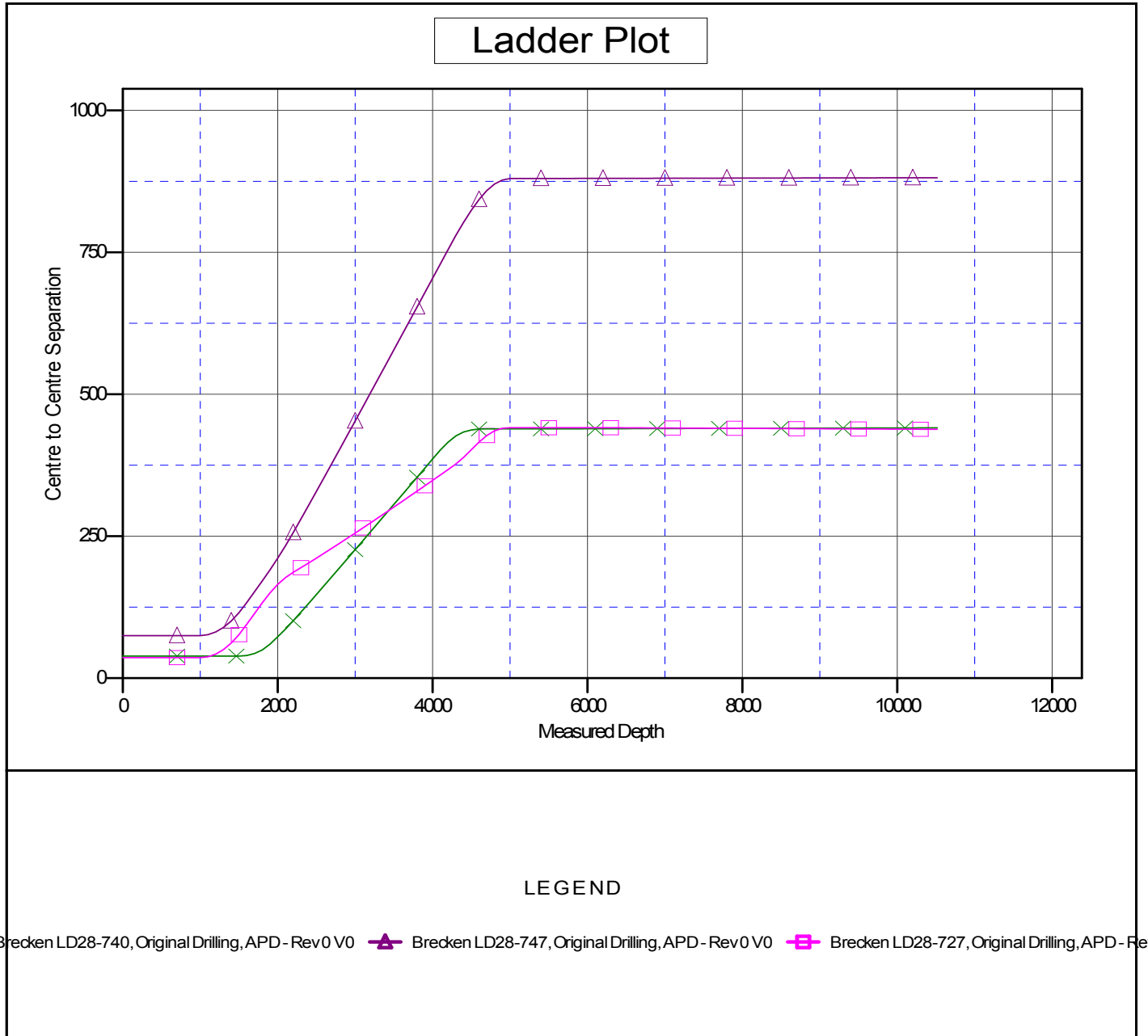
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Brecken LD28-727 - Original Drilling - APD - Rev 0	1,000.0	998.0	36.0	31.8	8.583	CC, ES
Brecken LD28-727 - Original Drilling - APD - Rev 0	10,516.5	10,534.0	438.3	255.7	2.401	SF
Brecken LD28-740 - Original Drilling - APD - Rev 0	1,466.3	1,467.3	38.8	32.5	6.159	CC
Brecken LD28-740 - Original Drilling - APD - Rev 0	1,500.0	1,501.0	38.8	32.4	6.015	ES
Brecken LD28-740 - Original Drilling - APD - Rev 0	10,516.5	10,512.8	440.8	258.3	2.415	SF
Brecken LD28-747 - Original Drilling - APD - Rev 0	966.3	967.3	74.9	70.9	18.485	CC
Brecken LD28-747 - Original Drilling - APD - Rev 0	1,000.0	1,000.0	74.9	70.7	17.830	ES
Brecken LD28-747 - Original Drilling - APD - Rev 0	10,516.5	10,572.3	881.5	699.1	4.833	SF

Noble Energy Inc
Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Brecken LD28-734
Project:	Wattenberg Field	TVD Reference:	WELL @ 4861.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4861.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Brecken LD28-734	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 @ 4861.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Brecken LD28-734
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.06°



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Anticollision Summary Report

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