

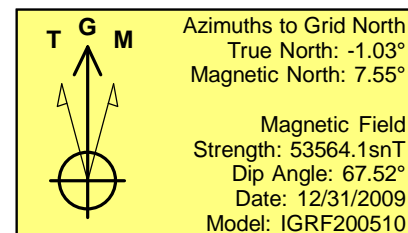
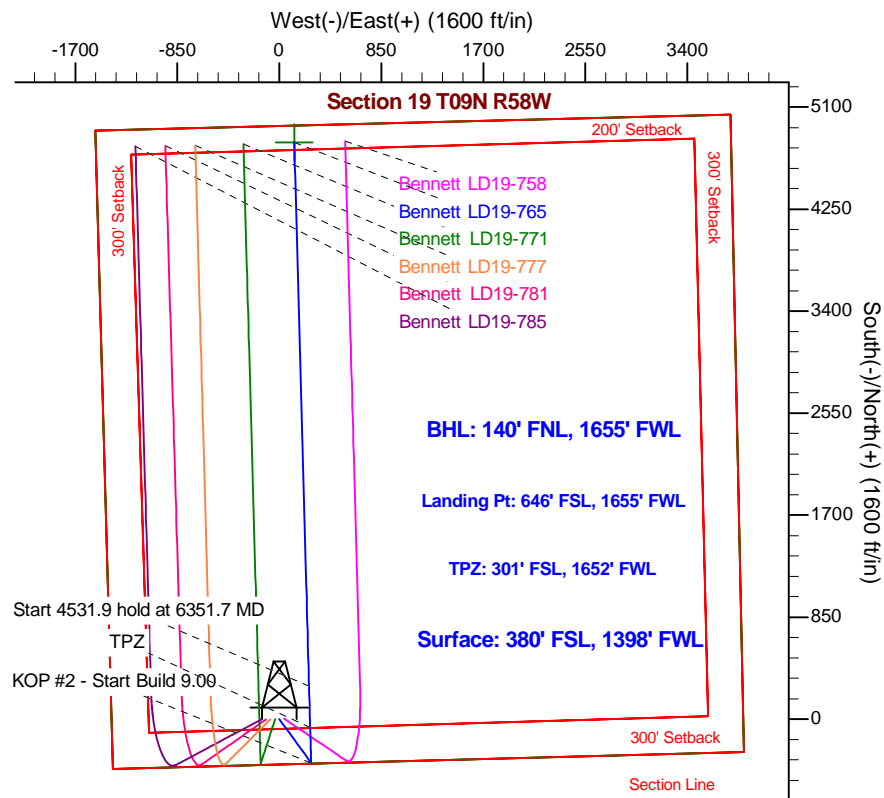
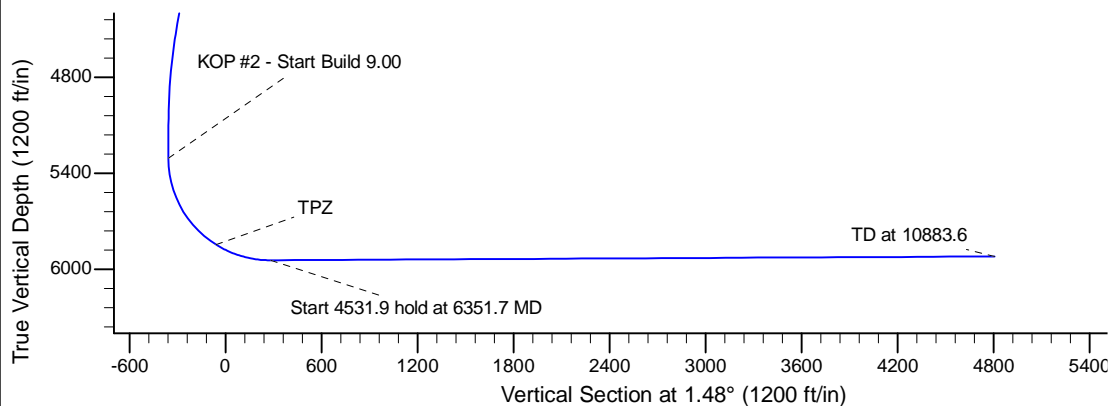
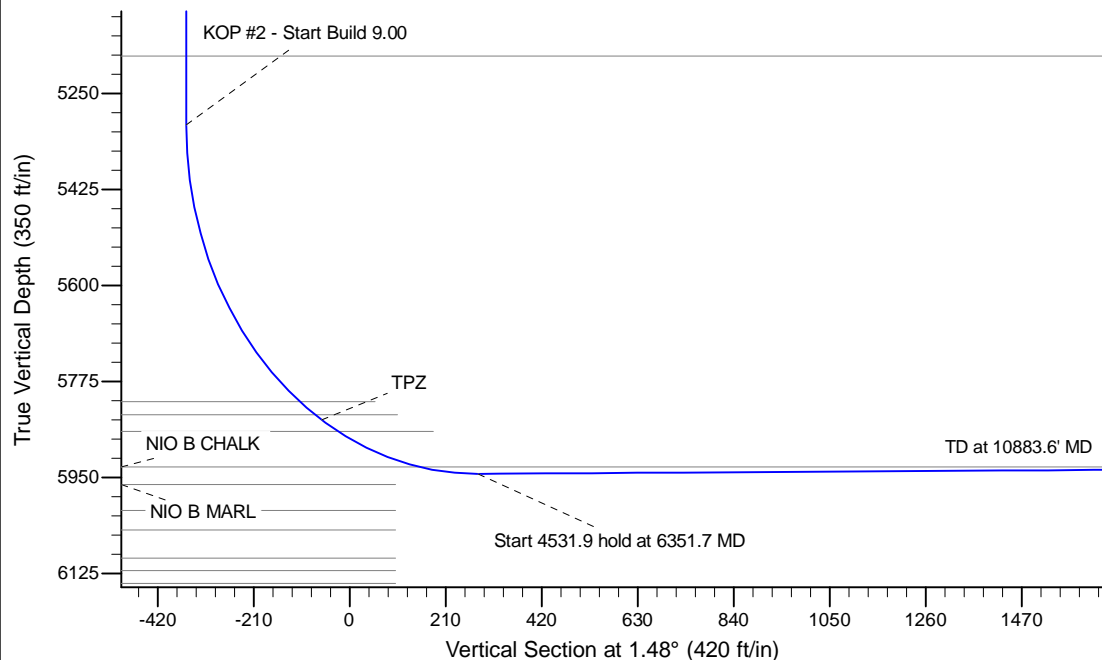
Project: Wattenberg Field
Site: LD (Sec.19-T09N-R58W) Weld County, CO
Well: Bennett LD19-765
Wellbore: Original Drilling
Design: APD - Rev 1

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	2300.0	0.00	0.00	2300.0	0.0	0.0	0.00	0.00	0.0	
3	2873.0	11.46	144.02	2869.1	-46.2	33.5	2.00	144.02	-45.3	
4	4568.5	11.46	144.02	4530.9	-318.8	231.5	0.00	0.00	-312.7	
5	5141.4	0.00	0.00	5100.0	-365.0	265.0	2.00	180.00	-358.0	
6	5348.3	0.00	0.00	5306.9	-365.0	265.0	0.00	0.00	-358.0	
7	6351.7	90.30	358.44	5943.5	274.7	247.6	9.00	358.44	281.0	
8	10883.6	90.30	358.44	5919.8	4804.9	124.6	0.00	0.00	4806.5	Bennett LD19-765 BHL 140'FNL, 1655'FWL



WELL DETAILS: Bennett LD19-765

	Ground Level: 4848.0	Latitude	Longitude
0.0	0.0	1512795.52	3440218.64
		40.730190	-103.911560

Plan: APD - Rev 1 (Bennett LD19-765/Original Drilling)

Created By: Shailey Jewell	Date: 8:02, May 20 2016
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region Drilling - Working

Wattenberg Field

LD (09N-58W)

Bennett LD19-765

Original Drilling

Plan: APD - Rev 1

Standard Planning Report

20 May, 2016

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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	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 LD19-765			
Well Position	+N/-S	-10,761.7 ft	Northing:	1,512,795.53 usft
	+E/-W	-9,122.6 ft	Easting:	3,440,218.64 usft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	4,848.0 ft

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

Design	APD - Rev 1			
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	1.48

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	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,873.0	11.46	144.02	2,869.1	-46.2	33.5	2.00	2.00	0.00	144.02	
4,568.5	11.46	144.02	4,530.9	-318.8	231.5	0.00	0.00	0.00	0.00	
5,141.4	0.00	0.00	5,100.0	-365.0	265.0	2.00	-2.00	0.00	180.00	
5,348.3	0.00	0.00	5,306.9	-365.0	265.0	0.00	0.00	0.00	0.00	
6,351.7	90.30	358.44	5,943.5	274.7	247.6	9.00	9.00	0.00	358.44	
10,883.6	90.30	358.44	5,919.8	4,804.9	124.6	0.00	0.00	0.00	0.00	Bennett LD19-765 B-

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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
1,250.0	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	0.00	0.00	2,050.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,150.0	0.00	0.00	2,150.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,250.0	0.00	0.00	2,250.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,350.0	1.00	144.02	2,350.0	-0.4	0.3	-0.3	2.00	2.00	0.00
2,400.0	2.00	144.02	2,400.0	-1.4	1.0	-1.4	2.00	2.00	0.00
2,450.0	3.00	144.02	2,449.9	-3.2	2.3	-3.1	2.00	2.00	0.00
2,500.0	4.00	144.02	2,499.8	-5.6	4.1	-5.5	2.00	2.00	0.00
2,550.0	5.00	144.02	2,549.7	-8.8	6.4	-8.7	2.00	2.00	0.00
2,600.0	6.00	144.02	2,599.5	-12.7	9.2	-12.5	2.00	2.00	0.00
2,650.0	7.00	144.02	2,649.1	-17.3	12.5	-16.9	2.00	2.00	0.00

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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)
2,700.0	8.00	144.02	2,698.7	-22.6	16.4	-22.1	2.00	2.00	0.00
2,750.0	9.00	144.02	2,748.2	-28.5	20.7	-28.0	2.00	2.00	0.00
2,800.0	10.00	144.02	2,797.5	-35.2	25.6	-34.5	2.00	2.00	0.00
2,850.0	11.00	144.02	2,846.6	-42.6	30.9	-41.8	2.00	2.00	0.00
2,873.0	11.46	144.02	2,869.1	-46.2	33.5	-45.3	2.00	2.00	0.00
2,900.0	11.46	144.02	2,895.6	-50.6	36.7	-49.6	0.00	0.00	0.00
2,950.0	11.46	144.02	2,944.7	-58.6	42.5	-57.5	0.00	0.00	0.00
3,000.0	11.46	144.02	2,993.7	-66.6	48.4	-65.4	0.00	0.00	0.00
3,050.0	11.46	144.02	3,042.7	-74.7	54.2	-73.2	0.00	0.00	0.00
3,100.0	11.46	144.02	3,091.7	-82.7	60.1	-81.1	0.00	0.00	0.00
3,150.0	11.46	144.02	3,140.7	-90.7	65.9	-89.0	0.00	0.00	0.00
3,200.0	11.46	144.02	3,189.7	-98.8	71.7	-96.9	0.00	0.00	0.00
3,250.0	11.46	144.02	3,238.7	-106.8	77.6	-104.8	0.00	0.00	0.00
3,300.0	11.46	144.02	3,287.7	-114.9	83.4	-112.7	0.00	0.00	0.00
3,350.0	11.46	144.02	3,336.7	-122.9	89.2	-120.5	0.00	0.00	0.00
3,400.0	11.46	144.02	3,385.7	-130.9	95.1	-128.4	0.00	0.00	0.00
3,450.0	11.46	144.02	3,434.7	-139.0	100.9	-136.3	0.00	0.00	0.00
3,500.0	11.46	144.02	3,483.7	-147.0	106.7	-144.2	0.00	0.00	0.00
3,550.0	11.46	144.02	3,532.7	-155.1	112.6	-152.1	0.00	0.00	0.00
3,600.0	11.46	144.02	3,581.7	-163.1	118.4	-160.0	0.00	0.00	0.00
3,650.0	11.46	144.02	3,630.7	-171.1	124.2	-167.9	0.00	0.00	0.00
3,700.0	11.46	144.02	3,679.7	-179.2	130.1	-175.7	0.00	0.00	0.00
3,750.0	11.46	144.02	3,728.7	-187.2	135.9	-183.6	0.00	0.00	0.00
3,800.0	11.46	144.02	3,777.7	-195.2	141.8	-191.5	0.00	0.00	0.00
3,850.0	11.46	144.02	3,826.7	-203.3	147.6	-199.4	0.00	0.00	0.00
3,900.0	11.46	144.02	3,875.7	-211.3	153.4	-207.3	0.00	0.00	0.00
3,950.0	11.46	144.02	3,924.7	-219.4	159.3	-215.2	0.00	0.00	0.00
4,000.0	11.46	144.02	3,973.7	-227.4	165.1	-223.0	0.00	0.00	0.00
4,050.0	11.46	144.02	4,022.7	-235.4	170.9	-230.9	0.00	0.00	0.00
4,100.0	11.46	144.02	4,071.7	-243.5	176.8	-238.8	0.00	0.00	0.00
4,150.0	11.46	144.02	4,120.7	-251.5	182.6	-246.7	0.00	0.00	0.00
4,200.0	11.46	144.02	4,169.7	-259.6	188.4	-254.6	0.00	0.00	0.00
4,250.0	11.46	144.02	4,218.7	-267.6	194.3	-262.5	0.00	0.00	0.00
4,300.0	11.46	144.02	4,267.7	-275.6	200.1	-270.4	0.00	0.00	0.00
4,350.0	11.46	144.02	4,316.7	-283.7	206.0	-278.2	0.00	0.00	0.00
4,400.0	11.46	144.02	4,365.7	-291.7	211.8	-286.1	0.00	0.00	0.00
4,450.0	11.46	144.02	4,414.8	-299.7	217.6	-294.0	0.00	0.00	0.00
4,500.0	11.46	144.02	4,463.8	-307.8	223.5	-301.9	0.00	0.00	0.00
4,550.0	11.46	144.02	4,512.8	-315.8	229.3	-309.8	0.00	0.00	0.00
4,568.5	11.46	144.02	4,530.9	-318.8	231.5	-312.7	0.00	0.00	0.00
4,600.0	10.83	144.02	4,561.8	-323.7	235.0	-317.5	2.00	-2.00	0.00
4,650.0	9.83	144.02	4,611.0	-331.0	240.3	-324.6	2.00	-2.00	0.00
4,700.0	8.83	144.02	4,660.3	-337.5	245.1	-331.1	2.00	-2.00	0.00
4,750.0	7.83	144.02	4,709.8	-343.4	249.3	-336.8	2.00	-2.00	0.00
4,800.0	6.83	144.02	4,759.4	-348.6	253.1	-341.9	2.00	-2.00	0.00
4,850.0	5.83	144.02	4,809.1	-353.0	256.3	-346.3	2.00	-2.00	0.00
4,900.0	4.83	144.02	4,858.9	-356.8	259.0	-349.9	2.00	-2.00	0.00
4,950.0	3.83	144.02	4,908.7	-359.8	261.2	-352.9	2.00	-2.00	0.00
5,000.0	2.83	144.02	4,958.6	-362.2	262.9	-355.2	2.00	-2.00	0.00
5,050.0	1.83	144.02	5,008.6	-363.8	264.1	-356.9	2.00	-2.00	0.00
5,100.0	0.83	144.02	5,058.6	-364.8	264.8	-357.8	2.00	-2.00	0.00
5,141.4	0.00	0.00	5,100.0	-365.0	265.0	-358.0	2.00	-2.00	0.00
5,150.0	0.00	0.00	5,108.6	-365.0	265.0	-358.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,158.6	-365.0	265.0	-358.0	0.00	0.00	0.00

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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)
5,250.0	0.00	0.00	5,208.6	-365.0	265.0	-358.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,258.6	-365.0	265.0	-358.0	0.00	0.00	0.00
5,348.3	0.00	0.00	5,306.9	-365.0	265.0	-358.0	0.00	0.00	0.00
5,350.0	0.15	358.44	5,308.6	-365.0	265.0	-358.0	9.00	9.00	0.00
5,400.0	4.65	358.44	5,358.5	-362.9	264.9	-355.9	9.00	9.00	0.00
5,450.0	9.15	358.44	5,408.1	-356.9	264.8	-349.9	9.00	9.00	0.00
5,500.0	13.65	358.44	5,457.1	-347.0	264.5	-340.1	9.00	9.00	0.00
5,550.0	18.15	358.44	5,505.2	-333.3	264.1	-326.4	9.00	9.00	0.00
5,600.0	22.65	358.44	5,552.1	-315.9	263.7	-309.0	9.00	9.00	0.00
5,650.0	27.15	358.44	5,597.4	-294.9	263.1	-288.0	9.00	9.00	0.00
5,700.0	31.65	358.44	5,641.0	-270.4	262.4	-263.5	9.00	9.00	0.00
5,750.0	36.15	358.44	5,682.5	-242.5	261.7	-235.6	9.00	9.00	0.00
5,800.0	40.65	358.44	5,721.6	-211.4	260.8	-204.6	9.00	9.00	0.00
5,850.0	45.15	358.44	5,758.2	-177.4	259.9	-170.6	9.00	9.00	0.00
5,900.0	49.65	358.44	5,792.1	-140.6	258.9	-133.9	9.00	9.00	0.00
5,950.0	54.15	358.44	5,822.9	-101.3	257.8	-94.6	9.00	9.00	0.00
6,000.0	58.65	358.44	5,850.6	-59.7	256.7	-53.0	9.00	9.00	0.00
6,050.0	63.15	358.44	5,874.9	-16.0	255.5	-9.4	9.00	9.00	0.00
6,100.0	67.65	358.44	5,895.7	29.4	254.3	36.0	9.00	9.00	0.00
6,150.0	72.15	358.44	5,912.9	76.3	253.0	82.8	9.00	9.00	0.00
6,200.0	76.65	358.44	5,926.3	124.4	251.7	130.9	9.00	9.00	0.00
6,250.0	81.15	358.44	5,936.0	173.5	250.4	179.9	9.00	9.00	0.00
6,300.0	85.65	358.44	5,941.7	223.1	249.0	229.5	9.00	9.00	0.00
6,350.0	90.15	358.44	5,943.5	273.0	247.7	279.4	9.00	9.00	0.00
6,351.7	90.30	358.44	5,943.5	274.7	247.6	281.0	9.00	9.00	0.00
6,400.0	90.30	358.44	5,943.3	323.0	246.3	329.3	0.00	0.00	0.00
6,450.0	90.30	358.44	5,943.0	373.0	245.0	379.2	0.00	0.00	0.00
6,500.0	90.30	358.44	5,942.8	423.0	243.6	429.2	0.00	0.00	0.00
6,550.0	90.30	358.44	5,942.5	473.0	242.2	479.1	0.00	0.00	0.00
6,600.0	90.30	358.44	5,942.2	522.9	240.9	529.0	0.00	0.00	0.00
6,650.0	90.30	358.44	5,942.0	572.9	239.5	578.9	0.00	0.00	0.00
6,700.0	90.30	358.44	5,941.7	622.9	238.2	628.9	0.00	0.00	0.00
6,750.0	90.30	358.44	5,941.4	672.9	236.8	678.8	0.00	0.00	0.00
6,800.0	90.30	358.44	5,941.2	722.9	235.4	728.7	0.00	0.00	0.00
6,850.0	90.30	358.44	5,940.9	772.9	234.1	778.7	0.00	0.00	0.00
6,900.0	90.30	358.44	5,940.7	822.8	232.7	828.6	0.00	0.00	0.00
6,950.0	90.30	358.44	5,940.4	872.8	231.4	878.5	0.00	0.00	0.00
7,000.0	90.30	358.44	5,940.1	922.8	230.0	928.4	0.00	0.00	0.00
7,050.0	90.30	358.44	5,939.9	972.8	228.7	978.4	0.00	0.00	0.00
7,100.0	90.30	358.44	5,939.6	1,022.8	227.3	1,028.3	0.00	0.00	0.00
7,150.0	90.30	358.44	5,939.3	1,072.7	225.9	1,078.2	0.00	0.00	0.00
7,200.0	90.30	358.44	5,939.1	1,122.7	224.6	1,128.2	0.00	0.00	0.00
7,250.0	90.30	358.44	5,938.8	1,172.7	223.2	1,178.1	0.00	0.00	0.00
7,300.0	90.30	358.44	5,938.6	1,222.7	221.9	1,228.0	0.00	0.00	0.00
7,350.0	90.30	358.44	5,938.3	1,272.7	220.5	1,277.9	0.00	0.00	0.00
7,400.0	90.30	358.44	5,938.0	1,322.6	219.2	1,327.9	0.00	0.00	0.00
7,450.0	90.30	358.44	5,937.8	1,372.6	217.8	1,377.8	0.00	0.00	0.00
7,500.0	90.30	358.44	5,937.5	1,422.6	216.4	1,427.7	0.00	0.00	0.00
7,550.0	90.30	358.44	5,937.3	1,472.6	215.1	1,477.7	0.00	0.00	0.00
7,600.0	90.30	358.44	5,937.0	1,522.6	213.7	1,527.6	0.00	0.00	0.00
7,650.0	90.30	358.44	5,936.7	1,572.5	212.4	1,577.5	0.00	0.00	0.00
7,700.0	90.30	358.44	5,936.5	1,622.5	211.0	1,627.5	0.00	0.00	0.00
7,750.0	90.30	358.44	5,936.2	1,672.5	209.6	1,677.4	0.00	0.00	0.00
7,800.0	90.30	358.44	5,935.9	1,722.5	208.3	1,727.3	0.00	0.00	0.00

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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)	
7,850.0	90.30	358.44	5,935.7	1,772.5	206.9	1,777.2	0.00	0.00	0.00	
7,900.0	90.30	358.44	5,935.4	1,822.5	205.6	1,827.2	0.00	0.00	0.00	
7,950.0	90.30	358.44	5,935.2	1,872.4	204.2	1,877.1	0.00	0.00	0.00	
8,000.0	90.30	358.44	5,934.9	1,922.4	202.9	1,927.0	0.00	0.00	0.00	
8,050.0	90.30	358.44	5,934.6	1,972.4	201.5	1,977.0	0.00	0.00	0.00	
8,100.0	90.30	358.44	5,934.4	2,022.4	200.1	2,026.9	0.00	0.00	0.00	
8,150.0	90.30	358.44	5,934.1	2,072.4	198.8	2,076.8	0.00	0.00	0.00	
8,200.0	90.30	358.44	5,933.9	2,122.3	197.4	2,126.7	0.00	0.00	0.00	
8,250.0	90.30	358.44	5,933.6	2,172.3	196.1	2,176.7	0.00	0.00	0.00	
8,300.0	90.30	358.44	5,933.3	2,222.3	194.7	2,226.6	0.00	0.00	0.00	
8,350.0	90.30	358.44	5,933.1	2,272.3	193.4	2,276.5	0.00	0.00	0.00	
8,400.0	90.30	358.44	5,932.8	2,322.3	192.0	2,326.5	0.00	0.00	0.00	
8,450.0	90.30	358.44	5,932.5	2,372.2	190.6	2,376.4	0.00	0.00	0.00	
8,500.0	90.30	358.44	5,932.3	2,422.2	189.3	2,426.3	0.00	0.00	0.00	
8,550.0	90.30	358.44	5,932.0	2,472.2	187.9	2,476.2	0.00	0.00	0.00	
8,600.0	90.30	358.44	5,931.8	2,522.2	186.6	2,526.2	0.00	0.00	0.00	
8,650.0	90.30	358.44	5,931.5	2,572.2	185.2	2,576.1	0.00	0.00	0.00	
8,700.0	90.30	358.44	5,931.2	2,622.1	183.8	2,626.0	0.00	0.00	0.00	
8,750.0	90.30	358.44	5,931.0	2,672.1	182.5	2,676.0	0.00	0.00	0.00	
8,800.0	90.30	358.44	5,930.7	2,722.1	181.1	2,725.9	0.00	0.00	0.00	
8,850.0	90.30	358.44	5,930.4	2,772.1	179.8	2,775.8	0.00	0.00	0.00	
8,900.0	90.30	358.44	5,930.2	2,822.1	178.4	2,825.7	0.00	0.00	0.00	
8,950.0	90.30	358.44	5,929.9	2,872.1	177.1	2,875.7	0.00	0.00	0.00	
9,000.0	90.30	358.44	5,929.7	2,922.0	175.7	2,925.6	0.00	0.00	0.00	
9,050.0	90.30	358.44	5,929.4	2,972.0	174.3	2,975.5	0.00	0.00	0.00	
9,100.0	90.30	358.44	5,929.1	3,022.0	173.0	3,025.5	0.00	0.00	0.00	
9,150.0	90.30	358.44	5,928.9	3,072.0	171.6	3,075.4	0.00	0.00	0.00	
9,200.0	90.30	358.44	5,928.6	3,122.0	170.3	3,125.3	0.00	0.00	0.00	
9,250.0	90.30	358.44	5,928.4	3,171.9	168.9	3,175.2	0.00	0.00	0.00	
9,300.0	90.30	358.44	5,928.1	3,221.9	167.6	3,225.2	0.00	0.00	0.00	
9,350.0	90.30	358.44	5,927.8	3,271.9	166.2	3,275.1	0.00	0.00	0.00	
9,400.0	90.30	358.44	5,927.6	3,321.9	164.8	3,325.0	0.00	0.00	0.00	
9,450.0	90.30	358.44	5,927.3	3,371.9	163.5	3,375.0	0.00	0.00	0.00	
9,500.0	90.30	358.44	5,927.0	3,421.8	162.1	3,424.9	0.00	0.00	0.00	
9,550.0	90.30	358.44	5,926.8	3,471.8	160.8	3,474.8	0.00	0.00	0.00	
9,600.0	90.30	358.44	5,926.5	3,521.8	159.4	3,524.8	0.00	0.00	0.00	
9,650.0	90.30	358.44	5,926.3	3,571.8	158.1	3,574.7	0.00	0.00	0.00	
9,700.0	90.30	358.44	5,926.0	3,621.8	156.7	3,624.6	0.00	0.00	0.00	
9,750.0	90.30	358.44	5,925.7	3,671.7	155.3	3,674.5	0.00	0.00	0.00	
9,800.0	90.30	358.44	5,925.5	3,721.7	154.0	3,724.5	0.00	0.00	0.00	
9,850.0	90.30	358.44	5,925.2	3,771.7	152.6	3,774.4	0.00	0.00	0.00	
9,900.0	90.30	358.44	5,925.0	3,821.7	151.3	3,824.3	0.00	0.00	0.00	
9,950.0	90.30	358.44	5,924.7	3,871.7	149.9	3,874.3	0.00	0.00	0.00	
10,000.0	90.30	358.44	5,924.4	3,921.6	148.5	3,924.2	0.00	0.00	0.00	
10,050.0	90.30	358.44	5,924.2	3,971.6	147.2	3,974.1	0.00	0.00	0.00	
10,100.0	90.30	358.44	5,923.9	4,021.6	145.8	4,024.0	0.00	0.00	0.00	
10,150.0	90.30	358.44	5,923.6	4,071.6	144.5	4,074.0	0.00	0.00	0.00	
10,200.0	90.30	358.44	5,923.4	4,121.6	143.1	4,123.9	0.00	0.00	0.00	
10,250.0	90.30	358.44	5,923.1	4,171.6	141.8	4,173.8	0.00	0.00	0.00	
10,300.0	90.30	358.44	5,922.9	4,221.5	140.4	4,223.8	0.00	0.00	0.00	
10,350.0	90.30	358.44	5,922.6	4,271.5	139.0	4,273.7	0.00	0.00	0.00	
10,400.0	90.30	358.44	5,922.3	4,321.5	137.7	4,323.6	0.00	0.00	0.00	
10,450.0	90.30	358.44	5,922.1	4,371.5	136.3	4,373.5	0.00	0.00	0.00	
10,500.0	90.30	358.44	5,921.8	4,421.5	135.0	4,423.5	0.00	0.00	0.00	

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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)
10,550.0	90.30	358.44	5,921.5	4,471.4	133.6	4,473.4	0.00	0.00	0.00
10,600.0	90.30	358.44	5,921.3	4,521.4	132.3	4,523.3	0.00	0.00	0.00
10,650.0	90.30	358.44	5,921.0	4,571.4	130.9	4,573.3	0.00	0.00	0.00
10,700.0	90.30	358.44	5,920.8	4,621.4	129.5	4,623.2	0.00	0.00	0.00
10,750.0	90.30	358.44	5,920.5	4,671.4	128.2	4,673.1	0.00	0.00	0.00
10,800.0	90.30	358.44	5,920.2	4,721.3	126.8	4,723.0	0.00	0.00	0.00
10,850.0	90.30	358.44	5,920.0	4,771.3	125.5	4,773.0	0.00	0.00	0.00
10,883.6	90.30	358.44	5,919.8	4,804.9	124.6	4,806.5	0.00	0.00	0.00

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									
Section 19	0.00	0.00	1.0	10,761.8	9,122.7	1,523,557.18	3,449,341.23	40.759270	-103.877940
- plan misses target center by 12307.8ft at 10883.6ft MD (5919.8 TVD, 4804.9 N, 124.6 E)									
- Polygon									
Point 1			1.0	-5,858.2	-10,656.7	1,517,699.04	3,438,684.64		
Point 2			1.0	-5,723.4	-5,364.0	1,517,833.84	3,443,977.29		
Point 3			1.0	-11,036.8	-5,251.0	1,512,520.50	3,444,090.29		
Point 4			1.0	-11,176.8	-10,508.5	1,512,380.50	3,438,832.84		
Point 5			1.0	-5,858.2	-10,656.7	1,517,699.04	3,438,684.64		
Setback	0.00	0.00	1.0	10,761.8	9,122.7	1,523,557.18	3,449,341.23	40.759270	-103.877940
- plan misses target center by 12307.8ft at 10883.6ft MD (5919.8 TVD, 4804.9 N, 124.6 E)									
- Polygon									
Point 1			1.0	-6,058.2	-10,356.7	1,517,499.04	3,438,984.64		
Point 2			1.0	-5,923.4	-5,664.0	1,517,633.84	3,443,677.29		
Point 3			1.0	-10,736.8	-5,551.0	1,512,820.49	3,443,790.29		
Point 4			1.0	-10,876.8	-10,208.5	1,512,680.49	3,439,132.84		
Point 5			1.0	-6,058.2	-10,356.7	1,517,499.04	3,438,984.64		
Bennett LD19-765 BHL	0.00	0.00	5,919.8	4,804.9	124.6	1,517,600.41	3,440,343.19	40.743370	-103.910800
- plan hits target center									
- Point									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
881.0	881.0	PIERRE		0.00	
904.0	904.0	UPPER PIERRE AQUIFER TOP		0.00	
1,478.0	1,478.0	UPPER PIERRE AQUIFER BASE		0.00	
3,476.8	3,461.0	PARKMAN		0.00	
4,029.9	4,003.0	SUSSEX		0.00	
4,609.4	4,571.0	SHANNON		0.00	
5,223.4	5,182.0	TEEPEE BUTTES		0.00	
5,931.7	5,812.0	SHARON SPRINGS		0.00	
5,972.9	5,836.0	NIO A CHALK		0.00	
6,030.9	5,866.0	NIO A MARL		0.00	
6,221.8	5,931.0	NIO B CHALK		0.00	

Planning Report

Database:	EDM01P	Local Co-ordinate Reference:	Well Bennett LD19-765
Company:	Northern Region Drilling - Working	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Project:	Wattenberg Field	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site:	LD (09N-58W)	North Reference:	Grid
Well:	Bennett LD19-765	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)	
2,300.0	2,300.0	0.0	0.0	KOP - Start Build 2.00
4,568.5	4,530.9	-318.8	231.5	Start Drop -2.00
5,348.3	5,306.9	-365.0	265.0	KOP #2 - Start Build 9.00
5,990.0	5,845.3	-68.2	256.9	TPZ
6,351.7	5,943.5	274.7	247.6	Start 4531.9 hold at 6351.7 MD
10,883.6	5,919.8	4,804.9	124.6	TD at 10883.6

Northern Region Drilling - Working

**Wattenberg Field
LD (09N-58W)
Bennett LD19-765**

**Original Drilling
APD - Rev 1**

Anticollision Summary Report

20 May, 2016

Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Bennett LD19-765
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Bennett LD19-765	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 50.0ft	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	5/19/2016		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,883.6	APD - Rev 1 (Original Drilling)	MWD	MWD - Standard

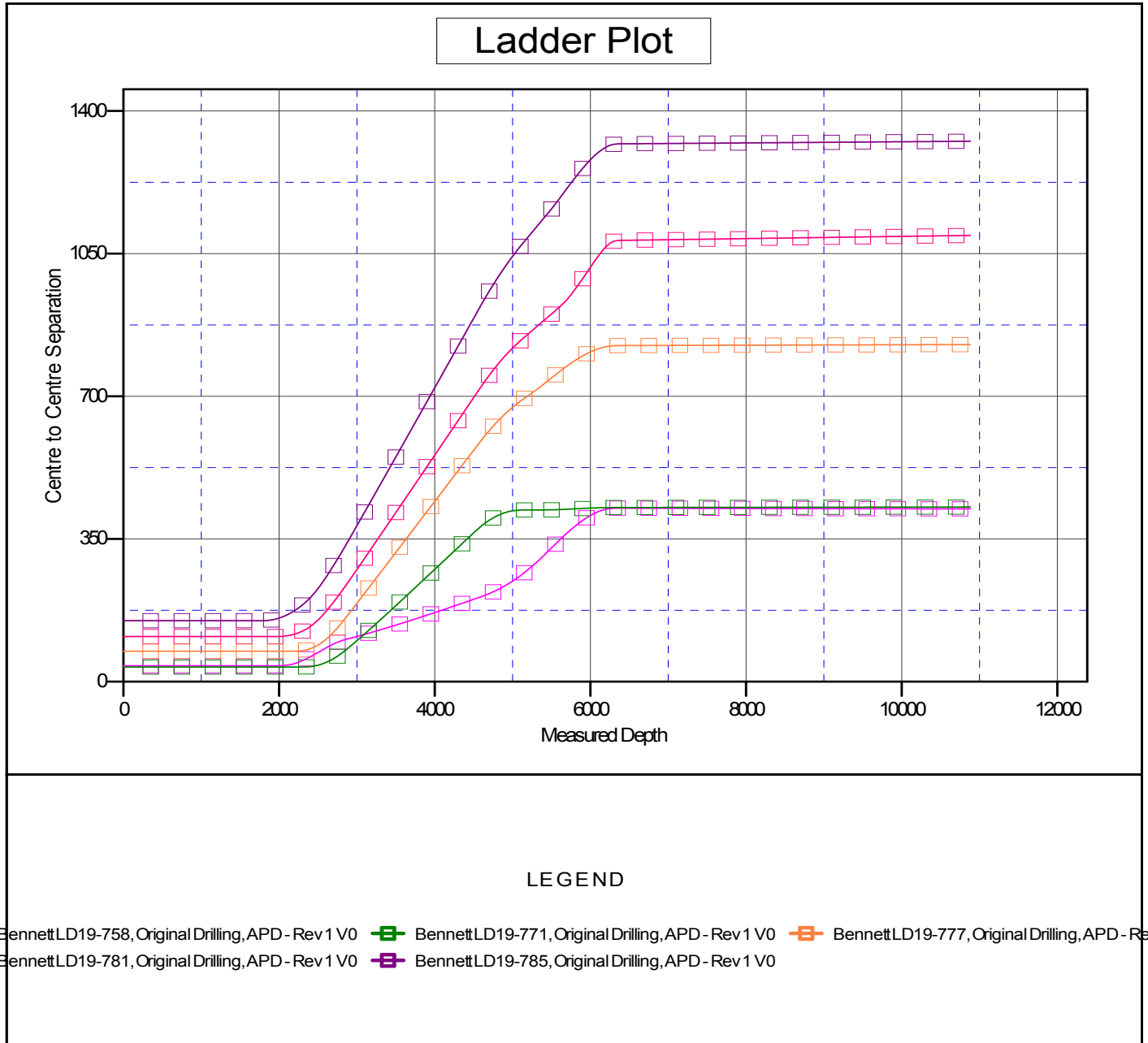
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
LD (09N-58W)						
Bennett LD19-758 - Original Drilling - APD - Rev 1	2,000.0	1,999.0	39.0	30.3	4.482	CC, ES
Bennett LD19-758 - Original Drilling - APD - Rev 1	10,883.6	10,913.5	424.0	236.2	2.258	SF
Bennett LD19-771 - Original Drilling - APD - Rev 1	2,300.0	2,301.0	36.0	26.0	3.585	CC, ES
Bennett LD19-771 - Original Drilling - APD - Rev 1	10,883.6	10,808.8	428.4	239.7	2.270	SF
Bennett LD19-777 - Original Drilling - APD - Rev 1	2,200.0	2,198.0	74.8	65.2	7.797	CC, ES
Bennett LD19-777 - Original Drilling - APD - Rev 1	10,883.6	10,852.5	827.0	636.4	4.339	SF
Bennett LD19-781 - Original Drilling - APD - Rev 1	1,982.3	1,985.3	110.9	102.2	12.853	CC
Bennett LD19-781 - Original Drilling - APD - Rev 1	2,000.0	2,002.9	110.9	102.2	12.737	ES
Bennett LD19-781 - Original Drilling - APD - Rev 1	10,883.6	11,123.1	1,094.8	907.6	5.849	SF
Bennett LD19-785 - Original Drilling - APD - Rev 1	1,781.9	1,785.9	149.7	141.9	19.369	CC
Bennett LD19-785 - Original Drilling - APD - Rev 1	1,800.0	1,803.8	149.7	141.9	19.170	ES
Bennett LD19-785 - Original Drilling - APD - Rev 1	10,883.6	10,901.7	1,325.8	1,137.5	7.039	SF

Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Bennett LD19-765
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
Reference Site:	LD (09N-58W)	MD Reference:	WELL @ 4878.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Bennett LD19-765	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 @ 4878.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Bennett LD19-765
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.03°



Anticollision Summary Report

Company:	Northern Region Drilling - Working	Local Co-ordinate Reference:	Well Bennett LD19-765
Project:	Wattenberg Field	TVD Reference:	WELL @ 4878.0ft (Original Well Elev)
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Reference Design:	APD - Rev 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4878.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000

Coordinates are relative to: Bennett LD19-765
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 1.03°

