



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 current 2004/2006 Missouri 303(d) List and for the proposed 2008 list. 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.

WBID – Water body identification – a 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 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 Missouri Department of Natural Resources, U.S. Geological Survey or USGS, Missouri Department of Conservation, or MDC, U.S. Environmental Protection Agency, or EPA, University of Missouri, Kansas Department of Health and Environment, or KDHE), Iowa Department of Natural Resources, or IDNR and Illinois Environmental Protection Agency, or IEPA.

Ln or Log - the logarithm of a number. These are commonly used with bacterial data 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 (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 include the following:

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 - The state of 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 & 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 ten 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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