# CONTENTS

**FIGURES**

**TABLES**

## CONVERSION FACTORS AND ABBREVIATED WATER-QUALITY UNITS

| Multiply | By | To Obtain |
|---|---|---|
| acre | 4,047 | square meter ($m^2$) |
| feet (ft) | 0.3048 | meter (m) |
| gallon (gal) | 3.785 | liter (L) |
| inch (in) | 25.4 | millimeter (mm) |
| cubic inch ($in^3$) | 16.39 | cubic centimeter ($cm^3$) |
| mile (mi) | 1.609 | kilometer (km) |
| pound (lb) | 453,600 | milligram (mg) |
| square mile ($mi^2$) | 2.59 | square kilometer ($km^2$) |

Temperature, in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) by use of the following equation:

$$°F = [1.8(°C)] + 32.$$

**Abbreviated water- and sediment-quality units**: Chemical concentrations and water temperature are given in metric units. Chemical concentration is given in milligrams per liter (mg/L), micrograms per liter (µg/L), milligrams per kilogram (mg/kg), micrograms per gram (µg/g), or micrograms per kilogram (µg/kg). Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter. For concentrations less than 7,000 mg/L, the numerical value is the same as for concentrations in parts per million. Milligrams per kilogram (mg/kg) is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit mass (kilogram) of water. One thousand micrograms per kilogram is equivalent to one milligram per kilogram. One milligram per kilogram is equivalent to one microgram per gram.

Specific conductance is expressed in microsiemens per centimeter (µS/cm). A microsiemen is the electrical conductivity of water measured between opposite faces of a centimeter cube of aqueous solution at a specified temperature.

## MISCELLANEOUS ABBREVIATIONS

| | |
|---|---|
| AO | Aesthetic Objective |
| as As | as quantified as measured arsenic |
| BOD | Biochemical Oxygen Demand |
| as Cd | as quantified as measured cadmium |
| as $CaCO_3$ | as quantified as measured calcium carbonate |
| as Cl | as quantified as measured chloride |
| as Cr | as quantified as measured chromium |
| as Cu | as quantified as measured copper |
| EPT | Ephemeroptera, Plecoptera, and Trichoptera |
| GIS | Geographic Information Systems |
| HBI | Hilsenhoff Biotic Index |
| FBI | Hilsenhoff (family-level) Biotic Index |
| IBI | Index of Biotic Integrity |
| IMAC | Interim Maximum Acceptable Concentration |
| ISQG | Interim Sediment Quality Guideline |
| as Pb | as quantified as measured lead |
| MAC | Maximum Acceptable Concentration |
| MCL | Maximum Contaminant Level |
| as Hg | as quantified as measured mercury |
| MMSD | Milwaukee Metropolitan Sewerage District |
| as Ni | as quantified as measured nickel |
| as $NO_3$ | as quantified as measured nitrate |
| as N | as quantified as measured nitrogen |
| as P | as quantified as measured phosphorus |
| PAH's | Poly aromatic hydrocarbons |
| PCB's | Polychlorinated biphenyls |
| as K | as quantified as measured potassium |
| PEC | Probably Effect Concentration |
| PEL | Probable Effect Level |
| ROE | Residue on evaporation |
| SQG's | Sediment Quality Guidelines |
| SWDR | Secondary Drinking Water Regulation |
| as Na | as quantified as measured sodium |
| SEWRPC | Southeastern Wisconsin Regional Planning Commission |
| STORET | STOrage and RETrieval System |
| TEC | Threshold Effect Concentration |
| USEPA | United States Environmental Protection Agency |
| USGS | United States Geological Survey |
| VOC's | Volatile organic compounds |
| WDNR | Wisconsin Department of Natural Resources |
| as Zn | as quantified as measured zinc |

# ACKNOWLEDGMENTS

**Technical Reviewers**

Dale Robertson, Hydrologist, U.S. Geological Survey, Middleton, Wis.

David Kendziorski, Stormtech, Inc., Milwaukee, Wis.

**Technical Support**

**Editorial and Graphics**

Michael Eberle, Technical Publications Editor, U.S. Geological Survey, Columbus, Ohio

Michelle M. Greenwood, Cartographer, U.S. Geological Survey, Middleton, Wis.

Leah N. Hout, Editor, U.S. Geological Survey, Columbus, Ohio

Susan Z. Jones, Editorial Assistant, U.S. Geological Survey, Middleton, Wis.

**Approving Official**

Chester Zenone, Reports Improvement Advisor, U.S. Geological Survey, Reston, Va.