



Missouri
Department of
Natural Resources

Water Protection Program

Explanation of Terms in Data Information Sheets

The data information sheets on this Web site provide water quality data for streams and lakes on the 2002 Missouri 303(d) List and for the proposed 2004/2006 and 2008 lists. The 303(d) List identifies waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Data information sheets may also be included for waters that do not appear on the list, but are of public interest. This document provides an explanation of terms and abbreviations used in the data information sheets.

Common Terms Used in the Data Information Sheets

Listing Methodology Document – guidance that sets the procedures for identifying streams and lakes that do not comply with the state's water quality standards.

Water Body ID or WBID - unique number assigned to a lake or a stream segment. Classified waters have a four digit number. Unclassified waters have either an eight digit number or a four digit number followed by a “U” and sometimes three numbers to identify unclassified tributaries of the same classified water, such as 3256U-001.

Site - a unique number assigned to a sampling location. The first part of the site number is the WBID number followed by a slash and then another number. The second number is the number of miles the sampling point is located upstream of the downstream end of the lake or stream segment. If there is a second slash followed by a third number, this indicates either that the sampling point is on the arm of a lake or on an unclassified segment of stream. In this case, the sampling point is either on a tributary to the classified segment or on the main stream, with the last number indicating the mileage above the beginning of the classified portion. Example: 3256/20.1/1.7 indicates that the sampling point is 1.7 miles up a tributary that enters 20.1 miles upstream of the downstream end of WBID 3256.

Yr, Mo, Dy - Year, month and day the sample was collected.

YDATE - Year the sample was collected

Time – Time of day sample was collected. Numbers shown are military time. 600 = 6:00 a.m., 1530 = 3:30 p.m.

H – Hydrographic Code number. The numbers 4, 9 and 6 indicate that the sample was collected during low, medium or high stable stream flows respectively. The numbers 8, 7 and 5 indicate the sample was collected during a period of rising, peak or falling stream flow respectively. Also, a “W” indicates the sample was collected during wet weather and a “D” indicates dry weather.

Org - The organization generating the water quality data. Common data sources include:

- MoDNR: Missouri Department of Natural Resources.
- USGS: U.S. Geological Survey.
- MDC: Missouri Department of Conservation.
- USEPA: U.S. Environmental Protection Agency.
- UMC or UMR: University of Missouri.
- KDHE: Kansas Department of Health and Environment.
- IDNR: Iowa Department of Natural Resources.
- IEPA: Illinois Environmental Protection Agency.

Ln or Log - The logarithm of a number. These are commonly used with bacterial data in order to calculate the geometric mean of a set of bacteria samples.

Geometric Mean – Water quality standards for fecal coliform and *E. coli* bacteria are expressed as geometric means. A geometric mean, or geometric average, is calculated by converting all the bacterial data to their logarithm, then calculating the average of the logarithms and then taking the antilog of this value. Geometric means are useful ways of characterizing data that have infrequent values that are much larger than the rest of the data set.

Chronic Criterion Value - The amount of a pollutant that can cause toxicity to aquatic life. For most toxics, this value assumes at least four days of continuous exposure to this amount of the chemical or 30 days for ammonia. Waters are judged to be impaired if there is evidence of more than one exposure of the required length in a three year period. Chronic criteria apply only to classified waters.

Acute Criterion Value - The amount of a pollutant that can cause toxicity to aquatic life. This value assumes 24 hours of continuous exposure to this amount of the chemical. Waters are judged to be impaired if there is evidence of more than one exposure of the required length in a three year period. Acute criteria apply to both classified and unclassified waters.

Classified Waters-- streams, lakes, and rivers that have identified beneficial uses and have some water year round and are listed in Tables G and H of Missouri's Water Quality Standards (10 CSR 20-7.031). These classes are:

- Class L1: Lakes primarily for drinking water supply.
- Class L2: Major reservoirs.
- Class L3: Other lakes which are waters of the state.
- Class P: Streams that maintain permanent flow even in drought periods.
- Class P1: Standing-water reaches of Class P streams.
- Class C: Streams that may cease flow in dry periods but maintain permanent pools which support aquatic life.
- Class W: Wetlands that are waters of the state that meet the criteria in the *Corps of Engineers Wetlands Delineation Manual* (January 1987), and subsequent federal revisions.

Beneficial or Designated Uses—Missouri recognizes several beneficial or designated uses in the Water Quality Standards. The most common include protection of aquatic life, human health protection (fish consumption), whole body contact recreation category A and B, secondary contact recreation, drinking water supply, livestock and wildlife watering, irrigation and industrial uses.

10 Percent Exceedence Rate - several non-toxic water constituents such as water temperature, pH, dissolved oxygen and total dissolved gases are evaluated based on the percent of all samples that exceed the numeric water quality standard. If the rate of exceedence of a standard is believed to be greater than 10 percent, the water is judged to be impaired. A statistical procedure using **binomial probability** calculations are used to estimate the exceedence rate.

Binomial Probability, t- test, Analysis of Variance - These are statistical procedures that calculate the mathematical likelihood of an event occurring. As used in these worksheets, these procedures test the likelihood that the observed data meets state water quality standards. Where the worksheets display the results of these statistical tests, the value of most interest is labeled “**P**” or “**Prob**” or is referred to as the **Type One error rate**. These numbers give the probability that the observed data meets state water quality standards. The lower the value, the more likely that the analyte in question does not meet state water quality standards. Depending on the analyte in question, the critical value that determines whether or not the analyte is in conformance with state standards is either 0.10 or 0.05.

Confidence Limits - Confidence limits as used in these data information sheets are numbers used in lieu of sample means (averages) that are compared to water quality standards to judge impairment.

60 Percent Upper Confidence Limit, or UCL— the number for which there is a 60 percent probability that the true mean (average) value is less than that number.

60 Percent Lower Confidence Limit , or LCL— the number for which there is a 60 percent probability that the true mean (average) value is greater than that number.

Water Quality Analytes Appearing in the Worksheet, Units and Appropriate Standards

The following table explains the abbreviations in the column headings in the data tables and includes the units of measurement for each analyte and where appropriate, the water quality standard or health guideline being used to judge impairment. Where a range of numbers is given for a standard, this indicates that the standard varies based upon the variation in other water quality analytes such as water temperature, pH or hardness. Standards in normal print are for protection of aquatic life, **bold print** are drinking water standards and those in *italics* are for protection of human health when eating fish. Missouri’s Water Quality Standards are list in the Code of State Regulations, 10 CSR 20-7.031 and additional guidance for the 303(d) List can be found in the Listing Methodology Document.

| Medium | Abbreviation | Analyte Name | Units | Standard or Guideline |
|---------------|---------------------|---------------------|--------------|------------------------------|
| Water | Acid | Acidity | mg/L | |

| | | | | |
|----------|----------------|--|-----------------------|---|
| Water | Alk | Alkalinity | mg/L | |
| Water | DAL/TAL | Dissolved/Total Aluminum | ug/L | 750 |
| Water | DAS/TAS | Dissolved/Total Arsenic | ug/L | 20/ 50 |
| Water | Color | Color | Pt-Co | |
| Water | Chl A | Chlorophyll A | ug/L | |
| Water | DCD/TCD | Dissolved/Total Cadmium | ug/L | ** |
| Water | DCR/TCR | Dissolved/Total Chromium | ug/L | ** |
| Water | DCU/TCU | Dissolved/Total Copper | ug/L | ** |
| Water | Cl | Chloride | mg/L | 230, 250 |
| Water | CBOD | Carbonaceous Biochemical Oxygen Demand | mg/L | |
| Water | DO | Dissolved Oxygen | mg/L | 5, except as noted in individual worksheets |
| Water | Flow | Volume of Stream Flow | ft ³ /sec. | |
| Water | <i>E. coli</i> | <i>E. coli</i> bacteria | #/100 ml | See individual worksheets |
| Water | FC | Fecal Coliform bacteria | #/100 ml | 200 |
| Water | Hard | Hardness | mg/L | |
| Water | KJN or TKN | Organic plus Ammonia Nitrogen | mg/L | |
| Water | DMN/TMN | Dissolved/Total Manganese | ug/L | |
| Water | NH3-N | Ammonia Nitrogen | mg/L | 0.2 – 6.6 |
| Water | DNI/TNI | Dissolved/Total Nickel | ug/L | ** |
| Water | NO3-N | Nitrite plus Nitrate Nitrogen | mg/L | 10 |
| Water | NVSS | Non-volatile Suspended Solids | mg/L | |
| Water | DPB/TPB | Dissolved/ Total Lead | ug/L | 1-7/ 15 |
| Water | pH | Negative log of Hydrogen ion conc. | pH units | >6.5 to <9 |
| Water | SC | Specific Conductance | umhos/cm | |
| Water | SO4 | Sulfate | mg/L | 1000* |
| Water | TP | Total Phosphorus | mg/L | |
| Water | Turb | Turbidity | NTU | |
| Water | TSS | Total Suspended Solids | mg/L | |
| Water | VSS | Volatile (organic) Suspended Solids | mg/L | |
| Water | DZN/TZN | Dissolved/Total Zinc | ug/L | ** |
| Water | C | Water Temperature in degrees | Centigrade | |
| Sediment | AlI | Aluminum | mg/Kg | 60,000 |
| Sediment | ASs | Arsenic | mg/Kg | 48 |
| Sediment | CDd | Cadmium | mg/Kg | 3.2 |
| Sediment | CUu | Copper | mg/Kg | 100 |
| Sediment | MNn | Manganese | mg/Kg | 1,200 |
| Sediment | NIi | Nickel | mg/Kg | 33 |
| Sediment | PBb | Lead | mg/Kg | 82 |

| | | | | |
|-------------|-----------|-------------------------------------|---------|------|
| Sediment | ZNn | Zinc | mg/Kg | 540 |
| Fish Tissue | Species | Fish Species sampled | | |
| Fish Tissue | No_Sample | Number of Individual fish in sample | | |
| Fish Tissue | WTLBS | Average Weight of Fish in Sample | Pounds | |
| Fish Tissue | FAT | Amount of Fat in sample | Percent | |
| Fish Tissue | PB/LEADN | Lead | mg/Kg | 0.3 |
| Fish Tissue | Hg/MERCN | Mercury | mg/Kg | 0.3 |
| Fish Tissue | ITOT N | Chlordane | mg/Kg | 0.1 |
| Fish Tissue | PCB/PCBN | Polychlorinated Biphenyls (PCBs) | mg/Kg | 0.75 |

* The sum of sulfate plus chloride. The 1000 mg/L standard applies to smaller streams. The criterion value is lower for larger streams and must be calculated individually for each of these streams

** Varies with water hardness, see individual worksheets

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