

INTRODUCTION

The quality of water resources in the Piedmont province of Virginia is affected by natural and man-made factors. The original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors.

EXPLANATION

MAJOR GEOLOGIC PROVINCE	MAJOR GEOLOGIC UNIT
TRIASSIC LOWLAND	1 DATABASE and horsts
PIEDMONT	2 SILTSTONE and shale
PIEDMONT	3 SANDSTONE and conglomerate
PIEDMONT	4 MAFIC and ultramafic rocks
PIEDMONT	5 GRANITIC rocks
PIEDMONT	6 SCIST, schists, slates, and gneiss
COASTAL PLAIN	7 SAND and CLAY capped by gravel

Range shown by size of symbol

SURFACE WATER

- 0-100
- 101-200
- 201-300
- 301-400
- 401-500

GROUND WATER

- 0-250
- 251-300
- 301-350
- 351-400
- 401-450
- 451-500

Well depth in feet

- 0-100
- 101-200
- 201-300
- 301-400
- 401-500
- 501-600
- 601-700
- 701-800
- 801-900
- 901-1000
- 1000+

Well depth in feet

- 0-100
- 101-200
- 201-300
- 301-400
- 401-500
- 501-600
- 601-700
- 701-800
- 801-900
- 901-1000
- 1000+

FAIRFAX COUNTY AND VICINITY

The geologic and hydrogeologic provinces of Fairfax County and vicinity are the Triassic Lowland, the Piedmont Province, and the Coastal Plain. The Triassic Lowland is a narrow belt of Triassic rocks that runs north-south through the center of Fairfax County. The Piedmont Province is a broad area of Paleozoic rocks that covers most of Fairfax County. The Coastal Plain is a broad area of Quaternary deposits that covers the southern part of Fairfax County.

The Triassic Lowland is a narrow belt of Triassic rocks that runs north-south through the center of Fairfax County. The Piedmont Province is a broad area of Paleozoic rocks that covers most of Fairfax County. The Coastal Plain is a broad area of Quaternary deposits that covers the southern part of Fairfax County.

WATER QUALITY IN FAIRFAX COUNTY AND VICINITY

The chemical quality of water in Fairfax County and vicinity is determined by natural and man-made factors. The original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors.

The chemical quality of water in Fairfax County and vicinity is determined by natural and man-made factors. The original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors.

WATER QUALITY CONSIDERATIONS IN LAND-USE PLANNING

The chemical quality of water in Fairfax County and vicinity is determined by natural and man-made factors. The original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors.

The chemical quality of water in Fairfax County and vicinity is determined by natural and man-made factors. The original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors. In the Piedmont province, the original chemical quality of water is determined by natural environmental factors, such as rock composition and weathering products, and depositional, sedimentary, and volcanic factors.

REFERENCES CITED

Back, William, 1946. Hydrogeological survey of northern part of Adams County, Pa. U.S. Geological Survey Professional Paper 488-A, p. 1-142.

Beane, R. A., and Frazier, J. L., 1972. Geologic map of Fairfax County, Virginia. U.S. Geological Survey Open-File Report 77-233, scale 1:62,500.

Beane, R. A., and Frazier, J. L., 1973. Geologic map of Fairfax County, Virginia. U.S. Geological Survey Open-File Report 77-233, scale 1:62,500.

Beane, R. A., and Frazier, J. L., 1974. Geologic map of Fairfax County, Virginia. U.S. Geological Survey Open-File Report 77-233, scale 1:62,500.

INDEX MAP OF VIRGINIA

INDEX MAP OF VIRGINIA

INDEX MAP OF VIRGINIA

FIGURE 1—Diagram showing general chemical character of surface water in Fairfax County and vicinity. Data plotted as percentage of total dissolved solids per liter.

FIGURE 2—Diagram showing general chemical character of ground water in Fairfax County and vicinity. Data plotted as percentage of total dissolved solids per liter.

FIGURE 3—Chemical Analyses of Ground Water from Triassic Sedimentary and Metamorphic Rocks, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
1A

FIGURE 4—Chemical Analyses of Ground Water from the Piedmont Crystalline Rocks, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
1B

FIGURE 5—Chemical Analyses of Ground Water from the Coastal Plain Sediments, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
1C

FIGURE 6—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
1D

FIGURE 7—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
1E

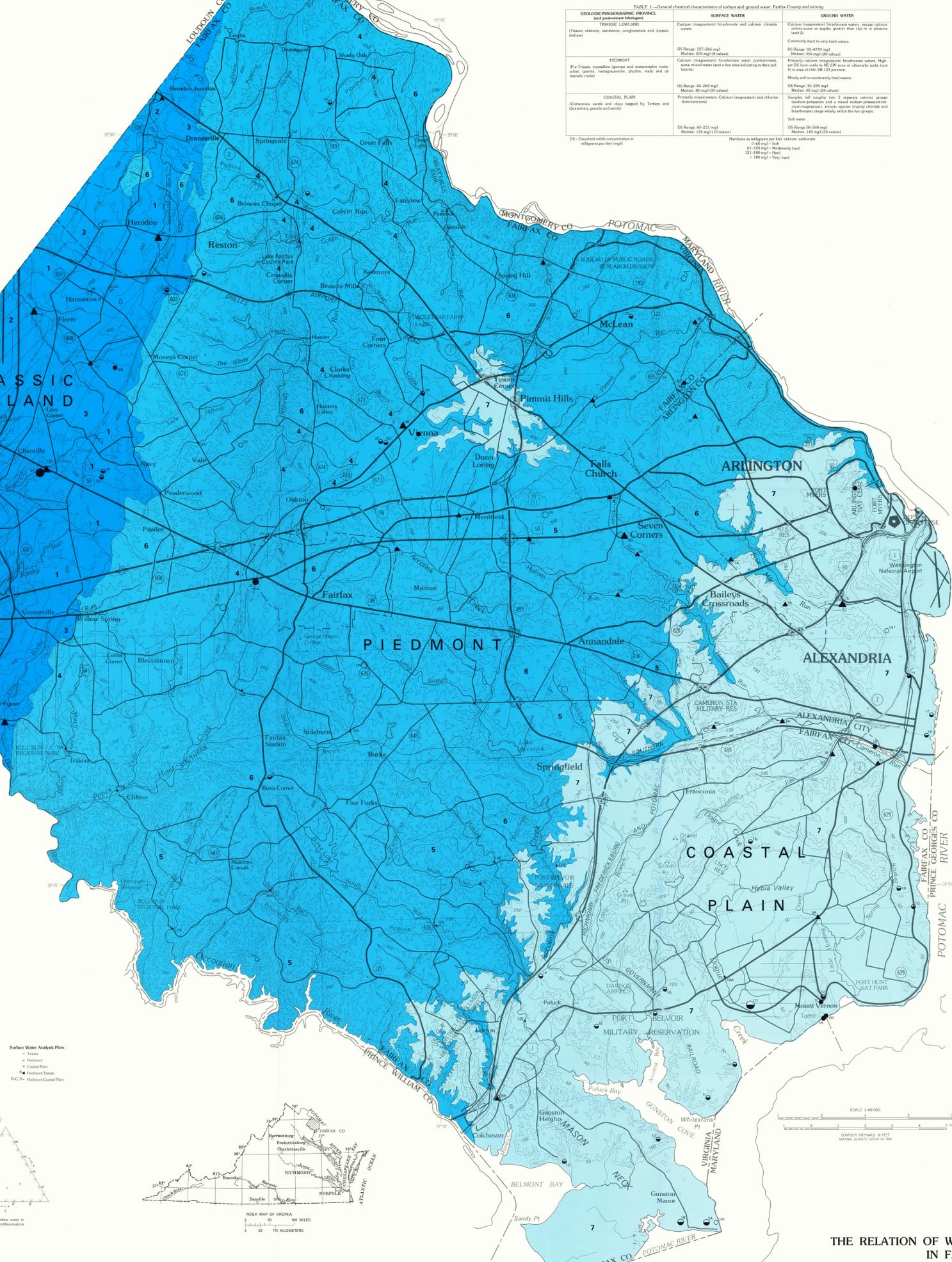


FIGURE 8—Diagram showing general chemical character of surface water in Fairfax County and vicinity. Data plotted as percentage of total dissolved solids per liter.

FIGURE 9—Diagram showing general chemical character of ground water in Fairfax County and vicinity. Data plotted as percentage of total dissolved solids per liter.

FIGURE 10—Chemical Analyses of Ground Water from Triassic Sedimentary and Metamorphic Rocks, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2A

FIGURE 11—Chemical Analyses of Ground Water from the Piedmont Crystalline Rocks, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2B

FIGURE 12—Chemical Analyses of Ground Water from the Coastal Plain Sediments, Fairfax County and Vicinity, Virginia. (Values in milligrams per liter unless noted)

Well No.	Location	Depth (ft)	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2C

FIGURE 13—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2D

FIGURE 14—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2E

FIGURE 15—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2F

FIGURE 16—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2G

FIGURE 17—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2H

FIGURE 18—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2I

FIGURE 19—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2J

FIGURE 20—Water Quality Analyses of Surface Water in Fairfax County, Virginia. (All analyses by U.S. Geological Survey)

Station No.	Location	Date	Ca	Mg	Na+K	Cl	SO4	CO3+HCO3	NO3	Fe	Mn	Cu	Zn	Pb	HCO3	As	Hg	Cd	Cr	Ni	Mo	Se	B	Li	Si	Al	Th	U
2K

THE RELATION OF WATER QUALITY TO GEOLOGY AND LAND USE CHANGES IN FAIRFAX COUNTY AND VICINITY, VIRGINIA

By
A. J. Froelich and Chester Zenone

1985