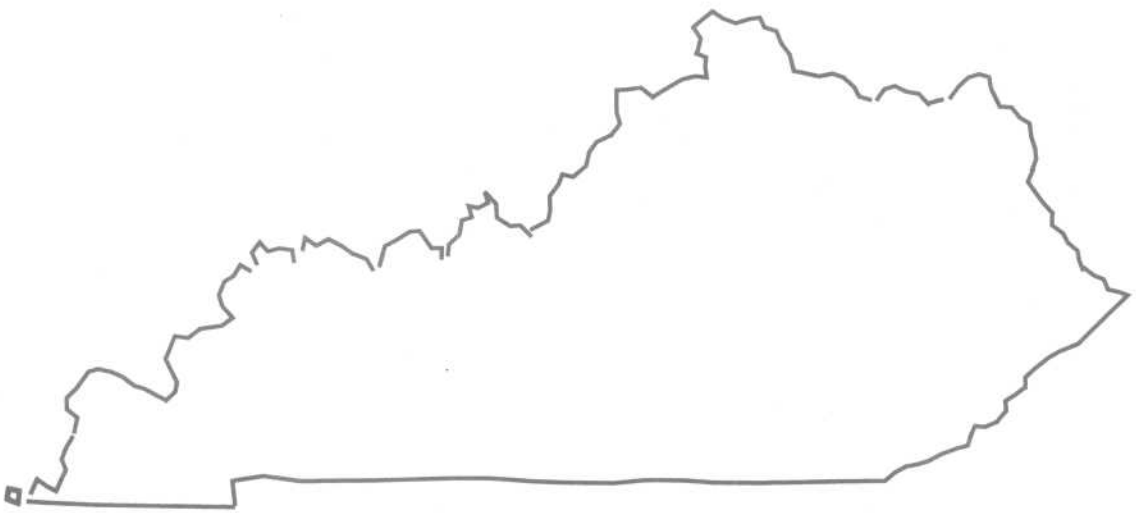
USGS
science for a changing world

Water Resources Data Kentucky Water Year 1994



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT KY-94-1

Prepared in cooperation with the Commonwealth of Kentucky and with other agencies

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requester will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 National Center
12201 Sunrise Valley Drive
Reston, VA 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on Compact Disc - Read Only Memory (CD-ROM) discs. Beginning with the 1990 water year, all water-data reports will also be available on CD-ROM. All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products and user charges can be obtained locally from each of the Water Resources Division's District Offices. (See address on the back of the title page.) A limited number of CD-ROM discs will be available for sale by the U.S. Geological Survey, Earth Science Information Center, Open-File Reports Section, Box 25286, MS 517, Denver Federal Center, Denver, CO 80225.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP, therefore, provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary base and is expressed as milligrams dry weight of algae produced per liter of sample.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1–March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total-coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal-coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal-streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square mile (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic feet per second per square mile [$(ft^3/s)/mi^2$] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Water-Quality Assessment (NAWQA) Network is a network of fixed-location and synoptic sampling stations. It is currently limited in Kentucky to the Kentucky River Basin. The U.S. Geological Survey began the National Water-Quality Assessment Program in April 1986 to (1) provide a nationally consistent description of current water-quality status, (2) define recent trends in water quality, and (3) relate past and present water-quality conditions to relevant natural features, the history of land and water use, and land- and waste-management practices. The pilot

study of the Kentucky River Basin is one of four surface-water pilot studies and will be used to test, and modify as necessary, assessment concepts and approaches in preparation for future full-scale implementation of the National program.

National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)			Method of analysis
Clay.....	0.00024	-	0.004	Sedimentation
Silt.....	.004	-	.062	Sedimentation
Sand.....	.062	-	2.0	Sedimentation or sieve
Gravel.....	2.0	-	64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2,time)] for periphyton and macrophytes and [mg C/(m^3,time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O/(m^2,time)] for periphyton and macrophytes and [mg O/(m^3,time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN., in.) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons/day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7 Q_{10}) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of

dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water, per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and Plexiglas strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1991, is called the "1991 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.

2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3. Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS- -TWRI Book 3, Chapter A12. 1986. 34 pages.

3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.

3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R. E. Rathbun, Nobuhiro Yotsukura, G. W. Parker, and L.L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.

3-A20. *Simulation of soluable waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

3-B4. *Supplement 1. Regression modeling of ground-water flow - Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.

3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T.E. Reilly, and G.D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.

3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.

3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment*, by H.P. Guy and V.W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves*, by H.C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H.C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L. C. Friedman, editors: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P.E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D.E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.

5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.

6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.

6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.

6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS--TWRI Book 6, Chapter A5, 1993. 243 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S.P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

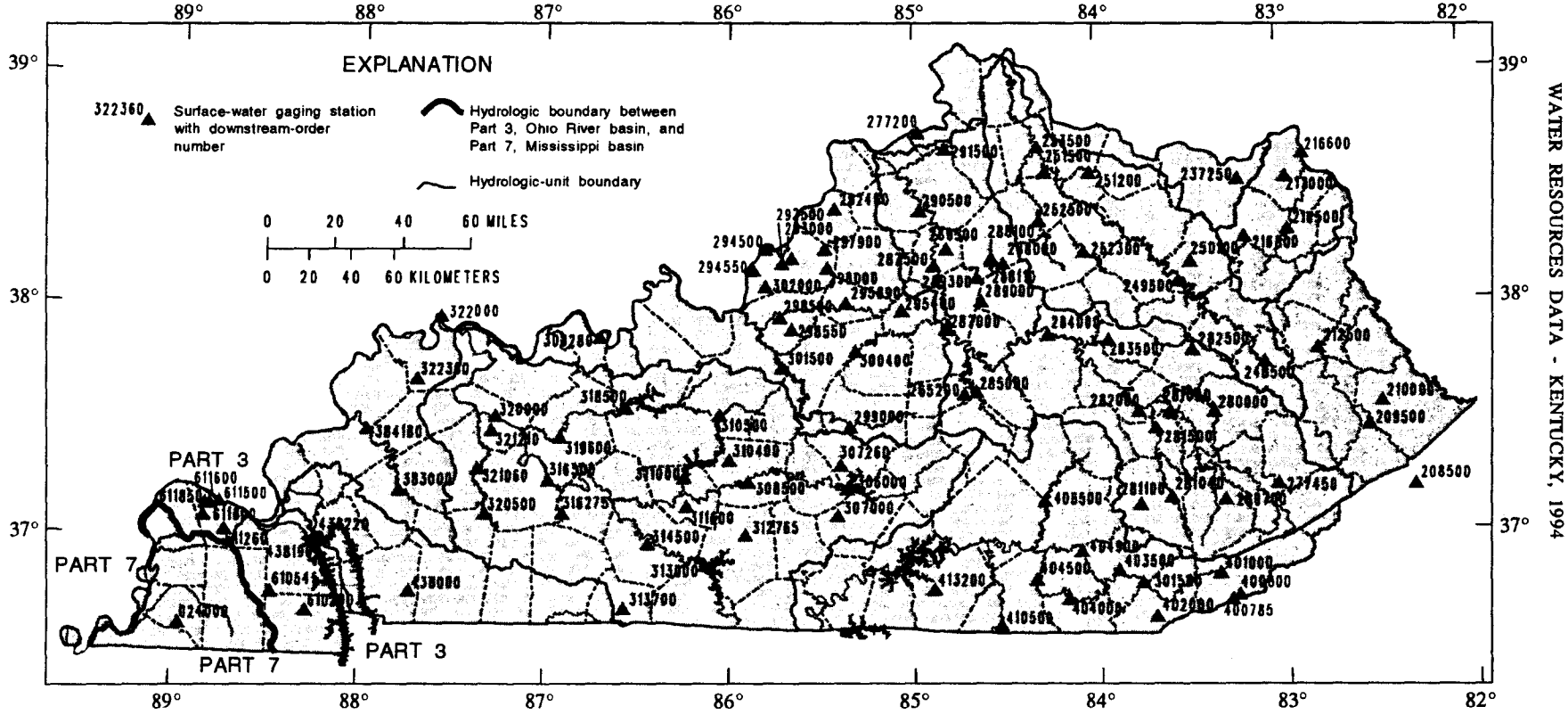


Figure 5. Location of gaging stations in Kentucky.

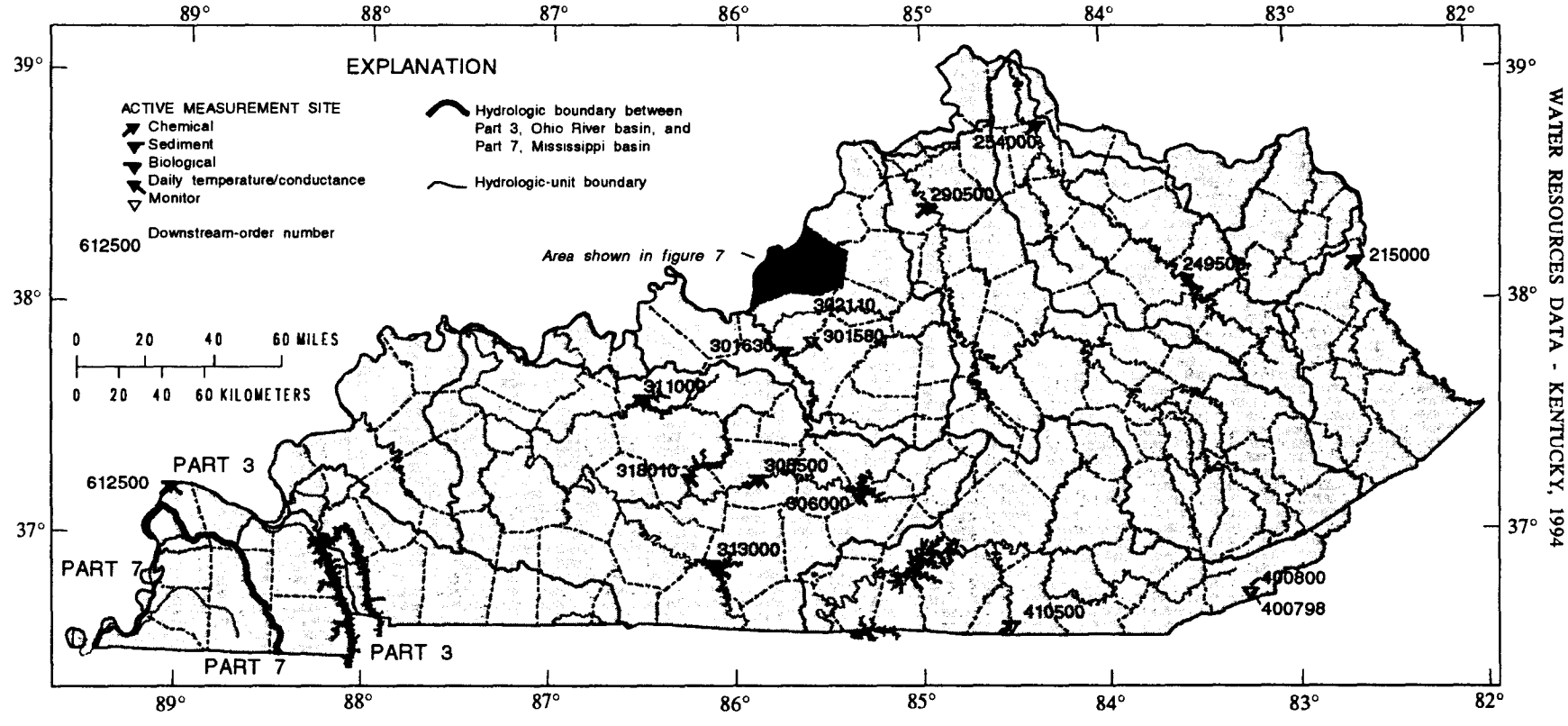


Figure 6. Location of surface water quality stations in Kentucky.

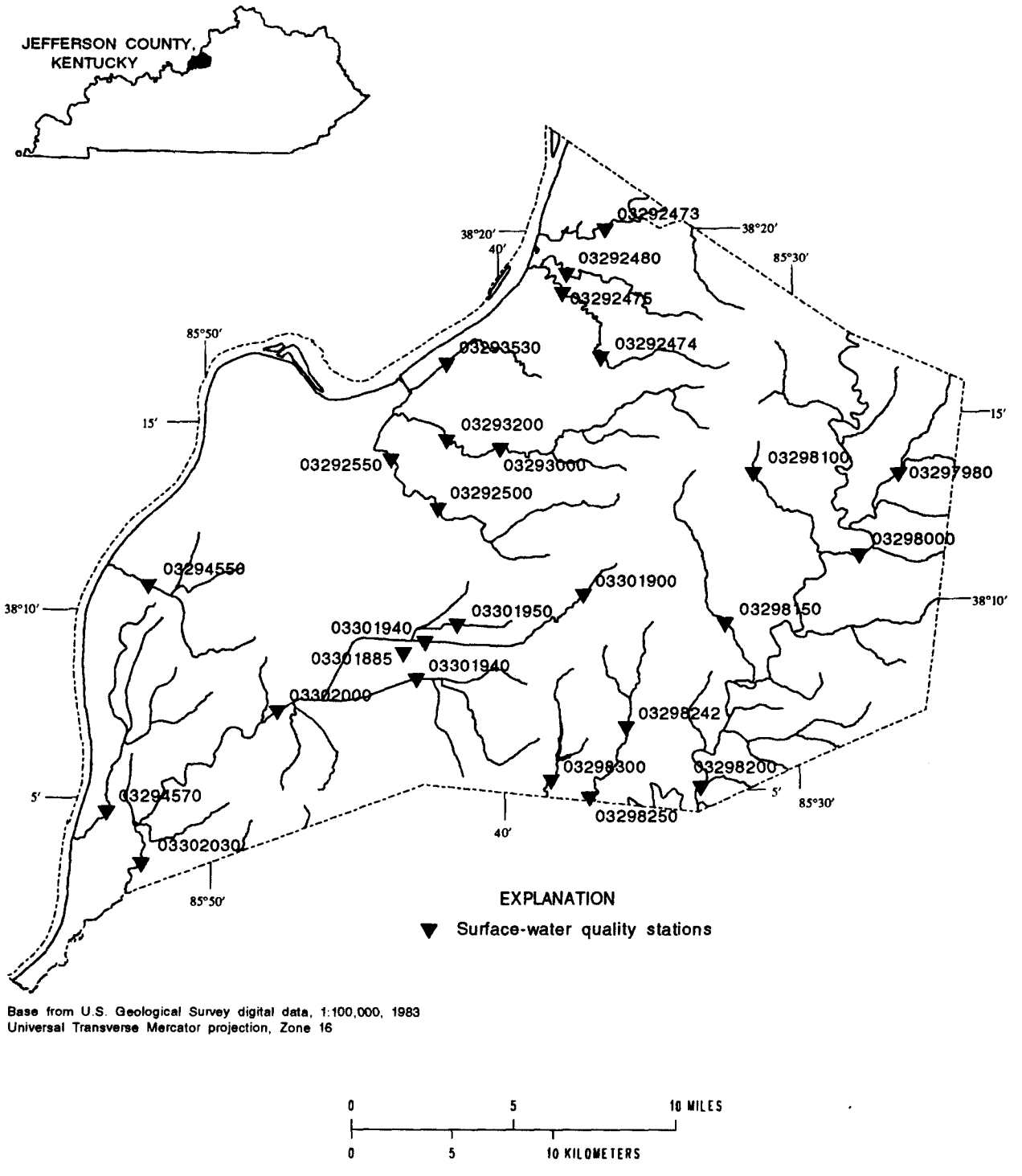


Figure 7. Location of surface-water quality stations in Jefferson County, for the MSD Sampling Network.

BIG SANDY RIVER BASIN

03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank, 180 ft downstream from bridge on State Highway 63, at Haysi, and 700 ft downstream from McClure River.

DRAINAGE AREA.--286 mi^2.

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft above sea level. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft upstream at same datum.

REMARKS.--Records good except those for period with ice effect, Jan. 17-23, and period of doubtful gage-height record, June 17-21, which are fair. U.S. Army Corps of Engineers satellite precipitation and gage-height telemeter at station. Maximum discharge, 59,000 ft^3/s, from rating curve extended above 32,000 ft^3/s on basis of slope-area measurement of peak flow. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994--DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	134	131	379	493	536	1300	642	118	68	92	100
2	23	105	104	333	404	2180	1030	551	113	58	115	88
3	25	84	91	355	360	2830	838	488	105	54	296	76
4	22	73	807	2060	311	1560	699	566	96	52	144	69
5	19	70	6430	1110	308	1450	585	540	91	47	176	66
6	18	64	1400	693	300	1090	594	494	87	45	176	75
7	17	56	598	2650	259	833	698	553	90	42	118	72
8	17	47	384	4590	243	909	688	1740	101	39	100	62
9	17	40	279	1360	2730	1690	631	1120	127	40	80	55
10	24	38	253	780	4330	4130	672	736	120	37	68	52
11	27	37	256	574	12200	2120	1080	533	159	36	61	49
12	57	36	217	812	5750	1200	1030	433	147	35	57	46
13	67	34	194	978	2070	886	5130	352	118	36	52	43
14	40	34	189	796	1270	749	2070	295	102	49	57	41
15	28	55	289	568	937	620	1190	274	90	70	114	41
16	24	82	455	444	730	527	1000	311	89	281	79	40
17	22	96	443	e400	600	452	808	233	e80	149	2280	51
18	23	116	374	e360	511	427	681	202	e70	177	1040	93
19	100	103	306	e330	451	387	586	187	e64	189	483	66
20	102	86	248	e320	410	346	506	171	e60	151	347	49
21	92	71	284	e330	560	367	442	160	e58	166	318	43
22	126	58	250	e340	793	439	412	146	105	167	347	39
23	79	51	233	e360	3910	379	366	134	121	114	234	38
24	55	47	206	395	2860	354	325	125	115	74	166	38
25	43	45	196	901	1390	407	296	127	89	68	132	95
26	38	45	174	2150	952	420	279	164	76	77	114	246
27	35	1040	162	1490	698	3320	391	215	324	437	117	106
28	30	643	179	1460	576	13300	572	141	200	436	119	69
29	28	298	438	1220	---	5710	498	121	110	259	96	55
30	50	181	597	832	---	2700	698	120	82	191	90	47
31	123	---	481	622	---	1680	---	120	---	120	82	---
TOTAL	1397	3869	16648	29992	46406	53998	26095	11994	3307	3764	7750	2010
MEAN	45.1	129	537	967	1657	1742	870	387	110	121	250	67.0
MAX	126	1040	6430	4590	12200	13300	5130	1740	324	437	2280	246
MIN	17	34	91	320	243	346	279	120	58	35	52	38
CFSM	.16	.45	1.88	3.38	5.79	6.09	3.04	1.35	.39	.42	.87	.23
IN.	.18	.50	2.17	3.90	6.04	7.02	3.39	1.56	.43	.49	1.01	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 1994, BY WATER YEAR (WY)

MEAN	87.4	166	336	513	646	767	581	410	178	147	122	64.8
MAX	838	961	1326	2083	1797	2331	1994	1429	715	566	561	608
(WY)	1990	1978	1927	1937	1939	1955	1977	1958	1989	1938	1966	1989
MIN	.98	2.46	11.1	19.6	57.7	168	64.0	63.4	21.6	3.03	8.81	2.07
(WY)	1954	1954	1954	1940	1941	1988	1942	1941	1966	1930	1953	1943

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1926 - 1994	
ANNUAL TOTAL	121648		207230			
ANNUAL MEAN	333		568		334	
HIGHEST ANNUAL MEAN					568	1994
LOWEST ANNUAL MEAN					100	1941
HIGHEST DAILY MEAN	6430	Dec 5	13300	Mar 28	30600	Apr 4 1977
LOWEST DAILY MEAN	14	Sep 14	17	Oct 7	.20	Jun 27 1936
ANNUAL SEVEN-DAY MINIMUM	17	Sep 9	19	Oct 4	.56	Jun 24 1936
INSTANTANEOUS PEAK FLOW			22100	Mar 28	59000	Apr 4 1977
INSTANTANEOUS PEAK STAGE			16.25	Mar 28	28.24	Apr 4 1977
INSTANTANEOUS LOW FLOW			15	Oct 9	.20	Jun 27 1936
ANNUAL RUNOFF (CFSM)	1.17		1.99		1.17	
ANNUAL RUNOFF (INCHES)	15.82		26.95		15.86	
10 PERCENT EXCEEDS	723		1210		734	
50 PERCENT EXCEEDS	131		189		130	
90 PERCENT EXCEEDS	24		41		14	

e Estimated.

BIG SANDY RIVER BASIN

03209500 LEVISA FORK AT PIKEVILLE, KY

LOCATION.--Lat 37°27'51", long 82°31'35", Pike County, Hydrologic Unit 05070203, on right bank 20 ft downstream from bridge on State Highway 1426, 0.75 mi downstream from Lanks Branch, 1.0 mi south of Pikeville, 1.5 mi upstream from Harolds Branch, and at mile 90.5.

DRAINAGE AREA.--1,232 mi^2.

PERIOD OF RECORD.--October 1937 to current year. Gage-height records collected in this vicinity since 1907 are contained in reports of National Weather Service.

REVISED RECORDS.--WRD KY 78-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 631.98 ft above sea level. Prior to Sept. 23, 1944, nonrecording gage at site 2.3 mi downstream at datum 2.65 ft higher. Sept. 23, 1944 to Sept. 30, 1952, water-stage recorder 2.3 mi downstream at datum, 1.65 ft higher. Oct. 1, 1952 to Sept. 30, 1979, at site 2.1 mi downstream at same datum.

REMARKS.--Estimated daily discharges: Dec. 29, Jan. 9-19, and Aug. 18-22. Records good except for periods of estimated record, which are poor. Flow regulated since October, 1968 by Fishtrap Lake (station 03207995), since August 1966 by North Fork Pound River Lake (station 03208680) and since March 1965 by John W. Flannagan Lake (station 03208990). Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	627	709	1070	1560	2100	2680	9060	2510	468	439	410	467
2	625	709	730	1660	5120	6320	7560	2110	446	347	539	614
3	519	759	589	1700	3800	10700	5890	1850	418	315	452	427
4	310	766	932	6250	2170	8280	4790	2060	346	311	548	377
5	180	754	12500	6360	1350	6750	4800	1960	354	301	1750	360
6	171	737	10200	4060	1340	5450	4560	1890	371	273	1360	320
7	167	649	7430	4530	1360	4490	4420	2170	451	251	895	327
8	166	620	4060	3660	1090	4840	3750	8240	493	253	680	317
9	168	566	1900	3400	3530	9160	2540	6100	437	260	500	303
10	405	539	1300	3300	11500	12400	2710	4250	512	272	336	292
11	400	547	1040	3100	19700	10100	4380	2670	526	261	298	284
12	248	546	958	2900	14500	7930	4390	1910	573	244	283	274
13	353	575	959	2800	8280	4690	15100	1420	636	282	271	233
14	450	577	933	2500	8960	3790	11300	1260	534	298	264	228
15	449	632	976	2300	10800	3020	8210	1210	434	331	331	226
16	466	758	1420	1900	11300	2640	5790	1720	389	564	330	224
17	508	971	1950	1800	9920	2330	4370	1370	364	656	4480	271
18	454	1330	1620	1750	5020	2030	3580	1100	337	579	3800	462
19	365	1170	1410	1600	2730	1800	3820	986	323	488	1900	402
20	749	1050	1190	1500	2570	1670	3080	912	317	495	900	308
21	807	988	1260	1550	3050	1710	2280	845	316	432	1300	284
22	717	945	1270	1600	3960	2130	2110	767	356	691	1800	266
23	747	778	1040	1700	10200	2220	1570	738	365	775	1440	259
24	588	677	836	2000	10400	2060	1230	639	440	618	934	304
25	538	551	801	2900	9130	2790	1000	573	526	427	677	455
26	442	537	778	5600	6000	3040	970	621	502	315	452	695
27	458	1540	825	7540	5180	8850	1460	975	1640	757	420	787
28	389	2960	863	5450	3330	21600	3870	859	1540	2080	619	733
29	321	2660	1100	2660	---	9910	2460	720	994	1400	630	626
30	410	2990	1780	1840	---	7940	2720	638	553	941	564	441
31	573	---	1620	1400	---	10900	---	497	---	661	484	---
TOTAL	13770	29590	65340	92870	178390	184220	133770	55570	15961	16317	29647	11566
MEAN	444	986	2108	2996	6371	5943	4459	1793	532	526	956	386
MAX	807	2990	12500	7540	19700	21600	15100	8240	1640	2080	4480	787
MIN	166	537	589	1400	1090	1670	970	497	316	244	264	224

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

MEAN	848	1177	1689	2364	2866	2954	2370	1945	987	570	484	490
MAX	3939	3991	5385	6861	6371	8081	7646	6067	3492	1855	1022	1606
(WY)	1990	1978	1973	1974	1994	1975	1977	1984	1979	1979	1971	1989
MIN	158	353	300	278	814	529	388	349	210	200	203	168
(WY)	1970	1970	1981	1981	1992	1988	1986	1976	1988	1988	1969	1969

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1969 - 1994	
ANNUAL TOTAL	498942		827011			
ANNUAL MEAN	1367		2266		1555	
HIGHEST ANNUAL MEAN					2459	1979
LOWEST ANNUAL MEAN					522	1988
HIGHEST DAILY MEAN	14200	Mar 24	21600	Mar 28	69300	Apr 5 1977
LOWEST DAILY MEAN	166	Oct 8	166	Oct 8	66	Dec 3 1970
ANNUAL SEVEN-DAY MINIMUM	183	Sep 8	224	Oct 4	103	Oct 10 1968
INSTANTANEOUS PEAK FLOW			25600	Feb 11	85500	Jan 30 1957
INSTANTANEOUS PEAK STAGE			35.09	Feb 11	52.72	Jan 30 1957
INSTANTANEOUS LOW FLOW			166	Oct 8	66	Dec 3 1970
10 PERCENT EXCEEDS	2840		6160		3600	
50 PERCENT EXCEEDS	643		959		769	
90 PERCENT EXCEEDS	213		313		231	

BIG SANDY RIVER BASIN

03212500 LEVISA FORK AT PAINTSVILLE, KY

LOCATION.--Lat 37°48'55", long 82°47'30", Johnson County, Hydrologic Unit 05070203, on left bank 700 ft downstream from bridge on State Highway 40 at Paintsville, 900 ft downstream from Paint Creek, and at mile 65.2.

DRAINAGE AREA.--2,144 mi^2.

PERIOD OF RECORD.--June 1915 to September 1916, October 1916 to November 1920 (gage heights only), and October 1928 to current year. Monthly discharge only for October to December 1928, published in WSP 1305. Published as "at Thelma" prior to 1928.

REVISED RECORDS.--WSP 953: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 566.84 ft above sea level. See WDR KY-90-1 for history of changes prior to Oct. 19, 1954.

REMARKS.--Estimated daily discharges: Nov. 6-24, Jan. 4, 5, May 12-17, July 14-26, and Sept. 25-30. Records poor. Flow regulated since October 1968 by Fishtrap Lake (station 03207995), since August 1966 by North Fork Pound River Lake (station 03208680), since March 1965 by John W. Flannagan Lake (station 03208990), and since May 1950 by Dewey Lake (station 03211000). Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1862 reached a stage of 46.6 ft, from levels to floodmark by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994--DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	874	657	3400	2110	3130	4460	18100	4620	808	855	781	940
2	594	753	1700	2250	6620	7050	15100	4250	775	799	955	853
3	512	931	1350	2870	7050	16700	12400	3750	757	734	827	868
4	657	1060	2190	5000	4060	16700	10200	4010	650	733	746	638
5	621	1320	14000	7000	2860	12000	8110	4170	700	696	2230	556
6	404	1300	19600	8700	2280	8950	6910	3720	720	675	3460	586
7	362	1250	14800	14100	2090	7610	6500	5660	750	644	1950	526
8	327	1100	8390	21600	2130	11700	6400	11600	774	620	1230	506
9	324	1050	4470	21800	7490	17900	5250	13200	833	634	971	486
10	386	975	2990	15400	15200	22700	4560	11600	810	663	837	502
11	584	925	2290	10600	21200	21200	6140	10900	806	706	709	426
12	670	900	1720	9600	25600	17900	7780	8000	805	658	643	408
13	608	925	1570	9020	23200	13000	11200	4000	811	626	600	396
14	614	975	1590	7540	15400	9800	19800	3000	828	700	662	386
15	642	1200	1730	5430	14900	7120	17500	2100	798	780	776	373
16	654	1400	1880	3990	14300	5040	14100	2100	791	875	662	369
17	808	1700	2410	3390	17100	3850	11700	2000	720	950	983	393
18	899	2500	2660	3040	13200	3760	8200	1830	675	840	7670	628
19	805	3400	2320	2830	7170	3380	6720	1610	638	780	4600	696
20	2350	3100	2040	2240	4610	3110	6100	1470	619	720	2160	566
21	2480	2800	2090	2110	5720	3100	4520	1340	611	740	1470	458
22	1920	2300	2220	2150	8000	4210	4290	1250	647	860	2390	420
23	1270	1800	2180	2280	16800	4210	3810	1180	685	1100	2680	394
24	1170	1200	1890	3450	21700	4300	3350	1140	835	1000	1700	379
25	1010	1080	1690	7290	19000	5250	2810	989	825	900	1200	500
26	906	944	1560	11600	12800	6070	2560	938	868	800	932	800
27	738	1870	1340	13300	8570	13400	2610	1000	1160	698	726	1000
28	715	4610	1410	12400	5860	25700	3880	1200	2090	1280	714	920
29	641	4450	1630	7350	---	28200	5180	1080	1620	1680	963	700
30	578	3840	1840	4250	---	19000	4310	1010	1160	1200	830	500
31	673	---	2270	3210	---	17500	---	933	---	884	850	---
TOTAL	25796	52315	113220	227900	308040	344870	240090	115650	25569	25830	47907	17173
MEAN	832	1744	3652	7352	11000	11120	8003	3731	852	833	1545	572
MAX	2480	4610	19600	21800	25600	28200	19800	13200	2090	1680	7670	1000
MIN	324	657	1340	2110	2090	3100	2560	933	611	620	600	369

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

MEAN	1191	1911	2971	3992	5021	5212	4232	3231	1644	882	794	743
MAX	6560	4908	8870	12030	11000	13160	10040	9664	5338	2384	1837	2054
(WY)	1990	1978	1973	1974	1994	1975	1987	1984	1989	1979	1977	1989
MIN	181	447	570	435	1467	963	594	519	278	257	291	239
(WY)	1970	1970	1981	1981	1988	1988	1986	1976	1988	1988	1969	1969

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1969 - 1994	
ANNUAL TOTAL	904859		1544360			
ANNUAL MEAN	2479		4231		2640	
HIGHEST ANNUAL MEAN					4234	1975
LOWEST ANNUAL MEAN					830	1988
HIGHEST DAILY MEAN	22200	Mar 25	28200	Mar 29	42000	Apr 6 1977
LOWEST DAILY MEAN	301	Sep 13	324	Oct 9	98	Oct 1 1968
ANNUAL SEVEN-DAY MINIMUM	335	Sep 8	393	Sep 11	122	Aug 27 1969
INSTANTANEOUS PEAK FLOW			28800	Mar 29	69700	Jan 31 1957
INSTANTANEOUS PEAK STAGE			32.04	Mar 29	45.92	Jan 31 1957
INSTANTANEOUS LOW FLOW			324	Oct 9	98	Oct 1 1968
10 PERCENT EXCEEDS	4820		13200		6350	
50 PERCENT EXCEEDS	1320		1700		1260	
90 PERCENT EXCEEDS	420		624		368	

LITTLE SANDY RIVER BASIN

03216500 LITTLE SANDY RIVER AT GRAYSON, KY

LOCATION.--Lat 38°19'48", long 82°56'22", Carter County, Hydrologic Unit 05090104, on left bank 0.3 mi upstream from bridge on U.S. Highway 60, 0.5 mi downstream from Town Branch, 0.5 mi east of Grayson, and at mile 38.1.

DRAINAGE AREA.--400 mi^2.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1964, published as "near Grayson."

REVISED RECORDS.--WSP 1435: 1939(M), 1943(M), 1948(P). WSP 1725: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 557.95 ft above sea level. Prior to Aug. 11, 1939, nonrecording gage and Aug. 11, 1939 to Jan. 29, 1965, water-stage recorder at site 1.6 mi downstream at same datum. Apr. 6, 1948 to Jan. 29, 1965, supplementary nonrecording gage 800 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Jan. 16-18, and 21-23. Records good except for periods of estimated record, which are fair. Flow regulated since March 1968 by Grayson Lake (station 03216300). Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of February 1937 reached a stage of 25.0 ft, present datum, from floodmarks at site 1.6 mi downstream, discharge, 16,600 ft^3/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	212	461	157	671	819	2690	247	56	36	36	41
2	42	184	228	168	1980	1280	2520	186	52	36	34	40
3	42	203	214	304	1980	3070	2390	135	50	36	33	36
4	40	181	535	2560	1930	2310	2290	187	49	35	40	34
5	40	191	3570	2220	1440	2200	2020	234	48	35	94	33
6	40	167	3550	1670	808	1490	1620	232	46	36	89	34
7	40	195	2240	3700	617	839	1300	1790	45	37	57	33
8	39	223	1130	3650	516	2680	437	4080	51	38	45	32
9	40	181	548	3370	3720	5060	329	2870	48	37	40	31
10	40	177	383	2650	2840	8620	315	2400	45	36	37	31
11	40	175	564	2170	3090	4450	339	1620	44	34	35	31
12	49	173	472	2170	2640	2740	339	599	42	34	34	30
13	46	246	375	2470	2510	2550	795	306	41	36	34	31
14	44	467	293	1730	3510	3630	573	254	39	54	34	31
15	43	1070	383	657	3390	3440	1010	326	38	60	32	30
16	49	1510	553	470	3080	3230	3140	1190	37	49	32	30
17	206	1140	450	400	2660	3060	1890	1060	37	46	32	34
18	279	1500	328	500	1900	2830	1680	588	36	41	33	35
19	461	1180	332	575	1230	2140	1950	232	35	38	35	34
20	1070	864	348	271	934	1120	1390	211	36	36	34	33
21	1250	336	336	250	808	688	464	187	57	35	45	32
22	514	226	296	240	1080	692	269	131	38	41	63	31
23	168	226	280	230	3760	974	306	117	35	42	46	31
24	198	277	226	574	2930	673	292	107	35	40	39	31
25	173	233	221	1680	2540	359	273	99	37	39	36	33
26	126	249	214	2910	2190	455	254	94	35	36	34	37
27	114	497	213	2290	1970	3190	175	87	36	41	33	37
28	98	1230	261	4170	1590	5270	198	70	37	40	32	35
29	145	1020	269	1720	---	3070	244	66	40	43	32	34
30	180	831	161	678	---	974	262	62	38	47	31	33
31	257	---	159	445	---	974	---	59	---	39	33	---
TOTAL	5917	15364	19593	47049	58314	74877	31754	19826	1263	1233	1264	998
MEAN	191	512	632	1518	2083	2415	1058	640	42.1	39.8	40.8	33.3
MAX	1250	1510	3570	4170	3760	8620	3140	4080	57	60	94	41
MIN	39	167	159	157	516	359	175	59	35	34	31	30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

MEAN	186	362	688	719	960	969	700	581	262	158	114	133
MAX	733	993	2630	1954	2886	2415	2291	1890	928	841	382	585
(WY)	1990	1987	1979	1974	1989	1994	1972	1983	1974	1971	1979	1979
MIN	30.1	28.4	53.6	45.2	249	133	113	62.1	39.1	37.5	34.7	33.3
(WY)	1981	1982	1982	1981	1969	1969	1986	1976	1988	1969	1988	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1969 - 1994	
ANNUAL TOTAL	192673		277452			
ANNUAL MEAN	528		760		484	
HIGHEST ANNUAL MEAN					838	1979
LOWEST ANNUAL MEAN					116	1969
HIGHEST DAILY MEAN	5530	Feb 22	8620	Mar 10	12900	Dec 9 1978
LOWEST DAILY MEAN	39	Aug 30	30	Sep 12	5.8	Oct 1 1968
ANNUAL SEVEN-DAY MINIMUM	40	Oct 4	31	Sep 10	18	Nov 1 1968
INSTANTANEOUS PEAK FLOW			9240	Mar 10	24500	Sep 22 1950
INSTANTANEOUS PEAK STAGE			23.82	Mar 10	27.53	Sep 22 1950
INSTANTANEOUS LOW FLOW					1.5	Oct 12 1953
10 PERCENT EXCEEDS	1300		2590		1370	
50 PERCENT EXCEEDS	226		221		175	
90 PERCENT EXCEEDS	45		34		41	

OHIO RIVER MAIN STEM

03216600 OHIO RIVER AT GREENUP DAM, KY

LOCATION.--Lat 38°38'48", long 82°51'38", Greenup County, Hydrologic Unit 05090103, at left bank at downstream end of lock guidewall in lower pool at Greenup locks, 1.1 mi upstream from Grays Branch, 4.7 mi downstream from Little Sandy River, 5.0 mi north of Greenup, and at mile 341.5.

DRAINAGE AREA.--62,000 mi^2, approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 472.43 ft above sea level or 472.97 ft Ohio River Datum. Record of Greenup Dam headwater, tailwater, gate openings and lockages used to determine discharge from Oct. 1, 1968 to Sept. 30, 1981. Auxiliary water-stage recorder is located at Portsmouth, Ohio, 14.1 mi downstream, established Oct. 1, 1981 and used in slope rating computation from Oct. 1, 1981 to Sept. 30, 1983. Datum of gage is 470.43 ft above sea level or 470.99 ft Ohio River Datum. Since Oct. 1, 1983, discharge has been computed using the Branch Flow Model. Stage record for this model is obtained from the Greenup Dam Tailwater and Portsmouth, Ohio gages.

REMARKS.--No estimated daily discharges. Records fair except for periods below 20,000 ft^3/s and those computed using dam operations records, which are poor. Flow regulated by Ohio River system of locks, dams, and reservoirs upstream from the station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32500	35800	170000	41200	390000	215000	375000	82900	25400	38000	35700	52300
2	26200	51100	128000	41200	333000	163000	345000	96800	30700	37800	32100	63900
3	29700	52800	110000	47700	236000	216000	316000	83800	28800	45700	27400	55000
4	22300	54800	105000	98100	173000	269000	275000	74300	26200	39600	35700	45800
5	20000	49600	145000	131000	156000	251000	262000	83500	31900	28500	34900	29900
6	19800	67500	239000	140000	140000	214000	228000	83000	27200	26500	53100	24400
7	18200	76800	315000	191000	132000	190000	214000	82600	23100	31700	58000	25300
8	18800	77300	295000	262000	115000	204000	225000	99300	25600	36200	59800	25200
9	16300	75500	225000	290000	206000	257000	216000	317000	21900	30000	31100	21900
10	18900	57100	184000	276000	301000	335000	196000	324000	22700	25300	27000	18100
11	19000	51700	154000	170000	353000	389000	261000	272000	25600	31400	33000	18300
12	15400	42200	141000	140000	375000	400000	320000	193000	21200	27800	17000	20400
13	14400	33000	132000	177000	370000	380000	350000	132000	22500	24700	16000	20000
14	20100	67000	103000	193000	338000	335000	372000	105000	33400	23500	17500	17400
15	19500	103000	86700	190000	291000	278000	394000	85600	31500	24600	49700	17300
16	12900	131000	83700	147000	243000	223000	408000	73400	59900	37200	84000	19800
17	30000	124000	71400	97300	203000	211000	406000	69300	53700	28900	75000	20600
18	22100	151000	70500	70200	181000	198000	380000	69500	45800	23800	85600	19300
19	17800	177000	74000	56300	148000	185000	366000	64000	40100	24800	127000	25200
20	30800	179000	72500	68500	137000	169000	362000	50200	51400	21900	171000	27800
21	42300	154000	70300	52200	149000	155000	321000	45000	34600	27000	154000	19400
22	46000	141000	73400	46700	197000	172000	269000	38600	48400	25300	123000	15900
23	44500	133000	81200	48300	272000	252000	162000	45900	31600	25600	106000	16100
24	44400	110000	63400	59500	354000	287000	142000	29200	32400	25500	98400	15600
25	43000	94900	51400	96800	406000	290000	124000	34700	28000	27200	81000	15300
26	28800	77500	54700	187000	417000	280000	106000	39600	26900	35900	65600	18500
27	26100	72200	47200	257000	364000	297000	96800	51600	33300	31300	46000	29900
28	25700	93400	37100	325000	276000	325000	90600	46200	37400	32200	40500	27800
29	25700	147000	45100	386000	---	377000	88800	52400	42700	45300	38600	26200
30	23700	197000	35500	419000	---	408000	80700	42400	46900	67300	55900	24900
31	24900	---	43600	420000	---	403000	---	34100	---	60600	54800	---
TOTAL	799800	2877200	3507700	5125000	7256000	8328000	7751900	2900900	1010800	1011100	1934400	777600
MEAN	25800	95910	113200	165300	259100	268600	258400	93580	33690	32620	62400	25920
MAX	46000	197000	315000	420000	417000	408000	408000	324000	59900	67300	171000	63900
MIN	12900	33000	35500	41200	115000	155000	80700	29200	21200	21900	16000	15300

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

MEAN	41940	73170	117600	116700	147100	164900	148700	98700	64970	45580	37120	34080
MAX	111300	208600	252700	242700	259100	268600	258400	217400	174000	100700	113600	86310
(WY)	1980	1986	1973	1974	1994	1994	1994	1989	1981	1972	1980	1979
MIN	11310	21910	38500	27170	66240	53550	52660	36610	13440	13060	11270	12000
(WY)	1992	1992	1990	1977	1978	1969	1986	1976	1988	1988	1988	1985

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1969 - 1994	
ANNUAL TOTAL	31978740		43280400			
ANNUAL MEAN	87610		118600		90570	
HIGHEST ANNUAL MEAN					118600	1994
LOWEST ANNUAL MEAN					49760	1988
HIGHEST DAILY MEAN	420000	Mar 26	420000	Jan 31	540000	Jan 12 1974
LOWEST DAILY MEAN	4810	Jul 24	12900	Oct 16	4810	Jul 24 1993
ANNUAL SEVEN-DAY MINIMUM	11600	Aug 25	17200	Oct 10	9050	Jul 11 1988
INSTANTANEOUS PEAK STAGE			54.17	Jan 31	59.19	Feb 28 1979
10 PERCENT EXCEEDS	209000		318000		205000	
50 PERCENT EXCEEDS	48800		67500		63500	
90 PERCENT EXCEEDS	13700		22200		18000	

TYGARTS CREEK BASIN

03216800 TYGARTS CREEK AT OLIVE HILL, KY

LOCATION.--Lat 38°17'57", long 83°10'25", Carter County, Hydrologic Unit 05090103, on left bank 100 ft downstream from county road 986 at Olive Hill, 0.3 mi downstream from Henderson Branch, 0.6 mi upstream from Bens Run, and at mile 78.0.

DRAINAGE AREA.--59.6 mi^2.

PERIOD OF RECORD.--January 1957 to September 1994 (discontinued).

REVISED RECORDS.--WRD KY-79: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 739.18 ft above sea level.

REMARKS.--Estimated daily discharges: Jan. 16-23, Mar. 10, and Sept. 28-30. Records fair except for periods of estimated record, which are poor. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	16	67	31	106	77	114	61	3.5	2.1	5.6	62
2	1.3	13	55	49	97	390	89	46	3.3	1.6	3.3	8.7
3	1.3	11	49	216	73	392	80	41	2.6	1.2	4.9	3.1
4	1.2	11	637	634	61	255	73	53	2.3	2.2	6.4	2.0
5	1.1	11	673	249	60	165	63	44	2.1	1.2	127	1.7
6	1.0	11	253	191	51	118	198	35	2.0	.79	38	1.6
7	.84	11	153	1690	42	124	258	1330	24	.78	14	1.8
8	.79	9.7	106	475	603	710	148	798	11	1.3	7.6	2.1
9	.95	8.1	82	204	1950	1500	93	236	5.1	.83	4.8	1.4
10	1.4	7.9	163	145	495	2000	133	131	3.6	.57	3.4	.99
11	1.4	6.7	146	114	472	500	134	89	2.3	.39	2.5	.71
12	1.6	6.1	102	388	429	358	162	67	1.9	.33	2.0	.71
13	1.6	211	90	319	550	278	511	52	1.6	.90	2.0	.35
14	1.7	339	75	207	390	232	188	42	1.2	199	1.6	.30
15	1.6	511	98	130	340	189	817	667	1.1	48	1.5	.37
16	2.2	149	95	100	257	132	629	287	1.1	37	1.2	.40
17	35	443	79	90	184	99	238	108	.76	19	.77	2.0
18	35	283	72	72	147	131	149	72	.69	10	.64	32
19	16	142	71	60	125	97	103	53	.73	5.7	.55	7.4
20	355	89	64	54	111	80	78	43	.63	3.2	.46	1.8
21	149	62	77	48	173	102	59	34	.68	2.9	16	.93
22	70	46	71	44	183	122	54	26	1.3	5.3	12	.62
23	43	37	64	48	1290	90	43	21	1.2	256	2.9	.46
24	29	32	51	345	384	90	37	17	1.2	40	1.7	2.7
25	20	27	51	661	232	77	32	14	1.5	11	1.4	5.2
26	16	24	51	771	153	64	29	13	3.6	6.4	.84	17
27	13	632	40	489	108	1220	47	12	22	22	.61	4.5
28	10	320	37	1430	86	1240	41	9.2	9.3	18	.46	2.8
29	8.4	144	38	403	---	353	51	7.2	4.8	30	.37	2.2
30	8.5	89	41	214	---	189	64	5.3	2.9	36	.26	2.0
31	13	---	32	143	---	149	---	4.3	---	11	6.2	---
TOTAL	842.18	3702.5	3683	10014	9152	11523	4715	4418.0	119.99	774.69	270.96	169.84
MEAN	27.2	123	119	323	327	372	157	143	4.00	25.0	8.74	5.66
MAX	355	632	673	1690	1950	2000	817	1330	24	256	127	62
MIN	.79	6.1	32	31	42	64	29	4.3	.63	.33	.26	.30
CFSM	.46	2.07	1.99	5.42	5.48	6.24	2.64	2.39	.07	.42	.15	.09
IN.	.53	2.31	2.30	6.25	5.71	7.19	2.94	2.76	.07	.48	.17	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 1994, BY WATER YEAR (WY)

MEAN	28.2	56.8	124	121	158	176	146	101	45.5	44.5	28.0	24.7
MAX	293	228	481	338	512	440	365	334	288	290	130	161
(WY)	1990	1987	1979	1978	1989	1963	1972	1983	1974	1971	1958	1989
MIN	.14	.51	2.22	7.35	31.4	30.4	18.8	12.1	.16	.34	.074	.078
(WY)	1988	1982	1964	1981	1968	1969	1986	1962	1988	1957	1991	1987

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1957 - 1994	
ANNUAL TOTAL	37111.20		49385.16			
ANNUAL MEAN	102		135		88.0	
HIGHEST ANNUAL MEAN					145	1979
LOWEST ANNUAL MEAN					42.7	1977
HIGHEST DAILY MEAN	1910	Feb 21	2000	Mar 10	4620	Dec 8 1978
LOWEST DAILY MEAN	.41	Jul 11	.26	Aug 30	.00	Jun 28 1957
ANNUAL SEVEN-DAY MINIMUM	1.0	Oct 3	.55	Sep 10	.00	Jul 8 1957
INSTANTANEOUS PEAK FLOW			3390	May 7	9470	Apr 22 1972
INSTANTANEOUS PEAK STAGE			11.64	May 7	19.04	Mar 12 1975
INSTANTANEOUS LOW FLOW			.26	Aug 30	.00	Jun 28 1957
ANNUAL RUNOFF (CFSM)	1.71		2.27		1.48	
ANNUAL RUNOFF (INCHES)	23.16		30.82		20.06	
10 PERCENT EXCEEDS	258		386		190	
50 PERCENT EXCEEDS	40		41		27	
90 PERCENT EXCEEDS	2.1		1.1		.67	

TYGARTS CREEK BASIN

03217000 TYGARTS CREEK NEAR GREENUP, KY

LOCATION.--Lat 38°33'51", long 82°57'08", Greenup County, Hydrologic Unit 05090103, on downstream side of center pier of bridge on State Highway 7, 100 ft downstream from Lick Run, 0.4 mi upstream from White Oak Creek, 6.5 mi west of Greenup, and at mile 28.1.

DRAINAGE AREA.--242 mi^2.

PERIOD OF RECORD.--August 1940 to current year.

REVISED RECORDS.--WSP 1113: 1942-43, 1945-46. WSP 1625: 1958. WSP 1725: Drainage area. WRD KY 79-1: 1948(P), 1950(M), 1952(M), 1962(M), 1967(P), 1970(M), 1972-76(M), 1978(M).

GAGE.--Water-stage recorder. Datum of gage is 547.14 ft above sea level.

REMARKS.--Estimated daily discharges: Dec. 14 to Feb. 4, Sept. 14-30. Records good except for periods of estimated record, which are fair. Occasional regulation at low flow caused by withdrawal of water for cooling purposes by gas transmission plant above station. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	23	199	62	520	285	536	289	36	24	54	12
2	1.5	24	165	150	380	402	451	285	32	20	37	14
3	1.3	27	143	400	300	1530	385	220	28	28	30	19
4	2.4	29	203	900	235	1050	367	214	27	42	25	26
5	2.2	28	2460	540	200	655	342	227	24	24	425	19
6	2.1	26	1500	300	187	445	378	204	23	18	219	15
7	2.1	25	557	1900	180	354	1170	1550	22	27	124	13
8	2.1	25	355	2500	276	592	741	4200	20	65	75	11
9	2.1	24	262	500	3470	1960	501	1490	57	25	51	9.8
10	2.0	23	240	210	3430	5750	483	583	47	17	35	8.4
11	1.6	21	365	300	1080	3440	594	398	32	13	27	7.0
12	1.5	20	303	800	1280	1510	652	312	26	11	23	6.3
13	1.6	43	227	1000	1310	1080	1290	236	23	12	19	5.5
14	1.8	578	190	650	1250	936	1020	190	20	107	88	4.7
15	2.0	1380	170	450	1200	749	1190	222	19	196	183	4.2
16	2.5	686	155	350	993	502	3340	1000	17	124	64	8.5
17	3.3	388	140	280	700	380	1310	538	17	85	37	20
18	3.5	1180	130	250	517	331	722	328	16	59	25	50
19	23	489	120	210	433	370	510	240	14	40	20	90
20	185	275	115	190	374	312	405	191	13	29	17	68
21	541	196	110	170	369	366	320	161	12	23	163	28
22	213	146	100	160	431	945	280	133	12	20	307	11
23	119	115	95	150	2970	506	244	112	11	24	108	6.0
24	80	97	90	245	2210	383	208	95	11	144	72	11
25	58	83	85	1000	959	329	187	82	9.7	76	47	21
26	45	74	80	1800	609	275	169	74	12	45	32	37
27	36	191	78	1600	419	1830	159	65	12	37	24	62
28	30	1260	72	2400	333	3970	179	57	15	57	19	32
29	26	514	70	2500	---	2390	193	51	28	46	16	14
30	23	294	68	1350	---	967	248	45	35	166	13	10
31	23	---	64	840	---	642	---	41	---	63	13	---
TOTAL	1439.6	8284	8911	24157	26615	35236	18574	13833	670.7	1667	2392	643.4
MEAN	46.4	276	287	779	951	1137	619	446	22.4	53.8	77.2	21.4
MAX	541	1380	2460	2500	3470	5750	3340	4200	57	196	425	90
MIN	1.3	20	64	62	180	275	159	41	9.7	11	13	4.2
CFSM	.19	1.14	1.19	3.22	3.93	4.70	2.56	1.84	.09	.22	.32	.09
IN.	.22	1.27	1.37	3.71	4.09	5.42	2.86	2.13	.10	.26	.37	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1994, BY WATER YEAR (WY)

MEAN	59.4	160	395	471	619	685	526	366	169	118	77.7	70.9
MAX	509	869	1954	1665	1953	1556	1513	1258	994	645	445	1031
(WY)	1976	1987	1979	1950	1989	1967	1972	1983	1961	1960	1979	1950
MIN	.35	.70	3.23	31.1	20.7	80.8	90.9	27.6	5.13	5.39	2.09	1.31
(WY)	1954	1954	1954	1977	1954	1941	1941	1941	1988	1964	1944	1953

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1940 - 1994	
ANNUAL TOTAL	114323.9		142422.7			
ANNUAL MEAN	313		390		308	
HIGHEST ANNUAL MEAN					589	1979
LOWEST ANNUAL MEAN					67.5	1954
HIGHEST DAILY MEAN	6130	Feb 22	5750	Mar 10	20900	Dec 9 1978
LOWEST DAILY MEAN	1.3	Oct 3	1.3	Oct 3	.00	Aug 24 1952
ANNUAL SEVEN-DAY MINIMUM	1.8	Oct 9	1.8	Oct 9	.00	Sep 17 1955
INSTANTANEOUS PEAK FLOW			6660	Mar 10	25400	Dec 9 1979
INSTANTANEOUS PEAK STAGE			17.60	Mar 10	22.75	Dec 9 1979
INSTANTANEOUS LOW FLOW			.86	Oct 1	.00	Aug 24 1952
ANNUAL RUNOFF (CFSM)	1.29		1.61		1.27	
ANNUAL RUNOFF (INCHES)	17.57		21.89		17.31	
10 PERCENT EXCEEDS	781		1120		695	
50 PERCENT EXCEEDS	111		130		92	
90 PERCENT EXCEEDS	8.8		12		5.0	

KINNICONICK CREEK BASIN

03237250 KINNICONICK CREEK AT TANNERY, KY

LOCATION.--Lat 38°32'36", long 83°13'29", Lewis County, Hydrologic Unit 05090201, near right bank on downstream side of bridge on County Highway 1149, 0.35 mi upstream from Trace Creek, 0.5 mi west of Tannery, and 10.2 mi upstream from mouth.

DRAINAGE AREA.--201 mi^2.

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 535.34 ft above sea level.

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 30, 1991; Jan. 9, 10, 16-20, 31 to Feb. 10, Dec. 29-31, 1992; Jan. 1, 2, Feb. 1, 6-9, 19 to Mar. 2, July 10 to Aug. 17, Oct. 24 to Nov. 23, 1993; Jan. 18-25, Apr. 2, 3, May 20 to June 2, July 18 to Aug. 14, and Aug. 16-18, 1994. Records fair except for periods of estimated record, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	19	150	249	132	286	614	151	82	5.6	261	41
2	40	17	267	211	118	257	493	132	59	4.2	198	25
3	31	16	3380	385	102	229	412	145	45	4.6	193	16
4	24	15	588	954	90	204	376	144	42	4.3	550	12
5	20	17	261	711	80	185	426	123	68	4.9	238	9.2
6	19	18	170	419	72	267	402	123	227	7.0	145	6.8
7	27	19	128	295	66	760	361	117	166	32	93	5.1
8	25	20	101	222	60	917	318	144	120	47	67	4.1
9	18	19	85	205	55	732	276	839	106	30	62	3.2
10	15	16	104	195	50	712	246	909	84	19	153	2.3
11	18	15	172	162	45	910	227	682	62	13	96	1.6
12	22	16	136	144	44	694	206	399	113	24	79	1.1
13	25	15	145	135	172	516	176	273	249	24	70	.97
14	21	15	717	151	930	411	155	347	208	15	53	.93
15	19	14	464	263	675	349	149	262	195	8.7	42	.82
16	18	14	273	255	1250	283	143	184	174	6.0	62	.72
17	19	14	193	220	628	249	191	136	170	4.6	90	.58
18	21	16	150	198	460	405	605	120	963	3.5	60	.66
19	23	15	121	180	366	4650	481	145	1280	3.7	44	1.4
20	24	18	97	169	290	1610	375	112	257	2.9	31	1.1
21	22	21	79	128	238	787	910	87	137	3.7	21	3.2
22	26	27	95	118	210	551	1080	67	89	6.7	22	11
23	29	54	459	185	202	542	560	52	64	125	27	74
24	26	45	1340	1020	752	448	404	42	49	208	30	76
25	29	38	492	499	791	370	315	35	40	92	26	47
26	32	29	311	374	570	346	249	31	30	122	17	28
27	39	22	229	289	474	356	209	27	21	1400	11	16
28	50	17	186	251	376	345	201	23	15	935	24	11
29	30	14	271	211	342	312	179	22	11	131	92	5.9
30	23	30	359	183	---	307	164	67	7.7	119	94	4.3
31	20	---	302	153	---	605	---	123	---	249	59	---
TOTAL	815	625	11825	9134	9640	19595	10903	6063	5133.7	3655.4	3010	410.98
MEAN	26.3	20.8	381	295	332	632	363	196	171	118	97.1	13.7
MAX	60	54	3380	1020	1250	4650	1080	909	1280	1400	550	76
MIN	15	14	79	118	44	185	143	22	7.7	2.9	11	.58
CFSM	.13	.10	1.90	1.47	1.65	3.14	1.81	.97	.85	.59	.48	.07
IN.	.15	.12	2.19	1.69	1.78	3.63	2.02	1.12	.95	.68	.56	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

MEAN	26.3	20.8	381	295	332	632	363	196	171	118	97.1	13.7
MAX	26.3	20.8	381	295	332	632	363	196	171	118	97.1	13.7
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992
MIN	26.3	20.8	381	295	332	632	363	196	171	118	97.1	13.7
(WY)	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS FOR 1992 WATER YEAR

ANNUAL TOTAL	80810.08	
ANNUAL MEAN	221	
HIGHEST DAILY MEAN	4650	Mar 19
LOWEST DAILY MEAN	.58	Sep 17
ANNUAL SEVEN-DAY MINIMUM	.83	Sep 12
INSTANTANEOUS PEAK FLOW	7580	Mar 19
INSTANTANEOUS PEAK STAGE	14.74	Jul 27
ANNUAL RUNOFF (CFSM)	1.10	
ANNUAL RUNOFF (INCHES)	14.96	
10 PERCENT EXCEEDS	554	
50 PERCENT EXCEEDS	115	
90 PERCENT EXCEEDS	11	

KINNICONICK CREEK BASIN

03237250 KINNICONICK CREEK AT TANNERY, KY--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	3.0	72	66	135	160	1190	277	1.3	107	2.2	.61
2	9.1	5.3	64	80	133	370	912	214	1.4	326	2.0	.32
3	6.6	8.6	61	126	104	844	703	162	1.3	170	1.8	.26
4	4.7	34	60	155	94	1740	568	149	19	111	1.7	.73
5	2.9	71	55	1860	87	1530	472	163	1270	67	1.6	.57
6	2.7	63	53	957	77	812	397	132	441	41	1.4	5.3
7	2.8	58	48	583	70	598	326	110	182	22	1.3	9.3
8	2.9	58	48	424	65	612	266	93	100	12	1.3	7.6
9	2.8	58	46	330	61	645	252	82	68	6.7	1.2	5.6
10	2.7	54	51	262	61	740	289	72	49	5.4	1.1	3.7
11	2.8	56	365	223	57	790	270	64	40	3.9	1.1	2.3
12	2.6	164	519	309	85	557	248	65	26	2.9	4.0	1.7
13	2.0	730	381	874	266	466	228	56	104	2.1	35	1.5
14	1.4	308	284	793	321	440	186	50	122	10	21	1.4
15	.99	129	206	540	270	374	201	43	74	70	15	1.6
16	.80	80	153	411	375	427	430	33	56	52	10	1.7
17	.73	57	279	327	1200	1400	465	27	40	33	8.0	1.5
18	.63	45	700	252	934	1020	384	28	21	24	26	1.3
19	.56	36	428	179	450	648	333	45	12	17	19	1.2
20	.50	25	403	146	210	510	296	52	6.9	13	17	1.3
21	.52	20	664	180	500	576	257	37	4.5	10	11	1.4
22	.54	37	451	895	3000	680	246	20	4.2	8.4	6.5	1.4
23	.57	391	330	696	2000	849	236	12	3.3	7.2	3.7	1.4
24	.68	354	266	575	1300	1030	244	7.9	2.7	6.0	3.0	1.3
25	.80	498	186	790	840	757	520	5.4	6.1	5.0	2.7	1.4
26	.96	456	153	628	560	579	1470	3.6	4.8	4.5	1.3	1.4
27	1.1	281	123	508	380	472	989	2.3	5.0	3.8	1.0	1.2
28	1.3	165	105	368	270	425	661	1.5	3.3	3.3	.81	1.1
29	1.5	116	88	285	---	404	438	1.0	20	3.0	.63	1.0
30	1.7	88	80	205	---	388	358	.84	93	2.7	.50	.99
31	2.1	---	72	167	---	376	---	.82	---	2.4	.36	---
TOTAL	71.98	4448.9	6794	14194	13905	21219	13835	2009.36	2781.8	1152.3	203.20	62.08
MEAN	2.32	148	219	458	497	684	461	64.8	92.7	37.2	6.55	2.07
MAX	10	730	700	1860	3000	1740	1470	277	1270	326	35	9.3
MIN	.50	3.0	46	66	57	160	186	.82	1.3	2.1	.36	.26
CFSM	.01	.74	1.09	2.28	2.47	3.41	2.29	.32	.46	.18	.03	.01
IN.	.01	.82	1.26	2.63	2.57	3.93	2.56	.37	.51	.21	.04	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

MEAN	14.3	84.6	300	376	413	658	412	130	132	77.5	51.8	7.88
MAX	26.3	148	381	458	497	684	461	196	171	118	97.1	13.7
(WY)	1992	1993	1992	1993	1993	1993	1993	1992	1992	1992	1992	1992
MIN	2.32	20.8	219	295	332	632	363	64.8	92.7	37.2	6.55	2.07
(WY)	1993	1992	1993	1992	1992	1992	1992	1993	1993	1993	1993	1993

SUMMARY STATISTICS	FOR 1992 CALENDAR YEAR		FOR 1993 WATER YEAR		WATER YEARS 1992 - 1993	
ANNUAL TOTAL	78859.96		80676.62			
ANNUAL MEAN	215		221		221	
HIGHEST ANNUAL MEAN					221	1993
LOWEST ANNUAL MEAN					221	1992
HIGHEST DAILY MEAN	4650	Mar 19	3000	Feb 22	4650	Mar 19 1992
LOWEST DAILY MEAN	.50	Oct 20	.26	Sep 3	.26	Sep 3 1993
ANNUAL SEVEN-DAY MINIMUM	.57	Oct 18	.48	Aug 30	.48	Aug 30 1993
INSTANTANEOUS PEAK FLOW			3000	Feb 22	7580	Mar 19 1992
INSTANTANEOUS PEAK STAGE			16.00	Feb 22	16.00	Feb 22 1993
ANNUAL RUNOFF (CFSM)	1.07		1.10		1.10	
ANNUAL RUNOFF (INCHES)	14.59		14.93		14.93	
10 PERCENT EXCEEDS	550		646		596	
50 PERCENT EXCEEDS	118		61		82	
90 PERCENT EXCEEDS	2.9		1.3		1.8	

03237250 KINNICONICK CREEK AT TANNERY, KY--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.98	7.4	25	104	385	287	780	375	16	12	8.0	4.0
2	1.0	6.6	16	103	299	325	500	618	13	15	13	5.6
3	1.1	6.0	12	117	273	1110	540	617	12	20	24	4.3
4	1.1	6.4	62	507	220	1020	608	568	11	28	43	3.1
5	1.1	7.3	2020	591	194	679	695	500	12	40	86	2.8
6	1.1	9.0	1060	474	177	487	502	378	14	49	150	1.7
7	1.1	11	462	4920	155	392	414	350	14	41	66	1.3
8	1.0	12	277	1890	385	523	467	330	14	34	38	1.1
9	1.0	11	197	890	3840	1510	772	288	15	31	23	1.1
10	1.0	9.6	168	555	1430	5380	805	875	15	28	12	1.1
11	.99	8.6	205	378	794	1500	749	4690	16	25	8.5	1.1
12	.95	8.0	166	561	780	1290	557	1310	24	22	6.4	1.1
13	.94	100	136	1120	1050	924	448	678	28	19	5.6	1.1
14	.90	800	120	900	847	954	3250	447	22	17	5.0	1.1
15	.86	2000	121	771	876	767	3050	325	20	15	147	1.1
16	.96	1600	128	458	702	533	1230	257	21	13	60	1.1
17	1.5	1400	115	311	546	393	759	192	19	21	23	1.1
18	1.6	1900	106	268	451	371	532	151	18	35	15	1.1
19	1.8	900	112	235	402	400	435	183	16	47	12	1.1
20	176	470	118	209	370	338	349	140	13	23	11	1.1
21	416	290	136	188	425	359	288	110	12	13	66	1.2
22	101	130	144	173	463	1090	253	90	12	35	154	1.3
23	51	78	133	167	4140	594	233	75	12	120	45	1.3
24	35	48	120	155	1460	452	211	64	12	370	15	1.3
25	27	13	112	150	864	387	185	52	12	80	8.5	2.8
26	22	11	115	3700	589	327	168	45	17	48	5.8	2.0
27	17	46	112	1650	409	275	154	37	18	29	4.2	7.6
28	13	179	106	6930	333	1540	144	32	15	22	4.0	9.6
29	11	77	106	1950	---	3260	141	28	12	19	3.5	8.4
30	10	46	107	818	---	4070	279	23	14	15	2.6	7.6
31	8.5	---	105	523	---	1470	---	20	---	11	1.7	---
TOTAL	908.48	10190.9	6922	31766	22859	33007	19499	13848	469	1297	1066.8	80.2
MEAN	29.3	340	223	1025	816	1065	650	447	15.6	41.8	34.4	2.67
MAX	416	2000	2020	6930	4140	5380	3250	4690	28	370	154	9.6
MIN	.86	6.0	12	103	155	275	141	20	11	11	1.7	1.1
CFSM	.15	1.69	1.11	5.10	4.06	5.30	3.23	2.22	.08	.21	.17	.01
IN.	.17	1.89	1.28	5.88	4.23	6.11	3.61	2.56	.09	.24	.20	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	19.3	170	275	592	546	794	492	236	93.2	65.6	46.0	6.15
MAX	29.3	340	381	1025	816	1065	650	447	171	118	97.1	13.7
(WY)	1994	1994	1992	1994	1994	1994	1994	1994	1992	1992	1992	1992
MIN	2.32	20.8	219	295	332	632	363	64.8	15.6	37.2	6.55	2.07
(WY)	1993	1992	1993	1992	1992	1992	1992	1993	1994	1993	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1992 - 1994	
ANNUAL TOTAL	87383.12		141913.38			
ANNUAL MEAN	239		389		277	
HIGHEST ANNUAL MEAN					389	1994
LOWEST ANNUAL MEAN					221	1992
HIGHEST DAILY MEAN	3000	Feb 22	6930	Jan 28	6930	Jan 28 1994
LOWEST DAILY MEAN	.26	Sep 3	.86	Oct 15	.26	Sep 3 1993
ANNUAL SEVEN-DAY MINIMUM	.48	Aug 30	.94	Oct 10	.48	Aug 30 1993
INSTANTANEOUS PEAK FLOW			9350	Jan 28	9350	Jan 28 1994
INSTANTANEOUS PEAK STAGE			16.08	Jan 28	16.08	Jan 28 1994
ANNUAL RUNOFF (CFSM)	1.19		1.93		1.38	
ANNUAL RUNOFF (INCHES)	16.17		26.26		18.71	
10 PERCENT EXCEEDS	718		910		705	
50 PERCENT EXCEEDS	67		105		87	
90 PERCENT EXCEEDS	1.2		1.7		1.7	

LICKING RIVER BASIN

03249500 LICKING RIVER AT FARMERS, KY

LOCATION.--Lat 38°06'55", long 83°32'36", Bath County, Hydrologic Unit 05100101, on left bank, 0.2 mi downstream from Hog Hollow, 0.6 mi downstream from Cave Run Dam, 1.9 mi south of Farmers, 4.5 mi upstream from Triplett Creek, and at mile 174.

DRAINAGE AREA.--827 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1915 to June 1920 (gage heights only), April 1928 to September 1931, December 1936 to February 1937 (in WSP 838), April 1938 to September 1994 (discontinued). All figures of discharge above 2,000 ft^3/s prior to April 1938 are unreliable and should not be used. Gage-height records collected at former site since 1915 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1275: 1928-31, 1937. WSP 1505: 1950(P). WSP 1705: 1952, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 646.55 ft above sea level. See WDR KY-90-1 for history of changes prior to Oct. 20, 1965.

REMARKS.--Estimated daily discharges: Jan. 8 to Feb. 14, and July 12 to Aug. 8. Water-discharge records good except for periods of estimated record, which are fair. Flow regulated by Cave Run Dam beginning December 1973 (station 03249498). High flow only regulated prior to December 1973 (Cave Run Dam under construction). Diversion above station from Cave Run Lake for Fish Hatchery; return flow of which enters Licking River below station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	238	1080	2360	520	2400	4040	4370	4100	144	60	145	139
2	238	1070	1880	524	4000	4100	4330	4060	143	60	145	136
3	238	1070	539	714	4150	4360	4310	4030	121	59	145	134
4	240	764	585	1390	4140	4230	4300	4020	103	59	145	134
5	240	518	562	2320	4130	4130	4280	4000	106	57	145	135
6	205	518	1480	2700	4120	4070	4280	3980	104	56	145	138
7	237	516	2740	2090	4100	4050	4410	3580	102	55	170	138
8	236	516	3040	150	3800	4110	4330	972	98	54	225	136
9	238	516	3120	600	1550	449	4250	1360	98	54	241	135
10	242	516	3220	1800	1800	500	4240	3530	98	53	238	134
11	242	516	3230	3600	2800	1990	4250	4040	97	52	240	134
12	199	514	3200	3400	2600	3790	4100	4020	96	52	236	135
13	245	518	3180	3150	2620	3620	4090	3990	95	51	234	141
14	244	526	2980	3400	3680	3880	4270	3970	84	51	235	140
15	241	527	3080	3600	3650	4090	4130	4020	72	50	239	137
16	242	1020	2880	3550	3620	4300	1930	3610	71	50	235	189
17	246	1440	3130	3540	3860	4260	2110	3320	69	50	179	241
18	664	1440	3920	3520	4040	4250	4250	3730	68	50	133	238
19	1500	1440	2290	3510	4030	4240	4230	3920	67	54	133	237
20	1940	1450	1480	3500	3760	4220	4200	3890	65	58	133	236
21	2190	1450	1240	3500	3130	4210	4170	3880	65	55	143	237
22	3690	1930	1040	3480	3150	4220	4160	3860	64	54	140	234
23	2840	2280	732	3470	1910	4190	4140	3830	65	52	140	234
24	2770	2270	520	3450	2590	4170	4120	3660	65	51	141	236
25	2760	2280	518	2600	4190	4160	4110	3260	63	100	139	236
26	2740	2250	520	1600	4140	4140	4090	2050	63	200	137	236
27	2730	2420	520	1050	4090	1990	4080	507	62	240	136	235
28	2450	2270	520	1070	4070	775	4070	234	62	240	136	234
29	1530	2260	520	1150	---	2330	4080	237	62	240	138	234
30	1080	2160	520	1650	---	4380	4160	244	61	220	138	234
31	1080	---	520	1650	---	4370	---	192	---	170	137	---
TOTAL	33975	38046	56066	72248	96120	111614	121840	94096	2533	2707	5266	5537
MEAN	1096	1268	1809	2331	3433	3600	4061	3035	84.4	87.3	170	185
MAX	3690	2420	3920	3600	4190	4380	4410	4100	144	240	241	241
MIN	199	514	518	150	1550	449	1930	192	61	50	133	134

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1994, BY WATER YEAR (WY)

MEAN	549	807	1429	1652	1875	2089	1617	1106	808	331	301	433
MAX	2336	1988	3096	3692	3717	3670	4061	3350	2521	1620	836	2360
(WY)	1990	1990	1986	1991	1991	1989	1994	1984	1983	1981	1979	1974
MIN	25.2	19.7	310	138	507	286	51.0	41.1	41.7	40.2	35.5	131
(WY)	1979	1979	1982	1981	1984	1983	1986	1976	1988	1988	1988	1987

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1974 - 1994	
ANNUAL TOTAL	424862		640048			
ANNUAL MEAN	1164		1754		1093	
HIGHEST ANNUAL MEAN					1754	1994
LOWEST ANNUAL MEAN					496	1988
HIGHEST DAILY MEAN	3920	Dec 18	4410	Apr 7	7820	Jan 15 1974
LOWEST DAILY MEAN	74	Jul 24	50	Jul 15	6.1	Jul 21 1983
ANNUAL SEVEN-DAY MINIMUM	81	Jul 21	51	Jul 12	14	Oct 4 1978
INSTANTANEOUS PEAK FLOW			4860	Apr 16	24000	Feb 28 1962
INSTANTANEOUS PEAK STAGE			18.73	Apr 16	31.10	Feb 9 1918
INSTANTANEOUS LOW FLOW			50	Jul 15	.70	Oct 14 1930
10 PERCENT EXCEEDS	3180		4140		3310	
50 PERCENT EXCEEDS	548		1070		348	
90 PERCENT EXCEEDS	135		68		65	

03249500 LICKING RIVER AT FARMERS, KY--Continued

WATER-QUALITY RECORDS

LOCATION.--Temperature recorder 3.4 mi downstream from base gaging station and at auxiliary gage station.

PERIOD OF RECORD.--Water years 1949 to September 1994 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1948 to September 1994 (discontinued).
SUSPENDED SEDIMENT DISCHARGE: November 1960 to September 1967.

INSTRUMENTATION.--Temperature recorder since October 1953.

REMARKS.--Specific conductance measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section. Miscellaneous temperature measurements may differ slightly from recorded values due to differences in sampling locations.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE (water years 1949-60, 1963-79, 1981-94): Maximum, 33.5°C, July 19, 1951; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 27.1°C, July 8; minimum, 1.5°C, Feb. 6.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	15.6	14.8	15.2	10.5	10.2	10.5	4.4	4.4	4.4
2	---	---	---	15.1	14.4	14.7	10.5	10.1	10.4	4.4	4.4	4.4
3	---	---	---	14.8	14.7	14.7	10.4	10.4	10.4	4.8	4.4	4.8
4	---	---	---	14.9	14.3	14.6	10.4	10.3	10.4	4.8	4.4	4.4
5	20.3	19.7	20.0	15.3	14.6	15.1	10.3	10.3	10.3	4.4	4.1	4.3
6	20.6	19.2	20.0	---	---	---	---	---	---	4.1	4.1	4.1
7	20.6	20.2	20.5	13.0	12.6	13.0	9.9	9.9	9.9	4.4	4.1	4.2
8	21.0	20.5	20.9	12.6	11.8	12.2	9.9	9.5	9.6	4.4	4.1	4.3
9	21.3	20.9	21.0	12.2	11.7	12.0	9.5	9.5	9.5	4.1	4.1	4.1
10	21.2	19.3	20.0	12.1	11.7	12.0	9.5	8.9	9.1	3.4	3.0	3.4
11	19.3	17.7	18.1	12.1	11.6	11.8	9.4	8.9	9.3	3.4	3.0	3.1
12	18.0	17.7	17.8	12.3	11.9	12.0	9.1	8.7	8.9	3.0	3.0	3.0
13	18.3	17.9	17.9	13.0	12.3	12.7	8.7	8.5	8.6	---	---	---
14	19.0	18.3	18.6	13.6	12.9	13.2	8.7	8.4	8.5	---	---	---
15	19.0	18.2	18.4	14.0	13.3	13.8	9.1	8.3	8.7	---	---	---
16	19.2	18.5	19.0	13.9	13.5	13.7	8.3	8.3	8.3	---	---	---
17	19.9	19.2	19.6	13.5	13.4	13.4	---	---	---	---	---	---
18	19.9	18.8	19.4	13.4	13.3	13.4	---	---	---	---	---	---
19	18.8	17.9	18.4	13.3	13.0	13.0	---	---	---	---	---	---
20	19.0	18.7	18.8	13.0	12.1	12.6	---	---	---	2.0	2.0	2.0
21	18.9	18.9	18.9	12.1	11.8	12.0	7.6	6.8	7.2	2.0	1.6	2.0
22	19.2	18.8	18.9	12.4	11.7	12.1	6.8	6.8	6.8	2.0	1.6	1.6
23	19.1	18.7	18.8	12.4	12.0	12.2	6.4	6.4	6.4	2.0	1.6	1.6
24	19.1	18.7	18.8	12.3	11.9	12.1	6.4	6.1	6.2	2.0	1.6	3.7
25	19.0	18.6	18.7	12.3	11.5	12.6	6.1	5.7	6.1	2.0	1.6	1.6
26	19.0	18.6	18.9	12.2	11.8	15.6	5.7	4.9	5.3	2.0	1.6	2.0
27	18.9	18.5	18.7	12.2	11.7	11.9	5.3	4.9	5.2	2.3	2.0	2.0
28	18.5	18.1	18.4	11.7	11.4	11.4	5.3	4.5	5.1	2.7	2.3	2.4
29	18.1	17.6	18.1	11.4	11.0	11.1	4.9	4.5	4.6	2.7	2.0	2.3
30	17.6	16.5	17.1	11.0	10.5	10.6	4.5	4.5	4.5	2.3	2.0	2.0
31	16.5	15.6	15.8	---	---	---	4.5	4.4	4.5	2.3	2.0	2.1
MONTH	21.3	15.6	18.9	15.6	10.5	12.9	10.5	4.4	7.9	4.8	1.6	3.1

LICKING RIVER BASIN

03249500 LICKING RIVER AT FARMERS, KY--Continued

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.3	2.0	2.1	4.0	3.7	4.0	8.1	7.7	7.7	11.3	10.9	11.0
2	2.0	1.6	1.9	4.1	4.0	4.1	8.4	7.7	8.0	11.7	11.3	11.4
3	2.0	1.6	1.6	4.1	3.8	4.0	8.4	8.4	8.4	11.7	11.7	11.7
4	1.6	1.6	1.6	4.5	4.1	4.2	8.4	8.1	8.4	11.7	11.7	11.7
5	2.0	1.6	1.6	4.5	4.1	4.3	8.4	8.1	8.3	12.1	11.7	11.8
6	2.0	1.5	1.7	4.9	4.5	4.6	8.8	8.4	8.6	12.1	11.7	11.8
7	2.0	1.6	1.8	4.9	4.6	4.8	8.4	8.1	8.4	12.5	12.1	11.5
8	2.0	1.6	2.0	4.9	4.9	4.9	8.4	8.4	8.4	12.1	11.4	11.5
9	2.3	2.0	2.1	4.9	4.9	4.9	9.1	9.1	9.1	11.7	11.4	11.5
10	2.3	1.6	2.0	5.4	4.9	4.9	9.8	9.1	9.6	12.1	11.4	11.8
11	2.0	1.6	1.7	5.4	5.0	5.0	9.5	8.8	9.1	12.5	12.1	12.5
12	2.0	1.6	2.0	5.4	5.0	5.1	10.2	9.1	9.7	12.8	12.5	12.5
13	2.0	2.0	2.0	5.4	5.0	5.2	10.2	9.5	10.0	13.2	12.5	12.8
14	2.0	1.6	1.9	5.8	5.4	5.6	10.2	9.8	10.0	13.5	12.8	13.0
15	2.0	1.6	2.0	5.9	5.4	5.9	10.2	9.8	10.1	13.6	12.9	13.3
16	2.0	2.0	2.0	6.2	5.9	6.0	9.8	9.5	9.6	13.3	13.3	13.3
17	2.1	2.0	2.1	6.2	5.9	6.0	9.8	9.5	9.8	13.6	12.9	13.2
18	2.4	2.1	2.2	6.2	5.9	6.2	10.2	9.8	10.0	14.0	13.3	13.6
19	2.8	2.4	2.5	6.3	6.2	6.3	10.5	10.2	10.3	14.4	13.3	13.9
20	2.8	2.4	2.7	6.7	6.3	6.4	10.9	10.5	10.6	14.0	14.0	14.0
21	3.2	2.8	3.0	7.4	6.7	5.9	10.9	10.5	10.7	14.4	14.0	14.2
22	3.6	3.2	3.2	7.4	6.7	6.9	10.9	10.5	10.7	14.8	14.4	14.6
23	3.9	3.2	3.6	7.7	7.0	7.2	11.3	10.5	11.0	14.8	14.4	14.7
24	3.9	3.6	3.7	7.7	7.4	7.6	10.9	10.5	10.7	14.8	14.8	14.8
25	3.9	3.6	3.6	7.4	6.7	7.2	11.3	10.9	11.0	14.8	14.4	14.5
26	4.0	3.6	3.7	7.7	6.7	7.0	11.3	11.3	11.3	14.8	14.4	14.5
27	3.7	3.7	3.7	7.7	7.7	7.7	11.3	10.9	11.1	14.4	14.0	14.2
28	3.7	3.7	3.7	7.7	7.7	7.7	11.3	10.9	11.2	14.1	13.7	13.8
29	---	---	---	8.1	7.4	7.6	11.3	10.9	11.3	14.5	14.1	14.1
30	---	---	---	7.7	7.4	7.6	11.3	10.9	11.1	15.2	14.5	14.8
31	---	---	---	7.7	7.7	7.7	---	---	---	16.0	15.2	15.6
MONTH	4.0	1.5	2.4	8.1	3.7	5.9	11.3	7.7	9.8	16.0	10.9	13.1

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.1	16.0	16.6	23.4	22.6	22.8	---	---	---	---	---	---
2	17.5	17.1	17.2	23.5	22.7	22.8	---	---	---	---	---	---
3	17.1	16.4	16.6	23.5	23.5	23.5	---	---	---	---	---	---
4	16.8	16.8	16.6	23.9	23.5	23.6	---	---	---	---	---	---
5	17.2	16.8	17.0	24.8	23.9	24.1	---	---	---	---	---	---
6	18.5	17.2	17.9	25.7	24.8	25.2	---	---	---	---	---	---
7	18.9	18.5	18.8	26.2	25.7	25.8	---	---	---	---	---	---
8	18.9	18.9	18.9	27.1	26.2	26.4	---	---	---	---	---	---
9	19.0	18.6	18.9	26.2	26.2	26.2	---	---	---	---	---	---
10	19.4	19.0	19.0	26.3	25.9	26.0	---	---	---	---	---	---
11	19.5	19.0	19.4	---	---	---	---	---	---	---	---	---
12	19.9	19.5	19.6	---	---	---	---	---	---	---	---	---
13	20.3	19.9	20.1	---	---	---	---	---	---	---	---	---
14	21.2	20.3	20.9	---	---	---	---	---	---	---	---	---
15	21.6	21.6	21.6	---	---	---	---	---	---	---	---	---
16	22.1	21.6	21.6	---	---	---	---	---	---	---	---	---
17	22.5	22.1	22.2	---	---	---	---	---	---	---	---	---
18	22.9	22.5	22.6	---	---	---	---	---	---	---	---	---
19	23.4	22.9	23.0	---	---	---	---	---	---	---	---	---
20	23.4	23.4	23.4	---	---	---	---	---	---	---	---	---
21	24.2	23.8	23.8	---	---	---	---	---	---	---	---	---
22	24.7	23.1	23.4	---	---	---	---	---	---	---	---	---
23	23.5	23.1	23.5	---	---	---	---	---	---	---	---	---
24	24.0	23.5	23.9	---	---	---	---	---	---	---	---	---
25	24.0	22.8	23.0	---	---	---	---	---	---	---	---	---
26	22.8	22.4	22.5	---	---	---	---	---	---	---	---	---
27	22.4	21.7	21.8	---	---	---	---	---	---	---	---	---
28	22.1	21.7	21.8	---	---	---	---	---	---	---	---	---
29	23.0	22.1	22.5	---	---	---	---	---	---	---	---	---
30	23.4	23.0	23.1	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	24.7	16.0	20.7	27.1	22.6	24.6	---	---	---	---	---	---
YEAR	27.1	1.5	11.2									

LICKING RIVER BASIN

03250100 NORTH FORK TRIPLETT CREEK NEAR MOREHEAD, KY

LOCATION.--Lat 38°11'57", long 83°28'50", Rowan County, Hydrologic Unit 05100101, on right downstream wingwall of bridge on State Highway 32, 0.5 mi upstream from Pence Branch, 1.8 mi downstream from Big Brushy Creek, 2.8 mi northwest of Morehead, and at mile 6.1.

DRAINAGE AREA.--84.7 mi^2.

PERIOD OF RECORD.--August 1967 to September 1994 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 678.03 ft above sea level.

REMARKS.--Estimated daily discharges: Dec. 25 to Jan. 2, Jan. 15-22, Feb. 2-6. Records good except for periods of estimated record, which are fair. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.39	16	50	26	123	101	161	172	4.4	1.2	12	10
2	.38	16	42	39	96	280	133	136	3.4	1.0	8.0	3.9
3	.45	15	39	165	77	491	122	107	3.0	.95	5.7	2.6
4	.49	15	569	704	69	348	123	108	2.6	.80	4.1	1.5
5	.42	16	1130	272	67	208	111	95	2.3	.64	42	1.2
6	.35	17	303	214	63	153	217	80	2.0	.64	27	1.5
7	.34	16	143	3320	55	142	469	1830	1.9	.64	15	1.2
8	.34	15	93	613	579	610	238	1200	9.3	.56	9.3	.95
9	.70	13	69	258	2510	1990	167	243	4.8	.72	6.4	.72
10	2.5	11	134	161	532	2030	164	127	3.0	.56	4.5	.44
11	1.5	9.5	157	127	485	592	175	81	2.2	.50	3.4	.34
12	1.3	8.5	103	437	453	517	225	59	1.6	.34	2.7	.23
13	1.2	155	77	443	579	396	234	43	1.4	1.0	2.2	.12
14	1.2	337	71	289	372	426	170	35	1.1	78	1.8	.10
15	1.2	637	99	156	388	278	964	265	1.1	39	1.4	.10
16	3.0	142	93	128	316	182	997	412	1.0	24	1.2	.07
17	13	378	75	116	226	138	320	119	.95	13	1.0	.93
18	6.1	297	67	100	184	151	186	72	.87	7.2	.87	.72
19	8.8	121	69	87	164	141	138	51	.80	6.9	1.5	.23
20	290	75	67	78	149	123	106	40	.72	4.1	1.9	.23
21	135	51	82	72	254	141	86	32	.72	2.9	126	.23
22	67	39	71	66	284	249	79	25	.64	54	49	.26
23	40	33	65	70	1730	176	67	21	.56	335	21	.23
24	28	28	56	355	552	155	59	17	.72	44	12	.83
25	21	24	44	1190	322	136	53	15	.72	20	7.7	3.0
26	17	22	38	1270	196	115	47	13	2.4	14	5.4	13
27	14	149	32	791	137	1590	66	12	5.4	17	4.1	6.6
28	11	213	28	2660	114	1690	101	9.6	3.7	12	3.4	5.9
29	8.5	105	25	568	---	468	135	8.1	2.4	40	3.5	4.1
30	7.9	67	23	260	---	251	220	6.7	1.6	54	2.6	3.7
31	10	---	21	166	---	195	---	5.3	---	21	9.0	---
TOTAL	693.06	3041.0	3935	15201	11076	14463	6333	5439.7	67.30	795.65	395.67	64.93
MEAN	22.4	101	127	490	396	467	211	175	2.24	25.7	12.8	2.16
MAX	290	637	1130	3320	2510	2030	997	1830	9.3	335	126	13
MIN	.34	8.5	21	26	55	101	47	5.3	.56	.34	.87	.07
CFSM	.26	1.20	1.50	5.79	4.67	5.51	2.49	2.07	.03	.30	.15	.03
IN.	.30	1.34	1.73	6.68	4.86	6.35	2.78	2.39	.03	.35	.17	.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 1994, BY WATER YEAR (WY)

MEAN	36.2	94.0	208	193	253	249	214	159	64.0	51.4	43.1	35.6
MAX	243	311	667	490	1149	475	553	477	233	287	260	231
(WY)	1976	1986	1979	1994	1989	1991	1972	1983	1974	1979	1974	1979
MIN	.080	.72	22.7	11.2	34.6	57.6	37.0	24.1	.49	3.57	.14	.014
(WY)	1988	1982	1982	1977	1978	1969	1986	1991	1988	1984	1984	1984

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1968 - 1994	
ANNUAL TOTAL	44459.87		61505.31			
ANNUAL MEAN	122		169		133	
HIGHEST ANNUAL MEAN					255	1989
LOWEST ANNUAL MEAN					62.6	1977
HIGHEST DAILY MEAN	3400	Feb 21	3320	Jan 7	8630	Feb 14 1989
LOWEST DAILY MEAN	.33	Sep 1	.07	Sep 16	.00	Jul 21 1968
ANNUAL SEVEN-DAY MINIMUM	.40	Oct 2	.20	Sep 10	.00	Sep 30 1983
INSTANTANEOUS PEAK FLOW			6910	Jan 7	10600	Feb 15 1989
INSTANTANEOUS PEAK STAGE			16.88	Jan 7	20.62	Feb 15 1989
ANNUAL RUNOFF (CFSM)	1.44		1.99		1.57	
ANNUAL RUNOFF (INCHES)	19.53		27.01		21.29	
10 PERCENT EXCEEDS	293		418		297	
50 PERCENT EXCEEDS	32		42		42	
90 PERCENT EXCEEDS	1.0		.72		.91	

03251200 NORTH FORK LICKING RIVER NEAR MOUNT OLIVET, KY

LOCATION.--Lat 38°35'41", long 84°01'13", Bracken County, Hydrologic Unit 05100101, on right bank, 10 ft downstream of bridge on State Highway 875, 4 mi northeast of Mt. Olivet, and at mile 26.13.

DRAINAGE AREA.--226 mi^2.

PERIOD OF RECORD.--June 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 622.456 ft above sea level.

REMARKS.--Estimated daily discharges: Dec. 21 to Jan. 5, 15-24, and Feb. 18 to Mar. 22. Records good except for periods of estimated record, which are poor. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	9.0	176	58	412	350	392	1270	26	5.0	32	6.7
2	1.1	8.0	140	84	307	700	316	576	21	4.4	28	5.2
3	1.2	6.3	166	120	259	1400	263	354	18	4.0	94	4.7
4	1.1	7.0	1050	350	226	800	230	327	15	3.4	214	4.2
5	1.0	9.4	2330	600	194	640	209	305	12	2.7	344	4.1
6	1.1	11	1960	518	185	370	296	248	10	2.3	614	4.0
7	.99	14	621	1750	162	150	879	1870	20	4.4	257	3.4
8	.99	14	344	2590	897	450	708	3750	68	2.5	124	3.1
9	.97	13	253	1510	2970	2000	347	3120	101	2.1	76	2.9
10	.98	11	209	454	2880	4700	1400	680	52	1.9	51	2.7
11	.98	10	187	330	923	1600	1960	368	28	1.8	36	2.6
12	.95	9.5	169	340	544	980	1250	271	18	1.9	27	2.3
13	.84	60	141	783	875	280	949	211	12	3.1	21	2.1
14	.80	964	128	789	937	220	628	225	9.5	517	19	2.1
15	.76	2320	170	500	567	180	818	683	7.3	453	18	2.1
16	.66	1950	182	350	444	140	1790	761	5.9	308	14	1.8
17	.77	1520	194	300	333	130	1940	516	4.7	184	12	2.3
18	.85	2250	178	260	250	110	602	266	4.3	94	15	2.5
19	1.0	1370	163	240	230	100	366	194	4.7	196	14	2.4
20	34	360	148	220	200	90	276	157	4.3	85	10	2.3
21	374	224	130	200	190	220	220	127	3.4	50	39	2.0
22	273	163	110	240	260	560	190	105	2.8	228	195	1.9
23	99	125	100	270	3500	377	164	87	2.6	984	157	1.8
24	56	102	96	400	2400	276	142	74	38	1520	67	1.9
25	35	85	86	1450	1200	229	121	65	21	257	37	2.2
26	25	74	80	3420	450	194	108	67	11	157	23	2.4
27	17	628	76	4100	270	1580	243	64	10	135	16	3.2
28	14	621	70	5910	160	3150	221	52	9.7	88	11	3.6
29	11	442	66	5340	---	2810	1520	45	7.7	125	9.0	18
30	8.9	248	64	2050	---	946	1740	38	6.2	76	7.7	12
31	8.4	---	60	599	---	522	---	31	---	46	7.0	---
TOTAL	973.54	13628.2	9847	36125	22225	26254	20288	16907	554.1	5542.5	2588.7	112.5
MEAN	31.4	454	318	1165	794	847	676	545	18.5	179	83.5	3.75
MAX	374	2320	2330	5910	3500	4700	1960	3750	101	1520	614	18
MIN	.66	6.3	60	58	160	90	108	31	2.6	1.8	7.0	1.8
CFSM	.14	2.01	1.41	5.16	3.51	3.75	2.99	2.41	.08	.79	.37	.02
IN.	.16	2.24	1.62	5.95	3.66	4.32	3.34	2.78	.09	.91	.43	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

MEAN	14.1	219	409	667	537	827	421	287	88.0	173	55.9	27.1
MAX	31.4	454	727	1165	794	872	676	545	199	296	120	62.7
(WY)	1994	1994	1992	1994	1994	1993	1994	1994	1992	1992	1992	1991
MIN	5.35	14.1	182	369	300	763	260	87.4	4.41	14.5	6.87	3.66
(WY)	1993	1992	1993	1992	1992	1992	1992	1993	1991	1993	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1991 - 1994	
ANNUAL TOTAL	97912.84		155045.54			
ANNUAL MEAN	268		425		312	
HIGHEST ANNUAL MEAN					425	1994
LOWEST ANNUAL MEAN					233	1993
HIGHEST DAILY MEAN	4090	Feb 22	5910	Jan 28	5910	Jan 28 1994
LOWEST DAILY MEAN	.66	Oct 16	.66	Oct 16	.58	Jul 5 1991
ANNUAL SEVEN-DAY MINIMUM	.80	Oct 12	.80	Oct 12	.67	Jun 30 1991
INSTANTANEOUS PEAK FLOW			6500	Jan 28	6500	Jan 28 1994
INSTANTANEOUS PEAK STAGE			23.24	Jan 28	23.24	Jan 28 1994
INSTANTANEOUS LOW FLOW					.30	Jul 4 1992
ANNUAL RUNOFF (CFSM)	1.19		1.88		1.38	
ANNUAL RUNOFF (INCHES)	16.12		25.52		18.75	
10 PERCENT EXCEEDS	780		1380		771	
50 PERCENT EXCEEDS	70		130		76	
90 PERCENT EXCEEDS	2.3		2.4		2.8	

03251500 LICKING RIVER AT MCKINNEYSBURG, KY

LOCATION.--Lat 38°35'52", long 84°16'00", Pendleton County, Hydrologic Unit 05100101, on right bank at downstream side of highway bridge at McKinneysburg, 6.5 mi southeast of Falmouth, 9.0 mi upstream from Blanket Creek, 12.9 mi upstream from South Fork, and at mile 64.6.

DRAINAGE AREA.--2,326 mi^2.

PERIOD OF RECORD.--July 1924 to August 1926, October 1938 to September 1994 (discontinued). Monthly discharge only for October, November 1938, published in WSP 1305.

REVISED RECORDS.--WSP 1705: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 520.83 ft above sea level. July 23, 1924 to Aug. 9, 1926, nonrecording gage at same site, datum unknown. Nov. 18, 1938 to June 30, 1939, nonrecording gage at present site and datum. Oct. 1, 1949 to Sept. 30, 1957, auxiliary water-stage recorder 4.0 mi downstream.

REMARKS.--Estimated daily discharges: Dec. 28 to Jan. 2, Jan. 16-26, Feb. 4-7. Records good except those for periods of estimated record, which are fair. Flow regulated since December 1973 by Cave Run Lake (station 03249498). Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality data section.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1937 reached a stage of 47.8 ft from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	1480	3780	1260	13600	6220	8110	12000	521	65	640	160
2	268	1460	3420	1240	5650	6030	7740	8830	484	64	547	146
3	272	1460	3280	1460	4100	8240	7260	7010	447	62	424	144
4	270	1460	6570	3080	3820	11000	6730	6340	428	60	471	205
5	268	1460	12800	6870	3650	10300	6510	6060	421	57	2320	180
6	267	1200	12400	6910	3550	8360	6900	5870	323	59	2380	154
7	264	868	8490	12400	3500	7000	10300	11800	203	58	1480	139
8	263	832	4950	17400	5050	6620	9520	18200	885	56	898	125
9	255	821	4640	16700	11100	10600	8110	18900	544	56	547	119
10	255	802	4710	9280	16800	23800	10800	13600	587	56	466	118
11	263	787	4940	4550	15100	26900	10800	6620	369	56	431	116
12	262	777	5470	5210	11300	25000	10700	5910	272	56	447	110
13	266	942	5150	8980	12800	17900	10500	5730	190	70	452	103
14	275	5210	4780	9690	12400	10800	8800	5540	134	754	380	95
15	261	12900	5360	7600	9800	8540	9840	8150	100	1270	385	91
16	256	9070	5360	6700	8080	7840	15700	8590	76	1950	341	94
17	288	10400	5240	5800	7430	7160	15500	8500	76	1300	311	109
18	295	11100	4920	5200	6800	6780	11200	6710	100	861	297	109
19	308	8360	4650	5000	6540	6560	7100	5180	65	669	283	143
20	1480	4930	4260	9000	6350	6360	6770	5080	58	521	233	252
21	4190	3190	3460	7700	6270	6220	6300	5000	57	353	244	266
22	4490	2640	2870	6500	6300	6730	5950	4860	57	820	959	265
23	3790	2400	2540	6050	17200	6940	5700	4720	57	1890	1100	259
24	3610	2820	2280	5900	18100	6560	5530	4620	58	4710	859	261
25	3560	3010	1870	7200	15800	6190	5360	4540	57	3020	530	269
26	3450	2970	1620	10000	10900	5920	5230	4570	60	1220	386	277
27	3380	6000	1530	14300	8010	12200	5440	3820	62	678	299	304
28	3320	5650	1400	18700	6790	19500	5800	2320	61	567	238	295
29	3280	5590	1300	27000	---	20300	12800	1190	60	562	209	305
30	2830	4610	1200	31200	---	16000	13200	663	63	1480	174	285
31	1900	---	1160	24000	---	9990	---	555	---	794	164	---
TOTAL	44404	115199	136400	302880	256790	338560	260200	211478	6875	24194	18895	5498
MEAN	1432	3840	4400	9770	9171	10920	8673	6822	229	780	610	183
MAX	4490	12900	12800	31200	18100	26900	15700	18900	885	4710	2380	305
MIN	255	777	1160	1240	3500	5920	5230	555	57	56	164	91

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1994, BY WATER YEAR (WY)

MEAN	1208	2273	4555	4964	5701	6187	4636	3201	2002	1126	935	1181
MAX	4877	5227	13020	10430	13960	10920	9136	11130	5339	5783	3537	8088
(WY)	1976	1987	1979	1974	1989	1994	1975	1983	1974	1979	1979	1979
MIN	121	228	859	275	1837	1006	465	293	100	164	69.9	144
(WY)	1974	1988	1981	1981	1977	1983	1986	1976	1988	1984	1983	1987

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1974 - 1994	
ANNUAL TOTAL	1166655		1721373			
ANNUAL MEAN	3196		4716		3152	
HIGHEST ANNUAL MEAN					5802	1979
LOWEST ANNUAL MEAN					1528	1988
HIGHEST DAILY MEAN	24700	Feb 22	31200	Jan 30	43100	Feb 16 1989
LOWEST DAILY MEAN	174	Jul 28	56	Jul 8	54	Sep 13 1976
ANNUAL SEVEN-DAY MINIMUM	185	Jul 22	57	Jul 6	57	Jul 6 1994
INSTANTANEOUS PEAK FLOW			32700	Jan 30	59100	Mar 10 1964
INSTANTANEOUS PEAK STAGE			34.76	Jan 30	50.26	Mar 10 1964
INSTANTANEOUS LOW FLOW			55	Jul 12	54	Sep 13 1976
10 PERCENT EXCEEDS	8170		11500		7930	
50 PERCENT EXCEEDS	1800		3320		1310	
90 PERCENT EXCEEDS	241		114		190	

LICKING RIVER BASIN

03252300 HINKSTON CREEK NEAR CARLISLE, KY

LOCATION.--Lat 38°14'33", long 84°03'18", Bourbon County, Hydrologic Unit 05100102, at upstream side bridge on State Highway 13, 0.5 mi upstream from Taylors Creek, 5.0 mi south of Carlisle, and at mile 29.0.

DRAINAGE AREA.--154 mi^2, revised.

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 764.88 ft above sea level.

REMARKS.--Estimated daily discharges: Dec. 21-26, Jan. 12-22, and Feb. 6-17. Records good except for periods of estimated record, which are poor. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	16	104	57	257	173	370	274	26	7.6	44	5.8
2	2.8	18	85	67	194	269	288	210	18	6.6	18	6.3
3	2.5	33	79	248	163	675	249	147	14	6.1	8.9	6.7
4	2.4	37	757	900	134	622	240	143	13	5.8	7.2	6.9
5	2.5	35	1690	557	119	404	207	127	11	5.8	8.7	6.2
6	1.8	34	823	402	100	270	565	104	10	10	12	5.8
7	1.4	33	391	2430	86	212	834	1150	135	6.9	27	5.7
8	1.9	32	259	2110	82	636	414	2610	459	6.0	15	6.5
9	1.9	31	185	586	1300	1830	303	993	207	5.3	8.1	9.0
10	2.2	34	241	312	940	4110	285	350	104	5.2	6.6	7.3
11	2.3	35	301	228	600	3400	472	231	68	40	5.9	6.2
12	2.3	34	215	195	820	1150	691	175	50	15	5.8	6.1
13	2.3	740	170	175	1100	583	465	134	32	7.7	5.6	5.9
14	2.1	1040	160	160	740	490	325	108	18	7.0	5.7	6.7
15	2.0	1770	317	150	540	395	1150	502	11	6.6	5.5	6.8
16	2.0	582	284	145	380	302	2350	971	9.6	16	5.0	6.3
17	2.3	1070	217	140	290	240	834	299	8.8	21	5.4	6.4
18	14	1210	176	135	228	216	385	209	9.2	42	6.1	6.5
19	34	423	151	130	186	187	267	175	11	65	8.6	23
20	626	244	128	125	158	144	202	150	7.5	52	12	20
21	382	157	110	122	183	158	160	128	6.5	15	127	12
22	131	112	100	120	291	202	136	108	8.7	8.3	170	8.8
23	69	87	94	118	2700	146	115	89	41	17	71	11
24	45	72	88	533	1730	129	95	78	11	128	27	12
25	35	61	83	1610	593	116	82	70	9.1	50	11	15
26	29	51	79	2220	368	84	71	67	8.0	18	8.2	49
27	23	334	81	1380	252	1480	91	72	23	9.8	6.9	55
28	20	383	74	2620	204	2580	135	73	40	7.6	6.5	26
29	18	222	77	2000	---	1310	857	63	30	31	6.4	15
30	15	142	78	603	---	511	455	47	11	263	6.5	11
31	15	---	63	362	---	385	---	34	---	97	6.0	---
TOTAL	1493.8	9072	7660	20940	14738	23409	13093	9891	1410.4	982.3	667.6	374.9
MEAN	48.2	302	247	675	526	755	436	319	47.0	31.7	21.5	12.5
MAX	626	1770	1690	2620	2700	4110	2350	2610	459	263	170	55
MIN	1.4	16	63	57	82	84	71	34	6.5	5.2	5.0	5.7
CFSM	.31	1.96	1.60	4.39	3.42	4.90	2.83	2.07	.31	.21	.14	.08
IN.	.36	2.19	1.85	5.06	3.56	5.65	3.16	2.39	.34	.24	.16	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	21.1	139	237	394	378	582	232	136	76.2	46.1	77.6	13.2
MAX	48.2	302	394	675	526	755	436	319	143	89.3	121	19.0
(WY)	1994	1994	1992	1994	1994	1994	1994	1994	1993	1992	1993	1992
MIN	2.29	16.5	70.6	166	185	374	97.6	41.3	38.3	17.2	21.5	7.97
(WY)	1993	1992	1993	1992	1992	1992	1992	1992	1992	1993	1994	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1992 - 1994	
ANNUAL TOTAL	75153.5		103732.0			
ANNUAL MEAN	206		284		194	
HIGHEST ANNUAL MEAN					284	1994
LOWEST ANNUAL MEAN					128	1992
HIGHEST DAILY MEAN	3870	Feb 22	4110	Mar 10	4110	Mar 10 1994
LOWEST DAILY MEAN	1.3	Jul 30	1.4	Oct 7	1.3	Jul 30 1993
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 6	2.0	Oct 6	1.6	Oct 25 1992
INSTANTANEOUS PEAK FLOW			4290	Mar 10	4290	Mar 10 1994
INSTANTANEOUS PEAK STAGE			25.14	Mar 10	25.14	Mar 10 1994
INSTANTANEOUS LOW FLOW			1.3	Oct 6	1.3	Oct 6 1993
ANNUAL RUNOFF (CFSM)	1.34		1.85		1.26	
ANNUAL RUNOFF (INCHES)	18.15		25.06		17.11	
10 PERCENT EXCEEDS	542		782		482	
50 PERCENT EXCEEDS	65		89		61	
90 PERCENT EXCEEDS	2.8		6.1		4.2	

LICKING RIVER BASIN

03252500 SOUTH FORK LICKING RIVER AT CYNTHIANA, KY

LOCATION.--Lat 38°23'27", long 84°18'11", Harrison County, Hydrologic Unit 05100102, on left bank at downstream side of bridge on State Highway 356 and 36, at Cynthiana, 0.3 mi downstream from Grays Run, in pool formed by old mill dam 2.6 mi downstream, and at mile 49.1.

DRAINAGE AREA.--621 mi^2.

PERIOD OF RECORD.--April 1938 to September 1994 (discontinued). Gage-height records collected in this vicinity since 1917 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1113: 1943(M). WSP 1505: 1945. WSP 1705: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 688.52 ft above sea level. Prior to Oct. 28, 1952, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Dec. 21 to Jan. 1, 15-25, and Mar. 1-4. Records fair except for periods of estimated record, which are poor. Specific conductance and temperature measurements made in conjunction with discharge measurements are published in the miscellaneous water-quality section.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	122	777	200	1280	760	1680	1680	88	81	270	15
2	17	107	598	253	930	1500	1390	1080	77	53	122	14
3	17	104	537	314	723	3800	1030	767	67	43	75	14
4	21	100	1600	1560	602	2200	868	641	57	35	105	14
5	45	106	6770	2520	516	1750	761	571	50	30	873	14
6	40	107	4830	1520	445	1200	747	498	36	25	464	14
7	26	107	2290	5910	383	872	3080	2290	48	23	171	14
8	21	107	1330	8450	518	965	2270	9790	215	26	98	14
9	18	107	953	3750	5160	4500	1390	5200	1000	45	81	14
10	17	107	775	1660	6440	14200	1240	2090	402	37	64	14
11	15	109	914	1090	3040	12500	1440	1170	192	22	54	14
12	15	113	981	919	3440	6560	3040	817	130	17	47	13
13	16	183	751	2240	5180	3180	2340	613	77	20	37	13
14	17	3870	651	1680	4340	2240	1530	506	55	31	25	12
15	17	7200	870	1450	2550	1810	1380	540	46	39	20	12
16	16	4690	1250	1220	1910	1380	7710	2250	34	39	18	11
17	16	4830	1060	1100	1350	1040	4930	1740	29	24	17	11
18	16	6690	833	950	985	871	2060	799	35	93	16	10
19	15	3200	701	840	787	751	1260	540	21	102	15	10
20	1210	1710	601	760	650	637	891	430	18	82	14	9.7
21	3480	1080	480	660	586	566	667	354	17	119	15	9.1
22	1520	744	425	900	663	578	540	301	16	645	342	8.5
23	633	570	375	1700	7970	555	458	258	62	211	291	7.8
24	388	474	335	3000	7690	488	389	226	260	135	129	7.4
25	268	406	300	5000	3290	453	336	199	137	87	39	7.2
26	208	359	270	9290	1770	382	294	175	91	117	20	6.9
27	199	1390	240	7220	1310	3220	293	157	58	90	17	6.6
28	129	2930	220	10900	857	9280	346	139	67	72	18	6.3
29	120	1770	200	8360	---	6910	1260	124	94	59	18	6.0
30	132	1050	180	3820	---	3200	2940	115	96	79	15	7.0
31	123	---	170	1910	---	1890	---	104	---	435	15	---
TOTAL	8792	44442	32267	91146	65365	90238	48560	36164	3575	2916	3505	329.5
MEAN	284	1481	1041	2940	2334	2911	1619	1167	119	94.1	113	11.0
MAX	3480	7200	6770	10900	7970	14200	7710	9790	1000	645	873	15
MIN	15	100	170	200	383	382	293	104	16	17	14	6.0
CFSM	.46	2.39	1.68	4.73	3.76	4.69	2.61	1.88	.19	.15	.18	.02
IN.	.53	2.66	1.93	5.46	3.92	5.41	2.91	2.17	.21	.17	.21	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1994, BY WATER YEAR (WY)

MEAN	125	411	1033	1335	1663	1773	1151	655	403	320	201	176
MAX	1892	1996	4567	6038	5189	5219	4731	3677	2421	1768	1356	3480
(WY)	1976	1943	1979	1950	1989	1964	1948	1983	1950	1938	1974	1979
MIN	.65	.74	.89	17.0	80.9	198	115	15.7	6.21	5.94	2.73	1.34
(WY)	1954	1954	1944	1944	1954	1983	1941	1941	1988	1951	1983	1955

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR		FOR 1994 WATER YEAR		WATER YEARS 1938 - 1994	
ANNUAL TOTAL	317687.2		427299.5			
ANNUAL MEAN	870		1171		766	
HIGHEST ANNUAL MEAN					1505	1979
LOWEST ANNUAL MEAN					124	1954
HIGHEST DAILY MEAN	15100	Feb 22	14200	Mar 10	30700	Apr 13 1948
LOWEST DAILY MEAN	5.7	Aug 8	6.0	Sep 29	.30	Oct 23 1953
ANNUAL SEVEN-DAY MINIMUM	6.3	Aug 4	6.8	Sep 24	.30	Nov 10 1953
INSTANTANEOUS PEAK FLOW			14900	Mar 10	35300	Apr 13 1948
INSTANTANEOUS PEAK STAGE			16.62	Mar 10	23.32	Apr 13 1948
ANNUAL RUNOFF (CFSM)	1.40		1.89		1.23	
ANNUAL RUNOFF (INCHES)	19.03		25.60		16.76	
10 PERCENT EXCEEDS	2480		3250		1820	
50 PERCENT EXCEEDS	291		375		190	
90 PERCENT EXCEEDS	18		15		5.9	