

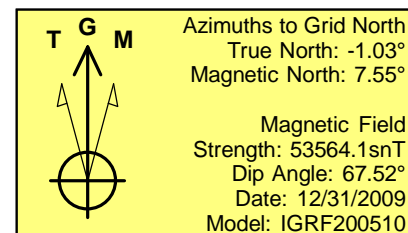
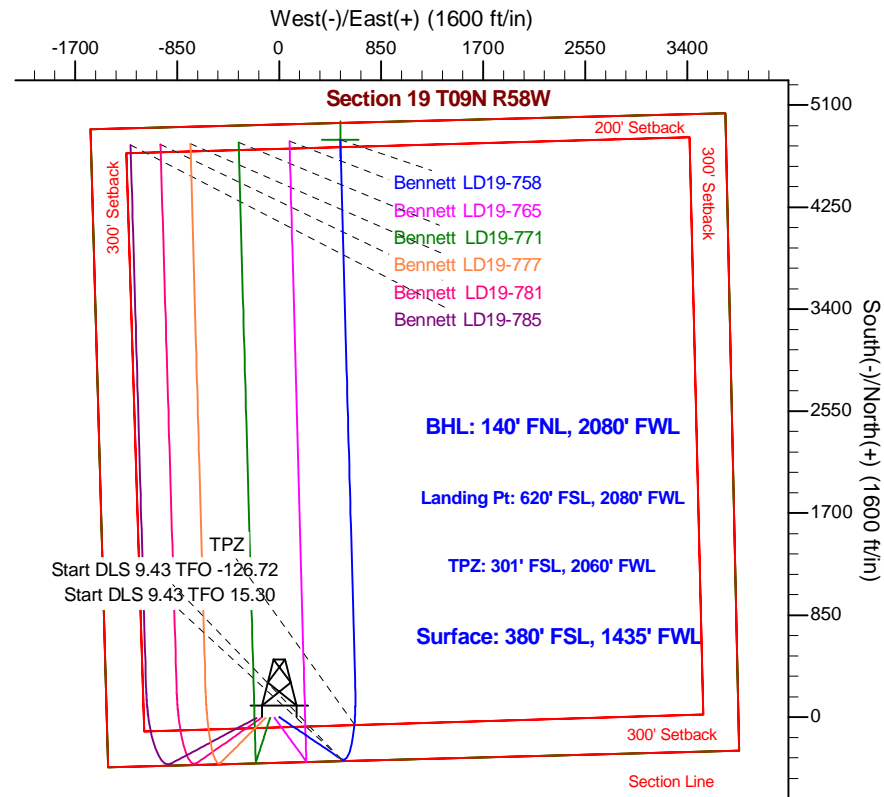
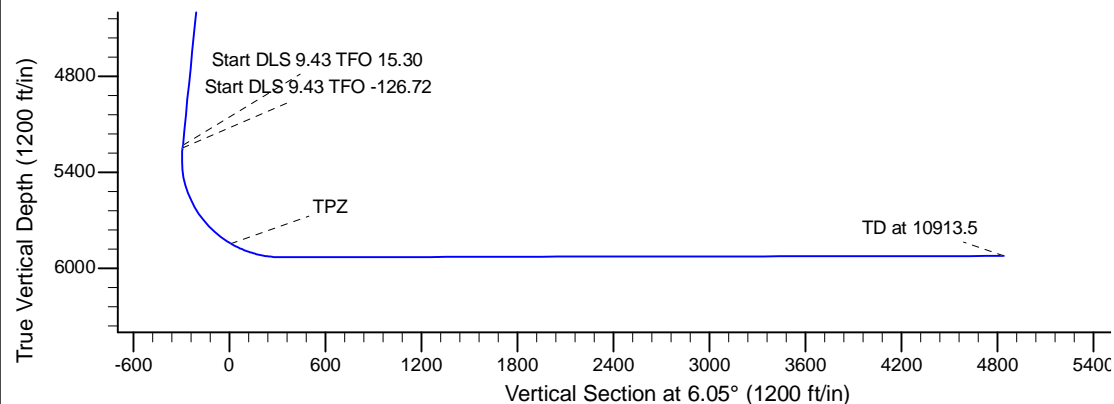
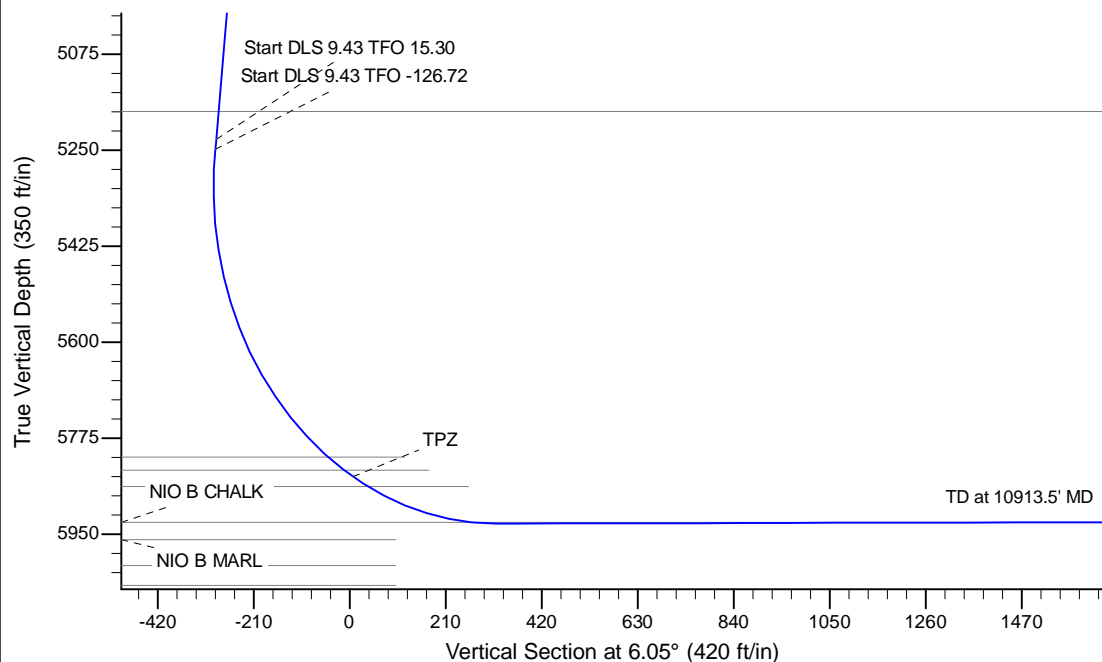
Project: Wattenberg Field  
Site: LD (Sec.19-T09N-R58W) Weld County, CO  
Well: Bennett LD19-758  
Wellbore: Original Drilling  
Design: APD - Rev 1

# 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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	2600.0	12.00	124.00	2595.6	-35.0	51.9	2.00	124.00	-29.3	
4	5293.2	12.00	124.00	5230.0	-348.1	516.1	0.00	0.00	-291.8	
5	5311.8	13.70	125.95	5248.1	-350.5	519.5	9.43	15.30	-293.8	
6	6354.9	90.10	358.42	5930.5	255.0	635.0	9.43	-126.72	320.5	
7	10913.5	90.10	358.43	5922.6	4811.8	509.7	0.00	99.22	4838.8	Bennett LD19-758 BHL 140'FNL, 2080'FWL



## WELL DETAILS: Bennett LD19-758

	Ground Level: 4847.0				
	Northing	Easting	Latitude	Longitude	
0.0	0.0	1512799.86	3440257.37	40.730200	-103.911420

Plan: APD - Rev 1 (Bennett LD19-758/Original Drilling)

Created By: Shailey Jewell Date: 7:19, May 20 2016  
Checked: \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_  
Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# **Northern Region Drilling - Working**

**Wattenberg Field  
LD (09N-58W)  
Bennett LD19-758**

**Original Drilling**

**Plan: APD - Rev 1**

## **Standard Planning Report**

**20 May, 2016**

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 1		

<b>Project</b>	Wattenberg Field, Weld County CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		LD (09N-58W)			
Site Position:		Northing:	1,523,557.18 usft	Latitude:	40.759270
From:	Lat/Long	Easting:	3,449,341.23 usft	Longitude:	-103.877940
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.05 °

Well		Bennett LD19-758				
Well Position	+N/-S	-10,757.4 ft	Northing:	1,512,799.87 usft	Latitude:	40.730200
	+E/-W	-9,083.9 ft	Easting:	3,440,257.37 usft	Longitude:	-103.911420
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,847.0 ft

<b>Wellbore</b>	Original Drilling				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	8.58	67.52	53,564

<b>Design</b>	APD - Rev 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	6.05

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,600.0	12.00	124.00	2,595.6	-35.0	51.9	2.00	2.00	0.00	124.00	
5,293.2	12.00	124.00	5,230.0	-348.1	516.1	0.00	0.00	0.00	0.00	
5,311.8	13.70	125.95	5,248.1	-350.5	519.5	9.43	9.14	10.51	15.30	
6,354.9	90.10	358.42	5,930.5	255.0	635.0	9.43	7.32	-12.23	-126.72	
10,913.5	90.10	358.43	5,922.6	4,811.8	509.7	0.00	0.00	0.00	99.22	Bennett LD19-758 BH

# Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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
1,250.0	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
1,850.0	0.00	0.00	1,850.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,950.0	0.00	0.00	1,950.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,050.0	1.00	124.00	2,050.0	-0.2	0.4	-0.2	2.00	2.00	0.00
2,100.0	2.00	124.00	2,100.0	-1.0	1.4	-0.8	2.00	2.00	0.00
2,150.0	3.00	124.00	2,149.9	-2.2	3.3	-1.8	2.00	2.00	0.00
2,200.0	4.00	124.00	2,199.8	-3.9	5.8	-3.3	2.00	2.00	0.00
2,250.0	5.00	124.00	2,249.7	-6.1	9.0	-5.1	2.00	2.00	0.00
2,300.0	6.00	124.00	2,299.5	-8.8	13.0	-7.4	2.00	2.00	0.00
2,350.0	7.00	124.00	2,349.1	-11.9	17.7	-10.0	2.00	2.00	0.00
2,400.0	8.00	124.00	2,398.7	-15.6	23.1	-13.1	2.00	2.00	0.00
2,450.0	9.00	124.00	2,448.2	-19.7	29.2	-16.5	2.00	2.00	0.00
2,500.0	10.00	124.00	2,497.5	-24.3	36.1	-20.4	2.00	2.00	0.00
2,550.0	11.00	124.00	2,546.6	-29.4	43.6	-24.7	2.00	2.00	0.00
2,600.0	12.00	124.00	2,595.6	-35.0	51.9	-29.3	2.00	2.00	0.00
2,650.0	12.00	124.00	2,644.5	-40.8	60.5	-34.2	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)
2,700.0	12.00	124.00	2,693.4	-46.6	69.1	-39.1	0.00	0.00	0.00
2,750.0	12.00	124.00	2,742.3	-52.4	77.8	-44.0	0.00	0.00	0.00
2,800.0	12.00	124.00	2,791.3	-58.3	86.4	-48.8	0.00	0.00	0.00
2,850.0	12.00	124.00	2,840.2	-64.1	95.0	-53.7	0.00	0.00	0.00
2,900.0	12.00	124.00	2,889.1	-69.9	103.6	-58.6	0.00	0.00	0.00
2,950.0	12.00	124.00	2,938.0	-75.7	112.2	-63.5	0.00	0.00	0.00
3,000.0	12.00	124.00	2,986.9	-81.5	120.8	-68.3	0.00	0.00	0.00
3,050.0	12.00	124.00	3,035.8	-87.3	129.5	-73.2	0.00	0.00	0.00
3,100.0	12.00	124.00	3,084.7	-93.1	138.1	-78.1	0.00	0.00	0.00
3,150.0	12.00	124.00	3,133.6	-99.0	146.7	-82.9	0.00	0.00	0.00
3,200.0	12.00	124.00	3,182.5	-104.8	155.3	-87.8	0.00	0.00	0.00
3,250.0	12.00	124.00	3,231.4	-110.6	163.9	-92.7	0.00	0.00	0.00
3,300.0	12.00	124.00	3,280.3	-116.4	172.6	-97.6	0.00	0.00	0.00
3,350.0	12.00	124.00	3,329.2	-122.2	181.2	-102.4	0.00	0.00	0.00
3,400.0	12.00	124.00	3,378.1	-128.0	189.8	-107.3	0.00	0.00	0.00
3,450.0	12.00	124.00	3,427.0	-133.8	198.4	-112.2	0.00	0.00	0.00
3,500.0	12.00	124.00	3,476.0	-139.6	207.0	-117.1	0.00	0.00	0.00
3,550.0	12.00	124.00	3,524.9	-145.5	215.6	-121.9	0.00	0.00	0.00
3,600.0	12.00	124.00	3,573.8	-151.3	224.3	-126.8	0.00	0.00	0.00
3,650.0	12.00	124.00	3,622.7	-157.1	232.9	-131.7	0.00	0.00	0.00
3,700.0	12.00	124.00	3,671.6	-162.9	241.5	-136.6	0.00	0.00	0.00
3,750.0	12.00	124.00	3,720.5	-168.7	250.1	-141.4	0.00	0.00	0.00
3,800.0	12.00	124.00	3,769.4	-174.5	258.7	-146.3	0.00	0.00	0.00
3,850.0	12.00	124.00	3,818.3	-180.3	267.4	-151.2	0.00	0.00	0.00
3,900.0	12.00	124.00	3,867.2	-186.1	276.0	-156.0	0.00	0.00	0.00
3,950.0	12.00	124.00	3,916.1	-192.0	284.6	-160.9	0.00	0.00	0.00
4,000.0	12.00	124.00	3,965.0	-197.8	293.2	-165.8	0.00	0.00	0.00
4,050.0	12.00	124.00	4,013.9	-203.6	301.8	-170.7	0.00	0.00	0.00
4,100.0	12.00	124.00	4,062.8	-209.4	310.4	-175.5	0.00	0.00	0.00
4,150.0	12.00	124.00	4,111.8	-215.2	319.1	-180.4	0.00	0.00	0.00
4,200.0	12.00	124.00	4,160.7	-221.0	327.7	-185.3	0.00	0.00	0.00
4,250.0	12.00	124.00	4,209.6	-226.8	336.3	-190.2	0.00	0.00	0.00
4,300.0	12.00	124.00	4,258.5	-232.7	344.9	-195.0	0.00	0.00	0.00
4,350.0	12.00	124.00	4,307.4	-238.5	353.5	-199.9	0.00	0.00	0.00
4,400.0	12.00	124.00	4,356.3	-244.3	362.2	-204.8	0.00	0.00	0.00
4,450.0	12.00	124.00	4,405.2	-250.1	370.8	-209.6	0.00	0.00	0.00
4,500.0	12.00	124.00	4,454.1	-255.9	379.4	-214.5	0.00	0.00	0.00
4,550.0	12.00	124.00	4,503.0	-261.7	388.0	-219.4	0.00	0.00	0.00
4,600.0	12.00	124.00	4,551.9	-267.5	396.6	-224.3	0.00	0.00	0.00
4,650.0	12.00	124.00	4,600.8	-273.3	405.3	-229.1	0.00	0.00	0.00
4,700.0	12.00	124.00	4,649.7	-279.2	413.9	-234.0	0.00	0.00	0.00
4,750.0	12.00	124.00	4,698.6	-285.0	422.5	-238.9	0.00	0.00	0.00
4,800.0	12.00	124.00	4,747.5	-290.8	431.1	-243.8	0.00	0.00	0.00
4,850.0	12.00	124.00	4,796.5	-296.6	439.7	-248.6	0.00	0.00	0.00
4,900.0	12.00	124.00	4,845.4	-302.4	448.3	-253.5	0.00	0.00	0.00
4,950.0	12.00	124.00	4,894.3	-308.2	457.0	-258.4	0.00	0.00	0.00
5,000.0	12.00	124.00	4,943.2	-314.0	465.6	-263.3	0.00	0.00	0.00
5,050.0	12.00	124.00	4,992.1	-319.9	474.2	-268.1	0.00	0.00	0.00
5,100.0	12.00	124.00	5,041.0	-325.7	482.8	-273.0	0.00	0.00	0.00
5,150.0	12.00	124.00	5,089.9	-331.5	491.4	-277.9	0.00	0.00	0.00
5,200.0	12.00	124.00	5,138.8	-337.3	500.1	-282.7	0.00	0.00	0.00
5,250.0	12.00	124.00	5,187.7	-343.1	508.7	-287.6	0.00	0.00	0.00
5,293.2	12.00	124.00	5,230.0	-348.1	516.1	-291.8	0.00	0.00	0.00
5,300.0	12.62	124.77	5,236.6	-348.9	517.3	-292.5	9.43	9.11	11.40

# Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)
5,311.8	13.70	125.95	5,248.1	-350.5	519.5	-293.8	9.43	9.15	10.00
5,350.0	11.90	111.82	5,285.4	-354.6	526.8	-297.2	9.43	-4.73	-37.03
5,400.0	10.94	88.31	5,334.4	-356.4	536.4	-297.9	9.43	-1.90	-47.02
5,450.0	11.91	64.84	5,383.4	-354.1	545.8	-294.6	9.43	1.94	-46.94
5,500.0	14.43	47.17	5,432.1	-347.6	555.0	-287.2	9.43	5.02	-35.33
5,550.0	17.84	35.37	5,480.2	-337.1	564.0	-275.9	9.43	6.82	-23.60
5,600.0	21.73	27.46	5,527.2	-322.7	572.7	-260.6	9.43	7.79	-15.82
5,650.0	25.89	21.92	5,573.0	-304.3	581.1	-241.4	9.43	8.31	-11.08
5,700.0	30.20	17.84	5,617.1	-282.2	589.0	-218.6	9.43	8.62	-8.15
5,750.0	34.61	14.71	5,659.3	-256.5	596.5	-192.2	9.43	8.82	-6.26
5,800.0	39.08	12.21	5,699.3	-227.3	603.4	-162.5	9.43	8.95	-5.00
5,850.0	43.60	10.15	5,736.8	-195.0	609.8	-129.6	9.43	9.03	-4.12
5,900.0	48.15	8.41	5,771.6	-159.5	615.6	-93.8	9.43	9.10	-3.48
5,950.0	52.72	6.90	5,803.5	-121.4	620.7	-55.3	9.43	9.14	-3.02
6,000.0	57.31	5.57	5,832.1	-80.6	625.1	-14.4	9.43	9.18	-2.67
6,050.0	61.91	4.36	5,857.4	-37.7	628.8	28.8	9.43	9.20	-2.41
6,100.0	66.52	3.26	5,879.2	7.2	631.8	73.7	9.43	9.22	-2.21
6,150.0	71.13	2.23	5,897.2	53.8	634.0	120.3	9.43	9.24	-2.06
6,200.0	75.76	1.25	5,911.5	101.7	635.5	168.0	9.43	9.25	-1.95
6,250.0	80.38	0.32	5,921.8	150.6	636.2	216.7	9.43	9.25	-1.87
6,300.0	85.01	359.41	5,928.2	200.2	636.0	266.0	9.43	9.26	-1.82
6,350.0	89.64	358.51	5,930.5	250.1	635.1	315.6	9.43	9.26	-1.80
6,354.9	90.10	358.42	5,930.5	255.0	635.0	320.5	9.43	9.26	-1.79
6,400.0	90.10	358.42	5,930.4	300.1	633.8	365.1	0.00	0.00	0.00
6,450.0	90.10	358.42	5,930.3	350.0	632.4	414.7	0.00	0.00	0.00
6,500.0	90.10	358.42	5,930.2	400.0	631.0	464.3	0.00	0.00	0.00
6,550.0	90.10	358.42	5,930.2	450.0	629.6	513.8	0.00	0.00	0.00
6,600.0	90.10	358.42	5,930.1	500.0	628.2	563.4	0.00	0.00	0.00
6,650.0	90.10	358.42	5,930.0	550.0	626.9	612.9	0.00	0.00	0.00
6,700.0	90.10	358.42	5,929.9	599.9	625.5	662.5	0.00	0.00	0.00
6,750.0	90.10	358.42	5,929.8	649.9	624.1	712.0	0.00	0.00	0.00
6,800.0	90.10	358.42	5,929.7	699.9	622.7	761.6	0.00	0.00	0.00
6,850.0	90.10	358.42	5,929.6	749.9	621.4	811.2	0.00	0.00	0.00
6,900.0	90.10	358.42	5,929.5	799.9	620.0	860.7	0.00	0.00	0.00
6,950.0	90.10	358.42	5,929.5	849.8	618.6	910.3	0.00	0.00	0.00
7,000.0	90.10	358.42	5,929.4	899.8	617.2	959.8	0.00	0.00	0.00
7,050.0	90.10	358.42	5,929.3	949.8	615.8	1,009.4	0.00	0.00	0.00
7,100.0	90.10	358.42	5,929.2	999.8	614.5	1,058.9	0.00	0.00	0.00
7,150.0	90.10	358.42	5,929.1	1,049.8	613.1	1,108.5	0.00	0.00	0.00
7,200.0	90.10	358.42	5,929.0	1,099.8	611.7	1,158.1	0.00	0.00	0.00
7,250.0	90.10	358.42	5,928.9	1,149.7	610.3	1,207.6	0.00	0.00	0.00
7,300.0	90.10	358.42	5,928.9	1,199.7	609.0	1,257.2	0.00	0.00	0.00
7,350.0	90.10	358.42	5,928.8	1,249.7	607.6	1,306.7	0.00	0.00	0.00
7,400.0	90.10	358.42	5,928.7	1,299.7	606.2	1,356.3	0.00	0.00	0.00
7,450.0	90.10	358.42	5,928.6	1,349.7	604.8	1,405.9	0.00	0.00	0.00
7,500.0	90.10	358.42	5,928.5	1,399.6	603.4	1,455.4	0.00	0.00	0.00
7,550.0	90.10	358.42	5,928.4	1,449.6	602.1	1,505.0	0.00	0.00	0.00
7,600.0	90.10	358.42	5,928.3	1,499.6	600.7	1,554.5	0.00	0.00	0.00
7,650.0	90.10	358.42	5,928.2	1,549.6	599.3	1,604.1	0.00	0.00	0.00
7,700.0	90.10	358.42	5,928.2	1,599.6	597.9	1,653.6	0.00	0.00	0.00
7,750.0	90.10	358.42	5,928.1	1,649.5	596.6	1,703.2	0.00	0.00	0.00
7,800.0	90.10	358.42	5,928.0	1,699.5	595.2	1,752.8	0.00	0.00	0.00
7,850.0	90.10	358.42	5,927.9	1,749.5	593.8	1,802.3	0.00	0.00	0.00
7,900.0	90.10	358.42	5,927.8	1,799.5	592.4	1,851.9	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)	
7,950.0	90.10	358.42	5,927.7	1,849.5	591.1	1,901.4	0.00	0.00	0.00	
8,000.0	90.10	358.42	5,927.6	1,899.4	589.7	1,951.0	0.00	0.00	0.00	
8,050.0	90.10	358.42	5,927.5	1,949.4	588.3	2,000.5	0.00	0.00	0.00	
8,100.0	90.10	358.42	5,927.5	1,999.4	586.9	2,050.1	0.00	0.00	0.00	
8,150.0	90.10	358.42	5,927.4	2,049.4	585.6	2,099.7	0.00	0.00	0.00	
8,200.0	90.10	358.42	5,927.3	2,099.4	584.2	2,149.2	0.00	0.00	0.00	
8,250.0	90.10	358.42	5,927.2	2,149.4	582.8	2,198.8	0.00	0.00	0.00	
8,300.0	90.10	358.42	5,927.1	2,199.3	581.4	2,248.3	0.00	0.00	0.00	
8,350.0	90.10	358.42	5,927.0	2,249.3	580.1	2,297.9	0.00	0.00	0.00	
8,400.0	90.10	358.42	5,926.9	2,299.3	578.7	2,347.5	0.00	0.00	0.00	
8,450.0	90.10	358.42	5,926.9	2,349.3	577.3	2,397.0	0.00	0.00	0.00	
8,500.0	90.10	358.42	5,926.8	2,399.3	575.9	2,446.6	0.00	0.00	0.00	
8,550.0	90.10	358.42	5,926.7	2,449.2	574.6	2,496.1	0.00	0.00	0.00	
8,600.0	90.10	358.42	5,926.6	2,499.2	573.2	2,545.7	0.00	0.00	0.00	
8,650.0	90.10	358.42	5,926.5	2,549.2	571.8	2,595.2	0.00	0.00	0.00	
8,700.0	90.10	358.42	5,926.4	2,599.2	570.4	2,644.8	0.00	0.00	0.00	
8,750.0	90.10	358.42	5,926.3	2,649.2	569.1	2,694.4	0.00	0.00	0.00	
8,800.0	90.10	358.42	5,926.2	2,699.1	567.7	2,743.9	0.00	0.00	0.00	
8,850.0	90.10	358.42	5,926.2	2,749.1	566.3	2,793.5	0.00	0.00	0.00	
8,900.0	90.10	358.42	5,926.1	2,799.1	564.9	2,843.0	0.00	0.00	0.00	
8,950.0	90.10	358.42	5,926.0	2,849.1	563.6	2,892.6	0.00	0.00	0.00	
9,000.0	90.10	358.43	5,925.9	2,899.1	562.2	2,942.2	0.00	0.00	0.00	
9,050.0	90.10	358.43	5,925.8	2,949.0	560.8	2,991.7	0.00	0.00	0.00	
9,100.0	90.10	358.43	5,925.7	2,999.0	559.4	3,041.3	0.00	0.00	0.00	
9,150.0	90.10	358.43	5,925.6	3,049.0	558.1	3,090.8	0.00	0.00	0.00	
9,200.0	90.10	358.43	5,925.6	3,099.0	556.7	3,140.4	0.00	0.00	0.00	
9,250.0	90.10	358.43	5,925.5	3,149.0	555.3	3,189.9	0.00	0.00	0.00	
9,300.0	90.10	358.43	5,925.4	3,199.0	553.9	3,239.5	0.00	0.00	0.00	
9,350.0	90.10	358.43	5,925.3	3,248.9	552.6	3,289.1	0.00	0.00	0.00	
9,400.0	90.10	358.43	5,925.2	3,298.9	551.2	3,338.6	0.00	0.00	0.00	
9,450.0	90.10	358.43	5,925.1	3,348.9	549.8	3,388.2	0.00	0.00	0.00	
9,500.0	90.10	358.43	5,925.0	3,398.9	548.4	3,437.7	0.00	0.00	0.00	
9,550.0	90.10	358.43	5,925.0	3,448.9	547.1	3,487.3	0.00	0.00	0.00	
9,600.0	90.10	358.43	5,924.9	3,498.8	545.7	3,536.9	0.00	0.00	0.00	
9,650.0	90.10	358.43	5,924.8	3,548.8	544.3	3,586.4	0.00	0.00	0.00	
9,700.0	90.10	358.43	5,924.7	3,598.8	543.0	3,636.0	0.00	0.00	0.00	
9,750.0	90.10	358.43	5,924.6	3,648.8	541.6	3,685.5	0.00	0.00	0.00	
9,800.0	90.10	358.43	5,924.5	3,698.8	540.2	3,735.1	0.00	0.00	0.00	
9,850.0	90.10	358.43	5,924.4	3,748.7	538.8	3,784.6	0.00	0.00	0.00	
9,900.0	90.10	358.43	5,924.3	3,798.7	537.5	3,834.2	0.00	0.00	0.00	
9,950.0	90.10	358.43	5,924.3	3,848.7	536.1	3,883.8	0.00	0.00	0.00	
10,000.0	90.10	358.43	5,924.2	3,898.7	534.7	3,933.3	0.00	0.00	0.00	
10,050.0	90.10	358.43	5,924.1	3,948.7	533.3	3,982.9	0.00	0.00	0.00	
10,100.0	90.10	358.43	5,924.0	3,998.7	532.0	4,032.4	0.00	0.00	0.00	
10,150.0	90.10	358.43	5,923.9	4,048.6	530.6	4,082.0	0.00	0.00	0.00	
10,200.0	90.10	358.43	5,923.8	4,098.6	529.2	4,131.6	0.00	0.00	0.00	
10,250.0	90.10	358.43	5,923.7	4,148.6	527.9	4,181.1	0.00	0.00	0.00	
10,300.0	90.10	358.43	5,923.7	4,198.6	526.5	4,230.7	0.00	0.00	0.00	
10,350.0	90.10	358.43	5,923.6	4,248.6	525.1	4,280.2	0.00	0.00	0.00	
10,400.0	90.10	358.43	5,923.5	4,298.5	523.7	4,329.8	0.00	0.00	0.00	
10,450.0	90.10	358.43	5,923.4	4,348.5	522.4	4,379.3	0.00	0.00	0.00	
10,500.0	90.10	358.43	5,923.3	4,398.5	521.0	4,428.9	0.00	0.00	0.00	
10,550.0	90.10	358.43	5,923.2	4,448.5	519.6	4,478.5	0.00	0.00	0.00	
10,600.0	90.10	358.43	5,923.1	4,498.5	518.3	4,528.0	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	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)
10,650.0	90.10	358.43	5,923.1	4,548.4	516.9	4,577.6	0.00	0.00	0.00
10,700.0	90.10	358.43	5,923.0	4,598.4	515.5	4,627.1	0.00	0.00	0.00
10,750.0	90.10	358.43	5,922.9	4,648.4	514.1	4,676.7	0.00	0.00	0.00
10,800.0	90.10	358.43	5,922.8	4,698.4	512.8	4,726.3	0.00	0.00	0.00
10,850.0	90.10	358.43	5,922.7	4,748.4	511.4	4,775.8	0.00	0.00	0.00
10,900.0	90.10	358.43	5,922.6	4,798.3	510.0	4,825.4	0.00	0.00	0.00
10,913.5	90.10	358.43	5,922.6	4,811.8	509.7	4,838.8	0.00	0.00	0.00

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
Section 19 - plan misses target center by 11997.7ft at 10913.5ft MD (5922.6 TVD, 4811.8 N, 509.7 E) - Polygon	0.00	0.00	0.0	10,757.4	9,084.0	1,523,557.18	3,449,341.23	40.759270	-103.877940
Point 1			0.0	-5,858.2	-10,656.7	1,517,699.04	3,438,684.64		
Point 2			0.0	-5,723.4	-5,364.0	1,517,833.84	3,443,977.29		
Point 3			0.0	-11,036.8	-5,251.0	1,512,520.50	3,444,090.29		
Point 4			0.0	-11,176.8	-10,508.5	1,512,380.50	3,438,832.84		
Point 5			0.0	-5,858.2	-10,656.7	1,517,699.04	3,438,684.64		
Setback - plan misses target center by 11997.7ft at 10913.5ft MD (5922.6 TVD, 4811.8 N, 509.7 E) - Polygon	0.00	0.00	0.0	10,757.4	9,084.0	1,523,557.18	3,449,341.23	40.759270	-103.877940
Point 1			0.0	-6,058.2	-10,356.7	1,517,499.04	3,438,984.64		
Point 2			0.0	-5,923.4	-5,664.0	1,517,633.84	3,443,677.29		
Point 3			0.0	-10,736.8	-5,551.0	1,512,820.49	3,443,790.29		
Point 4			0.0	-10,876.8	-10,208.5	1,512,680.49	3,439,132.84		
Point 5			0.0	-6,058.2	-10,356.7	1,517,499.04	3,438,984.64		
Bennett LD19-758 BHL - plan hits target center - Point	0.00	0.01	5,922.6	4,811.8	509.7	1,517,611.66	3,440,767.02	40.743380	-103.909270

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
878.0	878.0	PIERRE		0.00		
903.0	903.0	UPPER PIERRE AQUIFER TOP		0.00		
1,477.0	1,477.0	UPPER PIERRE AQUIFER BASE		0.00		
3,481.6	3,458.0	PARKMAN		0.00		
4,035.8	4,000.0	SUSSEX		0.00		
4,616.4	4,568.0	SHANNON		0.00		
5,241.1	5,179.0	TEEPEE BUTTES		0.00		
5,959.2	5,809.0	SHARON SPRINGS		0.00		
6,001.6	5,833.0	NIO A CHALK		0.00		
6,062.1	5,863.0	NIO A MARL		0.00		
6,298.2	5,928.0	NIO B CHALK		0.00		



## Planning Report

<b>Database:</b>	EDM01P	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Company:</b>	Northern Region Drilling - Working	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg Field	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site:</b>	LD (09N-58W)	<b>North Reference:</b>	Grid
<b>Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Drilling		
<b>Design:</b>	APD - Rev 1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00
5,293.2	5,230.0	-348.1	516.1	Start DLS 9.43 TFO 15.30
5,311.8	5,248.1	-350.5	519.5	Start DLS 9.43 TFO -126.72
6,025.0	5,845.2	-59.4	627.1	TPZ
10,913.5	5,922.6	4,811.8	509.7	TD at 10913.5

# **Northern Region Drilling - Working**

**Wattenberg Field  
LD (09N-58W)  
Bennett LD19-758**

**Original Drilling  
APD - Rev 1**

## **Anticollision Summary Report**

**20 May, 2016**

## Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	APD - Rev 1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 50.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0 ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	5/19/2016		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	10,913.5	APD - Rev 1 (Original Drilling)	MWD	MWD - Standard

<b>Summary</b>						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
LD (09N-58W)						
Bennett LD19-765 - Original Drilling - APD - Rev 1	2,000.0	2,001.0	39.0	30.3	4.479	CC, ES
Bennett LD19-765 - Original Drilling - APD - Rev 1	10,913.5	10,883.3	424.0	236.2	2.258	SF
Bennett LD19-771 - Original Drilling - APD - Rev 1	2,000.0	2,002.0	74.9	66.2	8.609	CC, ES
Bennett LD19-771 - Original Drilling - APD - Rev 1	10,913.5	10,808.3	850.5	663.4	4.547	SF
Bennett LD19-777 - Original Drilling - APD - Rev 1	2,000.0	1,999.0	113.7	105.0	13.067	CC, ES
Bennett LD19-777 - Original Drilling - APD - Rev 1	10,913.5	10,852.0	1,250.7	1,062.9	6.659	SF
Bennett LD19-781 - Original Drilling - APD - Rev 1	1,981.9	1,985.9	149.7	141.1	17.356	CC
Bennett LD19-781 - Original Drilling - APD - Rev 1	2,000.0	2,003.8	149.7	141.0	17.196	ES
Bennett LD19-781 - Original Drilling - APD - Rev 1	10,913.5	11,121.8	1,512.8	1,326.8	8.133	SF
Bennett LD19-785 - Original Drilling - APD - Rev 1	1,781.5	1,786.5	188.5	180.8	24.394	CC
Bennett LD19-785 - Original Drilling - APD - Rev 1	1,800.0	1,804.7	188.5	180.7	24.139	ES
Bennett LD19-785 - Original Drilling - APD - Rev 1	10,913.5	10,900.8	1,749.6	1,564.1	9.433	SF

## Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4877.0ft (Original Well Elev)

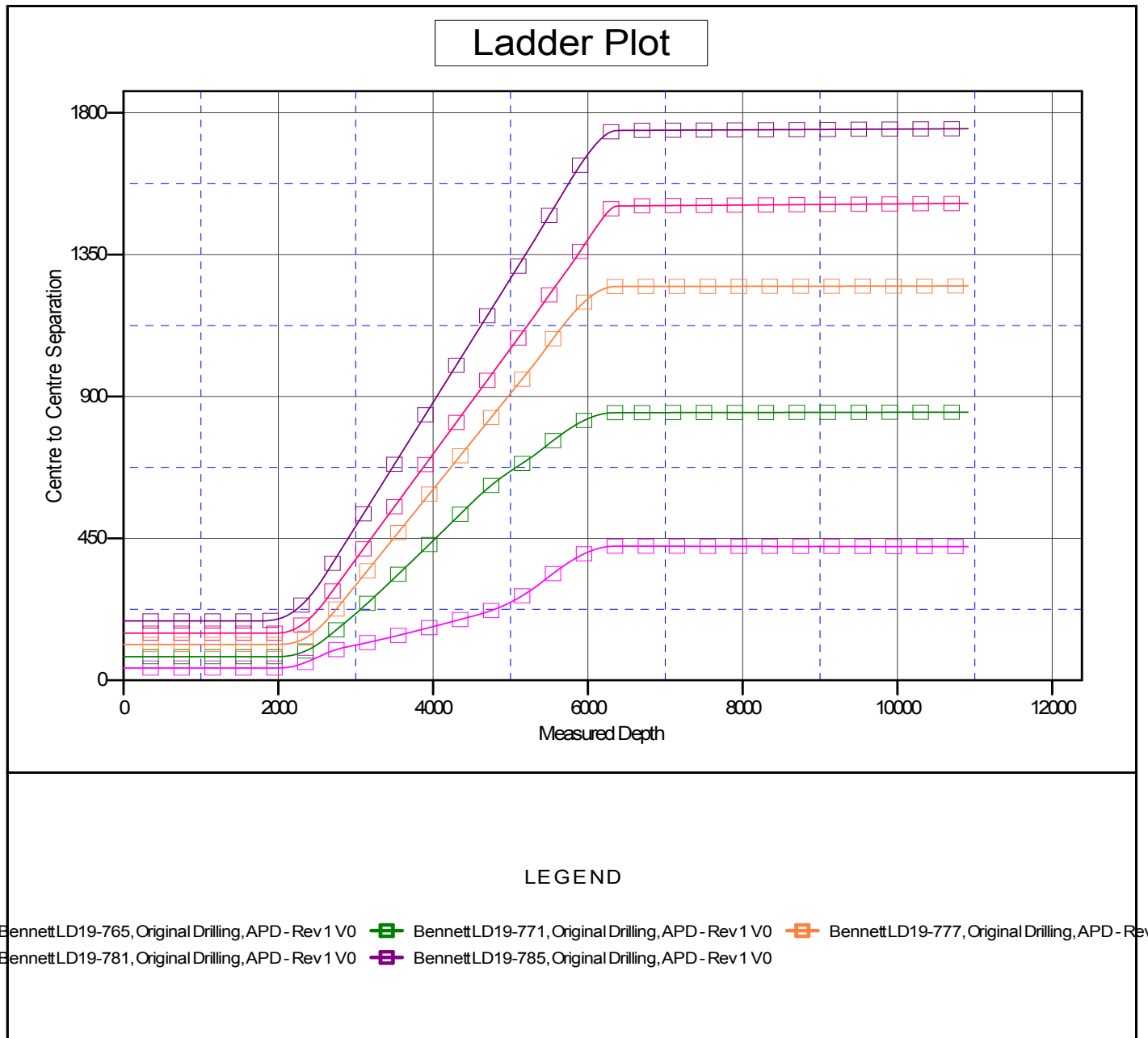
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Bennett LD19-758

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 1.03°



## Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Working	<b>Local Co-ordinate Reference:</b>	Well Bennett LD19-758
<b>Project:</b>	Wattenberg Field	<b>TVD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Reference Site:</b>	LD (09N-58W)	<b>MD Reference:</b>	WELL @ 4877.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Bennett LD19-758	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original Drilling	<b>Database:</b>	EDM01P
<b>Reference Design:</b>	APD - Rev 1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4877.0ft (Original Well Elev)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000

Coordinates are relative to: Bennett LD19-758  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 1.03°

