# Baseline Water Quality Data

# Inventory and Analysis

# Fort Donelson National Battlefield

## Water Resources Division and Servicewide Inventory and Monitoring Program

WATER RESOURCES DIVISION

*National Park Service - Department of the Interior*
*Fort Collins - Denver - Washington*

The National Park Service Water Resources Division is responsible for providing water resources management policy and guidelines, planning, technical assistance, training, and operational support to units of the National Park System. Program areas include water rights, water resources planning, regulatory guidance and review, hydrology, water quality, watershed management, watershed studies, and aquatic ecology.

**Technical Reports**

The National Park Service disseminates the results of biological, physical, and social research through the Natural Resources Technical Report Series. Natural resources inventories and monitoring activities, scientific literature reviews, bibliographies, and proceedings of technical workshops and conferences are also disseminated through this series.

Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the National Park Service.

Copies of this report are available from the following:

Technical Information Center (303) 969-2130
Denver Service Center
P.O. Box 25287
Denver, CO 80225-0287

U. S. Department of Commerce (703) 487-4650
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161

# BASELINE WATER QUALITY DATA

# INVENTORY AND ANALYSIS

# FORT DONELSON NATIONAL BATTLEFIELD

National Park Service
Water Resources Division
Fort Collins, CO 80525

Technical Report NPS/NRWRD/NRTR-97/145

DECEMBER 1997

United States Department of the Interior
National Park Service
Washington, D.C.

## EXECUTIVE SUMMARY

This document presents the results of surface-water-quality data retrievals for Fort Donelson National Battlefield (FODO) from six of the United States Environmental Protection Agency's (EPA) national databases: (1) Storage and Retrieval (STORET) water quality database management system; (2) River Reach File (RF3); (3) Industrial Facilities Discharge (IFD); (4) Drinking Water Supplies (DRINKS); (5) Water Gages (GAGES); and (6) Water Impoundments (DAMS). This document is one product resulting from a cooperative contractual endeavor between the National Park Service's Servicewide Inventory and Monitoring Program, the National Park Service's Water Resources Division (WRD), and Horizon Systems Corporation to retrieve, format, and analyze surface water quality data for all units of the National Park System containing significant water resources. The primary goal of the project is to provide descriptive water quality information in a manner and format that is both consistent with the goals of the Servicewide Inventory and Monitoring Program and useable by park resource managers. The document provides: (1) a complete inventory of all retrieved water quality parameter data, water quality stations, and the entities responsible for the data collection; (2) descriptive statistics and appropriate graphical plots of water quality data characterizing period of record, annual, and seasonal central tendencies and trends; (3) a comparison of the park's water quality data to relevant EPA and WRD water quality screening criteria; and (4) an Inventory Data Evaluation and Analysis (IDEA) to determine what Servicewide Inventory and Monitoring Program "Level I" water quality parameters have been measured within the study area. Accompanying the report are disks containing digital copies of all data used in the report, as well as all components of the report (tables, figures, etc.).

The results of the retrievals for the study area from the IFD, DRINKS, GAGES, and DAMS databases located three industrial/municipal dischargers; two drinking water intakes; two active or inactive U. S. Geological Survey or U. S. Army Corps of Engineers (COE) water gages (including lake and stream); and one water impoundment. The results of the STORET retrieval for the study area yielded 2,760 observations for 73 separate parameters collected by the EPA, COE, and Tennessee Valley Authority (TVA) at eight monitoring stations from 1972 through 1985. Approximately 60 percent of the 2,760 observations were recorded by the TVA during 1972 and 1973. No monitoring stations were located within the park boundary.

Six of the eight monitoring stations which reported data in the FODO study area represent either one-time or single-year sampling efforts by the collecting agencies. The two stations which were sampled more than one year are: Lake Barkley below Dover Island (FODO 0003) and Hickman Creek Mile 0.4 (FODO 0006)[†].

Screening criteria consisting of published EPA water-quality criteria and instantaneous concentration values selected by the WRD were used to identify potential water quality problems within the study area. While the criteria represent important threshold concentrations of pollutants, it is important to remember that criteria may have been exceeded due to any number of natural or anthropogenic factors, including errors in field, laboratory, and/or recording procedures. The reader is advised to read the Introduction for additional caveats in interpreting the exceeded criteria in this report. The results of the FODO water quality criteria screen found seven groups of parameters that exceeded screening criteria at least once within the study area. Dissolved oxygen, pH, and antimony exceeded their respective EPA criteria for the protection of freshwater aquatic life. Antimony and beryllium exceeded their respective EPA drinking water criteria. Fecal-indicator bacteria concentrations (total coliform and fecal coliform) and turbidity exceeded the WRD screening limits for freshwater bathing and aquatic life, respectively.

Dissolved oxygen concentrations were measured 155 times at four monitoring stations in Lake Barkley (FODO 0003, FODO 0005, FODO 0006, FODO 0007) from 1972 through 1985. Thirty-one observations at three stations, in Lake Barkley below Dover Island (FODO 0003), the Dyers Creek branch of Lake Barkley (FODO 0005), and the Hickman Creek branch of Lake Barkley (FODO 0006), were less than the 4.0 milligrams per liter (mg/L) EPA

[†]Water quality station location descriptions are verbatim from STORET. Any misspellings and abbreviations in STORET are replicated in this document.

criterion for the protection of aquatic life from 1972 through 1985. Twenty-six of the 31 observations exceeding the criterion were reported from the Hickman Creek branch of Lake Barkley (FODO 0006) during 1984 and 1985.

The pH was measured 78 times at four monitoring stations in Lake Barkley (FODO 0003, FODO 0005, FODO 0006, FODO 0007) from 1972 through 1985. One observation of 9.0 standard units (SU) in the Hickman Creek branch of Lake Barkley (FODO 0006) was equal to the upper limit of the pH range of 6.5 to 9.0 SU (EPA chronic criteria for freshwater aquatic life) in July 1984.

Turbidity was measured 49 times at three monitoring stations in Lake Barkley (FODO 0003, FODO 0005, FODO 0006) from 1972 through 1985. One observation of 67 Formazin Turbidity Units in the Dyers Creek branch of Lake Barkley (FODO 0005) exceeded the WRD screening criterion of 50 Jackson Candle/Formazin/Nephelometric Turbidity Units in June 1984.

Total coliform concentrations were measured 36 times in Lake Barkley below Dover Island (FODO 0003) during 1972 and 1973. Ten observations exceeded the WRD bathing water screening criterion of 1,000 Colony Forming Units/Most Probable Number per 100 milliliter (CFU/MPN/100 ml) during 1972 and 1973. The highest concentration of 2,500 CFU/100 ml was reported in November 1972. Fecal coliform concentrations were measured 36 times in Lake Barkley below Dover Island (FODO 0003) during 1972 and 1973. Four observations, ranging from 280 CFU/100 ml to 450 CFU/100 ml, exceeded the WRD bathing water screening criterion of 200 CFU/MPN/100 ml during 1972 and 1973. The highest concentration of 450 CFU/100 ml was reported in November 1972.

Antimony concentrations (including dissolved and total) were measured 16 times at two monitoring stations in Lake Barkley (FODO 0005, FODO 0006) during 1984 and 1985. Two total concentrations of 200 micrograms per liter (µg/L) and 100 µg/L in the Hickman Creek branch of Lake Barkley (FODO 0006) exceeded the drinking water criterion of 6.0 µg/L in September 1984 and August 1985, respectively. Both of these concentrations also exceeded the acute freshwater criterion of 88 µg/L.

Beryllium concentrations (including dissolved and total) were measured 16 times at two monitoring stations in Lake Barkley (FODO 0005, FODO 0006) during 1984 and 1985. One total concentration of 5.0 µg/L in the Hickman Creek branch of Lake Barkley (FODO 0006) exceeded the drinking water criterion of 4.0 µg/L in July 1984.

The IDEA conducted for FODO indicates that STORET data exist for 12 of the 13 Level I parameter groups in the study area. No STORET data exist for the parameter group Flow. For the 12 parameter groups with data, no observations were recorded since August 1985. No observations for the parameter group Bacteria were recorded since 1973. Data for four groups (Chlorophyll, Sulfates/Total Dissolved Solids/Hardness, Bacteria, and Toxic Elements) were recorded at less than half of the eight monitoring stations with data. Relative to other parameter groups, data were limited for the groups pH, Conductivity, Chlorophyll, Sulfates/Total Dissolved Solids/Hardness, Bacteria, and Toxic Elements. Results for three of the 126 EPA priority toxic pollutants (consisting of metals) were retrieved from STORET. Four monitoring stations measured only nutrients. No water quality data have been collected within FODO. The Hickman Creek branch of Lake Barkley, site of the monitoring station (FODO 0006) which exceeded the most parameters, forms the northwest boundary of FODO.

Surface water resources in the FODO study area include Lake Barkley (Cumberland River); Dyers, Hickman, Indian, and many other creeks and hollows; and several springs. The data inventories and analyses contained in this report indicate a shortage of relatively recent observations for all parameters measured in the study area and a complete lack of any data collected within the FODO park boundary. The most recent water quality observations from the FODO study area were collected during August 1985. Of the 2,760 observations reported for the study area, approximately 76 percent were collected before 1975. Without adequate data it is difficult to make definitive statements regarding recent water quality within the study area. Potential anthropogenic sources of contaminants include municipal and industrial wastewater discharges; atmospheric deposition; stormwater runoff; agricultural operations; and recreational use.

**TABLE OF CONTENTS**

EXECUTIVE SUMMARY ..... v

TABLE OF CONTENTS ..... vii

I. INTRODUCTION ..... 1
- Goal ..... 1
- Purpose ..... 1
- Objectives ..... 1
- Document Overview ..... 2
- Caveats ..... 2
- Key Personnel ..... 3

II. METHODOLOGY ..... 5
- Delineation of Park Study Area ..... 5
- Data Sources ..... 5
- Data Retrieval and Analysis Procedures ..... 7
- Park Unit Databases ..... 8
- Screening Methodologies and Procedures ..... 9
  - STORET Edit Criteria ..... 9
  - Date Screen ..... 10
  - Station Type Screen ..... 10
  - Phase 0 Parameter Screen ..... 11
  - Phase 1 Parameter Screen ..... 11
  - Media Type Screen ..... 11
  - Remark Code Screen ..... 11
  - Composite Type Screen ..... 13
  - Phase 2 Parameter Screen ..... 14
  - Observations/Period of Record Screen ..... 15
- Statistical Definitions ..... 17

III. INTERPRETIVE GUIDE TO WATER QUALITY RESULTS ..... 19
- Overview ..... 19
- Regional Location Map ..... 19
- Water Quality Monitoring Locations Map(s) ..... 19
- Dischargers, Drinking Intakes, Gages, and Impoundments Map(s) ..... 20
- Industrial Facilities Discharges, Drinking Water Intakes, Water Gages, and Water Impoundments Table ..... 20
- Representative Mean Annual Hydrograph for Seasonal Analysis ..... 20
- Contacts for Agency Codes Retrieved ..... 21
- Quantity of Data Retrieved by Agency Code ..... 21
- Station Period of Record Tabulation ..... 21
- Parameter Period of Record Tabulation ..... 22
- Station/Parameter Period of Record Tabulation ..... 22
- Station-By-Station Results ..... 22
  - Station Inventory for Station ..... 23
  - Parameter Inventory for Station ..... 23
  - EPA Water Quality Criteria Analysis for Station ..... 23
  - Time Series Plots for Station ..... 24
  - Annual Analysis for Station ..... 25
  - Annual Box-and-Whiskers Plots for Station ..... 25

Seasonal Analysis for Station ..... 25
Seasonal Box-and-Whiskers Plots for Station ..... 26
EPA Water Quality Criteria Analysis for Entire Park Study Area ..... 26
NPS Servicewide Inventory and Monitoring Program
"Level I" Water Quality Inventory Data Evaluation and Analysis (IDEA) ..... 26
Water Quality Observations Outside STORET Edit Criteria for Park ..... 28

IV. WATER QUALITY RESULTS ..... 29
Overview ..... 31
Regional Location Map ..... 32
Water Quality Monitoring Locations Map(s) ..... 33
Dischargers, Drinking Intakes, Gages, and Impoundments Map(s) ..... 34
Industrial Facilities Discharges, Drinking Water Intakes, Water Gages,
and Water Impoundments Table ..... 35
Representative Mean Annual Hydrograph for Seasonal Analysis ..... 36
Contacts for Agency Codes Retrieved ..... 37
Quantity of Data Retrieved by Agency Code ..... 38
Station Period of Record Tabulation ..... 39
Parameter Period of Record Tabulation ..... 40
Station/Parameter Period of Record Tabulation ..... 42
Station-By-Station Results ..... 45
FODO0001 Long Creek ..... 47
FODO0002 Dyers Creek ..... 48
FODO0003 Lake Barkley Below Dover Island ..... 49
FODO0004 Lick Creek ..... 51
FODO0005 Dyer Creek Mile 0.5 ..... 52
FODO0006 Hickman Creek Mile 0.4 ..... 54
FODO0007 Lake Barkley ..... 56
FODO0008 Bear Creek ..... 57
EPA Water Quality Criteria Analysis for Entire Park Study Area ..... 58
NPS Servicewide Inventory and Monitoring Program
"Level I" Water Quality Inventory Data Evaluation and Analysis (IDEA) ..... 59
Water Quality Observations Outside STORET Edit Criteria for Park ..... 63

V. APPENDICES ..... 65
A. Computer Files Transmitted With Park Baseline Water Quality
Data Inventory and Analysis ..... A-1
B. Water Quality Database File Structures ..... B-1
Parameter Data File ..... B-1
Water Quality Station Data File ..... B-4
Industrial Facilities Discharges File ..... B-6
Drinking Water Intakes File ..... B-9
Water Gage File ..... B-12
Water Impoundment File ..... B-14
RF3 Structure File ..... B-18
RF3 Trace File ..... B-22
Catalog Unit Boundary File ..... B-23
Encyclopedia File ..... B-24
C. STORET Water Quality Control/Edit Checking ..... C-1
D. STORET Administrative Parameters ..... D-1
E. STORET Parameters Not Suitable for Statistical Analysis ..... E-1

F. National EPA Water Quality Criteria Summary ..... F-1
G. Inventory Data Evaluation and Analysis (IDEA) Servicewide Inventory and Monitoring Program "Level I" Parameter Groups ..... G-1
H. Literature Cited ..... H-1
I. Selected General Water Quality References ..... I-1

# INTRODUCTION

The National Park Service's (NPS) Organic Act of 1916 states that the mission of the NPS is to promote and regulate the use of national parks, monuments, and other units "... to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations." One task embodied by this mission is preserving and protecting water resources and water dependent environments in parks. Ensuring the integrity of park water quality, due to its importance in sustaining natural, aquatic park ecosystems and supporting human consumptive and recreational use, is fundamental to successfully addressing this task. The first step in ensuring the integrity of park water quality is defining historic and extant water quality.

This document represents one product of an ongoing effort by the NPS Water Resources Division (WRD) and the Servicewide Inventory and Monitoring Program to characterize baseline water quality using existing data at park units containing significant natural resources. This effort was initiated in 1993 by the award of a contract to Horizon Systems Corporation to retrieve, format, and analyze surface water quality data from the Environmental Protection Agency's (EPA) Storage and Retrieval (STORET) database system. The scope of work identified in the Request For Proposals outlined several sequential, interrelated project phases, including, but not limited to: (1) determining the water quality retrieval/query area around each park; (2) downloading and assessing the quality of the data from STORET; (3) generating basic water quality summary statistics and graphic plots; (4) reformatting water quality data for compatibility with the park-based Water Quality Data Management System presently under-development; and (5) providing recommendations concerning possible hardware, software, and personnel options for storing combined park databases in a centralized NPS water quality database. This report documents the results of phases one through four of this effort for this park unit.

## Goal

The goal of this document is to provide descriptive water quality information in a format usable for park planning purposes (eg. Water Resources Management Plans, Resource Management Plans, and General Management Plans). The report is designed to characterize baseline water quality rather than assess specific water quality problems at a park. This is consistent with the Servicewide Inventory and Monitoring Program's goal of obtaining basic, "Level I", water quality parameters for key waterbodies at each park (National Park Service 1993). Consequently, this report is best used as a reference document to help design new goal-driven water quality monitoring programs rather than as conclusive evidence of previous or existing water quality problems.

## Purpose

The purpose of this report is to inventory existing park water quality data; establish baseline water quality at the park; identify potential water quality problems; and establish a park water quality database. This report is intended to enable park resource managers to compare and contrast water quality data collected as part of ongoing inventory and monitoring programs with historical water quality trends. Additionally, this report is intended to foster better designed park-based water quality inventory and monitoring programs in the future. The water quality databases which accompany this report will also lay the groundwork for establishing a NPS water quality database that will allow Regions and Washington Offices to generate regional and national assessments of park water quality.

## Objectives

Specific objectives of the study documented in this report are to:

1. Retrieve water quality and related data from the EPA's STORET and other database systems;

2. Develop a complete inventory of all retrieved data;

3. Produce descriptive statistics and appropriate time series and box-and-whiskers plots of water quality data to characterize period of record, annual, and seasonal central tendencies and trends;

4. Compare water quality data with relevant national EPA water quality criteria on a station-by-station and study area basis;

5. Determine the presence and/or absence of the Servicewide Inventory and Monitoring Program's "Level I" water quality parameters within the study area; and

6. Reformat water quality and other related data for use in the park-based Water Quality Data Management System, presently under-development, and other appropriate analytical tools.

**Document Overview**

This report is comprised of five chapters. The first chapter, this Introduction, provides a brief statement of the study's background; goal, purpose, and objectives; and the key personnel who helped produce the document. This chapter also contains this brief overview of the document's contents and important interpretive caveats to consider when referring to and using this document. The second chapter focuses on the methods, procedures, and databases that were employed to retrieve and analyze water quality data for the park. The third chapter is the user's interpretive guide to chapter four. Chapter three explains how to interpret all the tables and figures presented in chapter four. Chapter four, which likely comprises the majority of the document (unless there isn't much water quality data for the park), contains detailed inventories, descriptive statistics, graphics, and national EPA water quality criteria comparisons characterizing the park unit's water quality data on a station-by-station basis and over the entire study area. This chapter also contains a comparison of park water quality data with the Servicewide Inventory and Monitoring Program's "Level I" water quality inventory parameters and a listing of water quality observations that were outside the STORET edit criteria range. Chapter five, the Appendices, contains more specialized materials such as the file names and database structures included on floppy disk(s) with this report; STORET edit criteria; national EPA water quality criteria; Servicewide Inventory and Monitoring Program's "Level I" water quality inventory parameters; selected water quality references; and other materials which provide background on the methods, procedures, and databases used or produced by this study.

The water quality and other related data referenced in this report accompany the document on floppy disk. The water quality parameter data file is in DBASE III+[1] format and will be useable in the park-based Water Quality Data Management System presently under-development. The water quality stations, industrial facilities discharges, drinking water intakes, water gages, water impoundments, and River Reach databases are also in DBASE III+ and/or ASCII format for ready-use in Geographic Information Systems (GIS), Computer-Aided Design Systems, or Desktop Mapping Systems.

**Caveats**

While intended primarily as a reference document, it is important that users peruse the first three chapters and Appendices of this report to better understand and interpret the results presented in chapter four. As a means for identifying potential areas for more intensive study, comparisons of the park's water quality data with relevant national EPA water quality criteria for appropriate designated uses[2] and with the Servicewide Inventory and

[1]The use and/or mention of specific proprietary hardware or software packages is for informational purposes only and is not intended to connote or denote an endorsement.

[2]The Environmental Protection Agency's Quality Criteria for Water 1995 Final Draft (Silver Book) was the primary source of water quality criteria. In the spirit of the other caveats offered in this section, it is important to recognize that water quality criteria are often revised when new or better information become available.

Monitoring Program's "Level I" water quality inventory parameters have been made. Extreme caution must be exercised in interpreting the results of these comparisons. Observations that exceed water quality criteria may have occurred due to any number of natural or anthropogenic factors, as well as other reasons. For example, STORET is a "user-beware" water quality database system. While there is some rudimentary edit (bounds) checking of any data entered in STORET (See Appendix C), users are basically free to enter their own data. Beyond data entry errors, the possibility of inaccurate data entering the system due to inappropriate measurement techniques, sample mistreatment, and other reasons is a serious concern. Consequently, if observations for a particular parameter frequently exceed the EPA water quality criterion over a prolonged time period, the best approach is to examine in detail the data exceeding the criterion. Questions which should be asked regarding the data include: What water source(s) are manifesting the problem? Does the data make sense? Was it collected by a reputable organization following a sound study plan and employing accepted techniques? If the answers to these questions still cause concern, a specific cause and effect water quality investigation focusing on the parameters of concern may be warranted. Similarly, the absence of particular Servicewide Inventory and Monitoring Program "Level I" water quality parameters from the park only means that no entity or organization has collected and entered this data into the EPA's STORET database. Too frequently, data that are collected in and around NPS units never make it into the EPA's national water quality database. These data may exist in published or unpublished reports, file cabinets, or other databases. Before definitively concluding that no baseline data exist for a particular parameter, these alternative resting grounds for data should be investigated. Such a detailed exploration, however, was beyond the scope of this study.

**Key Personnel**

Many individuals contributed to the design and implementation of this project. The primary contributors and their roles in the project are briefly mentioned below.

National Park Service, Water Resources Division:

Dean Tucker was the Contracting Officer's Technical Representative responsible for designing, coordinating, and implementing all aspects of this effort.

Mike Matz coordinated and managed the team which prepared all components of the report.

Gary Rosenlieb provided administrative oversight and was involved in quality control for all tasks related to this project.

Barry Long and Roy Irwin reviewed technical tasks and provided water quality expertise related to data analysis.

Gary Smillie provided hydrologic expertise in the determination of hydrologic seasons.

Donnie Dustin and Greg Harp helped prepare reports and write the Executive Summaries.

Elizabeth Eisenhauer, Brad Van Deusen, Brian Verbeck, Robert Flynn, and Dawn Grandbois provided digital cartographic support, both in determining retrieval/query areas and producing maps and graphics.

Kelli O'Connor, Mary Beth Talty, Todd Widegren, Curtis Cooper, Paul McElvery, J. Chris Echohawk, Kristie Maczko, Jim McQuarrie, and Adam Henson uploaded water quality data to STORET prior to report preparation.

Jacquie Nolan designed the cover.

Horizon Systems:

Cindy McKay served as Project Manager for Horizon Systems, performed the initial requirements analysis, and was involved in all quality control tasks related to the project.

Alan Cahoon was responsible for automating the procedures which produced the water quality databases and Water Quality Results chapter.

Sue Hanson, P.E., provided technical advice for writing this document.

Dr. Jim Loftis was the data quality analyst for the project.

Armando F. Ballofet, P.E., served as the local technical liaison between Horizon Systems and the NPS.

Other National Park Service:

Several other individuals provided invaluable technical review, comments, administrative support, and/or other assistance, including: Dan Kimball, Bill Jackson, Mark Flora, Gary Williams, John Karish, Brendhan Zubricki, Richard Hammerschlag, Randy Ferrin, Gary Vequist, Mike Martin, Kevin Berghoff, and Dyra Monroe.

# METHODOLOGY

This section provides an overview of the procedures and criteria used to retrieve and analyze water quality data for each park unit. Generating baseline water quality data inventories and analyses for all NPS units is a monumental task. To accomplish this undertaking given a very limited budget, the procedures employed to produce each report had to be as generic and automated as possible. Consequently, customization of reports to individual park needs and issues was not feasible. Moreover, such customization was beyond the scope of this effort which was simply intended to produce baseline water quality data inventories for all parks rather than customized issue-driven reports. During the procedure-development stages of the project, specifications for the final product evolved, within the context of the aforementioned resource constraints, to focus on comprehensive water quality baseline data inventories and concise, descriptive statistical examinations of the available water quality data for each park unit. Detailed below are the data sources and final methods and procedures that were used to create the baseline water quality inventories, analyses, databases, and other products for each park unit. A thorough understanding of the limitations of the data sources and procedures described in this chapter and the next (Interpretive Guide to Water Quality Results) is a prerequisite to intelligent use of the results presented in this document.

## Delineation of Park Study Area

The first step in retrieving water resources-related data for each park was deciding on a procedure to determine the study area boundary. Since water flows through parks, utilizing the park boundary as a simple query/study area was deemed inadequate. On the other end of the continuum, using the entire watershed as the study area was considered superfluous given: (1) the areal extent of certain park watersheds (eg. the entire Mississippi River); (2) the sheer volume of potentially irrelevant data such a large study area could generate; and (3) the resources required to specify the watershed for each park unit. The approach which was ultimately adopted - a modified hydrologic boundary - reflects a compromise between the park boundary and the entire watershed. Thus the study area employed for each park is an area extending at least three miles upstream and one mile downstream from the park boundary. Although these distances are somewhat arbitrary, this approach is easy to automate and was felt to limit the data retrieved, in most instances, to that of most importance to the park. Extending the query area one mile downstream of the park was intended to capture any data immediately downstream of the park which may reflect the quality of the water in the park. A current (as possible) copy of each park's boundary was obtained in digital format directly from the park or digitized from Regional land status maps, U.S. Geological Survey (USGS) quadrangles, or other sources. Using GIS techniques, the boundary was used to create the three miles upstream, one mile downstream buffer. For a few parks with which WRD water quality specialists were very familiar with potential water quality threats and/or valuable sources of data that may lie just outside the study area, the study area may have been tweaked (enlarged) to cover these areas of concern or interest. Unfortunately, a customized study area was not feasible for all park units. Hence, the three miles upstream, one mile downstream buffer was the primary study area employed for most parks. This study area was transferred to the EPA mainframe computer and used as the basis for all water resources-related data retrievals from the data sources described below.

## Data Sources

The EPA maintains many mainframe data systems related to national water resources (U.S. Environmental Protection Agency 1992). Six of these data systems were used for this project:

- STOrage and RETrieval System (STORET) - water quality parameter data, locations of sampling stations, descriptive elements about stations and parameters;
- Industrial Facilities Discharge (IFD) - locations of industrial and municipal point source discharge facilities;

- Drinking Water Supplies (DRINKS) - locations of intake pipes for drinking water supplies;
- Water Gages (GAGES) - locations of USGS and other water gages;
- Water Impoundments (DAMS) - locations of most large water impoundments (greater than 10,000 acre feet at normal pool volume) and many smaller impoundments; and
- River Reach File, Version 3 (RF3) - 1:100,000 scale geographical representation of surface waters (rivers, lakes, etc.) with a unique identifier assigned to each surface water segment and connectivity information useful for routing and navigation.

STORET is the national water quality data repository (U.S. Environmental Protection Agency 1989). Water quality data is entered in STORET by public agencies (federal, state, or local) that collect water samples and/or perform laboratory analysis. As such, STORET is a "user-beware" data system. Although the EPA manages the STORET data system and, since November 1983, has imposed some minimum quality control criteria on the data (See Appendix C), data are generated and input to STORET by the "owner" agencies. Consequently, the EPA does not certify any data within STORET. Currently, there are over 800,000 active and inactive sampling stations and more than 225 million observations covering in excess of 13,000 water quality parameters entered in STORET. The earliest data dates back to the turn of the century. Using the bi-monthly update cycle, user agencies may store results of recent monitoring activities in STORET. Included in STORET is USGS WATSTORE water quality data, which is updated on a monthly basis. Although STORET contains a phenomenal amount of data, it is important to note that data exist in STORET only if the collectors decide to upload their data to the system. Since many agencies and researchers do not upload their data to STORET, the absence of water quality data in the system for a particular area doesn't mean that there has never been any water quality data collected for the area. The data may exist in published or unpublished reports, file cabinets, or in agency-specific databases. Identifying and retrieving these other sources of data were beyond the scope of the present effort. All parameter data and water quality station location data downloaded from STORET within the park's study area are included in DBASE III+ format files on disk(s) accompanying this report (See Appendices A and B).

The data within the IFD database are extracted from the EPA's Permit Compliance System (PCS). IFD contains the facility locations of all industrial and municipal dischargers which require a National Pollutant Discharge Elimination System (NPDES) permit to operate. Over 7,100 municipal, federal, and industrial facilities discharging into the waters of the United States are tracked by PCS and IFD. If any industrial facilities discharges exist within the study area, a file in DBASE III+ format documenting a variety of information about each discharge accompanies this report on disk (See Appendices A and B).

The EPA DRINKS database identifies locations of drinking water supply intakes. This file contains data for 850 supplies which serve more than 25,000 people, and 6,800 supplies which serve between 1,000 and 25,000 people. If any drinking water intakes exist within the study area, a file in DBASE III+ format documenting a variety of information about each intake accompanies this report on disk (See Appendices A and B).

The GAGES data originates primarily with the USGS and copies are maintained on the EPA mainframe computer for ease of integration with other EPA national data systems. Although other agency's water gages, as well as some artificial gages, may appear in GAGES, the vast majority of gages are stream gages belonging to the USGS. The GAGES database contains approximately 36,000 records for both active and inactive gaging stations. If any USGS or other agency stream gages occur within the study area, a file in DBASE III+ format documenting several fields of information about each gage accompanies this report on disk (See Appendices A and B).

The Water Impoundment database was originally compiled by the U.S. Army Corps of Engineers in response to a Congressional inquiry on dam safety hazards (GKY and Associates 1990). The EPA subsequently modified the database for use in water quality investigations. Of the 68,155 dams in the database, 2,125 are considered large (impounding 10,000 acre feet or more at normal pool volume). It is important to note that while the database includes entries for 66,030 smaller dams, estimates place the actual number of dams in the U.S. at several million

(including small farm ponds). If any water impoundments occur within the study area, a file in DBASE III+ format documenting several fields of information about each impoundment accompanies this report on disk (See Appendices A and B).

The RF3 data system is a hydrologic database of surface water features across the U.S. (excluding, at present, Idaho, Oregon and Washington, which currently operate a different system - although this data is expected to be converted to RF3 soon, Alaska and Hawaii). RF3 was created primarily from 1:100,000 scale USGS Digital Line Graph data. RF3 is made up of over 3,000,000 individual "reaches". A reach is generally defined as a portion of surface water between two confluences (U.S. Environmental Protection Agency 1993). The linework underlying RF3 contains over 95,000,000 coordinate points. RF3 is designed to facilitate hydrologic routing, identifying upstream and downstream elements, and specifying the exact location of any point on a stream network. RF3 data exists as a series of traces with associated attributes. The EPA project which is producing RF3 is being conducted in three phases: Compilation, Assessment, and Revision. The Compilation phase is complete except for Idaho, Washington, Oregon, and Alaska. The Assessment phase was completed during the first half of 1994; while the Revision phase was begun in March 1994. One important outcome of the Revision phase is that the reach codes which uniquely identify each surface water feature will change. Consequently, these codes should not be used, at this time, as keys for relating other data to RF3. The RF3 data provided with this document is provisional and should be used only to provide a geographic backdrop for the park's water quality data. RF3 data covering each USGS catalog unit (a geographic area representing a single or multiple drainage basin(s), or some other distinct hydrologic feature (U.S. Geological Survey 1982)) touched by the park's study area is included in ASCII export and DBASE III+ formats on the disk(s) accompanying this report (See Appendices A and B).

For additional information on any of these data systems, contact the EPA Office of Water at (202) 260-7028.

**Data Retrieval and Analysis Procedures**

The six EPA data systems discussed above reside on the EPA mainframe computer located in Research Triangle Park, N.C. Horizon Systems used a dedicated, leased telephone line with a data transfer rate of 9600 bits per second to download data occurring within the park's study area from all the databases. The bisynchronous communication software and hardware provided error checking during all data transfer procedures.

As described above, the park study/query area boundary was used to select the water quality stations, industrial facilities discharges, drinking water intakes, water gages, water impoundments, and river reaches associated with the park unit. For various reasons, screening criteria (described later in this section) were employed to select appropriate water quality stations, parameters, and observations. Horizon Systems wrote several mainframe programs to automate, to the greatest extent feasible, the STORET data retrieval and storage procedures. Once the data were extracted from the EPA data systems, they were downloaded to a microcomputer for statistical analyses and reformatted into DBASE III+ compatible format.

Specifically, once on the PC, the data were processed to:

(1) Reformat the data into DBASE III+ format and other database structures;
(2) Eliminate questionable data outside the STORET edit criteria ranges (See Appendix C);
(3) Display on a map the location of water quality monitoring stations and other water resources themes;
(4) Determine the frequency of water quality observations by station, parameter, and station/parameter;
(5) Generate descriptive period-of-record water quality statistics in a tabular format;
(6) Generate appropriate descriptive annual and seasonal analyses of the water quality data in a tabular format;
(7) Plot appropriate period of record time series and annual and seasonal box-and-whisker graphs;
(8) Compare the water quality data against relevant EPA national criteria; and

(9) Compare the water quality data against the NPS Servicewide Inventory and Monitoring Program's "Level I" water quality parameters.

Special customized microcomputer programs (primarily written in Clipper and Microsoft Professional BASIC) and procedures were created to address each of these tasks. All reformatted database files are included on disk(s) accompanying this document. The contents of these databases are described briefly below. Complete database structures are included in Appendices A and B. The descriptive water quality tabular statistics (see "Statistical Analyses" below) were computed based upon NPS specifications. Command or batch files were generated to drive STATGRAPHICS 7.0 in order to produce all the time series and box-and-whiskers plots.

**Park Unit Databases**

Up to seven digital databases in DBASE III+ and other formats have been created for the park by querying the water resources-related data sources described above. The disk(s) containing these databases accompany the report. The contents of each of these databases are discussed briefly below. More detailed documentation of these databases is included in Appendices A and B.

(A) Water Quality Parameter Data: This database includes all the water quality parameter data downloaded from STORET that passed the STORET Edit Criteria, Date, Station Type, and Phase 0 Parameter screens (described below) and is summarized tabularly and graphically in this document. This constitutes the park's baseline water quality data. Since it is already in digital format, more sophisticated analysis of the data is possible than the descriptive statistics and graphics presented here.

(B) Water Quality Station Locations: This database consists of the STORET header information describing each station where water quality data was collected. As the latitude and longitude of the station are included in the database, this file is easily imported into the park's GIS.

(C) Industrial Facility Discharge Locations: This database includes any industrial or municipal point source discharges located within the park's study area. As the latitude and longitude of each discharge facility are included in the database, this file is easily imported into the park's GIS.

(D) Drinking Water Intake Locations: This database includes any drinking water intakes located within the park's study area. As the latitude and longitude of each intake are included in the database, this file is easily imported into the park's GIS.

(E) Water Gage Locations: This database includes water (stream, lake, estuary, well, spring, climate, or other) gages located within the park's study area. Most of the gages will likely be stream gages belonging to the USGS. As the latitude and longitude of each gage are included in the database, this file is easily imported into the park's GIS.

(F) Water Impoundment Locations: This database includes any water impoundments (dams) located within the park's study area. As the latitude and longitude of each impoundment are included in the database, this file is easily imported into the park's GIS.

(G) River Reach Data: This database includes all stream traces (1:100,000 scale) and attributes for reaches falling within any USGS catalog unit that touches the park's study area. The traces are geo-referenced in ASCII format. The attributes are in both ASCII export and DBASE III+ formats. This information is also readily incorporated into the park's GIS.

The absence of any of these seven files from the disk(s) accompanying the report indicates that there was either no data of this type within the park's study area or the data was unavailable. Several other files are included on the disk(s) accompanying this report, including digital copies of all the figures and tables contained in the document and some other items. Refer to Appendices A and B for detailed documentation of these files. Not included on

disk is an Encyclopedia File (for WRD reference) that documents the minimum and maximum values for each water quality parameter and the parks in which those values were recorded. When Baseline Water Quality Data Inventory and Analysis reports have been completed for all parks, this Encyclopedia File will be available upon request from the NPS WRD.

**Screening Methodologies and Procedures**

Developing automated or semi-automated procedures to produce baseline water quality inventories and analyses for all national park units required constant testing and debugging of procedures. Three parks, Rock Creek Park, Yellowstone National Park, and Indiana Dunes National Lakeshore, were used to pilot test and refine the automated procedures. It became evident, after a preliminary analysis of all the downloaded STORET data, especially for Indiana Dunes National Lakeshore, that the specifications for the graphical analyses could generate hundreds (possibly thousands) of plots, many of which would not necessarily be useful. Also, there were many stations; parameters; and/or observations downloaded that were not part of the study's objectives; not overly useful; or of dubious quality. In order to reduce the number of graphical plots (time series, annual and seasonal box-and-whiskers) to fit within project resources, various screening criteria were investigated. Ultimately, a comprehensive set of screening criteria were developed to reduce the number of graphical plots. After initial counts of the total number of possible time series and annual and seasonal box-and-whiskers plots were generated, these counts were used to decide which screening criteria would be applied to limit the number of these plots produced for the park unit. Additional screening criteria were employed to restrict the tabular descriptive statistics results to only those deemed useful to the park. Table A provides the categories of screening criteria and to which analyses the screens were applied. A "yes" entry in the table means that the screening category eliminated or prevented data from appearing in certain tables and plots contained in the document. Consequently, in understanding how data from STORET was used in this report, it may be helpful to keep in mind the three general types of screening criteria: (1) screens that apply to stations; (2) screens that apply to certain parameters at stations; and/or (3) screens that apply only to particular observations of parameters at stations. A detailed description of each of the screening criteria categories follows this table. *It is important to note that statistics in "Inventory" reports may not be consistent with statistics in "Overview" reports since different categories of screening criteria were applied*. Also, if attempting to replicate the results of the statistical and graphical analyses presented in this document, be sure to follow the same screening methodologies.

STORET Edit Criteria

As mentioned previously, STORET is a "user-beware" data system. As the EPA doesn't certify any data in STORET, public agencies enter and are responsible for the quality of their own data. Only data entered since November 1983 have been subjected to any rudimentary edit/bounds checking. Agencies entering data since this date can elect to override the edit/bounds checking for individual observations. USGS WATSTORE water quality data is entered into STORET without any EPA edit/bounds checking to ensure data integrity between WATSTORE and STORET. Unfortunately, during the course of our pilot tests, erroneous USGS and EPA water quality data values were discovered. In order to eliminate as much "bad" data as possible, all water quality data downloaded from STORET was subjected to automatic edit/bounds checking (STORET Edit Criteria contained in Appendix C) for the 190 most common parameters. Observations falling outside the STORET Edit Criteria were documented (See the Water Quality Observations Outside STORET Edit Criteria for Park section in the Water Quality Results chapter) and then retained or discarded from the database and all tables and plots based on whether the value was judged as being in the realm of possibility. Although the STORET Edit Criteria screen likely removed some "bad" data for these common parameters, the probability of other erroneous data in the database is high. Be sure to consult the Caveat section in the Introduction.

Table A. Categories of Screening Criteria and to Which Output Products They Apply (A "yes" Entry Means the Screening Category Eliminated or Prevented Data From Being Used in the Product):

| Screening Category | Data Download | Overview Tables | Inventory Tables | Annual Tables | Seasonal Tables | Standards Tables | Plots (All) |
|---|---|---|---|---|---|---|---|
| **STORET Edit Criteria** | yes | yes | yes | yes | yes | yes | yes |
| **Date** | yes | yes | yes | yes | yes | yes | yes |
| **Station Type** | yes | yes | yes | yes | yes | yes | yes |
| **Phase 0 Parameter** | yes | yes | yes | yes | yes | yes | yes |
| **Phase 1 Parameter** | no | no | yes | yes | yes | yes | yes |
| **Media Type** | no | no | yes | yes | yes | yes | yes |
| **Remark Codes** | no | no | yes | yes | yes | yes | yes |
| **Composite Type** | no | no | yes | yes | yes | yes | yes |
| **Phase 2 Parameter** | no | no | no | no | no | no | yes |
| **Observations/Period of Record** | no | no | no | yes | yes | no | yes |

Date Screen

Every water quality observation in STORET typically has a sampling date associated with it. Unfortunately, STORET does not prevent users from entering incorrect dates. Consequently, any water quality observation with an incorrect and/or suspect date (eg. a month greater than 12; a day greater than 31; or a sample date later than the STORET retrieval date) were discarded.

Station Type Screen

STORET contains data from a wide variety of stations classified by the type of waterbody in which samples were collected. As this project's purpose was to inventory and analyze surface-water quality, the following surface-water station types were retrieved (clarification provided in parentheses):

Station Types Included In Retrieval

(a) STREAM
(b) CANAL
(c) LAKE
(d) RESERV (Reservoir)
(e) SPRING
(f) FWTLND (Fresh Water Wetland)
(g) SWTLND (Salt Water Wetland)
(h) ESTURY (Estuary)
(i) OCEAN

Ground water and/or other station type data may have been retrieved if the entering agency classified the station type incorrectly. Rectifying this error was beyond the scope and resources of this project.

Phase 0 Parameter Screen

Nearly all water quality parameters associated with each station type listed above were retrieved. The only exception to this was the exclusion of most of the STORET administrative parameters. A complete list of STORET administrative parameters is included in Appendix D. The few administrative parameters that were included in the retrievals are as follows:

| Code | STORET Administrative Parameter Description |
|---|---|
| 00027 | Code No. for Agency Collecting Sample |
| 00028 | Code No. for Agency Analyzing Sample |
| 00063 | Sampling Points, Number of In a Cross Section |
| 00111 | Ratio of Fecal Coliform to Fecal Streptococci |
| 00115 | Sample Treatment Code (1=Raw, 2=Treated) |
| 34772 | NPDES Number, Cross Reference |
| 45580 | Method of Analysis |
| 74065 | Stream Flow Class |
| 74066 | Annual Runoff |
| 74067 | Soil Classification |
| 74068 | Water Quality Designated Use Classification |

Phase 1 Parameter Screen

Some of the data retrieved from STORET was not suitable for statistical or graphical analysis. Consequently, this screening criterion eliminated all parameters which were not suitable for statistical or graphical analysis within the context of this project. The full list of these parameters is presented in Appendix E. Examples of parameters excluded from statistical and graphical analysis include the administrative parameters mentioned above, land use acreage, encoded values, dates, latitude/longitude, etc. Excluded parameters do, however, appear in the Parameter Period of Record and Station/Parameter Period of Record (two of the "Overview" Tables), as well as in the water quality parameter file included on disk(s) accompanying this report.

Media Type Screen

Water quality samples can be taken in a variety of aqueous media. Water quality data were retrieved from STORET only if the media were WATER or VERT (vertically integrated). WATER and VERT samples comprise the overwhelming majority of samples in STORET. The media screen eliminated the following water quality sampling media:

| Media Screen | Description |
|---|---|
| BOTTOM | Sampled At the Bottom |
| DREDGE | Sampled By Dredge |
| PORE | Pore Sample |
| CORE | Core Sample |

Remark Code Screen

STORET enables the agency collecting water quality samples to provide a qualifying remark for each parameter observation. These remarks provide additional information about the measured or observed value entered into STORET (See Appendix B - Parameter Data File for a complete listing and description of all remark codes). Based on the STORET remark codes, two potential screens were applied to water quality observations based on whether the measured value was used in subsequent analyses: (1) Elimination or (2) Modification/Inclusion.

*Elimination:*
Non-composite water quality parameters with the remark codes presented in Table B were eliminated from the period of record, annual, and seasonal descriptive statistics and graphics. Not including observations with these remarks was justified by the fact that most of the remarks: (A) indicate either less confidence in the measured value; (B) are remarks for nominal or categorical data that doesn't lend itself to statistical analysis; or, (C) complicate the statistical analysis beyond the scope of this effort. Observations containing these remark codes comprise a very small fraction of the data. Although statistical analyses weren't undertaken on this data, all water quality observations, regardless of remark code, are included on disk(s) accompanying this report. If you re-analyze this data in order to replicate the results presented here, be sure to eliminate all non-composite observations with the remark codes presented in Table B.

Table B. Non-composite Parameters With the Following Remark Codes Were Eliminated From Statistical and Graphical Analysis:

| Remark Code | Description of STORET Remark Code |
|---|---|
| F | Female Species. |
| J | Estimated, Not the Result of Analytic Measurement. |
| M | Presence Verified, But Not Quantified, Below Quantification Limit. For Species, Male. For Oxygen Reduction Potential, Indicates Negative Value. |
| N | Presumptive Evidence of Presence. |
| O | Analysis Lost. |
| V | Analyte Was Detected In Sample and Method Blank. |
| W | Less Than Lowest Value Reportable Under Remark "T". |
| Z | Too Many Colonies Were Present to Count (TNTC), Value Represents Filtration Value. |

*Modification/Inclusion:*
Water quality parameter observations with the remark codes presented in Table C were halved prior to inclusion in period of record, annual, and seasonal descriptive statistics and graphics. These remark codes deal with observations that were below the detection limit for the parameter. The common water quality data analysis convention for these remark codes is to use half of the detection limit in statistical analyses (Ward, Loftis, and McBride 1990; Gilbert 1987). Although this is a somewhat defensible treatment of observations below the detection limit, the statistics that may be computed using these halved values may not be defensible. Consequently, any computed statistics in inventory, annual, or seasonal tables that are comprised of 50% or more K, T, and U remark codes are footnoted "Computed with 50% or more of the total observations as values that were half the detection limit." This will provide the user with some caution in using and interpreting these results. Water quality data included on disk(s) accompanying this report that may have these remark codes are stored as the original entry (detection limit). If you re-analyze this data in order to replicate the results presented here, be sure to substitute half the detection limit value in the database whenever these remark codes are encountered.

| Table C. The Value of Water Quality Parameters With the Following Remark Codes Were Halved (Half of the Detection Limit Entered In STORET) Prior to Inclusion In Descriptive Statistics and Graphics: | |
|---|---|
| **Remark Code** | **Description of STORET Remark Code** |
| K | Off-scale Low, Actual Value Not Known, But Known to Be Less Than Value Shown. |
| T | Less Than Detection Criteria. |
| U | Analyzed For But Not Detected, Value is Detection Limit For Process Used. If Species, Undetermined. |

Composite Type Screen

Sometimes data entered in STORET represent something other than a single measurement at one location at one point in time. These samples are typically referred to as composite samples due to the fact that they vary temporally and spatially. Consequently, the observation entered into STORET for composite data is typically a computed value that summarizes the data over time and/or space. Such data complicate statistical and graphical analyses and must be handled separately. Such treatment was beyond the scope of this study; although composite values typically represent only a fraction of STORET observations. The composite type screen eliminates all composite observations from statistical and graphical analyses, except those with a composite type code of "A" that have a one day or less sampling period and those with a composite type code "D". All water quality observations, regardless of composite type code, are included on disk(s) accompanying this report. If you re-analyze this data in order to replicate the results presented here, be sure to exclude all composite observations except those with a code of "A" that have a one day or less sampling period and those with a code of "D". Table D presents a list of possible STORET composite type codes.

| Table D. Possible STORET Composite Type Codes | |
|---|---|
| **Composite Type Code** | **STORET Composite Type Description** |
| A | Average |
| H | Maximum |
| L | Minimum |
| N | Number of Observations |
| # | Number of Observations |
| S | Standard Deviation |
| U | Sum of Squares |
| V | Variance |
| C | Coefficient of Error |
| X | Coefficient of Variance |
| E | Skewness |
| F | Kurtosis |
| Z | Number of Obs. That Exceed An Established Limit |
| % | Precision |
| $ | Accuracy |
| B | N/A |
| D | Indicates Replicate Sample |

Phase 2 Parameter Screen

Due to budgetary limitations, the number of graphical plots (time series, annual and seasonal box-and-whiskers) produced had to be manageable - typically no more than 100 total plots. After scrutinizing the results of the pilot tests and the Baseline Water Quality Data Inventory and Analysis Reports produced for the first group of parks, the 19 parameters which, typically, were the most frequently measured at nearly all stations were water temperature, stage, discharge, and various meteorological measurements (See Table E). Consequently, most of the graphical plots produced would be of water temperature, stage, discharge, and meteorological conditions. Although these are important parameters, particularly in conjunction with other water quality parameters, it was felt that plotting resources would be better allocated to other water quality parameters. Consequently the STORET parameter codes listed in Table E never generated graphical plots. It is important to note, however, that these parameters are included in all other aspects of the project, including all applicable period of record, annual, and seasonal descriptive statistics tables.

| Table E. Frequently Measured STORET Codes That Were Prevented From Generating Plots | |
|---|---|
| **STORET Parameter Code** | **STORET Parameter Description** |
| 00003 | Sampling Station Location, Vertical (Feet) |
| 00010 | Water Temperature (Degrees Centigrade) |
| 00020 | Temperature, Air (Degrees Centigrade) |
| 00021 | Temperature, Air (Degrees Fahrenheit) |
| 00025 | Barometric Pressure (MM of HG) |
| 00032 | Cloud Cover (Percent) |
| 00035 | Wind Velocity (Miles Per Hour) |
| 00036 | Wind Direction in Degrees from Trun N (Clockwise) |
| 00040 | Wind Direction (Azimuth) |
| 00045 | Precipitation, Total (Inches Per Day) |
| 00046 | Precipitation, Total (Inches Per Week) |
| 00052 | Humidity, Relative (Percent) |
| 00061 | Stream Flow, Instantaneous (CFS) |
| 00065 | Stream Stage (Feet) |
| 81903 | Depth of Bottom of Water @ Sample Site (Feet) |
| 82553 | Rainfall In 1 Day Inclusive Prior to Sample (Inches) |
| 82554 | Rainfall In 7 Days Inclusive Prior to Sample (Inches) |
| 82371 | Rainfall In 3 Days Inclusive Prior to Sample (Inches) |
| 82372 | Rainfall In 14 Days Inclusive Prior to Sample (Inches) |
| 85599 | Precipitation, Total/Period-Rain Equivalent (Cm/Sample) |

Observations/Period of Record Screen

Despite never plotting water temperature, stage, discharge, and meteorological measurements, the number of plots generated by some parks still exceeded the 100 plot limit. Also, some rationale was needed to plot only those parameters with sufficient data density to make a meaningful statistical graphic. For example, time series plots comprised of only a few observations or annual or seasonal box-and-whiskers plots with limited observations and/or data in only one or two years or seasons are not very informative. Consequently, a number of plotting criteria were developed to limit the number of time series and box-and-whiskers plots to, at most, 100 informative graphics by using each parameter's number of observations and period of record. Similar, albeit less stringent criteria, were used for including results of annual and seasonal analyses in descriptive statistics tables. Consequently, there are more summaries of annual and seasonal results in tables than in graphics. Whenever an entry in an annual or seasonal table generated a plot, this entry was footnoted to notify the reader of the presence of the graphic. Due to differing quantities of data at parks, different screening criteria were employed. The same

criteria for appearance in seasonal and annual tables were used for all parks. Table F presents the least stringent plot screens.

Table F. Least Stringent Plot Screening Criteria Used to Limit the Number of Plots Generated

| |
|---|
| Time Series:<br><br>To generate a time series plot, a station/parameter combination must have a period of record of at least 2 years and a total of at least 8 observations.<br><br>Annual Analysis:<br><br>To generate an annual box-and-whiskers plot, a station/parameter combination must have at least 9 observations in each of at least 4 years. The years do not have to be consecutive.<br><br>Seasonal Analysis:<br><br>To generate a seasonal box-and-whiskers plot, a station/parameter combination must have at least 9 observations in each of 2 seasons and a period of record of at least 6 years and observations in at least 3 of the 6 years. The years do not have to be consecutive. |

The exact three plot screens used varied by park unit and are documented in the Overview section of the Water Quality Results chapter. If your park's plotting criteria deviated from these least stringent criteria, it is because too many plots would have been generated using these criteria.

The criteria used for appearance of station/parameter combinations in annual and seasonal analysis tables are presented in Table G. These tabular criteria, which are actually the least stringent plotting criteria, were constant from park to park.

Table G. Criteria Used for Generating Entries in Annual and Seasonal Analysis Tables

| |
|---|
| Annual Analysis:<br><br>For an entry to appear in an annual table, a station/parameter combination must have at least 9 observations in each of at least 4 years. The years do not have to be consecutive.<br><br>Seasonal Analysis:<br><br>For an entry to appear in a seasonal table, a station/parameter combination must have at least 9 observations in each of 2 seasons and a period of record of at least 6 years and observations in at least 3 of the 6 years. The years do not have to be consecutive. |

**Statistical Definitions**

Since this report is intended only to characterize historical and/or existing water quality at the park rather than address specific water quality problems, only simple descriptive statistics are presented. Inferential and non-parametric statistical analysis to examine relationships and trends were beyond the scope of the study. The complete water quality dataset is provided on disk accompanying this report to afford the opportunity for more detailed exploratory data analysis. The descriptive statistics are included in the inventory, annual, and seasonal tables. Table H provides a brief definition of each descriptive statistic provided for each parameter at a station.

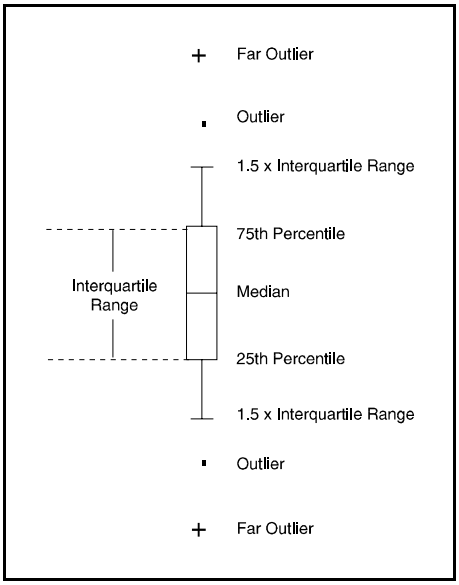
Table H. Definition of Descriptive Statistics Contained in Inventory, Annual, and Seasonal Tables

| | |
|---|---|
| Observations: | The number of samples collected. |
| Median: | The median is the 50th percentile or the value in a dataset sorted in ascending order that exceeds 50% of all observations, yet is also exceeded by the remaining 50% of all observations. |
| Mean: | The sum of all observations collected divided by the number of observations. |
| Maximum: | The maximum value observed. |
| Minimum: | The minimum value observed. |
| Variance: | This is a measure of variability or dispersion of the observations; or, in other words, describes how many observations are close (or far), from the mean. It is calculated as the weighted average of the squared deviations from the mean. |
| Standard Deviation: | The positive square root of the variance. |
| 10th Percentile: | The value in a dataset sorted in ascending order that exceeds 10% of all observations, yet is itself exceeded by the remaining 90% of all observations. |
| 25th Percentile: | The value in a dataset sorted in ascending order that exceeds 25% of all observations, yet is itself exceeded by the remaining 75% of all observations. The 25th percentile is also known as the first quartile. |
| 75th Percentile: | The value in a dataset sorted in ascending order that exceeds 75% of all observations, yet is itself exceeded by the remaining 25% of all observations. The 75th percentile is also known as the third quartile. |
| 90th Percentile: | The value in a dataset sorted in ascending order that exceeds 90% of all observations, yet is itself exceeded by the remaining 10% of all observations. |

As with the tabular descriptive statistics, the scope of the project limited the generation of exploratory graphics to time series plots and annual and seasonal box-and-whiskers plots. Plots were only generated, however, provided the parameter met or exceeded the relevant plotting criteria specified in the previous section.

Time series plots display the parameter concentration on the Y-axis and the date on the X-axis. This provides the user with a visual feeling for not only the parameter's concentration and variability over time, but also the density of data in different time periods. The time series plots provide a visual representation of the data in the basic station inventory. Due to software limitations, a line connects each measured value in sequence regardless of the time period between samples. Readers are cautioned not to assume that the concentration of the parameter between any two data points can be represented by a straight line. It is likely that the concentration varied between any two observations, particularly if the observations are separated by a significant time period.

The annual and seasonal box-and-whisker plots provide a graphical overview of the measured data and give the user a better understanding of the data's distribution and possible outliers. In essence, the box-and-whisker plots provide a visual representation of the data contained in the annual and/or seasonal tables. The interpretation of the boxes is provided in the figure to the right. Each box encompasses the middle 50 percent of measured values (from the 75th to 25th percentiles). The difference between the 75th and 25th percentiles is also known as the interquartile range. The horizontal line inside each box is the median or 50th percentile. The lines which extend out from each end of the box are the whiskers. The whiskers extend out from first quartile (25th percentile) and third quartile (75th percentile) to the smallest data point within 1.5 interquartile ranges from the first and third quartiles. Observations that extend beyond the whiskers are known as outliers. Far outliers are observations whose values lie more than three interquartile ranges below the first quartile or above the third quartile. These are designated with plus signs.



## INTERPRETIVE GUIDE

## TO WATER QUALITY RESULTS

This interpretive guide discusses each of the products presented in the next chapter - Water Quality Results. This chapter highlights how each of the tables and figures were prepared and how they can be used. Each subheading in this chapter corresponds to a particular product in the subsequent Water Quality Results chapter.

### Overview

The Overview provides a brief one-page summary of the results of the various database retrievals for both the study area and the park. The study area results include the park results since the study area encompasses the park and all lands and waters within at least 3 miles upstream and 1 mile downstream of the park. Thus, the GIS estimated acreage of the study area should always be greater than the park acreage. The park acreage was computed from the digital boundary that was obtained for the park. More than likely this acreage will differ, perhaps significantly, from the "official" published acreage for the park due to the spatial and temporal accuracy of the digital boundary, treatment of inholdings, and other concerns. The number of STORET stations is the number of locations within the study area and park where an agency monitored (or intended to monitor) water quality. The number of stations with no data reveals the number of stations created in STORET for which water quality data were never entered. The number of stations with no statistical analysis reports the number of stations in the study area and park that contain data not amenable to normal parametric statistics. The number of longer term stations indicates the number of stations in the study area and park with at least 6 parameters having periods-of-record extending 2 years with an average of at least 1 observation per year over the period-of-record. The date of STORET retrieval is the calendar date when Horizon Systems downloaded all the data from STORET. Thus, the report documents all data entered in STORET prior to the retrieval date. Keep in mind that an agency can upload archival data at any time. Consequently, a retrieval date only guarantees that as of that date, this report contains all the data that had been entered into STORET. The period of record is the earliest date for which water quality data exist in STORET for the study area and park up to the date when the most recent data were entered prior to the retrieval date. The number of parameters measured is the number of unique water quality parameters measured within the study area and park and entered in STORET. The number of water quality observations is the sum of the total number of observations across all parameters within the study area and park. The number of industrial/municipal facilities discharges, drinking water intakes, water gages, and water impoundments are the number of each of these entities found within the study area and park. The number of time series, annual, and seasonal plots are the number of these different types of graphics produced by station/parameter combinations within the study area and park using the plotting criteria described in the previous chapter. The hydrologic seasons, described below, are the seasons used for the seasonal water quality data analysis. The time series, annual, and seasonal criteria are the plot and tabular screening criteria described in the previous chapter.

### Regional Location Map

The Regional Location Map provides a small scale, general representation of the park and study area location within the United States. Digital, reproducible copies of this graphic are included on the disk(s) accompanying this report.

### Water Quality Monitoring Locations Map(s)

The Water Quality Monitoring Locations Map(s) usually provides a larger scale representation of the park and study area than the Regional Location Map. This map indicates the locations within the study area where water quality has been monitored and the data entered into STORET. The water quality monitoring stations are labelled sequentially with the rightmost significant digits. The station names were assigned in numerically ascending order by latitude (for parks with a greater north-south extent than east-west) or longitude (for parks with a greater east-

west extent than north-south). Thus, this map serves as a visual index to the water quality data contained in the report. Since the 1:100,000 scale hydrography (from the River Reach File Ver. 3.0 or other sources) is displayed on the map, users can refer to the map to locate the station number on the reach in which they are interested and then find the appropriate section in the report that documents the water quality at that station. If the scale allows, USGS catalog units are also displayed on the map to provide an approximation of drainage basins. More than one Water Quality Monitoring Location map may be presented if the scale requires breaking the area into multiple maps for legibility. If multiple maps are necessary, an index map showing the geographic extent of each sub-map or panel will be present. Digital, reproducible copies of this graphic are included on the disk(s) accompanying this report. The digital, geo-referenced data files documented in Appendices A and B will allow the park to create water quality monitoring stations as a coverage in their GIS.

**Dischargers, Drinking Intakes, Gages, and Impoundments Map(s)**

The Dischargers, Drinking Intakes, Gages, and Impoundments Map(s) displays the same information as the Water Quality Monitoring Location Map(s) except the water quality stations are replaced by industrial/municipal facilities discharges, drinking water intakes, active and inactive gage locations, and water impoundments. This map also serves as a visual index allowing the user to determine the identification code of each discharger, drinking intake, gage, or impoundment. This number can then be used to obtain additional information about the entity on the following page of the report or to refer to the more detailed database files accompanying the report on disk. These more detailed database files are geo-referenced (See Appendices A and B), thus allowing the park to create these coverages in their GIS. More than one Dischargers, Drinking Intakes, Gages, and Impoundments map may be presented if the scale requires breaking the area into multiple maps for legibility. If multiple maps are necessary, an index map showing the geographic extent of each sub-map or panel will be present. Digital, reproducible copies of this graphic are also included on the disk(s) accompanying this report.

**Industrial Facilities Discharges, Drinking Water Intakes, Water Gages, and Water Impoundments Table**

This table provides some additional information about each of the discharges, drinking intakes, water gages, and water impoundments displayed on the previous map(s). This information generally includes the site identification number; the station or facility name; an address or some other indication of location; and some other pertinent information. More detailed information about each of these entities is contained in the database files on disk accompanying the report (See Appendices A and B).

**Representative Mean Annual Hydrograph for Seasonal Analysis**

One component of the water quality data analysis contained in the document is a seasonal analysis of the data (where adequate data exist). In order to undertake this analysis, some representation of the park's seasons was required. Seasons can be based on many factors (eg. hydrologic, climatic, recreational use, etc.). Since project resources did not allow us to contact every park and discuss with resource management staff what appropriate seasons may be for the park, WRD staff elected to adopt primarily a hydrologic/climatic definition of the seasons which uses a process of hydrograph separation to glean seasons from stream discharge patterns. The procedure employed to make these determinations was as follows:

(1) Find the nearest USGS Hydro-Climatic Data Network (HCDN) station (U.S. Geological Survey 1992) to the park that is most representative of streamflow conditions at the park. The HCDN is basically a subset of USGS streamflow stations, including only those stations that are unaffected by artificial diversions, storage, or other disruptions of the natural channel. All HCDN stations generally have at least a 20 year period of record. Consequently, discharge patterns at these stations should reflect only hydrologic and climatic influences. For the most part, selected HCDN sites were typically within 15-20 miles of the park. In some parks where WRD staff were aware of the existence of a stream gage located within the park that would be more representative of park waters even though it wasn't an HCDN site, this gage was selected.

(2) Retrieve the daily discharge values for the selected station from the USGS Daily Values File and generate a mean annual hydrograph and a box-and-whiskers plot of daily flows by month.

(3) Interpret the plots based on our knowledge of the hydrologic regime at these parks and assign seasons.

This approach, used for the majority of parks, assumes that most water quality data at the park will be found in streams and that the discharge pattern of the selected stream is representative of the seasons for all park waterbodies. Although this assumption may be weak for certain parks, project resources did not allow a more thorough investigation. For parks where there wasn't any stream gage (HCDN or otherwise) deemed representative of park waters, precipitation records from a nearby meteorological station were obtained from the National Climatic Data Center. Plotting daily average precipitation and box-and-whiskers of monthly precipitation sums allowed WRD hydrologists to make a rough approximation of climatic seasons for use in analyzing the water quality data.

Again, it is important to note the many ways of defining "seasons" and thus the limitations of the seasonal analysis contained in this document. For certain parks it may be more useful to perform a seasonal analysis with seasons defined by recreational use patterns or some other natural or anthropogenic factor. This option is available to the park since all the water quality data analyzed in this document is contained on disk(s) accompanying this report. Digital, reproducible copies of this seasonal analysis graphic are also included on the disk(s) accompanying this report.

**Contacts for Agency Codes Retrieved**

This table provides a list of the organizations who have entered data into STORET. A contact name at the organization and a phone number are also supplied. The agency code in the first column is the key for identifying which stations belong to that agency. This code will appear in the first line of each station's inventory. Although the agencies listed in this table are potential partners for future water quality monitoring or management endeavors, don't be surprised if the name of the contact and/or the telephone number is out of date. This information is entered when an agency first creates a station. The agency may not update this information when the initial contact moves on or the telephone number changes. Nonetheless, it is likely that the contact or someone else at the agency may be able to provide you with project reports or other information relative to the agency's data. A digital copy of this table accompanies this report on disk (See Appendices A and B).

**Quantity of Data Retrieved by Agency Code**

This table displays the period-of-record; numbers of water quality stations, longer-term stations, and stations without data; total number of water quality observations; and the number of unique water quality parameters measured by each agency within the study area and park boundary. Using this table, a park can quickly determine which agencies collect the most data in and around the park and whether they have monitored recently. A digital copy of this table accompanies this report on disk (See Appendices A and B).

**Station Period of Record Tabulation**

The Station Period of Record Tabulation provides a quick overview of the names of all the stations within the study area where water quality has been monitored and data entered into STORET. It also furnishes the total number of observations taken at each station and the frequency of observations between certain dates: (1) 01/01/85 until the most recent date data were measured; (2) 01/01/75 - 12/31/84; and (3) prior to 01/01/75. The station identification number, the four character park abbreviation code followed by a four digit number, provides the means to jump from a particular station in the table to the statistical and graphical analyses for this station contained in the Station-By-Station Results section. The Station Period of Record Tabulation reveals which water

quality stations were situated within the park as defined by the park's GIS boundary. The Station Period of Record Tabulation also footnotes longer-term water quality stations. Longer-term stations are those that have at least 6 parameters with an average of one or more observations per year for those parameters during a period of record extending at least two years. Note that although a station may not be flagged as longer-term, it can still harbor much important data (albeit for only a few parameters or over a very long term with just a few observations). A digital copy of this table accompanies this report on disk (See Appendices A and B).

**Parameter Period of Record Tabulation**

The Parameter Period of Record Tabulation provides a complete listing of every water quality parameter ever measured in the study area and entered into STORET. This table is a summation of all the water quality observations for each parameter across all stations in the study area. Like the Station Period of Record Tabulation, the total number of observations for each parameter and the frequency of observations between: (1) 01/01/85 until the most recent date data were measured; (2) 01/01/75 - 12/31/84; and (3) prior to 01/01/75 are provided. This table is handy for quickly assessing whether particular parameters have been measured in the study area. The Parameter Period of Record Tabulation also shows how many in-park (and total) water quality stations contained data for each parameter. Some administrative parameters and parameters not suitable for statistical analysis within the context of this project (as discussed in the Screening Methodologies and Procedures section of the Methodology chapter) are listed in the Parameter Period of Record Tabulation, but not in the Station-By-Station Results section. A digital copy of this table accompanies this report on disk (See Appendices A and B).

**Station/Parameter Period of Record Tabulation**

The Station/Parameter Period of Record Tabulation combines the information found in the Station Period of Record Tabulation and the Parameter Period of Record Tabulation. This table provides a listing of all the stations where a particular water quality parameter was measured in the study area and the data entered into STORET. The table provides the start and end dates of the period of record of each parameter at each station; the number of years of measurement (computed from the start and end dates); whether the station/parameter combination occurred within the park boundary; the total number of observations for each parameter at each station, and whether a time series (T), annual (A), and/or seasonal (S) plot was generated for the station/parameter combination in the Station-By-Station Results section. This table is very useful when you need to determine at which locations within the study area (or park) particular parameters were monitored and how much data was collected there. Some administrative parameters and parameters not suitable for statistical analysis within the context of this project (as discussed in the Screening Methodologies and Procedures section of the Methodology chapter) are listed in the Station/Parameter Period of Record Tabulation, but not in the Station-By-Station Results section. A digital copy of this table accompanies this report on disk (See Appendices A and B).

**Station-By-Station Results**

Probably the most voluminous portion of the document is the Station-By-Station Results. Here the results of the water quality analyses for each station are presented in sequence. The results include the station inventory; parameter inventory; EPA water quality criteria analysis; and, as applicable, time series graphics and annual and seasonal tables and box-and-whiskers graphics. Each of these products are discussed below.

*Station Inventory for Station*

Each station's data commences with its Station Inventory. The Station Inventory provides the descriptive attributes about each water quality monitoring station contained in STORET. This includes a variety of locational information such as a verbal description, the Federal Information Processing codes for county and state, latitude and longitude, and other items; the station type (stream, spring, estuary, etc.); monitoring agency; creation date; indices to the River Reach File; whether the station lies within the park boundary; and several other attributes. This water quality station location data is also contained on disk(s) accompanying the report (See Appendices A and B).

*Parameter Inventory for Station*

Following the descriptive attributes about a station is the Parameter Inventory for the station. The Parameter Inventory provides a complete inventory and descriptive summary of all the water quality parameter data for the station. This table furnishes the parameter STORET code and name; the period of record for this parameter at this station; and the descriptive statistics defined in the Statistical Definitions in the previous chapter. Three different footnotes can appear on a parameter's descriptive statistics. Two asterisks (**) in the 10th, 25th, 75th, or 90th percentile columns indicates that there was insufficient data to compute these statistics for this parameter. Percentiles were not computed unless the parameter had at least 9 observations. Two number signs (##) next to the number of observations indicates that more than 50 percent of the observations entered into the computations as values that were taken to be half the detection limit. Caution should be employed in interpreting and using statistical results when more than half the values are set to half the detection limit. The letter "p" following a numeric STORET parameter code in the Parameter Inventory indicates that a time series plot was produced for this parameter at this station. Digital, reproducible copies of the Parameter Inventory tables are contained on the disk(s) accompanying this report.

Two downloaded parameter groups, pH and bacteriological, received special treatment whenever descriptive statistics were computed in the Parameter Inventory (as well as subsequent annual and seasonal tables). Whenever pH appears in a descriptive statistics table, the entry is increased to 3 entries: (1) the original pH entry; (2) pH computed from conversion to and from $\mu$eq/l $H^+$; and (3) $\mu$eq/l $H^+$. The reason for these conversions is that pH is actually the negative logarithm of the hydrogen ion concentration. To be technically correct in computing descriptive statistics, pH values must be converted to $\mu$eq/l $H^+$ (Kunkle and Wilson 1984). Once the descriptive statistics are computed using the pH values expressed as $\mu$eq/l $H^+$, the results can be converted back to pH. The three pH entries in the descriptive statistics table will all have the same STORET code.

Whenever a bacteriological parameter appears in a descriptive statistics table, the entry is increased to 3 entries: (1) the original bacteriological entry; (2) an entry computed using the log of each measured value; and (3) an entry that simply reports the geometric mean. The reason for converting to logs and displaying the geometric mean is convention. Bacteriological water quality standards typically reference the geometric mean rather than the arithmetic. The three bacteriological entries in the descriptive statistics tables will all have the same STORET code.

*EPA Water Quality Criteria Analysis for Station*

The EPA Water Quality Criteria Analysis table follows the Parameter Inventory. This table presents a comparison between the station's STORET water quality data and applicable national water quality criteria for freshwater and marine aquatic organisms; drinking water; and other concerns. Comparison against applicable State water quality criteria was not feasible given project resources. Appendix F provides the relevant national EPA water quality criteria values. In most cases, the EPA water quality criteria values are single sample concentrations that can be directly compared to single sample STORET entries. There are, however, two notable exceptions to this single sample/single value comparison: ammonia and fecal-indicator bacteria. For these two parameters, criteria are either derived from or depend on the results of other chemical characteristics of the water or require a time series statistical treatment of multiple samples to determine whether the criterion has been exceeded. The EPA ammonia criterion is pH and temperature dependent. To calculate the criterion for each ammonia sample value was beyond

the scope of this project. Consequently, ammonia criteria were not included in Appendix F or the EPA Water Quality Criteria Analyses. Un-ionized ammonia criteria can be determined from formula table values included in the EPA Silver Book (Environmental Protection Agency 1995).

For the purposes of this project, fecal-indicator bacteria data were flagged as exceeding criteria when their concentrations exceeded 200, 1000, 126, and 33 (fresh)/35 (salt) colony forming units or most probable number for single samples of fecal coliform, total coliform, E. coli, and enterococci, respectively. These values represent only approximations of the criteria for primary contact recreation waters where criteria are typically expressed in terms of a geometric mean computed with no less than 5 samples during a given month. When a fecal-indicator bacterial observation exceeds a criterion in the EPA Water Quality Criteria Analysis section, the reader should refer to the corresponding geometric mean calculations in the preceding Parameter Inventory. Long-term geometric means that exceed the respective water quality criteria for multiple samples are more indicative of chronic bacteriological problems than single sample values.

Water quality observations carrying non-detection or below-detection limit remark codes (K, T, and U) required special treatment in the EPA Water Quality Criteria Analysis. As with the statistics in the Parameter Inventory, half the detection limit was the value used in the EPA Water Quality Criteria Analysis. For certain observations, however, half the detection limit may exceed a water quality criterion. For those observations it would be inappropriate to classify them as exceeding a criterion since the actual value wasn't known. Thus, it was decided that any below detection limit or non-detect observations that exceed a water quality criterion using half the detection value would be excluded from the EPA Water Quality Criteria Analysis. If non-detect or below detection limit values are excluded from the EPA Water Quality Criteria Analysis for a particular parameter, the total observations for that parameter will be footnoted with an ampersand (&). This will also explain the difference between the total observations in the Parameter Inventory and the EPA Water Quality Criteria Analysis. Non-detect or below detection limit values are included in the EPA Water Quality Criteria Analysis, however, if half the detection limit doesn't exceed the parameter's criterion.

The EPA Water Quality Criteria Analysis for each station lists the parameter; the standard type and value; the total number of observations for the parameter at this station; the number of observations that exceeded the standard value; and the proportion of observations that exceeded the standard value. Water quality observations are considered as having exceeded a criterion regardless of whether the criterion represents a maximum acceptable value or a minimum acceptable value. The table also breaks down the water quality criteria analysis on a seasonal basis to allow the reader to discern whether parameter observations tend to exceed criteria during only certain seasons or year round. Although the EPA Water Quality Criteria Analysis table is a good starting point for assessing potential water quality problems at the station, the reader is strongly encouraged to read the caveat section in the Introduction concerning drawing conclusions about water quality problems from this table. Digital, reproducible copies of these tables accompany the report on disk (See Appendices A and B).

*Time Series Plots for Station*

Following the EPA Water Quality Criteria analysis will be any Time Series Plots for each parameter that met the time series plot screening criterion selected for the park unit. If a time series plot is generated for a particular parameter at a station, a "p" will appear next to the STORET parameter code in the Parameter Inventory. If no time series plots are present for the particular station, the data did not meet the time series screening criterion listed in the Overview section of the Water Quality Results chapter. The x-axis on these plots is the period of record, listing only the 2-digit calendar year for clarity (i.e. 1983 is presented as 83). The y-axis is the concentration of the selected parameter in its measurement units. In general, the units for a given parameter are given either on the y-axis or in the parameter description in the subtitle of the graph. Subtitle and/or y-axis parameter descriptions may be truncated on the plots so as to not exceed the maximum number of plotting characters. Y-axis values less than zero are sometimes shown for better representation of the entire plot. The station identification code, parameter description, and parameter STORET code are presented in the main title. The footnote provides a descriptive location name. Observations on the plot are represented as squares. Lines are drawn connecting each successive observation. As mentioned previously in the Statistical Definitions section of the Methodology chapter, the interconnecting line is drawn only for ease of reading and provides no indication of what the actual parameter

values were between the two observed measurements. Digital, reproducible copies of all time series plots accompany the report on disk (See Appendices A and B).

For time series plots of pH, the original pH values are plotted. For time series plots of bacteriological data, the log of the measured value is plotted. Hence, the y-axis of a time series plot for bacteriological parameters is log-linear.

*Annual Analysis for Station*

If more than 9 observations exist in each of at least 4 years for a particular parameter at a station, an Annual Analysis table will be generated. Entries will be made in the table for each parameter having more than 9 observations in each of at least 4 years. The Annual Analysis presents the same descriptive statistics as the Parameter Inventory table, except that it provides the statistics by year, rather than the entire period of record. Although some of the years may not contain 9 observations, these years still have an entry in the table. A parameter needs only to have 9 observations in any 4 years of its period of record to qualify for the Annual Analysis table. Like the Parameter Inventory, percentiles with fewer than 9 observations are not computed and entries computed with greater than 50 percent of the data values set to half the detection limit are flagged. Entries in the Annual Analysis table that also meet the annual analysis box-and-whisker plot screening criterion will be flagged with a "p" next to the STORET code. Digital, reproducible copies of these tables accompany the report on disk (See Appendices A and B).

*Annual Box-and-Whiskers Plots for Station*

Entries in the Annual Analysis table that meet the annual box-and-whisker plot screening criterion will generate Annual Box-and-Whiskers Plots. The interpretation of box-and-whiskers plots is explained in the Statistical Definitions section of the Methodology chapter. A box is generated for each year of the period of record, even if less than 9 observations were recorded in the year. The axis labeling and plot titling is the same as for the time series plots. Digital, reproducible copies of these graphics accompany the report on disk (See Appendices A and B).

For annual box-and-whiskers plots of pH, $\mu$eq/l $H^+$ are plotted. For annual box-and-whiskers plots of bacteriological data, the log of the measured value is plotted. Hence, the y-axis of an annual box-and-whiskers plot for bacteriological parameters is log-linear.

*Seasonal Analysis for Station*

As explained above, a park's hydrologic seasons for seasonal water quality analysis were determined using a process of hydrograph separation and other techniques. If a parameter has more than 9 observations in each of 2 seasons with a period of record of at least 6 years and observations in at least 3 of the 6 years, a Seasonal Analysis table will be generated for the station. The Seasonal Analysis presents the same descriptive statistics as the Parameter Inventory table, except that it provides the statistics by season, rather than the entire period of record. Although certain parameters for a season at a station may not contain 9 observations, these parameters can still have an entry in the table. A parameter needs only to have 9 observations in each of 2 seasons with a period of record of at least 6 years and observations in at least 3 of the 6 years to qualify for the Seasonal Analysis table. Consequently, some of the parameters could have fewer than 9 observations in a particular season but still generate a table entry. Like the Parameter Inventory and Annual Analysis, percentiles with fewer than 9 observations are not computed and entries computed with greater than 50 percent of the data values set to half the detection limit are flagged. Entries in the Seasonal Analysis table that also meet the seasonal analysis box-and-whisker plot screening criterion will be flagged with a "p" next to the STORET code. Digital, reproducible copies of these tables accompany the report on disk (See Appendices A and B).

*Seasonal Box-and-Whiskers Plots for Station*

Entries in the Seasonal Analysis table that meet the seasonal box-and-whisker plot screening criterion will generate Seasonal Box-and-Whiskers Plots. The interpretation of box-and-whiskers plots is explained in the Statistical Definitions section of the Methodology chapter. A box is generated for each season of the period of record, even if less than 9 observations were recorded in the season. On the x-axis, the seasons are labeled 1 through the number of seasons defined for the park through hydrograph separation. The actual calendar dates that correspond to these numerically labeled seasons exist in the Overview section and the Seasonal Analysis tables in the Water Quality Results chapter. The axis labeling and plot titling are the same as for the time series and annual box-and-whiskers plots. Digital, reproducible copies of these graphics accompany the report on disk (See Appendices A and B).

For seasonal box-and-whiskers plots of pH, $\mu$eq/l $H^+$ are plotted. For seasonal box-and-whiskers plots of bacteriological data, the log of the measured value is plotted. Hence, the y-axis of a seasonal box-and-whiskers plot for bacteriological parameters is log-linear.

**EPA Water Quality Criteria Analysis for Entire Park Study Area**

This table essentially summarizes all the individual station-by-station EPA water quality criteria analyses in the study area. (Refer to the EPA Water Quality Criteria Analysis for Station section above for more detailed information on the treatment of special cases in the EPA Water Quality Criteria Analysis for Entire Park Study Area.) This table presents a comparison between the study area's STORET water quality data and applicable national water quality criteria for freshwater and marine aquatic organisms; drinking water; and other concerns. Comparison against applicable State water quality criteria was not feasible given project resources. Appendix F provides the relevant national EPA water quality criteria values. The EPA Water Quality Criteria Analysis for the Entire Park Study Area lists the parameter; the standard type and value; the total number of observations for the parameter at this station; the number of observations that exceeded the standard value; and the proportion of observations that exceeded the standard value. Water quality observations are considered as having exceeded a criterion regardless of whether the criterion represents a maximum acceptable value or a minimum acceptable value. The table also breaks down the water quality criteria analysis on a seasonal basis to allow the reader to discern whether parameter observations tend to exceed criteria during only certain seasons or year round. Although the EPA Water Quality Criteria Analysis for the Entire Park Study Area is a good starting point for assessing potential water quality problems at the park, the reader is strongly encouraged to read the caveat section in the Introduction before drawing conclusions about water quality problems from this table. A digital, reproducible copy of this table accompanies the report on disk (See Appendices A and B).

**NPS Servicewide Inventory and Monitoring Program**
**Level I Water Quality Inventory Data Evaluation and Analysis (IDEA)**

One of the objectives of this Baseline Water Quality Data Inventory and Analysis project is to perform an IDEA - an Inventory Data Evaluation and Analysis - to determine the presence and/or absence of Servicewide Inventory and Monitoring Program "Level I" water quality parameter groups in the park's study area. The Strategic Plan for Conducting Baseline Natural Resource Inventories in the National Park Service (National Park Service 1993) identified the basic water quality parameters displayed in Table I as the parameters that all parks must have for "key" waterbodies (determined on the basis of size, uniqueness, threats, etc.) within park boundaries. Since these parameters can be measured in different ways and with different units, there are multiple STORET codes associated with each parameter; hence the concept of parameter groups. The Strategic Plan distinguishes between those parameter groups required for all parks and parameter groups required only on a case-by-case basis.

The IDEA basically compares the parameters listed in the Parameter Period of Record Tabulation and Station/Parameter Period of Record Tabulation with the "Level I" Servicewide Inventory and Monitoring water quality parameter groups, listed in Table I and in Appendix G, and notes, not only the presence or absence of each parameter group, but the total number of observations for each parameter present in the group; the number of

observations between certain time periods; and the total number of stations within the study area at which the parameter was measured. The total number of different (unique) stations measuring parameters for the group is in parentheses on each parameter group's summary line.

The first page of the IDEA lists the missing Servicewide Inventory and Monitoring Program "Level I" groups. If a parameter group appears on this list, no data for any of the parameters defining the group (See Appendix G) was retrieved for it within the study area. So-called non-priority parameter groups may appear in the missing list. Non-priority parameters are park-specific parameters (case-by-case) which may not be applicable to your park. Consequently, if you believe a particular parameter, not included in IDEA (See Appendix G), to be important for your park, you will have to consult the Parameter and Station/Parameter Period of Record Tabulations to determine the presence or absence of this parameter for the park. Although considered a "Level I" parameter, biological data, obtained through rapid bioassessment or other means, is not considered in this report which deals specifically with surface water chemistry. Following the Missing Level I Group list is the Present Level I Group list which displays the summary results for each Servicewide Inventory and Monitoring "Level I" water quality parameter group that was found.

Table I. Basic "Level I" Water Quality Parameters Identified as Required and Optional By the Servicewide Inventory and Monitoring Program for "Key" Park Waterbodies

Required Parameter Groups:
(1) Alkalinity
(2) pH
(3) Conductivity
(4) Dissolved Oxygen
(5) Rapid Bioassessment Baseline (EPA/State protocols, involving fish and macroinvertebrates)
(6) Temperature
(7) Flow

Case-By-Case Parameters Groups:
(8) Toxic Elements
(9) Clarity/Turbidity
(10) Nitrate/Nitrogen
(11) Phosphate/Phosphorus
(12) Chlorophyll
(13) Sulfates
(14) Bacteria

The last page of the IDEA summarizes the information from the Missing and Present Level I Group lists. This page provides information on the temporal and spatial distributions of the data. Included in this table are the total number of observations for each parameter group; the number of observations since January 1, 1985; the percent of the total observations since January 1, 1985; the number of stations measuring each parameter group; the percent of the total number of stations with data measuring the parameter group; the number of observations per station with data; the period-of-record for this parameter group; and the average number of observations per year of the period-of-record.

In interpreting the results of the IDEA, the reader should first consult the Missing Level I Group list. For the parameter groups listed, there was no baseline water quality data within the study area entered in STORET. Consequently, these parameter groups could be a higher priority for data collection. It is important, however, to realize that data within these parameter groups may have been already collected but not entered into STORET. The resources for this project did not enable us to pursue thorough literature and file cabinet reviews to dredge up

every last iota of data. If data exists for certain Servicewide Inventory and Monitoring Program "Level I" water quality parameter groups in a park's file cabinet, it is the park's responsibility to factor that data into their IDEA. Consequently, the listing of a parameter group on the Missing "Level I" Group list is not a WRD endorsement to launch a study to collect these data. The IDEA is intended to simply note that no data exist for these parameter groups in STORET for the park. It is the park's responsibility to ascertain whether such data has already been collected by the park or other entities before embarking on a new study. In fact, in the future the WRD will require that any park study plan proposing to collect baseline water quality data show that they have consulted their Baseline Water Quality Data Inventory and Analysis report and searched in other locations (file cabinets, published literature, etc.) for the data they propose to collect. A similar interpretation springs from the Present "Level I" Group list. Insufficient data density in certain time periods for particular parameter groups is not necessarily cause for launching a new inventory and/or monitoring program. The park should still consult with other potential sources of data. Again, the IDEA is designed to provide only a quick check on data in STORET for the Servicewide Inventory and Monitoring Program "Level I" water quality parameter groups.

**Water Quality Observations Outside STORET Edit Criteria for Park**

STORET data entered after November 1983 were subjected to rudimentary edit/bounds checking for 190 common parameters (See the STORET Edit Criteria in Appendix C). None of the data entered into STORET prior to that time has been subjected to edit/bounds checking. Moreover, to maintain exact comparability with USGS WATSTORE data, WATSTORE data entered into STORET has never been subjected to the EPA edit/bounds checking. During the pilot test phase of this project, obviously incorrect data was identified from both USGS and other agency data in STORET. As a consequence, all data downloaded from STORET was filtered through the STORET edit criteria to identify parameter observation values that fall outside any edit criterion ranges. This section documents the station name, parameter, date, time, parameter value, agency, and STORET station name of every observation that fell outside the range of an edit criterion. Not all data falling outside an edit criterion are necessarily incorrect. Such data may represent unique or special conditions. Consequently, every observation falling outside a STORET edit criterion was scrutinized to determine, in our best professional judgement, whether the value was in the realm of possibility or obviously incorrect. Water quality observations that appeared to be obviously incorrect are marked with an "X" in the Disposition column of this table. These values were not retrieved or included in any of the inventory tables or graphs. Water quality values outside a STORET edit criterion but within the realm of possibility were retained and included in inventory tables and graphs. The Water Quality Observations Outside STORET Edit Criteria for Park table documents all values that were outside an edit criterion range. This documentation is also necessitated by the fact that agencies can override the STORET edit criteria for individual observations. Although the edit criteria eliminate some potentially "bad" data from the report, the probability of other incorrect data, for both the 190 parameters that are edit/bound checked and all the other STORET parameters that aren't error checked, is high. Readers should consult the Caveat section in the Introduction for guidelines on the use and interpretation of STORET data. The responsibility for correcting these observations rests with the collecting agency.

# WATER QUALITY RESULTS

## OVERVIEW FOR FODO

Study Area Boundary Description

The study area includes the park and all areas within at least 3 miles upstream of the park unit boundary and at least 1 mile downstream.

| | Study Area | Park |
|---|---|---|
| GIS Estimated Acreage: | 19898 | 531 |
| # STORET Stations: | 8 | 0 |
| # Stations With No Data: | 0 | 0 |
| # Stations With No Stat. Analysis: | 0 | 0 |
| # Longer Term Stations: | 0 | 0 |
| Date of STORET Retrieval: | 10/17/97 | 10/17/97 |
| Period of Record: | 03/22/72-08/15/85 | No Data in Park |
| # Parameters Measured: | 73 | 0 |
| # Water Quality Observations: | 2760 | 0 |
| # Industrial/Municipal Facilities: | 3 | 0 |
| # Drinking Water Intakes: | 2 | 0 |
| # Water Gages: | 2 | 0 |
| # Water Impoundments: | 1 | 0 |
| # Total Plots: | 0 | 0 |
| # Time Series: | 0 | 0 |
| # Annual: | 0 | 0 |
| # Seasonal: | 0 | 0 |

Hydrologic Definition of Seasons:

1. August 1 - October 31
2. November 1 - March 31
3. April 1 - July 31

Time Series Plot Criteria:

To be included in the time series plots, a station/parameter combination must have at least 2 years and at least 8 observations.

Annual Analysis Criteria:

To be included in the annual box-and-whisker plots, a station/parameter combination must have at least 9 observations in each of at least 4 years.

To be included in the annual analysis tables, a station/parameter combination must have at least 9 observations in each of at least 4 years.

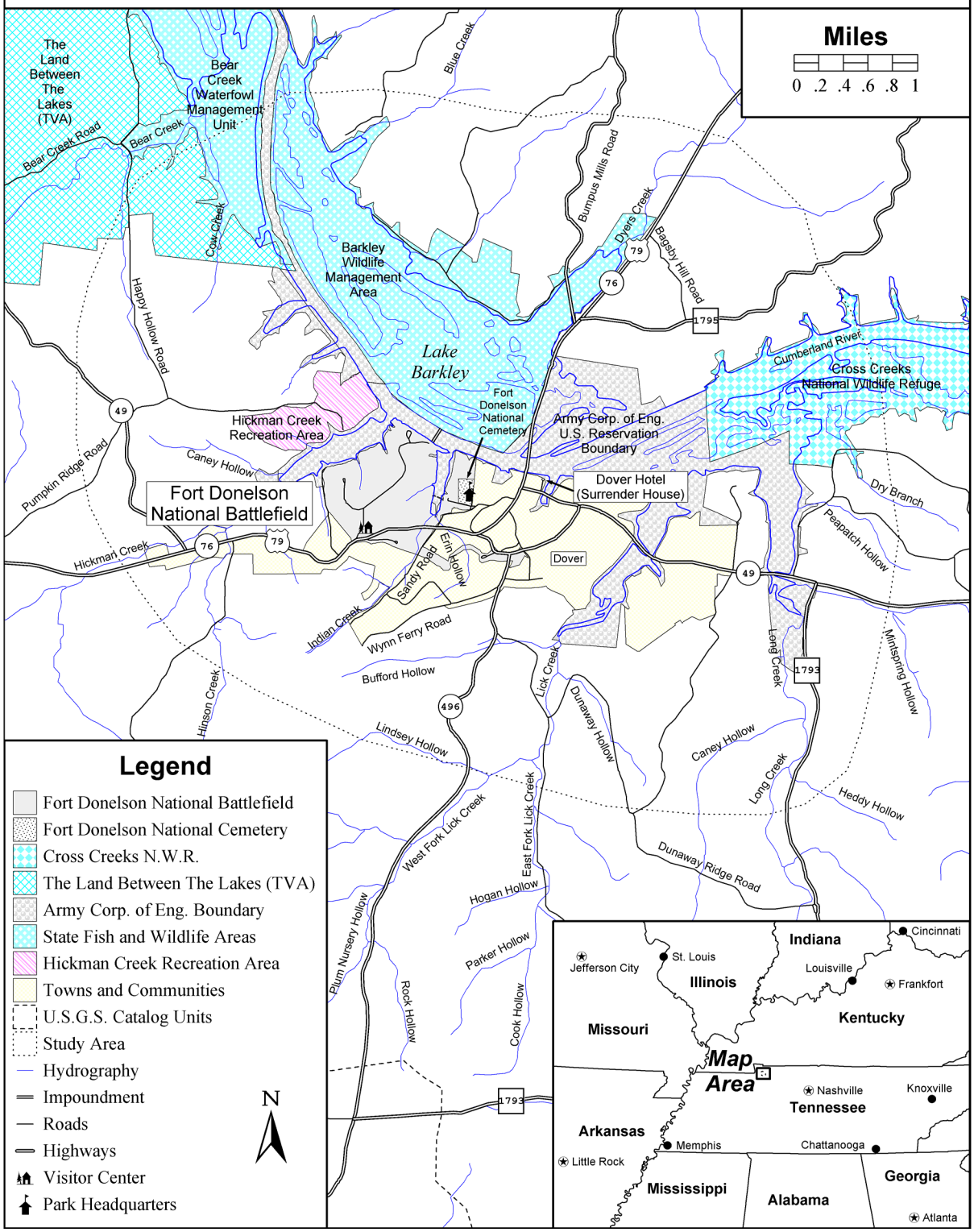
Seasonal Analysis Criteria:

To be included in the seasonal box-and-whisker plots, a station/parameter combination must have at least 9 observations in each of 2 seasons and a period of record of at least 6 years and observations in at least 3 of the 6 years.

To be included in the seasonal analysis tables, a station/parameter combination must have at least 9 observations in each of 2 seasons and a period of record of at least 6 years and observations in at least 3 of the 6 years.

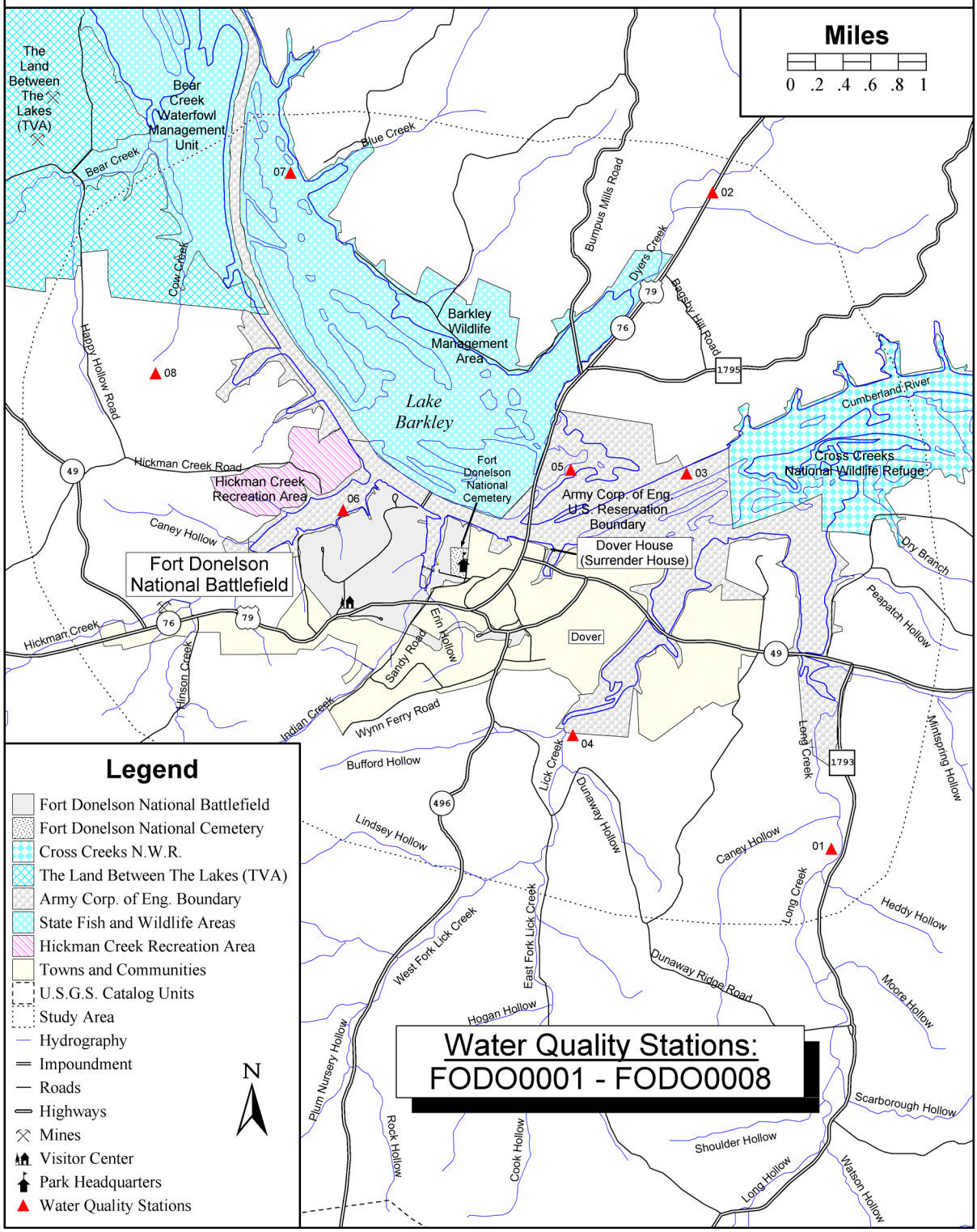
# Fort Donelson National Battlefield

## Regional Location Map



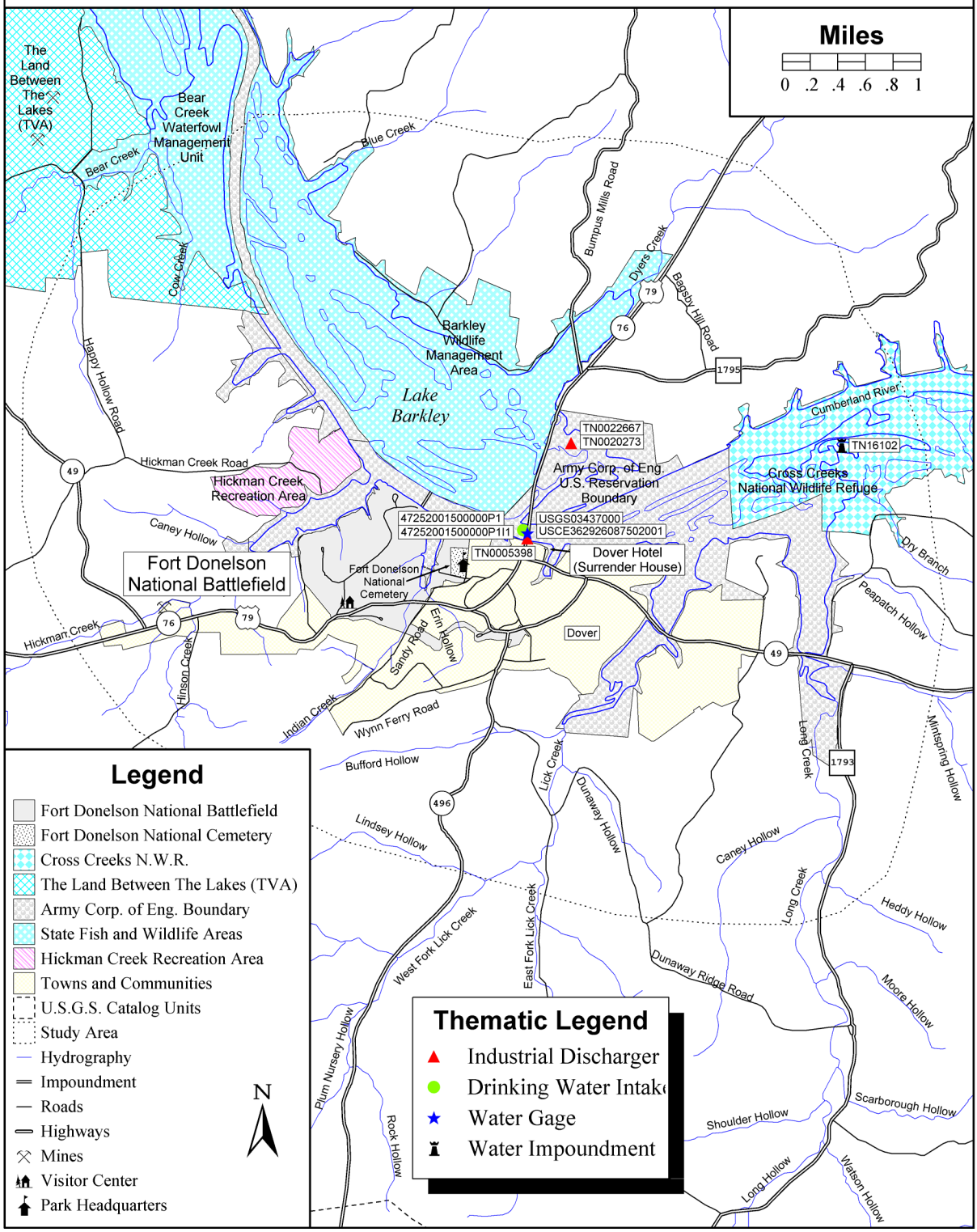
# Fort Donelson National Battlefield

## Water Quality Monitoring Locations



# Fort Donelson National Battlefield

## Dischargers, Drinking Intakes, Water Gages, & Water Impoundments



## Industrial Facility Discharges, Drinking Water Intakes, Water Gages, and Water Impoundments Within the FODO Study Area

**Industrial Facility Discharges**

| Site ID | Station/Facility Name | Address | City | Facility Receiving Water Name |
|---|---|---|---|---|
| TN0005398 | DOVER WATER TREAT PLT DOVER | JACKSON & PILLOW STS. | DOVER | CUMBERLAND RV |
| TN0020273 | TVA LBL BRANDON SPRINGS CAMP | ..... | STEWART COUNTY | CUMBERLAND RV |
| TN0022667 | DOVER STP | ..... | STEWART COUNTY | BARKLEY LK CUMBE |

**Drinking Water Intakes**

| Site ID | Station/Facility Name | City | Population Served | Avg. Daily Production (Gal./Day) |
|---|---|---|---|---|
| 47252001500000P1 | TREATMENT PLANT | DOVER | 1650 | 5000.00 |
| 47252001500000P1I1 | CUMBERLAND RIVE | DOVER | 1650 | 5000.00 |

**Water Gages**

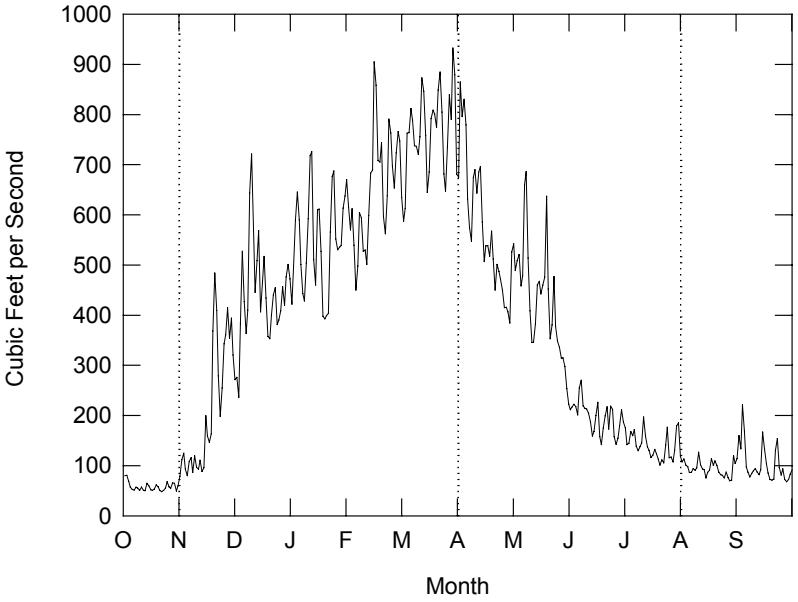
| Site ID | Station Name | Site Type | Drainage Area (Square Miles) | Begin Year | End Year |
|---|---|---|---|---|---|
| USCE362926087502001 | CUMBERLAND R AT DOVE | Lake | 6417.00 | | |
| USGS03437000 | CUMBERLAND RIVER AT DOVER, TENN. | Stream | 16437.0 | 1938 | 1997 |

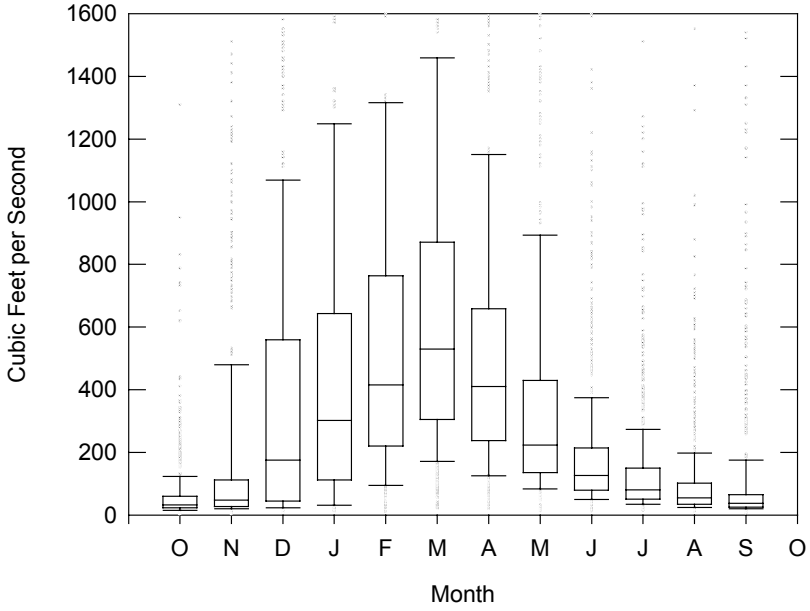
**Water Impoundments**

| Site ID | Impoundment Name | Owner | Primary Purpose | Type of Dam | Downstream Hazard | Year Completed |
|---|---|---|---|---|---|---|
| TN16102 | POOL 2 DAM | DOI FWS | Other | Earth | Low | 1963 |

## REPRESENTATIVE MEAN ANNUAL HYDROGRAPH FOR SEASONAL ANALYSIS

FORT DONELSON NATIONAL BATTLEFIELD
Little River near Cadiz, KY
03438000, 47 year record




Representative mean annual hydrograph (top) and distribution of daily flows by month (bottom) for hydrologic season determination. Box and whiskers represent a five number summary; bottom whisker cap is 10th percentile, bottom of box is 25th percentile, internal line is median, top of box is 75th percentile, and top whisker is 90th percentile. Hydrologic seasons for Fort Donelson National Battlefield are: Aug.1 to Oct.31, Nov.1 to Mar.31, and Apr.1 to Jul.31.

## CONTACTS FOR AGENCY CODES RETRIEVED FOR FODO

| AGENCY | PRIMARY CONTACT NAME | ORGANIZATION | PHONE NUMBER(S) |
|---|---|---|---|
| 11EPALES | LAMBOU, VICTOR W. | USEPA | (702)798-2259 |
| 11COEHUN | MARCHESE, VINCE | CORPS OF ENGINEERS | (304)529-5248 |
| 131TVAC | WINTERS, KATHY | TENN VALLEY AUTHORITY | (615)751-3752 |

## QUANTITY OF DATA RETRIEVED FOR FODO BY AGENCY CODE

## WITHIN THE ENTIRE STUDY AREA (S.A.) AND JUST WITHIN THE PARK

| | | Period of Record | | Water Quality Stations | | Longer Term[1] Stations | | No Data Stations | | Water Quality Observations | | Water Quality Parameters | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agency | Organization | Study Area | / Park Only | S.A. | / Park | S.A. | / Park | S.A. | / Park | S.A. | / Park | S.A. | / Park |
| 11EPALES | USEPA | 04/14/73-03/03/74 | No Data in Park | 5 | 0 | 0 | 0 | 0 | 0 | 458 | 0 | 18 | 0 |
| 11COEHUN | CORPS OF ENGINEERS | 06/27/84-08/15/85 | No Data in Park | 2 | 0 | 0 | 0 | 0 | 0 | 668 | 0 | 49 | 0 |
| 131TVAC | TENN VALLEY AUTHORITY | 03/22/72-10/17/73 | No Data in Park | 1 | 0 | 0 | 0 | 0 | 0 | 1634 | 0 | 37 | 0 |
| Totals | | 03/22/72-08/15/85 | No Data in Park | 8 | 0 | 0 | 0 | 0 | 0 | 2760 | 0 | 73 | 0 |

[1]Station With At Least 6 Parameters Having An Average of 1 Or More Observations Per Year During a Period of Record Extending At Least 2 Years.

# Station Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Station Ident. | Location Description | In Park | Total Obs | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 |
|---|---|---|---|---|---|---|
| FODO0001 | LONG CREEK | No | 90 | 0 | 0 | 90 |
| FODO0002 | DYERS CREEK | No | 91 | 0 | 0 | 91 |
| FODO0003 | LAKE BARKLEY BELOW DOVER ISLAND | No | 1634 | 0 | 0 | 1634 |
| FODO0004 | LICK CREEK | No | 91 | 0 | 0 | 91 |
| FODO0005 | DYER CREEK MILE 0.5 | No | 77 | 0 | 77 | 0 |
| FODO0006 | HICKMAN CREEK MILE 0.4 | No | 591 | 134 | 457 | 0 |
| FODO0007 | LAKE BARKLEY | No | 116 | 0 | 0 | 116 |
| FODO0008 | BEAR CREEK | No | 70 | 0 | 0 | 70 |

[1]Longer Term Station With At Least 6 Parameters Having An Average of 1 Or More Observations Per Year During a Period of Record Extending At Least 2 Years.

# Parameter Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Parameter Code | Name | Total Obs | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Stations Total | Stations Park |
|---|---|---|---|---|---|---|---|
| 00002 | X-SEC. LOC., HORIZ (% FROM R BANK LOOK UPSTR.) | 98 | 0 | 0 | 98 | 1 | 0 |
| 00004 | STREAM WIDTH (FEET) | 7 | 1 | 6 | 0 | 2 | 0 |
| 00008 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE | 49 | 0 | 0 | 49 | 2 | 0 |
| 00009 | X-SEC. LOC.(FT FROM LEFT BANK LOOKING DOWNSTRM) | 7 | 1 | 6 | 0 | 2 | 0 |
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 169 | 10 | 52 | 107 | 4 | 0 |
| 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | 40 | 0 | 0 | 40 | 1 | 0 |
| 00074 | TURBIDITY, TRANSMISSOMETER, PERCENT TRANSMISSION | 9 | 0 | 0 | 9 | 1 | 0 |
| 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 9 | 2 | 7 | 0 | 2 | 0 |
| 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | 2 | 0 | 0 | 2 | 1 | 0 |
| 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 7 | 1 | 6 | 0 | 2 | 0 |
| 00080 | COLOR (PLATINUM-COBALT UNITS) | 40 | 0 | 0 | 40 | 1 | 0 |
| 00081 | COLOR,APPARENT(UNFILTERED SAMPLE) PLAT-COB UNITS | 40 | 0 | 0 | 40 | 1 | 0 |
| 00085 | ODOR (THRESHOLD NUMBER AT ROOM TEMPERATURE) | 40 | 0 | 0 | 40 | 1 | 0 |
| 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 33 | 10 | 19 | 4 | 3 | 0 |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 49 | 0 | 0 | 49 | 2 | 0 |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE MG/L | 62 | 10 | 52 | 0 | 2 | 0 |
| 00300 | OXYGEN, DISSOLVED MG/L | 93 | 0 | 0 | 93 | 2 | 0 |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION % | 62 | 10 | 52 | 0 | 2 | 0 |
| 00310 | BOD, 5 DAY, 20 DEG C MG/L | 40 | 0 | 0 | 40 | 1 | 0 |
| 00335 | COD, .025N K2CR2O7 MG/L | 40 | 0 | 0 | 40 | 1 | 0 |
| 00400 | PH (STANDARD UNITS) | 78 | 10 | 19 | 49 | 4 | 0 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 63 | 2 | 12 | 49 | 4 | 0 |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 42 | 2 | 0 | 40 | 2 | 0 |
| 00500 | RESIDUE, TOTAL (MG/L) | 14 | 2 | 12 | 0 | 2 | 0 |
| 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 14 | 2 | 12 | 0 | 2 | 0 |
| 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 54 | 2 | 12 | 40 | 3 | 0 |
| 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 14 | 2 | 12 | 0 | 2 | 0 |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 14 | 2 | 12 | 0 | 2 | 0 |
| 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 40 | 0 | 0 | 40 | 1 | 0 |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 111 | 2 | 11 | 98 | 8 | 0 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 49 | 0 | 0 | 49 | 4 | 0 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 49 | 0 | 0 | 49 | 4 | 0 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 71 | 2 | 11 | 58 | 7 | 0 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 112 | 2 | 12 | 98 | 8 | 0 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 112 | 2 | 12 | 98 | 8 | 0 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 42 | 2 | 0 | 40 | 2 | 0 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 57 | 0 | 0 | 57 | 5 | 0 |
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 14 | 2 | 12 | 0 | 2 | 0 |
| 00915 | CALCIUM, DISSOLVED (MG/L AS CA) | 2 | 2 | 0 | 0 | 1 | 0 |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00925 | MAGNESIUM, DISSOLVED (MG/L AS MG) | 2 | 2 | 0 | 0 | 1 | 0 |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00929 | SODIUM, TOTAL (MG/L AS NA) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00930 | SODIUM, DISSOLVED (MG/L AS NA) | 2 | 2 | 0 | 0 | 1 | 0 |
| 00935 | POTASSIUM, DISSOLVED (MG/L AS K) | 2 | 2 | 0 | 0 | 1 | 0 |
| 00937 | POTASSIUM, TOTAL MG/L AS K) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00940 | CHLORIDE,TOTAL IN WATER MG/L | 40 | 0 | 0 | 40 | 1 | 0 |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 54 | 2 | 12 | 40 | 3 | 0 |
| 00951 | FLUORIDE, TOTAL (MG/L AS F) | 40 | 0 | 0 | 40 | 1 | 0 |
| 00956 | SILICA, TOTAL (MG/L AS SI02) | 40 | 0 | 0 | 40 | 1 | 0 |
| 01005 | BARIUM, DISSOLVED (UG/L AS BA) | 2 | 2 | 0 | 0 | 1 | 0 |
| 01007 | BARIUM, TOTAL (UG/L AS BA) | 14 | 2 | 12 | 0 | 2 | 0 |
| 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 2 | 2 | 0 | 0 | 1 | 0 |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 14 | 2 | 12 | 0 | 2 | 0 |
| 01045 | IRON, TOTAL (UG/L AS FE) | 54 | 2 | 12 | 40 | 3 | 0 |
| 01046 | IRON, DISSOLVED (UG/L AS FE) | 42 | 2 | 0 | 40 | 2 | 0 |
| 01047 | IRON, FERROUS (UG/L AS FE) | 40 | 0 | 0 | 40 | 1 | 0 |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) | 54 | 2 | 12 | 40 | 3 | 0 |
| 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 42 | 2 | 0 | 40 | 2 | 0 |
| 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 2 | 2 | 0 | 0 | 1 | 0 |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 14 | 2 | 12 | 0 | 2 | 0 |
| 01095 | ANTIMONY, DISSOLVED (UG/L AS SB) | 2 | 2 | 0 | 0 | 1 | 0 |
| 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 14 | 2 | 12 | 0 | 2 | 0 |
| 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 14 | 2 | 12 | 0 | 2 | 0 |
| 01106 | ALUMINUM, DISSOLVED (UG/L AS AL) | 2 | 2 | 0 | 0 | 1 | 0 |
| 31501 | COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO MED,35C | 36 | 0 | 0 | 36 | 1 | 0 |
| 31616 | FECAL COLIFORM,MEMBR FILTER,M-FC BROTH,44.5 C | 36 | 0 | 0 | 36 | 1 | 0 |
| 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 21 | 3 | 18 | 0 | 2 | 0 |
| 32217 | CHLOROPHYLL A UG/L FLUOROMETRIC UNCORRECTED | 2 | 0 | 0 | 2 | 1 | 0 |
| 46570 | HARDNESS, CA MG CALCULATED (MG/L AS CACO3) | 40 | 0 | 0 | 40 | 1 | 0 |

# Parameter Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Parameter Code | Name | Total Obs | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Stations Total | Stations Park |
|---|---|---|---|---|---|---|---|
| 72020 | ELEVATION IN FEET ABOVE MEAN SEA LEVEL | 6 | 1 | 5 | 0 | 2 | 0 |
| 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 9 | 1 | 6 | 2 | 3 | 0 |

# Station/Parameter Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Station | In Park | Code | Name | Start - End | Years | Obs | Plots[1] |
|---|---|---|---|---|---|---|---|
| FODO0003 | No | 00002 | X-SEC. LOC., HORIZ (% FROM R BANK LOOK UPSTR.) | 03/22/72-10/17/73 | 1 | 98 | |
| FODO0005 | No | 00004 | STREAM WIDTH (FEET) | 06/27/84-06/27/84 | 0 | 1 | |
| FODO0006 | No | 00004 | STREAM WIDTH (FEET) | 06/27/84-08/15/85 | 1 | 6 | |
| FODO0003 | No | 00008 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0007 | No | 00008 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0005 | No | 00009 | X-SEC. LOC.(FT FROM LEFT BANK LOOKING DOWNSTRM) | 06/27/84-06/27/84 | 0 | 1 | |
| FODO0006 | No | 00009 | X-SEC. LOC.(FT FROM LEFT BANK LOOKING DOWNSTRM) | 06/27/84-08/15/85 | 1 | 6 | |
| FODO0003 | No | 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 03/22/72-10/17/73 | 1 | 98 | |
| FODO0005 | No | 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 06/27/84-06/27/84 | 0 | 5 | |
| FODO0006 | No | 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 06/27/84-08/15/85 | 1 | 57 | |
| FODO0007 | No | 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0003 | No | 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0007 | No | 00074 | TURBIDITY, TRANSMISSOMETER, PERCENT TRANSMISSION | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0005 | No | 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 06/27/84-08/15/85 | 1 | 7 | |
| FODO0007 | No | 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | 05/17/73-08/14/73 | 0 | 2 | |
| FODO0005 | No | 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 06/27/84-06/27/84 | 0 | 1 | |
| FODO0006 | No | 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 06/27/84-08/15/85 | 1 | 6 | |
| FODO0003 | No | 00080 | COLOR (PLATINUM-COBALT UNITS) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00081 | COLOR,APPARENT(UNFILTERED SAMPLE) PLAT-COB UNITS | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00085 | ODOR (THRESHOLD NUMBER AT ROOM TEMPERATURE) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 06/27/84-08/15/85 | 1 | 27 | |
| FODO0007 | No | 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 08/14/73-08/14/73 | 0 | 4 | |
| FODO0003 | No | 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0007 | No | 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0005 | No | 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE MG/L | 06/27/84-06/27/84 | 0 | 5 | |
| FODO0006 | No | 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE MG/L | 06/27/84-08/15/85 | 1 | 57 | |
| FODO0003 | No | 00300 | OXYGEN, DISSOLVED MG/L | 03/22/72-10/17/73 | 1 | 86 | |
| FODO0007 | No | 00300 | OXYGEN, DISSOLVED MG/L | 05/17/73-08/14/73 | 0 | 7 | |
| FODO0005 | No | 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION % | 06/27/84-06/27/84 | 0 | 5 | |
| FODO0006 | No | 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION % | 06/27/84-08/15/85 | 1 | 57 | |
| FODO0003 | No | 00310 | BOD, 5 DAY, 20 DEG C MG/L | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00335 | COD, .025N K2CR2O7 MG/L | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00400 | PH (STANDARD UNITS) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00400 | PH (STANDARD UNITS) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00400 | PH (STANDARD UNITS) | 06/27/84-08/15/85 | 1 | 27 | |
| FODO0007 | No | 00400 | PH (STANDARD UNITS) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0003 | No | 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0007 | No | 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0003 | No | 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0006 | No | 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0005 | No | 00500 | RESIDUE, TOTAL (MG/L) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00500 | RESIDUE, TOTAL (MG/L) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0005 | No | 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0005 | No | 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0005 | No | 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0001 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0002 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0003 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0004 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0005 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 06/27/84-08/15/85 | 1 | 11 | |
| FODO0007 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0008 | No | 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0001 | No | 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0002 | No | 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0004 | No | 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0008 | No | 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0001 | No | 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |

[1]T=Times Series Plot, A=Annual Plot, and S=Seasonal Plot

# Station/Parameter Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Station | In Park | Code | Name | Start - End | Years | Obs | Plots[1] |
|---|---|---|---|---|---|---|---|
| FODO0002 | No | 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0004 | No | 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0008 | No | 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0001 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0002 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0004 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0005 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 06/27/84-08/15/85 | 1 | 11 | |
| FODO0007 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0008 | No | 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0001 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0002 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0003 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0004 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0005 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0007 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0008 | No | 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0001 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0002 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0003 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0004 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0005 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0007 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0008 | No | 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0003 | No | 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0006 | No | 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0001 | No | 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 0 | 12 | |
| FODO0002 | No | 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0004 | No | 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 0 | 13 | |
| FODO0007 | No | 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 05/17/73-08/14/73 | 0 | 9 | |
| FODO0008 | No | 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/01/74 | 0 | 10 | |
| FODO0005 | No | 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 00915 | CALCIUM, DISSOLVED (MG/L AS CA) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0003 | No | 00916 | CALCIUM, TOTAL (MG/L AS CA) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00916 | CALCIUM, TOTAL (MG/L AS CA) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00916 | CALCIUM, TOTAL (MG/L AS CA) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 00925 | MAGNESIUM, DISSOLVED (MG/L AS MG) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0003 | No | 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00929 | SODIUM, TOTAL (MG/L AS NA) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00929 | SODIUM, TOTAL (MG/L AS NA) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00929 | SODIUM, TOTAL (MG/L AS NA) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 00930 | SODIUM, DISSOLVED (MG/L AS NA) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0006 | No | 00935 | POTASSIUM, DISSOLVED (MG/L AS K) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0003 | No | 00937 | POTASSIUM, TOTAL MG/L AS K) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00937 | POTASSIUM, TOTAL MG/L AS K) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00937 | POTASSIUM, TOTAL MG/L AS K) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00940 | CHLORIDE,TOTAL IN WATER MG/L | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00945 | SULFATE, TOTAL (MG/L AS SO4) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 00945 | SULFATE, TOTAL (MG/L AS SO4) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 00945 | SULFATE, TOTAL (MG/L AS SO4) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 00951 | FLUORIDE, TOTAL (MG/L AS F) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 00956 | SILICA, TOTAL (MG/L AS SI02) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0006 | No | 01005 | BARIUM, DISSOLVED (UG/L AS BA) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0005 | No | 01007 | BARIUM, TOTAL (UG/L AS BA) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01007 | BARIUM, TOTAL (UG/L AS BA) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0005 | No | 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 01045 | IRON, TOTAL (UG/L AS FE) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 01045 | IRON, TOTAL (UG/L AS FE) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01045 | IRON, TOTAL (UG/L AS FE) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0003 | No | 01046 | IRON, DISSOLVED (UG/L AS FE) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0006 | No | 01046 | IRON, DISSOLVED (UG/L AS FE) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0003 | No | 01047 | IRON, FERROUS (UG/L AS FE) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0003 | No | 01055 | MANGANESE, TOTAL (UG/L AS MN) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 01055 | MANGANESE, TOTAL (UG/L AS MN) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01055 | MANGANESE, TOTAL (UG/L AS MN) | 06/27/84-08/15/85 | 1 | 12 | |

[1]T=Times Series Plot, A=Annual Plot, and S=Seasonal Plot

# Station/Parameter Period of Record Tabulation
# From 03/22/72 To 08/15/85

| Station | In Park | Code | Name | Start - End | Years | Obs | Plots[1] |
|---|---|---|---|---|---|---|---|
| FODO0003 | No | 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0006 | No | 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0006 | No | 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0005 | No | 01092 | ZINC, TOTAL (UG/L AS ZN) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01092 | ZINC, TOTAL (UG/L AS ZN) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 01095 | ANTIMONY, DISSOLVED (UG/L AS SB) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0005 | No | 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0005 | No | 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 06/27/84-06/27/84 | 0 | 2 | |
| FODO0006 | No | 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 06/27/84-08/15/85 | 1 | 12 | |
| FODO0006 | No | 01106 | ALUMINUM, DISSOLVED (UG/L AS AL) | 08/15/85-08/15/85 | 0 | 2 | |
| FODO0003 | No | 31501 | COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO MED,35C | 03/22/72-10/17/73 | 1 | 36 | |
| FODO0003 | No | 31616 | FECAL COLIFORM,MEMBR FILTER,M-FC BROTH,44.5 C | 03/22/72-10/17/73 | 1 | 36 | |
| FODO0005 | No | 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 06/27/84-06/27/84 | 0 | 3 | |
| FODO0006 | No | 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 06/27/84-08/15/85 | 1 | 18 | |
| FODO0007 | No | 32217 | CHLOROPHYLL A UG/L FLUOROMETRIC UNCORRECTED | 05/17/73-08/14/73 | 0 | 2 | |
| FODO0003 | No | 46570 | HARDNESS, CA MG CALCULATED (MG/L AS CACO3) | 03/22/72-10/17/73 | 1 | 40 | |
| FODO0005 | No | 72020 | ELEVATION IN FEET ABOVE MEAN SEA LEVEL | 06/27/84-06/27/84 | 0 | 1 | |
| FODO0006 | No | 72020 | ELEVATION IN FEET ABOVE MEAN SEA LEVEL | 06/27/84-08/15/85 | 1 | 5 | |
| FODO0005 | No | 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 06/27/84-06/27/84 | 0 | 1 | |
| FODO0006 | No | 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 06/27/84-08/15/85 | 1 | 6 | |
| FODO0007 | No | 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 05/17/73-08/14/73 | 0 | 2 | |

[1]T=Time Series Plot, A=Annual Plot, S=Seasonal Plot

## Station-By-Station Results

# Station Inventory for Station: FODO0001

NPS Station ID: FODO0001
LAT/LON: 36.457781/ -87.799171
Agency: 11EPALES
Date Created: / /
Location: LONG CREEK
FIPS State/County: 47000 TENNESSEE/
Station Type: /TYPA/AMBNT/STREAM
STORET Station ID(s): 4701S1
RMI-Indexes:
Within Park Boundary: No
RMI-Miles:
HUC: 05130205
Depth of Water: 0
Aquifer:
Major Basin: T/LAKE BARKLEY
Elevation: 0
Water Body Id:
Minor Basin: BANK ALONG SEC HWY 4 MI SE OF DOVER
ECO Region:
RF1 Index: 05130205
RF1 Mile Point: 0.000
Distance from RF1: 16.60
On/Off RF1:
RF3 Index: 05130205070400.00
RF3 Mile Point: 2.17
Distance from RF3: 0.03
On/Off RF3:
Description:
BANK SAMPLE ALONGSIDE SECONDARY HWY APPROX 4 MI SE OF DOVER

## Parameter Inventory for Station: FODO0001

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.023 | 0.029 | 0.105 | 0.007 | 0.001 | 0.025 | 0.008 | 0.017 | 0.034 | 0.078 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 ## | 0.001 | 0.001 | 0.002 | 0.001 | 0. | 0. | 0.001 | 0.001 | 0.001 | 0.001 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.25 | 0.26 | 0.504 | 0.069 | 0.01 | 0.102 | 0.117 | 0.195 | 0.308 | 0.442 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.19 | 0.328 | 1.3 | 0.05 | 0.122 | 0.349 | 0.05 | 0.125 | 0.4 | 1.072 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.25 | 0.261 | 0.5 | 0.07 | 0.01 | 0.101 | 0.118 | 0.2 | 0.31 | 0.44 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 13 | 0.02 | 0.024 | 0.093 | 0.005 | 0. | 0.022 | 0.007 | 0.01 | 0.025 | 0.07 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 12 | 0.016 | 0.013 | 0.023 | 0.003 | 0. | 0.007 | 0.003 | 0.006 | 0.019 | 0.022 |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0001

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00615 | NITRITE NITROGEN, TOTAL AS N | Drinking Water | 1. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00620 | NITRATE NITROGEN, TOTAL AS N | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0002

NPS Station ID: FODO0002
Location: DYERS CREEK
Station Type: /TYPA/AMBNT/STREAM
RMI-Indexes:
RMI-Miles:
HUC: 05130205
Major Basin: T/LAKE BARKLEY
Minor Basin: US 79 BRDG 3 MI N OF DOVER
RF1 Index: 05130205
RF3 Index: 05130205004204.30
Description:
AT BRIDGE ON U S 79 APPROX 3 MI N OF DOVER

LAT/LON: 36.526392/ -87.815281
Depth of Water: 0
Elevation: 0
RF1 Mile Point: 0.000
RF3 Mile Point: 4.29

Agency: 11EPALES
FIPS State/County: 47000 TENNESSEE/
STORET Station ID(s): 4701H1
Within Park Boundary: No
Aquifer:
Water Body Id:
ECO Region:
Distance from RF1: 0.00
Distance from RF3: 0.01

Date Created: / /
On/Off RF1:
On/Off RF3:

## Parameter Inventory for Station: FODO0002

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.02 | 0.105 | 1.1 | 0.01 | 0.089 | 0.299 | 0.011 | 0.015 | 0.032 | 0.679 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 ## | 0.001 | 0.001 | 0.003 | 0.001 | 0. | 0.001 | 0.001 | 0.001 | 0.002 | 0.003 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.6 | 0.609 | 1.01 | 0.32 | 0.04 | 0.2 | 0.343 | 0.44 | 0.765 | 0.93 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.13 | 0.32 | 2.5 | 0.05 | 0.444 | 0.666 | 0.05 | 0.05 | 0.2 | 1.692 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.6 | 0.61 | 1.01 | 0.33 | 0.04 | 0.199 | 0.35 | 0.44 | 0.765 | 0.93 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 13 | 0.01 | 0.012 | 0.025 | 0.003 | 0. | 0.006 | 0.005 | 0.01 | 0.015 | 0.023 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 13 | 0.009 | 0.007 | 0.01 | 0.003 | 0. | 0.003 | 0.003 | 0.003 | 0.01 | 0.01 |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0002

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00615 | NITRITE NITROGEN, TOTAL AS N | Drinking Water | 1. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00620 | NITRATE NITROGEN, TOTAL AS N | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0003

NPS Station ID: FODO0003
LAT/LON: 36.496948/ -87.818338
Agency: 131TVAC
Date Created: / /
Location: LAKE BARKLEY BELOW DOVER ISLAND
FIPS State/County: 47161 TENNESSEE/STEWART
Station Type: /TYPA/AMBNT/STREAM
STORET Station ID(s): 600027 /0036
RMI-Indexes: 1021500 007720 01140
Within Park Boundary: No
RMI-Miles: 0953.80 0058.30 090.01
HUC: 05130205
Depth of Water: 0
Aquifer:
Major Basin: CUMBERLAND RIVER BASIN
Elevation: 0
Water Body Id:
Minor Basin: CUMBERLAND RIVER 90.01
ECO Region:
RF1 Index: 05130205010
RF1 Mile Point: 15.740
Distance from RF1: 0.50
On/Off RF1: ON
RF3 Index: 05130205001618.15
RF3 Mile Point: 18.14
Distance from RF3: 0.06
On/Off RF3:
Description:

## Parameter Inventory for Station: FODO0003

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 03/22/72-10/17/73 | 98 | 17.1 | 18.745 | 28. | 7.8 | 39.768 | 6.306 | 9.1 | 14.85 | 25.1 | 25.9 |
| 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | 03/22/72-10/17/73 | 40 | 15. | 14.825 | 45. | 6. | 46.302 | 6.805 | 10. | 10. | 15. | 20. |
| 00080 | COLOR (PLATINUM-COBALT UNITS) | 03/22/72-10/17/73 | 40 | 5. | 7.188 | 10. | 2.5 | 7.752 | 2.784 | 5. | 5. | 10. | 10. |
| 00081 | COLOR,APPARENT(UNFILTERED SAMPLE) PLAT-COB UNITS | 03/22/72-10/17/73 | 40 | 25. | 27.125 | 80. | 10. | 140.881 | 11.869 | 20. | 20. | 35. | 40. |
| 00085 | ODOR (THRESHOLD NUMBER AT ROOM TEMPERATURE) | 03/22/72-10/17/73 | 40 ## | 0.5 | 0.538 | 1. | 0.5 | 0.018 | 0.133 | 0.5 | 0.5 | 0.5 | 0.5 |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 03/22/72-10/17/73 | 40 | 200. | 200.75 | 230. | 170. | 345.577 | 18.59 | 180. | 180. | 220. | 220. |
| 00300 | OXYGEN, DISSOLVED MG/L | 03/22/72-10/17/73 | 86 | 7.3 | 7.448 | 11.5 | 3.4 | 5.579 | 2.362 | 4.67 | 5.1 | 9.65 | 10.9 |
| 00310 | BOD, 5 DAY, 20 DEG C MG/L | 03/22/72-10/17/73 | 40 | 1.55 | 1.565 | 3. | 0.5 | 0.511 | 0.715 | 0.5 | 1.125 | 2.075 | 2.6 |
| 00335 | COD, .025N K2CR2O7 MG/L | 03/22/72-10/17/73 | 40 | 6.5 | 6.875 | 15. | 3. | 8.881 | 2.98 | 4. | 4. | 9. | 11. |
| 00400 | PH (STANDARD UNITS) | 03/22/72-10/17/73 | 40 | 7.2 | 7.2 | 7.5 | 6.8 | 0.035 | 0.187 | 7. | 7.1 | 7.3 | 7.49 |
| 00400 | CONVERTED PH (STANDARD UNITS) | 03/22/72-10/17/73 | 40 | 7.2 | 7.159 | 7.5 | 6.8 | 0.037 | 0.191 | 7. | 7.1 | 7.3 | 7.49 |
| 00400 | MICRO EQUIVALENTS/LITER OF H+ COMPUTED FROM PH | 03/22/72-10/17/73 | 40 | 0.063 | 0.069 | 0.158 | 0.032 | 0.001 | 0.033 | 0.032 | 0.05 | 0.079 | 0.1 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 03/22/72-10/17/73 | 40 | 65. | 65.15 | 85. | 49. | 109.515 | 10.465 | 50.2 | 58.25 | 69.75 | 83. |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 03/22/72-10/17/73 | 40 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 03/22/72-10/17/73 | 40 | 120. | 118. | 180. | 80. | 683.077 | 26.136 | 80. | 100. | 130. | 150. |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 03/22/72-10/17/73 | 40 | 22. | 24.525 | 100. | 11. | 223.23 | 14.941 | 12.2 | 16. | 29. | 39.5 |
| 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 03/22/72-10/17/73 | 40 | 0.245 | 0.239 | 0.8 | 0.005 | 0.027 | 0.163 | 0.011 | 0.125 | 0.31 | 0.406 |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 03/22/72-10/17/73 | 40 | 0.08 | 0.086 | 0.18 | 0.03 | 0.002 | 0.049 | 0.03 | 0.04 | 0.13 | 0.15 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 03/22/72-10/17/73 | 40 | 0.54 | 0.575 | 0.94 | 0.28 | 0.028 | 0.168 | 0.382 | 0.445 | 0.69 | 0.759 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 03/22/72-10/17/73 | 40 | 0.144 | 0.148 | 0.261 | 0.065 | 0.002 | 0.05 | 0.089 | 0.108 | 0.184 | 0.209 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 03/22/72-10/17/73 | 40 | 0.1 | 0.098 | 0.225 | 0.042 | 0.002 | 0.044 | 0.052 | 0.059 | 0.124 | 0.163 |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) | 03/22/72-10/17/73 | 40 | 29. | 28.725 | 35. | 23. | 9.846 | 3.138 | 24. | 26. | 31. | 33.9 |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 03/22/72-10/17/73 | 40 | 4.5 | 4.52 | 5.7 | 4. | 0.101 | 0.317 | 4.11 | 4.4 | 4.6 | 5. |
| 00929 | SODIUM, TOTAL (MG/L AS NA) | 03/22/72-10/17/73 | 40 | 3.2 | 3.868 | 6.7 | 2.8 | 1.262 | 1.123 | 2.91 | 3. | 4.7 | 5.29 |
| 00937 | POTASSIUM, TOTAL MG/L AS K) | 03/22/72-10/17/73 | 40 | 1.8 | 1.83 | 2.3 | 1.3 | 0.047 | 0.216 | 1.41 | 1.8 | 2. | 2.09 |
| 00940 | CHLORIDE,TOTAL IN WATER MG/L | 03/22/72-10/17/73 | 40 | 4. | 4. | 5. | 3. | 0.308 | 0.555 | 3. | 4. | 4. | 5. |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 03/22/72-10/17/73 | 40 | 18. | 18.275 | 28. | 11. | 16.461 | 4.057 | 14. | 16. | 20.75 | 24.9 |
| 00951 | FLUORIDE, TOTAL (MG/L AS F) | 03/22/72-10/17/73 | 40 | 0.09 | 0.09 | 0.12 | 0.07 | 0. | 0.011 | 0.08 | 0.08 | 0.1 | 0.1 |
| 00956 | SILICA, TOTAL (MG/L AS SI02) | 03/22/72-10/17/73 | 40 | 4.35 | 4.298 | 5.5 | 2.4 | 0.839 | 0.916 | 2.71 | 3.825 | 5. | 5.4 |
| 01045 | IRON, TOTAL (UG/L AS FE) | 03/22/72-10/17/73 | 40 | 820. | 996.5 | 3200. | 370. | 248448.974 | 498.447 | 560. | 680. | 1200. | 1400. |
| 01046 | IRON, DISSOLVED (UG/L AS FE) | 03/22/72-10/17/73 | 40 ## | 25. | 38.125 | 110. | 25. | 726.522 | 26.954 | 25. | 25. | 25. | 90. |
| 01047 | IRON, FERROUS (UG/L AS FE) | 03/22/72-10/17/73 | 40 | 120. | 114. | 310. | 5. | 5377.179 | 73.329 | 20. | 35. | 160. | 209. |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) | 03/22/72-10/17/73 | 40 | 80. | 94.5 | 340. | 50. | 2810. | 53.009 | 51. | 70. | 107.5 | 140. |
| 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 03/22/72-10/17/73 | 40 | 10. | 16.375 | 80. | 5. | 184.599 | 13.587 | 5. | 10. | 20. | 30. |
| 31501 | COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO MED,35C | 03/22/72-10/17/73 | 36 | 260. | 663.194 | 2500. | 5. | 672144.504 | 819.844 | 5. | 92.5 | 1230. | 2130. |
| 31501 | LOG COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO MED, | 03/22/72-10/17/73 | 36 | 2.415 | 2.314 | 3.398 | 0.699 | 0.714 | 0.845 | 0.699 | 1.966 | 3.088 | 3.328 |
| 31501 | GM COLIFORM,TOT,MEMBRANE FILTER,IMMED.M-ENDO MED,3 | GEOMETRIC MEAN = | | | 205.842 | | | | | | | | |
| 31616 | FECAL COLIFORM,MEMBR FILTER,M-FC BROTH,44.5 C | 03/22/72-10/17/73 | 36 | 55. | 85.556 | 450. | 5. | 12212.54 | 110.51 | 5. | 5. | 110. | 286. |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## Parameter Inventory for Station: FODO0003

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31616 | LOG FECAL COLIFORM,MEMBR FILTER,M-FC BROTH,44.5 C | 03/22/72-10/17/73 | 36 | 1.739 | 1.521 | 2.653 | 0.699 | 0.449 | 0.67 | 0.699 | 0.699 | 2.041 | 2.456 |
| 31616 | GM FECAL COLIFORM,MEMBR FILTER,M-FC BROTH,44.5 C | GEOMETRIC MEAN = | | | 33.187 | | | | | | | | |
| 46570 | HARDNESS, CA MG CALCULATED (MG/L AS CACO3) | 03/22/72-10/17/73 | 40 | 90. | 90.5 | 110. | 74. | 88.41 | 9.403 | 77.1 | 83. | 96. | 109. |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0003

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00070 | TURBIDITY, JACKSON CANDLE UNITS | Other-Hi Lim. | 50. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00300 | OXYGEN, DISSOLVED | Other-Lo Lim. | 4. | 86 | 3 | 0.03 | 18 | 3 | 0.17 | 24 | 0 | 0.00 | 44 | 0 | 0.00 | | | |
| 00400 | PH | Other-Hi Lim. | 9. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| | | Other-Lo Lim. | 6.5 | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00940 | CHLORIDE,TOTAL IN WATER | Fresh Acute | 860. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| | | Drinking Water | 250. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00945 | SULFATE, TOTAL (AS SO4) | Drinking Water | 250. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00951 | FLUORIDE, TOTAL AS F | Drinking Water | 4. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 31501 | COLIFORM, TOTAL, MEMBRANE FILTER, IMMED. | Other-Hi Lim. | 1000. | 36 | 10 | 0.28 | 8 | 0 | 0.00 | 13 | 7 | 0.54 | 15 | 3 | 0.20 | | | |
| 31616 | FECAL COLIFORM, MEMBRANE FILTER, BROTH | Other-Hi Lim. | 200. | 36 | 4 | 0.11 | 8 | 0 | 0.00 | 13 | 4 | 0.31 | 15 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0004

NPS Station ID: FODO0004
LAT/LON: 36.469448/ -87.832781
Agency: 11EPALES
Date Created: / /
Location: LICK CREEK
FIPS State/County: 47000 TENNESSEE/
Station Type: /TYPA/AMBNT/STREAM
STORET Station ID(s): 4701T1
RMI-Indexes:
Within Park Boundary: No
RMI-Miles:
HUC: 05130205
Depth of Water: 0
Aquifer:
Major Basin: T/LAKE BARKLEY
Elevation: 0
Water Body Id:
Minor Basin: BANK AT END OF GRAVEL RD E OF DOVER
ECO Region:
RF1 Index: 05130205009
RF1 Mile Point: 21.200
Distance from RF1: 9.60
On/Off RF1: OFF
RF3 Index: 05130205178001.10
RF3 Mile Point: 1.09
Distance from RF3: 0.05
On/Off RF3:
Description:
BANK SAMPLE AT END OF GRAVEL ROAD E OF DOVER

## Parameter Inventory for Station: FODO0004

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.017 | 0.022 | 0.044 | 0.006 | 0. | 0.014 | 0.006 | 0.01 | 0.037 | 0.043 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 ## | 0.001 | 0.001 | 0.001 | 0.001 | 0. | 0. | 0.001 | 0.001 | 0.001 | 0.001 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.136 | 0.146 | 0.32 | 0.039 | 0.006 | 0.079 | 0.041 | 0.087 | 0.2 | 0.288 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.1 | 0.261 | 1.03 | 0.05 | 0.096 | 0.309 | 0.05 | 0.05 | 0.315 | 0.93 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/03/74 | 13 | 0.14 | 0.147 | 0.32 | 0.04 | 0.006 | 0.079 | 0.04 | 0.09 | 0.2 | 0.288 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/03/74 | 13 | 0.02 | 0.021 | 0.04 | 0.005 | 0. | 0.011 | 0.007 | 0.01 | 0.033 | 0.038 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/03/74 | 13 | 0.016 | 0.014 | 0.025 | 0.003 | 0. | 0.008 | 0.003 | 0.006 | 0.02 | 0.024 |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0004

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00615 | NITRITE NITROGEN, TOTAL AS N | Drinking Water | 1. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00620 | NITRATE NITROGEN, TOTAL AS N | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 13 | 0 | 0.00 | 3 | 0 | 0.00 | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0005

NPS Station ID: FODO0005
LAT/LON: 36.497226/ -87.833338
Agency: 11COEHUN
Date Created: 12/01/84
Location: DYER CREEK MILE 0.5
FIPS State/County: 47161 TENNESSEE/STEWART
Station Type: /TYPA/AMBNT/LAKE
STORET Station ID(s): 3BAR20029
RMI-Indexes: 1021500 007720 01140 2310
Within Park Boundary: No
RMI-Miles: 0953.80 0058.30 088.60 000.50
HUC: 05130205
Depth of Water: 25
Aquifer:
Major Basin: CUMBERLAND RIVER BASIN
Elevation: 0
Water Body Id:
Minor Basin: LAKE BARKLEY
ECO Region:
RF1 Index: 05130205010
RF1 Mile Point: 17.380
Distance from RF1: 0.00
On/Off RF1: OFF
RF3 Index: 05130205001607.57
RF3 Mile Point: 8.11
Distance from RF3: 0.02
On/Off RF3:
Description:
QUADRANGLE: DOVER, TN
LOCATION: DYER CREEK EMBAYMENT MILE 0.5

## Parameter Inventory for Station: FODO0005

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00004 | STREAM WIDTH (FEET) | 06/27/84-06/27/84 | 1 | 200. | 200. | 200. | 200. | 0. | 0. | ** | ** | ** | ** |
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 06/27/84-06/27/84 | 5 | 25. | 25.84 | 28.8 | 24.4 | 3.068 | 1.752 | ** | ** | ** | ** |
| 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 06/27/84-06/27/84 | 2 | 47.5 | 47.5 | 67. | 28. | 760.5 | 27.577 | ** | ** | ** | ** |
| 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 06/27/84-06/27/84 | 1 | 0.4 | 0.4 | 0.4 | 0.4 | 0. | 0. | ** | ** | ** | ** |
| 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 06/27/84-06/27/84 | 2 | 167.5 | 167.5 | 170. | 165. | 12.5 | 3.536 | ** | ** | ** | ** |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE MG/L | 06/27/84-06/27/84 | 5 | 4.8 | 5.1 | 8.4 | 2.3 | 5.835 | 2.416 | ** | ** | ** | ** |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION % | 06/27/84-06/27/84 | 5 | 58. | 63.2 | 108. | 28. | 1001.2 | 31.642 | ** | ** | ** | ** |
| 00400 | PH (STANDARD UNITS) | 06/27/84-06/27/84 | 2 | 7.5 | 7.5 | 7.9 | 7.1 | 0.32 | 0.566 | ** | ** | ** | ** |
| 00400 | CONVERTED PH (STANDARD UNITS) | 06/27/84-06/27/84 | 2 | 7.337 | 7.337 | 7.9 | 7.1 | 0.373 | 0.611 | ** | ** | ** | ** |
| 00400 | MICRO EQUIVALENTS/LITER OF H+ COMPUTED FROM PH | 06/27/84-06/27/84 | 2 | 0.046 | 0.046 | 0.079 | 0.013 | 0.002 | 0.047 | ** | ** | ** | ** |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 06/27/84-06/27/84 | 2 | 72. | 72. | 74. | 70. | 8. | 2.828 | ** | ** | ** | ** |
| 00500 | RESIDUE, TOTAL (MG/L) | 06/27/84-06/27/84 | 2 | 217. | 217. | 244. | 190. | 1458. | 38.184 | ** | ** | ** | ** |
| 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 06/27/84-06/27/84 | 2 | 38. | 38. | 40. | 36. | 8. | 2.828 | ** | ** | ** | ** |
| 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 06/27/84-06/27/84 | 2 | 152.5 | 152.5 | 158. | 147. | 60.5 | 7.778 | ** | ** | ** | ** |
| 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 06/27/84-06/27/84 | 2 | 29. | 29. | 30. | 28. | 2. | 1.414 | ** | ** | ** | ** |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 06/27/84-06/27/84 | 2 | 64.5 | 64.5 | 97. | 32. | 2112.5 | 45.962 | ** | ** | ** | ** |
| 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 06/27/84-06/27/84 | 2 | 9. | 9. | 10. | 8. | 2. | 1.414 | ** | ** | ** | ** |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 06/27/84-06/27/84 | 2 ## | 0.05 | 0.05 | 0.05 | 0.05 | 0. | 0. | ** | ** | ** | ** |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 06/27/84-06/27/84 | 2 ## | 0.05 | 0.05 | 0.05 | 0.05 | 0. | 0. | ** | ** | ** | ** |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 06/27/84-06/27/84 | 2 ## | 0.275 | 0.275 | 0.5 | 0.05 | 0.101 | 0.318 | ** | ** | ** | ** |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 06/27/84-06/27/84 | 2 | 0.027 | 0.027 | 0.027 | 0.026 | 0. | 0.001 | ** | ** | ** | ** |
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 06/27/84-06/27/84 | 2 | 87. | 87. | 90. | 84. | 18. | 4.243 | ** | ** | ** | ** |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) | 06/27/84-06/27/84 | 2 | 27.5 | 27.5 | 28. | 27. | 0.5 | 0.707 | ** | ** | ** | ** |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 06/27/84-06/27/84 | 2 | 4.5 | 4.5 | 5. | 4. | 0.5 | 0.707 | ** | ** | ** | ** |
| 00929 | SODIUM, TOTAL (MG/L AS NA) | 06/27/84-06/27/84 | 2 | 3. | 3. | 3. | 3. | 0. | 0. | ** | ** | ** | ** |
| 00937 | POTASSIUM, TOTAL MG/L AS K) | 06/27/84-06/27/84 | 2 | 8.5 | 8.5 | 9. | 8. | 0.5 | 0.707 | ** | ** | ** | ** |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 06/27/84-06/27/84 | 2 | 28. | 28. | 28. | 28. | 0. | 0. | ** | ** | ** | ** |
| 01007 | BARIUM, TOTAL (UG/L AS BA) | 06/27/84-06/27/84 | 2 | 45. | 45. | 60. | 30. | 450. | 21.213 | ** | ** | ** | ** |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 06/27/84-06/27/84 | 2 ## | 0.5 | 0.5 | 0.5 | 0.5 | 0. | 0. | ** | ** | ** | ** |
| 01045 | IRON, TOTAL (UG/L AS FE) | 06/27/84-06/27/84 | 2 | 2000. | 2000. | 3300. | 700. | 3380000. | 1838.478 | ** | ** | ** | ** |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) | 06/27/84-06/27/84 | 2 | 675. | 675. | 1060. | 290. | 296450. | 544.472 | ** | ** | ** | ** |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 06/27/84-06/27/84 | 2 ## | 25. | 25. | 25. | 25. | 0. | 0. | ** | ** | ** | ** |
| 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 06/27/84-06/27/84 | 2 ## | 50. | 50. | 50. | 50. | 0. | 0. | ** | ** | ** | ** |
| 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 06/27/84-06/27/84 | 2 | 2245. | 2245. | 3380. | 1110. | 2576450. | 1605.132 | ** | ** | ** | ** |
| 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 06/27/84-06/27/84 | 3 | 26. | 21.333 | 27. | 11. | 80.333 | 8.963 | ** | ** | ** | ** |
| 72020 | ELEVATION IN FEET ABOVE MEAN SEA LEVEL | 06/27/84-06/27/84 | 1 | 359.1 | 359.1 | 359.1 | 359.1 | 0. | 0. | ** | ** | ** | ** |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## Parameter Inventory for Station: FODO0005

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 06/27/84-06/27/84 | 1 | 16. | 16. | 16. | 16. | 0. | 0. | ** | ** | ** | ** |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0005

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00076 | TURBIDITY, HACH TURBIDIMETER | Other-Hi Lim. | 50. | 2 | 1 | 0.50 | | | | | | | 2 | 1 | 0.50 | | | |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE | Other-Lo Lim. | 4. | 5 | 2 | 0.40 | | | | | | | 5 | 2 | 0.40 | | | |
| 00400 | PH | Other-Hi Lim. | 9. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| | | Other-Lo Lim. | 6.5 | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 00945 | SULFATE, TOTAL (AS SO4) | Drinking Water | 250. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 01007 | BARIUM, TOTAL | Drinking Water | 2000. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 01012 | BERYLLIUM, TOTAL | Fresh Acute | 130. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| | | Drinking Water | 4. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 01092 | ZINC, TOTAL | Fresh Acute | 120. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| | | Drinking Water | 5000. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| 01097 | ANTIMONY, TOTAL | Fresh Acute | 88. | 2 | 0 | 0.00 | | | | | | | 2 | 0 | 0.00 | | | |
| | | Drinking Water | 6. | 0 & | 0 | 0.00 | | | | | | | | | | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0006

NPS Station ID: FODO0006
LAT/LON: 36.492781/ -87.862781
Agency: 11COEHUN
Date Created: 12/01/84
Location: HICKMAN CREEK MILE 0.4
FIPS State/County: 47161 TENNESSEE/STEWART
Station Type: /TYPA/AMBNT/LAKE
STORET Station ID(s): 3BAR20028
RMI-Indexes: 1021500 007720 01140 2305
Within Park Boundary: No
RMI-Miles: 0953.80 0058.30 087.70 000.40
HUC: 05130205
Depth of Water: 25
Aquifer:
Major Basin: CUMBERLAND RIVER BASIN
Elevation: 0
Water Body Id:
Minor Basin: LAKE BARKLEY
ECO Region:
RF1 Index: 05130205009
RF1 Mile Point: 17.100
Distance from RF1: 0.00
On/Off RF1: OFF
RF3 Index: 05130205001513.76
RF3 Mile Point: 18.38
Distance from RF3: 0.01
On/Off RF3:
Description:
QUADRANGLE: DOVER, TN
LOCATION: HICKMAN CREEK EMBAYMENT MILE 0.4

## Parameter Inventory for Station: FODO0006

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00004 | STREAM WIDTH (FEET) | 06/27/84-08/15/85 | 6 | 750. | 875. | 1500. | 750. | 93750. | 306.186 | ** | ** | ** | ** |
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 06/27/84-08/15/85 | 57 | 25.8 | 25.602 | 29.8 | 17. | 8.356 | 2.891 | 21.2 | 24.6 | 27.7 | 29.52 |
| 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 06/27/84-08/15/85 | 7 | 16. | 15.457 | 30. | 4.2 | 90.863 | 9.532 | ** | ** | ** | ** |
| 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 06/27/84-08/15/85 | 6 | 0.7 | 0.7 | 0.8 | 0.5 | 0.012 | 0.11 | ** | ** | ** | ** |
| 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 06/27/84-08/15/85 | 27 | 180. | 198.926 | 270. | 160. | 1178.994 | 34.336 | 165.6 | 170. | 225. | 256. |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE MG/L | 06/27/84-08/15/85 | 57 | 5.3 | 5.244 | 13. | 0. | 18.383 | 4.287 | 0.08 | 0.3 | 8.65 | 11.8 |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION % | 06/27/84-08/15/85 | 57 | 64. | 66.684 | 170. | 0. | 3131.041 | 55.956 | 0.8 | 3.5 | 113. | 150.6 |
| 00400 | PH (STANDARD UNITS) | 06/27/84-08/15/85 | 27 | 7.5 | 7.581 | 9. | 6.7 | 0.477 | 0.691 | 6.7 | 7. | 8. | 8.82 |
| 00400 | CONVERTED PH (STANDARD UNITS) | 06/27/84-08/15/85 | 27 | 7.5 | 7.218 | 9. | 6.7 | 0.614 | 0.784 | 6.7 | 7. | 8. | 8.82 |
| 00400 | MICRO EQUIVALENTS/LITER OF H+ COMPUTED FROM PH | 06/27/84-08/15/85 | 27 | 0.032 | 0.061 | 0.2 | 0.001 | 0.004 | 0.066 | 0.002 | 0.01 | 0.1 | 0.2 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 06/27/84-08/15/85 | 12 | 72. | 71.333 | 78. | 64. | 22.061 | 4.697 | 64.6 | 66.5 | 75.5 | 78. |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 08/15/85-08/15/85 | 2 | 1. | 1. | 2. | 0. | 2. | 1.414 | ** | ** | ** | ** |
| 00500 | RESIDUE, TOTAL (MG/L) | 06/27/84-08/15/85 | 12 | 154. | 165.667 | 242. | 102. | 1388.97 | 37.269 | 114. | 146.5 | 191. | 233.6 |
| 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 06/27/84-08/15/85 | 12 | 29. | 29.667 | 46. | 12. | 125.697 | 11.211 | 12.6 | 22.5 | 41. | 45.4 |
| 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C),MG/L | 06/27/84-08/15/85 | 12 | 141. | 142.167 | 181. | 94. | 478.152 | 21.867 | 103.9 | 132.75 | 149.5 | 178.6 |
| 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 06/27/84-08/15/85 | 12 | 26. | 25.417 | 43. | 5. | 165.72 | 12.873 | 5.9 | 14.5 | 38.5 | 42.1 |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 06/27/84-08/15/85 | 12 | 14. | 23.5 | 69. | 3. | 439.727 | 20.97 | 3.6 | 8.75 | 43.5 | 62.7 |
| 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 06/27/84-08/15/85 | 12 | 4.5 | 4.25 | 8. | 1. | 8.205 | 2.864 | 1. | 1. | 6.75 | 8. |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 06/27/84-08/15/85 | 11 ## | 0.05 | 0.195 | 1.5 | 0.05 | 0.189 | 0.435 | 0.05 | 0.05 | 0.05 | 1.24 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 06/27/84-08/15/85 | 11 | 0.2 | 0.695 | 2. | 0.05 | 0.558 | 0.747 | 0.05 | 0.05 | 1.4 | 1.96 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 06/27/84-08/15/85 | 12 ## | 0.05 | 0.142 | 0.5 | 0.05 | 0.024 | 0.156 | 0.05 | 0.05 | 0.2 | 0.47 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 06/27/84-08/15/85 | 12 ## | 0.005 | 0.014 | 0.047 | 0.005 | 0. | 0.015 | 0.005 | 0.005 | 0.014 | 0.046 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 08/15/85-08/15/85 | 2 ## | 0.005 | 0.005 | 0.005 | 0.005 | 0. | 0. | ** | ** | ** | ** |
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 06/27/84-08/15/85 | 12 | 92.5 | 98.083 | 148. | 79. | 374.629 | 19.355 | 79. | 87. | 103.25 | 139.9 |
| 00915 | CALCIUM, DISSOLVED (MG/L AS CA) | 08/15/85-08/15/85 | 2 | 33.5 | 33.5 | 35. | 32. | 4.5 | 2.121 | ** | ** | ** | ** |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) | 06/27/84-08/15/85 | 12 | 30. | 31.75 | 51. | 25. | 61.659 | 7.852 | 25. | 25.25 | 34.25 | 48.3 |
| 00925 | MAGNESIUM, DISSOLVED (MG/L AS MG) | 08/15/85-08/15/85 | 2 | 6. | 6. | 6. | 6. | 0. | 0. | ** | ** | ** | ** |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 06/27/84-08/15/85 | 12 | 4. | 4.583 | 6. | 4. | 0.629 | 0.793 | 4. | 4. | 5. | 6. |
| 00929 | SODIUM, TOTAL (MG/L AS NA) | 06/27/84-08/15/85 | 12 | 3. | 3.25 | 4. | 3. | 0.205 | 0.452 | 3. | 3. | 3.75 | 4. |
| 00930 | SODIUM, DISSOLVED (MG/L AS NA) | 08/15/85-08/15/85 | 2 | 4. | 4. | 4. | 4. | 0. | 0. | ** | ** | ** | ** |
| 00935 | POTASSIUM, DISSOLVED (MG/L AS K) | 08/15/85-08/15/85 | 2 ## | 1.25 | 1.25 | 2. | 0.5 | 1.125 | 1.061 | ** | ** | ** | ** |
| 00937 | POTASSIUM, TOTAL MG/L AS K) | 06/27/84-08/15/85 | 12 | 2. | 2.958 | 7. | 0.5 | 6.157 | 2.481 | 0.5 | 0.625 | 5.5 | 7. |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 06/27/84-08/15/85 | 12 | 22.5 | 22.333 | 28. | 16. | 11.152 | 3.339 | 16.9 | 20. | 24.75 | 27.4 |
| 01005 | BARIUM, DISSOLVED (UG/L AS BA) | 08/15/85-08/15/85 | 2 | 25. | 25. | 30. | 20. | 50. | 7.071 | ** | ** | ** | ** |
| 01007 | BARIUM, TOTAL (UG/L AS BA) | 06/27/84-08/15/85 | 12 | 30. | 38.75 | 80. | 5. | 546.023 | 23.367 | 9.5 | 22.5 | 55. | 80. |
| 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 08/15/85-08/15/85 | 2 ## | 0.5 | 0.5 | 0.5 | 0.5 | 0. | 0. | ** | ** | ** | ** |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## Parameter Inventory for Station: FODO0006

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 06/27/84-08/15/85 | 12 ## | 0.5 | 0.917 | 5. | 0.5 | 1.674 | 1.294 | 0.5 | 0.5 | 0.5 | 3.8 |
| 01045 | IRON, TOTAL (UG/L AS FE) | 06/27/84-08/15/85 | 12 | 400. | 945.833 | 2800. | 50. | 1114299.242 | 1055.604 | 95. | 200. | 2075. | 2770. |
| 01046 | IRON, DISSOLVED (UG/L AS FE) | 08/15/85-08/15/85 | 2 ## | 50. | 50. | 50. | 50. | 0. | 0. | ** | ** | ** | ** |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) | 06/27/84-08/15/85 | 12 | 130. | 736.667 | 3370. | 20. | 1302969.697 | 1141.477 | 32. | 65. | 1382.5 | 3115. |
| 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 08/15/85-08/15/85 | 2 ## | 12.5 | 12.5 | 20. | 5. | 112.5 | 10.607 | ** | ** | ** | ** |
| 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 08/15/85-08/15/85 | 2 ## | 25. | 25. | 25. | 25. | 0. | 0. | ** | ** | ** | ** |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 06/27/84-08/15/85 | 12 ## | 25. | 27.917 | 60. | 25. | 102.083 | 10.104 | 25. | 25. | 25. | 49.5 |
| 01095 | ANTIMONY, DISSOLVED (UG/L AS SB) | 08/15/85-08/15/85 | 2 ## | 50. | 50. | 50. | 50. | 0. | 0. | ** | ** | ** | ** |
| 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 06/27/84-08/15/85 | 12 ## | 50. | 66.667 | 200. | 50. | 1969.697 | 44.381 | 50. | 50. | 50. | 170. |
| 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 06/27/84-08/15/85 | 12 | 500. | 1067.5 | 2900. | 160. | 1121565.909 | 1059.04 | 178. | 355. | 2352.5 | 2828. |
| 01106 | ALUMINUM, DISSOLVED (UG/L AS AL) | 08/15/85-08/15/85 | 2 | 115. | 115. | 140. | 90. | 1250. | 35.355 | ** | ** | ** | ** |
| 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 06/27/84-08/15/85 | 18 | 26.5 | 26.5 | 51. | 10. | 134.853 | 11.613 | 10. | 17.75 | 34. | 46.5 |
| 72020 | ELEVATION IN FEET ABOVE MEAN SEA LEVEL | 06/27/84-08/15/85 | 5 | 357. | 357.44 | 359.1 | 356. | 1.543 | 1.242 | ** | ** | ** | ** |
| 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 06/27/84-08/15/85 | 6 | 16. | 16.833 | 22. | 13. | 10.167 | 3.189 | ** | ** | ** | ** |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0006

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00076 | TURBIDITY, HACH TURBIDIMETER | Other-Hi Lim. | 50. | 7 | 0 | 0.00 | 2 | 0 | 0.00 | | | | 5 | 0 | 0.00 | | | |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE | Other-Lo Lim. | 4. | 57 | 26 | 0.46 | 30 | 13 | 0.43 | | | | 27 | 13 | 0.48 | | | |
| 00400 | PH | Other-Hi Lim. | 9. | 27 | 1 | 0.04 | 18 | 0 | 0.00 | | | | 9 | 1 | 0.11 | | | |
| | | Other-Lo Lim. | 6.5 | 27 | 0 | 0.00 | 18 | 0 | 0.00 | | | | 9 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| 00945 | SULFATE, TOTAL (AS SO4) | Drinking Water | 250. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| 01005 | BARIUM, DISSOLVED | Drinking Water | 2000. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01007 | BARIUM, TOTAL | Drinking Water | 2000. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| 01010 | BERYLLIUM, DISSOLVED | Fresh Acute | 130. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 4. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01012 | BERYLLIUM, TOTAL | Fresh Acute | 130. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| | | Drinking Water | 4. | 12 | 1 | 0.08 | 6 | 0 | 0.00 | | | | 6 | 1 | 0.17 | | | |
| 01090 | ZINC, DISSOLVED | Fresh Acute | 120. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 5000. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01092 | ZINC, TOTAL | Fresh Acute | 120. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| | | Drinking Water | 5000. | 12 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 6 | 0 | 0.00 | | | |
| 01095 | ANTIMONY, DISSOLVED | Fresh Acute | 88. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 6. | 0 & | 0 | 0.00 | | | | | | | | | | | | |
| 01097 | ANTIMONY, TOTAL | Fresh Acute | 88. | 12 | 2 | 0.17 | 6 | 2 | 0.33 | | | | 6 | 0 | 0.00 | | | |
| | | Drinking Water | 6. | 2 & | 2 | 1.00 | 2 | 2 | 1.00 | | | | | | | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0007

NPS Station ID: FODO0007
LAT/LON: 36.528059/ -87.870004
Agency: 11EPALES
Date Created: / /
Location: LAKE BARKLEY
FIPS State/County: 47161 TENNESSEE/STEWART
Station Type: /TYPA/AMBNT/LAKE
STORET Station ID(s): 470108
RMI-Indexes:
Within Park Boundary: No
RMI-Miles:
HUC: 05130205
Depth of Water: 55
Aquifer:
Major Basin:
Elevation: 0
Water Body Id:
Minor Basin:
ECO Region:
RF1 Index: 05130205010
RF1 Mile Point: 22.630
Distance from RF1: 0.00
On/Off RF1: OFF
RF3 Index: 05130205001702.13
RF3 Mile Point: 3.51
Distance from RF3: 0.04
On/Off RF3:
Description:
MILE 86.2 TVA CHART. NEAR WILLEY SPRINGS BRANCH AREA, USAE MARKER NO. 86.2, MID-CHANNEL.
COMMENTS: 5-17 ULE 15, 1% LIGHT AT 6-1/2 FT, WATER TURBID W/O VISIBLE ALGAE. 8-14 ULE 18, TURBID BROWN; NO SURF ALGAE OR HIGHER AQUATICS;
STRONG CURRENT PRESENT; 1% LIGHT AT 4 FT; DEPTH 47 FT. 10-20 NOT SAMPLED MAP: TENNESSEE VALLEY AUTHORITY NAVIGATION CHARTS

## Parameter Inventory for Station: FODO0007

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 05/17/73-08/14/73 | 9 | 18.5 | 21.356 | 25.1 | 18.3 | 12.29 | 3.506 | 18.3 | 18.35 | 25.05 | 25.1 |
| 00074 | TURBIDITY, TRANSMISSOMETER, PERCENT TRANSMISSION | 05/17/73-08/14/73 | 9 | 69. | 67.778 | 78. | 47. | 90.694 | 9.523 | 47. | 63. | 75. | 78. |
| 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | 05/17/73-08/14/73 | 2 | 27.5 | 27.5 | 30. | 25. | 12.5 | 3.536 | ** | ** | ** | ** |
| 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 08/14/73-08/14/73 | 4 | 174. | 174.25 | 175. | 174. | 0.25 | 0.5 | ** | ** | ** | ** |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 05/17/73-08/14/73 | 9 | 201. | 599.222 | 1103. | 200. | 223681.694 | 472.95 | 200. | 200. | 1096. | 1103. |
| 00300 | OXYGEN, DISSOLVED MG/L | 05/17/73-08/14/73 | 7 | 9.2 | 7.929 | 9.5 | 6. | 3.049 | 1.746 | ** | ** | ** | ** |
| 00400 | PH (STANDARD UNITS) | 05/17/73-08/14/73 | 9 | 7.7 | 7.511 | 7.8 | 7.1 | 0.104 | 0.322 | 7.1 | 7.2 | 7.8 | 7.8 |
| 00400 | CONVERTED PH (STANDARD UNITS) | 05/17/73-08/14/73 | 9 | 7.7 | 7.408 | 7.8 | 7.1 | 0.116 | 0.34 | 7.1 | 7.2 | 7.8 | 7.8 |
| 00400 | MICRO EQUIVALENTS/LITER OF H+ COMPUTED FROM PH | 05/17/73-08/14/73 | 9 | 0.02 | 0.039 | 0.079 | 0.016 | 0.001 | 0.027 | 0.016 | 0.016 | 0.063 | 0.079 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 05/17/73-08/14/73 | 9 | 76. | 72. | 78. | 64. | 36. | 6. | 64. | 66. | 77. | 78. |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 05/17/73-08/14/73 | 9 | 0.07 | 0.097 | 0.14 | 0.06 | 0.002 | 0.039 | 0.06 | 0.06 | 0.14 | 0.14 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 05/17/73-08/14/73 | 9 | 0.4 | 0.378 | 0.5 | 0.3 | 0.004 | 0.067 | 0.3 | 0.3 | 0.4 | 0.5 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 05/17/73-08/14/73 | 9 | 0.44 | 0.442 | 0.46 | 0.43 | 0. | 0.01 | 0.43 | 0.435 | 0.45 | 0.46 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 05/17/73-08/14/73 | 9 | 0.138 | 0.147 | 0.231 | 0.105 | 0.002 | 0.045 | 0.105 | 0.109 | 0.183 | 0.231 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 05/17/73-08/14/73 | 9 | 0.044 | 0.05 | 0.068 | 0.039 | 0. | 0.012 | 0.039 | 0.041 | 0.063 | 0.068 |
| 32217 | CHLOROPHYLL A UG/L FLUOROMETRIC UNCORRECTED | 05/17/73-08/14/73 | 2 | 6.6 | 6.6 | 10. | 3.2 | 23.12 | 4.808 | ** | ** | ** | ** |
| 72025 | DEPTH OF POND OR RESERVOIR IN FEET | 05/17/73-08/14/73 | 2 | 51. | 51. | 55. | 47. | 32. | 5.657 | ** | ** | ** | ** |

** - Less than 9 observations ## - Computed with 50% or more of the total observations as values that were half the detection limit p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0007

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00300 | OXYGEN, DISSOLVED | Other-Lo Lim. | 4. | 7 | 0 | 0.00 | 3 | 0 | 0.00 | | | | 4 | 0 | 0.00 | | | |
| 00400 | PH | Other-Hi Lim. | 9. | 9 | 0 | 0.00 | 4 | 0 | 0.00 | | | | 5 | 0 | 0.00 | | | |
| | | Other-Lo Lim. | 6.5 | 9 | 0 | 0.00 | 4 | 0 | 0.00 | | | | 5 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 9 | 0 | 0.00 | 4 | 0 | 0.00 | | | | 5 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# Station Inventory for Station: FODO0008

NPS Station ID: FODO0008
Location: BEAR CREEK
Station Type: /TYPA/AMBNT/STREAM
RMI-Indexes:
RMI-Miles:
HUC: 05130205
Major Basin: T/LAKE BARKLEY
Minor Basin: ST HWY 49 BRDG 4 MI NW OF DOVER
RF1 Index: 05130205
RF3 Index: 05130205179300.04
Description:
BRIDGE ON TN 49 APPROX. 4 MI NW OF DOVER

LAT/LON: 36.506948/ -87.887226
Depth of Water: 0
Elevation: 0
RF1 Mile Point: 0.000
RF3 Mile Point: 0.04

Agency: 11EPALES
FIPS State/County: 47000 TENNESSEE/
STORET Station ID(s): 4701U1
Within Park Boundary: No
Aquifer:
Water Body Id:
ECO Region:
Distance from RF1: 0.00
Distance from RF3: 0.06

Date Created: / /
On/Off RF1:
On/Off RF3:

## Parameter Inventory for Station: FODO0008

| Parameter | | Period of Record | Obs | Median | Mean | Maximum | Minimum | Variance | Std. Dev. | 10th | 25th | 75th | 90th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 10 | 0.02 | 0.176 | 0.87 | 0.012 | 0.101 | 0.318 | 0.012 | 0.014 | 0.241 | 0.85 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 10 ## | 0.001 | 0.003 | 0.024 | 0.001 | 0. | 0.007 | 0.001 | 0.001 | 0.001 | 0.022 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 04/14/73-03/01/74 | 10 | 0.294 | 0.398 | 1.18 | 0.19 | 0.088 | 0.297 | 0.19 | 0.228 | 0.46 | 1.117 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 04/14/73-03/01/74 | 10 | 0.25 | 0.815 | 2.9 | 0.05 | 0.988 | 0.994 | 0.05 | 0.088 | 1.388 | 2.82 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 04/14/73-03/01/74 | 10 | 0.295 | 0.4 | 1.2 | 0.19 | 0.092 | 0.303 | 0.19 | 0.228 | 0.46 | 1.135 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 04/14/73-03/01/74 | 10 | 0.01 | 0.009 | 0.02 | 0.003 | 0. | 0.006 | 0.003 | 0.003 | 0.013 | 0.02 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 04/14/73-03/01/74 | 10 ## | 0.004 | 0.016 | 0.125 | 0.003 | 0.001 | 0.038 | 0.003 | 0.003 | 0.008 | 0.113 |

** - Less than 9 observations  ## - Computed with 50% or more of the total observations as values that were half the detection limit  p - Has a corresponding time series plot

## EPA Water Quality Criteria Analysis for Station: FODO0008

| | | | | Total | Exceed | Prop. | ----------8/01-10/31---------- | | | ----------11/01-3/31---------- | | | ----------4/01-7/31---------- | | | ----------n/a---------- | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameter | | Std. Type | Std. Value | Obs | Standard | Exceeding | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. | Obs | Exceed | Prop. |
| 00615 | NITRITE NITROGEN, TOTAL AS N | Drinking Water | 1. | 10 | 0 | 0.00 | | | | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00620 | NITRATE NITROGEN, TOTAL AS N | Drinking Water | 10. | 10 | 0 | 0.00 | | | | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 10 | 0 | 0.00 | | | | 6 | 0 | 0.00 | 4 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# EPA Water Quality Criteria Analysis for Entire FODO Study Area

| Parameter | | Std. Type | Std. Value | Total Obs | Exceed Standard | Prop. Exceeding | 8/01-10/31 Obs | 8/01-10/31 Exceed | 8/01-10/31 Prop. | 11/01-3/31 Obs | 11/01-3/31 Exceed | 11/01-3/31 Prop. | 4/01-7/31 Obs | 4/01-7/31 Exceed | 4/01-7/31 Prop. | n/a Obs | n/a Exceed | n/a Prop. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00070 | TURBIDITY, JACKSON CANDLE UNITS | Other-Hi Lim. | 50. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00076 | TURBIDITY, HACH TURBIDIMETER | Other-Hi Lim. | 50. | 9 | 1 | 0.11 | 2 | 0 | 0.00 | | | | 7 | 1 | 0.14 | | | |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE | Other-Lo Lim. | 4. | 62 | 28 | 0.45 | 30 | 13 | 0.43 | | | | 32 | 15 | 0.47 | | | |
| 00300 | OXYGEN, DISSOLVED | Other-Lo Lim. | 4. | 93 | 3 | 0.03 | 21 | 3 | 0.14 | 24 | 0 | 0.00 | 48 | 0 | 0.00 | | | |
| 00400 | PH | Other-Hi Lim. | 9. | 78 | 1 | 0.01 | 31 | 0 | 0.00 | 13 | 0 | 0.00 | 34 | 1 | 0.03 | | | |
| | | Other-Lo Lim. | 6.5 | 78 | 0 | 0.00 | 31 | 0 | 0.00 | 13 | 0 | 0.00 | 34 | 0 | 0.00 | | | |
| 00615 | NITRITE NITROGEN, TOTAL AS N | Drinking Water | 1. | 49 | 0 | 0.00 | 9 | 0 | 0.00 | 24 | 0 | 0.00 | 16 | 0 | 0.00 | | | |
| 00620 | NITRATE NITROGEN, TOTAL AS N | Drinking Water | 10. | 49 | 0 | 0.00 | 9 | 0 | 0.00 | 24 | 0 | 0.00 | 16 | 0 | 0.00 | | | |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. | Drinking Water | 10. | 112 | 0 | 0.00 | 28 | 0 | 0.00 | 37 | 0 | 0.00 | 47 | 0 | 0.00 | | | |
| 00940 | CHLORIDE,TOTAL IN WATER | Fresh Acute | 860. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| | | Drinking Water | 250. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 00945 | SULFATE, TOTAL (AS SO4) | Drinking Water | 250. | 54 | 0 | 0.00 | 15 | 0 | 0.00 | 13 | 0 | 0.00 | 26 | 0 | 0.00 | | | |
| 00951 | FLUORIDE, TOTAL AS F | Drinking Water | 4. | 40 | 0 | 0.00 | 9 | 0 | 0.00 | 13 | 0 | 0.00 | 18 | 0 | 0.00 | | | |
| 01005 | BARIUM, DISSOLVED | Drinking Water | 2000. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01007 | BARIUM, TOTAL | Drinking Water | 2000. | 14 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 8 | 0 | 0.00 | | | |
| 01010 | BERYLLIUM, DISSOLVED | Fresh Acute | 130. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 4. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01012 | BERYLLIUM, TOTAL | Fresh Acute | 130. | 14 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 8 | 0 | 0.00 | | | |
| | | Drinking Water | 4. | 14 | 1 | 0.07 | 6 | 0 | 0.00 | | | | 8 | 1 | 0.13 | | | |
| 01090 | ZINC, DISSOLVED | Fresh Acute | 120. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 5000. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| 01092 | ZINC, TOTAL | Fresh Acute | 120. | 14 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 8 | 0 | 0.00 | | | |
| | | Drinking Water | 5000. | 14 | 0 | 0.00 | 6 | 0 | 0.00 | | | | 8 | 0 | 0.00 | | | |
| 01095 | ANTIMONY, DISSOLVED | Fresh Acute | 88. | 2 | 0 | 0.00 | 2 | 0 | 0.00 | | | | | | | | | |
| | | Drinking Water | 6. | 0 & | 0 | 0.00 | | | | | | | | | | | | |
| 01097 | ANTIMONY, TOTAL | Fresh Acute | 88. | 14 | 2 | 0.14 | 6 | 2 | 0.33 | | | | 8 | 0 | 0.00 | | | |
| | | Drinking Water | 6. | 2 & | 2 | 1.00 | 2 | 2 | 1.00 | | | | | | | | | |
| 31501 | COLIFORM, TOTAL, MEMBRANE FILTER, IMMED. | Other-Hi Lim. | 1000. | 36 | 10 | 0.28 | 8 | 0 | 0.00 | 13 | 7 | 0.54 | 15 | 3 | 0.20 | | | |
| 31616 | FECAL COLIFORM, MEMBRANE FILTER, BROTH | Other-Hi Lim. | 200. | 36 | 4 | 0.11 | 8 | 0 | 0.00 | 13 | 4 | 0.31 | 15 | 0 | 0.00 | | | |

& - Below detection limit observations, for which half the detection limit exceeded the criterion, were excluded from the criterion comparison for this parameter

# NPS Servicewide Inventory and Monitoring Program Level I

# Water Quality Parameter Inventory Data Evaluation and Analysis:

# Missing Level I Groups

No STORET Data Within the FODO Study Area Exist for These Groups:

Flow

# NPS Servicewide Inventory and Monitoring Program Level I

# Water Quality Parameter Inventory Data Evaluation and Analysis:

# Present Level I Groups

STORET Data Within the FODO Study Area Exist for These Groups:

| Alkalinity | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 63 | 2 | 12 | 49 | 4 |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 42 | 2 | 0 | 40 | 2 |
| | | 105 | 4 | 12 | 89 | 6 (4)[1] |

| pH | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00400 | PH (STANDARD UNITS) | 78 | 10 | 19 | 49 | 4 |
| | | 78 | 10 | 19 | 49 | 4 (4)[1] |

| Conductivity | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00094 | SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM @ 25C) | 33 | 10 | 19 | 4 | 3 |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 49 | 0 | 0 | 49 | 2 |
| | | 82 | 10 | 19 | 53 | 5 (4)[1] |

| Dissolved Oxygen | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE (MG/L) | 62 | 10 | 52 | 0 | 2 |
| 00300 | OXYGEN, DISSOLVED (MG/L) | 93 | 0 | 0 | 93 | 2 |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION | 62 | 10 | 52 | 0 | 2 |
| | | 217 | 20 | 104 | 93 | 6 (4)[1] |

| Water Temperature | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 169 | 10 | 52 | 107 | 4 |
| | | 169 | 10 | 52 | 107 | 4 (4)[1] |

| Clarity/Turbidity | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | 40 | 0 | 0 | 40 | 1 |
| 00076 | TURBIDITY, HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 9 | 2 | 7 | 0 | 2 |
| 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | 2 | 0 | 0 | 2 | 1 |
| 00078 | TRANSPARENCY, SECCHI DISC (METERS) | 7 | 1 | 6 | 0 | 2 |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 54 | 2 | 12 | 40 | 3 |
| | | 112 | 5 | 25 | 82 | 9 (4)[1] |

[1]Since a station can have data for more than one of the parameters in the parameter group, the number in the parenthesis is the number of unique stations having data for this parameter group.

| Nitrate/Nitrogen | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 40 | 0 | 0 | 40 | 1 |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 111 | 2 | 11 | 98 | 8 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 49 | 0 | 0 | 49 | 4 |
| 00625 | NITROGEN, KJELDAHL, TOTAL (MG/L AS N) | 71 | 2 | 11 | 58 | 7 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 112 | 2 | 12 | 98 | 8 |
| | | 383 | 6 | 34 | 343 | 28 (8)[1] |

| Phosphate/Phosphorus | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 112 | 2 | 12 | 98 | 8 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 42 | 2 | 0 | 40 | 2 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 57 | 0 | 0 | 57 | 5 |
| | | 211 | 4 | 12 | 195 | 15 (8)[1] |

| Chlorophyll | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 32210 | CHLOROPHYLL A (UG/L) TRICHROMATIC UNCORRECTED | 21 | 3 | 18 | 0 | 2 |
| 32217 | CHLOROPHYLL A (UG/L) FLUOROMETRIC UNCORRECTED | 2 | 0 | 0 | 2 | 1 |
| | | 23 | 3 | 18 | 2 | 3 (3)[1] |

| Sulfates/Total Dissolved Solids/Hardness | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 14 | 2 | 12 | 0 | 2 |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 54 | 2 | 12 | 40 | 3 |
| | | 68 | 4 | 24 | 40 | 5 (3)[1] |

| Bacteria | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 31501 | COLIFORM, TOT, MEMBRANE FILTER,IMMED.M-ENDOMED,35C | 36 | 0 | 0 | 36 | 1 |
| 31616 | FECAL COLIFORM, MEMBR FILTER, M-FC BROTH, 44.5C | 36 | 0 | 0 | 36 | 1 |
| | | 72 | 0 | 0 | 72 | 2 (1)[1] |

| Toxic Elements | | Total Obs. | 01/01/85 to 08/15/85 | 01/01/75 to 12/31/84 | Before 01/01/75 | Total Stations |
|---|---|---|---|---|---|---|
| 01095 | ANTIMONY, DISSOLVED (UG/L AS SB) | 2 | 2 | 0 | 0 | 1 |
| 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 14 | 2 | 12 | 0 | 2 |
| 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 2 | 2 | 0 | 0 | 1 |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 14 | 2 | 12 | 0 | 2 |
| 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 2 | 2 | 0 | 0 | 1 |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 14 | 2 | 12 | 0 | 2 |
| | | 48 | 12 | 36 | 0 | 9 (2)[1] |

[1]Since a station can have data for more than one of the parameters in the parameter group, the number in the parenthesis is the number of unique stations having data for this parameter group.

## NPS Servicewide Inventory and Monitoring Program Level I

## Water Quality Parameter Inventory Data Evaluation and Analysis:

## Park Summary: Level I Group Currentness and Distribution

| Parameter Group | Total Obs. | Obs. Since 1985 | % Obs. Since 1985 | Stations Measuring This Group | % of Total Stations Measuring This Group | Obs. Per Station Measuring This Group | Period of Record For This Group | Observations Per Year of Period of Record |
|---|---|---|---|---|---|---|---|---|
| Alkalinity | 105 | 4 | 3.8 | 4 | 50.0 | 26.3 | 03/22/72-08/15/85 | 7.8 |
| pH | 78 | 10 | 12.8 | 4 | 50.0 | 19.5 | 03/22/72-08/15/85 | 5.8 |
| Conductivity | 82 | 10 | 12.2 | 4 | 50.0 | 20.5 | 03/22/72-08/15/85 | 6.1 |
| Dissolved Oxygen | 217 | 20 | 9.2 | 4 | 50.0 | 54.3 | 03/22/72-08/15/85 | 16.2 |
| Water Temperature | 169 | 10 | 5.9 | 4 | 50.0 | 42.3 | 03/22/72-08/15/85 | 12.6 |
| Flow | 0 | 0 | 0.0 | 0 | 0.0 | 0.0 | No Data For Group | 0.0 |
| Clarity/Turbidity | 112 | 5 | 4.5 | 4 | 50.0 | 28.0 | 03/22/72-08/15/85 | 8.4 |
| Nitrate/Nitrogen | 383 | 6 | 1.6 | 8 | 100.0 | 47.9 | 03/22/72-08/15/85 | 28.6 |
| Phosphate/Phosphorus | 211 | 4 | 1.9 | 8 | 100.0 | 26.4 | 03/22/72-08/15/85 | 15.7 |
| Chlorophyll | 23 | 3 | 13.0 | 3 | 37.5 | 7.7 | 05/17/73-08/15/85 | 1.9 |
| Sulfates/Total Dissolved Solids/Hardness | 68 | 4 | 5.9 | 3 | 37.5 | 22.7 | 03/22/72-08/15/85 | 5.1 |
| Bacteria | 72 | 0 | 0.0 | 1 | 12.5 | 72.0 | 03/22/72-10/17/73 | 45.7 |
| Toxic Elements | 48 | 12 | 25.0 | 2 | 25.0 | 24.0 | 06/27/84-08/15/85 | 42.2 |

## Water Quality Observations
## Outside STORET Edit Criteria for FODO

## (Disposition: X = Discarded, Blank = Retained)

| NPS Station ID | Parameter | Date | Time | Parameter Value | Agency | STORET Station ID | Disposition |
|---|---|---|---|---|---|---|---|

******** All data observations for FODO were within the STORET edit criteria. ********

# APPENDICES

## Appendix A

## Computer Files Transmitted With

## Park Baseline Water Quality Data Inventory and Analysis

Computer disk(s) accompanying this report include up to seven (depending on the presence or absence of certain data elements) compressed (ZIP) files containing digital copies of nearly all the tables, figures, and other materials used to produce this report. To decompress these files, you must use the commonly available shareware program PKUNZIP. The command to type at the DOS prompt is:

PKUNZIP -E *COMPRESS.ZIP FILENAME.EXT*

where COMPRESS.ZIP is the name of one of the seven compressed (ZIP) files listed below and FILENAME.EXT is the name of the file you wish to extract. If you want to decompress all of the files in COMPRESS.ZIP, simply omit the FILENAME.EXT. To obtain a listing of all the files compressed into a particular ZIP file, type the following:

PKUNZIP -V *COMPRESS.ZIP* |MORE

where COMPRESS.ZIP is the name of one of the seven compressed ZIP files listed below. If a ZIP file spans multiple disks, use the last disk of the series (span) when obtaining a listing of all the files compressed into a particular ZIP file. Once you see the file you wish to obtain, substitute this file name for FILENAME.EXT in the first command line above to extract and decompress this particular file.

Included on one of the disk(s) accompanying this report is a program named PRINTZIP. This program will decompress ZIP files which don't span multiple disks and print certain files to a Hewlett-Packard (or compatible) Laser Printer. To use PRINTZIP, however, you must still have a copy of PKUNZIP in a directory listed in your path or in the same directory as the PRINTZIP program. PRINTZIP provides an easy, menu-driven interface for using PKUNZIP to decompress files and then send them to the printer. PRINTZIP allows you to send individual files, groups of files, or all files to the printer. PRINTZIP will not work with ZIP files that span multiple disks.

The following compressed (ZIP) files are included on the disk(s) accompanying this report:

(1) <u>FODOTABS.ZIP</u>

This compressed file contains all the tables presented in the report. The files compressed into this file include:

(a) FODOSITE.DOC - Descriptive listing of select fields from the industrial facilities discharges, drinking water intakes, and EPA-USGS stream gages databases.

(b) FODOAGNC.DOC - Contacts for agencies whose data were retrieved within the study area.

(c) FODOAGNQ.DOC - Number of stations, observations, and parameters retrieved by agency code within the study area and park.

(d) FODOOV0.DOC - Overview of park and retrieved data.

(e) FODOOV1.DOC - Station period of record table.

(f) FODOOV2.DOC - Parameter period of record table.

(g) FODOOV3.DOC - Station/parameter period of record table.

(h) FODOINV.DOC - Station by station descriptive statistics over the entire period of record and comparison against EPA Water Quality Criteria for each station.

(i) FODOSEAN.DOC - Seasonal and annual water quality descriptive statistics at stations with water quality data meeting the default seasonal and annual criteria.

(j) FODOEPAS.DOC - EPA Water Quality Criteria comparison for data at all stations combined within the study area.

(k) FODOIDEA.DOC - Comparison of downloaded STORET data with NPS Servicewide Inventory and Monitoring Program "Level I" water quality parameters.

(l) FODOBAD.DOC - Water quality observation values that were outside the range of one of 190 STORET edit criteria and were either discarded or retained.

All these compressed document files are in ASCII format and contain printer codes appropriate to Hewlett-Packard (or compatible) Laser Printers. While at the DOS prompt, any of these document files may be printed directly to a Hewlett-Packard (or compatible) Laser Printer by using the PRINT command. For example, if the document FODOOV1.DOC is in the subdirectory C:\WATER, you could type: PRINT C:\WATER\FODOOV1.DOC. This will print the file to your local or networked Hewlett-Packard (or compatible) Laser Printer attached to parallel port one (LPT1:). Alternatively, you can use the PRINTZIP program to decompress and print any of these files provided the ZIP file doesn't span multiple disks. These ASCII files can also be imported into word-processed documents, but the printer codes will then have to be removed.

(2) FODOFIGS.ZIP

This compressed file contains graphics files for all the statistical figures (time series plots; annual box and whiskers plots; seasonal box and whiskers plots) in the report in two different formats: Computer Graphic Metafile (CGM) and Hewlett-Packard Printer Control Language (PCL). The files are named with the last three digits of the Station Name followed by the five digit STORET code. The file name extension begins with either a 1 (time series), 2 (annual), or 3 (seasonal) and then either GM for CGM or CL for PCL. For example, 00100300.2GM would denote the file contains an annual box and whiskers plot in CGM format for parameter 00300 (dissolved oxygen) at station FODO0001. While at the DOS prompt, any PCL file can be printed directly to a Hewlett-Packard (or compatible) Laser Printer by using the COPY command. For example, if the graphic 00100300.2CL (an annual box and whiskers plot of parameter 00300, dissolved oxygen, at station FODO0001) is in the subirectory C:\WATER, you would type: COPY C:\WATER\00100300.2CL LPT1: /B. This will print the file to your local or networked Hewlett-Packard (or compatible) Laser Printer attached to parallel port one (LPT1:). The /B is necessary because the PCL file is in a binary format. Alternatively, you can use the PRINTZIP program to decompress and print any of the PCL files provided the ZIP file doesn't span multiple disks. The CGM files can be imported and/or edited in most graphics packages, including WordPerfect.

(3) FODOPARM.ZIP

This file compresses FODOPARM.DBF which contains all the actual values (raw data) of all the water quality data downloaded from STORET and summarized in the report. The detailed database structure for this file is contained in Appendix B.

(4) FODOSITE.ZIP

This compressed file contains up to five geo-referenced, DBASE III+ compatible site (point location) files documenting the location in the study area of water quality monitoring stations, industrial facilities discharges, drinking water intakes, water gages, and water impoundments. These files include:

(a) FODOWQ.DBF - All water quality monitoring station locations within the project's study area downloaded from STORET.

(b) FODOIFD.DBF - All municipal and industrial facility discharges within the project's study area downloaded from the IFD database.

(c) FODODRIN.DBF - All drinking water intakes within the project's study area downloaded from the DRINKS database.

(d) FODOGAGE.DBF - All water gages within the project's study area downloaded from the GAGES database.

(e) FODODAMS.DBF - All water impoundments within the project's study area downloaded from the DAMS database.

The absence of any of these files indicates that none of the particular sites were found within the study area. Detailed database structures for each of these files are contained in Appendix B.

(5) FODOMISC.ZIP

This compressed file contains a variety of graphic and document files that are contained in the report. They are grouped into this miscellaneous compressed (ZIP) file because they don't fit neatly into any of the other compressed files. The files contained in this compressed file include:

(a) FODOEXEC.DOC - WordPerfect Ver. 5.1 copy of the Executive Summary in the report.

(b) FODOTOC.DOC - WordPerfect Ver. 5.1 copy of the report's Table of Contents.

(c) INTRO.DOC - WordPerfect Ver. 5.1 copy of all the text in the report from the Introduction through the Interpretive Guide to Water Quality Results.

(d) APPENDIX.DOC - WordPerfect Ver. 5.1 copy of all the Appendices in the report.

(e) FODOREGI - PCL and CLP (Windows Clipboard) copies of map displaying the regional location of the park and study area.

(f) FODOWQ - PCL and CLP (Windows Clipboard) copies of park maps displaying water quality station locations within the park's study area. If, due to scaling and aesthetic concerns, multiple maps were needed, these files will have alphabetically ordered suffixes (FODOWQA, FODOWQB, FODOWQC, etc.) and the index map name will end with an ampersand (&).

(g) FODOIDG - PCL and CLP (Windows Clipboard) copies of park maps displaying locations of industrial facilities discharges, drinking water intakes, and stream gages within the park's study area. If, due to scaling and aesthetic concerns, multiple maps were needed, these files will have alphabetically ordered suffixes (FODOIDGA, FODOIDGB, FODOIDGC, etc.) and the index map name will end with an ampersand (&). If no industrial facilities discharges, drinking water intakes, water gages, or water impoundments exist within the park's study area, these files will not be in the compressed (ZIP) file.

(h) FODOSEHY - PCL and CLP (Windows Clipboard) copies of the hydrographs or other materials used by WRD staff as the basis for a first attempt at a seasonal analysis of the park's water quality data.

Other materials may also be included in this miscellaneous compressed (ZIP) file as warranted by conditions at the park. As with FODOFIGS.ZIP and FODOTABS.ZIP, you can use the PRINTZIP program to print any of the PCL files in FODOMISC.ZIP provided the ZIP file doesn't span multiple disks. You should not, however, use PRINTZIP to print the WordPerfect document files. The CLP (Windows Clipboard) files can be imported (pasted) and/or edited in most Windows-based word processors and graphics packages.

(6) FODORF3.ZIP

This compressed file contains the Environmental Protection Agency's River Reach File Ver. 3.0 provisional data for the USGS catalog unit(s) encompassing the study area. The attribute data exist in both ASCII and DBASE III+ format, while the geographic traces exist in ASCII format. This compressed file contains four files for each catalog unit that touches the study area. Catalog units are identified by unique 8-character numeric names which identify the region, subregion, accounting unit, and catalog unit. Examples (your 8-character numeric names will be different) of the file types included in this compressed file are:

(a) 12345678.RF3 - ASCII formatted attribute file from the River Reach File for all hydrographic traces within the catalog unit.

(b) 12345678.DBF - DBASE III+ formatted attribute file from the River Reach File for all hydrographic traces within the catalog unit.

(c) 12345678.TRC - ASCII formatted geographic file from the River Reach File containing digital, geo-referenced descriptions of all hydrographic traces within the catalog unit at a scale of 1:100,000 suitable for import into a geographic information system.

(d) 12345678.CUB - ASCII formatted geographic file from the River Reach File containing a digital, geo-referenced description of the catalog unit boundary suitable for import into a geographic information system.

Detailed database structures for RF3-related files are contained in Appendix B.

(7) FODOWQMW.ZIP

Between 2000 and 2002, all Baseline Water Quality Data Inventory and Analysis Reports were compiled or re-compiled in Microsoft Word 2000 (Ver. 9.0) format. This complete, digital version of the report will be made available through various means, including the Internet. Although the reports can be opened in Microsoft Word 1997 (Ver. 8.0), the time series and annual and seasonal box-plots may not be centered appropriately on a page due to discrepancies with how Word 2000 formats pictures and how Word 1997 formatted pictures. Consequently, Word 2000 is the recommended software for viewing the report. Prior to printing the report from Word, be sure to enable "Print Text as Graphics" or "Print True Type Font as Graphics" in the Printer Properties. This ensures a more faithful reproduction of the maps included in the Word document.

The Microsoft Word version of the Baseline Water Quality Data Inventory and Analysis Report may differ slightly from the original analog version. Reports issued during 1994-1996 didn't have as many "bells-and-whistles" as subsequent reports. In compiling digital Microsoft Word versions of these earlier reports, attempts were made to bring these 1994-1996 reports up to the current standard wherever feasible and practicable. Unfortunately, some changes were not feasible or practicable. For example, water quality criteria screens were added or modified over time when newer criteria became available. The digital Microsoft Word version of Appendix F presents the latest criteria screening parameters and values. Some of these parameters and/or values may not have been screened against in the EPA water quality criteria analyses for each station and the entire study area in the 1994-1996 analog versions of the report. Similarly, the Introduction, Methodology, and Interpretive Guide to Water Quality Results may mention certain features that aren't included in the 1994-1996 reports. Additionally, to prepare a Microsoft Word version of this report, data were processed through different versions of software than used originally. Consequently, some results presented in the Overview and Executive Summary may differ slightly from those presented in the analog report (eg. # of In Park and Longer Term Stations).

## Appendix B

## Water Quality Database File Structures

The following table provides the DBASE III+ database field structure for all the water quality parameter data downloaded from STORET. This data will allow parks or other interested parties to replicate the statistical analyses and graphics contained in this report; perform more sophisticated analyses; or to establish a baseline park water quality database.

| **Parameter Data File: FODOPARM.DBF in FODOPARM.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| NPSSTATID | 1 | 8 | 8 | NPS Station ID (NPS park code + 4 digit sequence number) |
| BEGDATE | 9 | 14 | 6 | Measurement Start Date [yymmdd] |
| BEGTIME | 15 | 18 | 4 | Measurement Start Time [hhmm] |
| PARMCODE | 19 | 23 | 5 | STORET Parameter Code |
| PARMVALU | 24 | 39 | 16.7 | Parameter Value |
| REMARK | 40 | 40 | 1 | Parameter Remark Value |
| | | | | A=Value is Mean of 2 or More Determinations |
| | | | | B=Results Based Upon Colony Counts Outside Acceptable Range |
| | | | | C=Value Calculated |
| | | | | D=Field Measurement |
| | | | | E=Extra Sample Taken in Compositing Process |
| | | | | F=Female Species |
| | | | | G=Maximum of 2 or More Determinations |
| | | | | H=Based on Field Kit Determination |
| | | | | I=Value is Less Than Practical Quantitation Limit and Greater Than or Equal to the Method Detection Limit |
| | | | | J=Estimated, Not the Result of Analytic Measurement |
| | | | | K=Off-scale Low, Actual Value Not Known, But Known to be Less Than Value Shown |
| | | | | L=Off-scale High, Actual Value Not Known, But Known to be Greater Than Value Shown |

| Parameter Data File: FODOPARM.DBF in FODOPARM.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| | | | | M=Presence Verified, But Not Quantified, Below Quantification Limit; For Species, Male; For Oxygen Reduction Potential, Indicates a Negative Value |
| | | | | N=Presumptive Evidence of Presence |
| | | | | O=Analysis Lost |
| | | | | P=Too Numerous to Count |
| | | | | Q=Exceeded Normal Holding Time |
| | | | | R=Significant Rain in Last 48 Hours |
| | | | | S=Laboratory test |
| | | | | T=Less Than Detection Criteria |
| | | | | U=Analyzed For But Not Detected, Value is Detection Limit For Process Used; If Species, Undetermined |
| | | | | V=Analyte was Detected in Sample and Method Blank |
| | | | | W=Less Than Lowest Value Reportable Under Remark "T" |
| | | | | X=Quasi Vertically-Integrated Sample |
| | | | | Y=Analysis of Unpreserved Sample |
| | | | | Z=Too Many Colonies Were Present to Count (TNTC), Value Represents Filtration Value |
| | | | | $=Calculated By Retrieval Software |
| MEDIA | 41 | 46 | 6 | Sample Media |
| DEPTH | 47 | 55 | 9.3 | Depth of Sample [in feet] |
| ENDDATE | 56 | 61 | 6 | Measurement End Date [yymmdd] [all composite samples] |
| ENDTIME | 62 | 65 | 4 | Measurement End Time [hhmm] [all composite samples] |
| SAMPTYPE | 66 | 69 | 4 | Type of Sample ["sophisticated" composite samples] |
| | | | | C=Continuous Collection |
| | | | | G=Collection of Individual Grab Samples |
| | | | | GNxx=xx is the Number of Individual Grab Samples |
| | | | | B=N/A |

| Parameter Data File: FODOPARM.DBF in FODOPARM.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| COMPTYPE | 70 | 70 | 1 | Composite Value Type ["sophisticated" composite samples] |
| | | | | A=Average |
| | | | | H=Maximum |
| | | | | L=Minimum |
| | | | | N=Number of Observations |
| | | | | #=Number of Observations |
| | | | | S=Standard Deviation |
| | | | | U=Sum of Squares |
| | | | | V=Variance |
| | | | | C=Coefficient of Error |
| | | | | X=Coefficient of Variance |
| | | | | E=Skewness |
| | | | | F=Kurtosis |
| | | | | Z=Number of Observations That Exceed an Established Limit |
| | | | | %=Precision |
| | | | | $=Accuracy |
| | | | | B=N/A |
| | | | | D=Indicates Replicate Sample |
| COMPST | 71 | 71 | 1 | Composite Space/Time Indicator |
| | | | | S=Space |
| | | | | T=Time |
| | | | | B=Space and Time |
| | | | | F=Flow Proportional |
| | | | | 1-9=Replicate Number |

Note: DBASE III+ record lengths will be one greater than the last stop column displayed (71 here) because DBASE III+ reserves the first space/column of every record for a deletion flag. Hence, DBASE III+ will display a record length of 72 for this database.

The following table provides the DBASE III+ database field structure for all the water quality station locations downloaded from STORET. As this file is geo-referenced, it should import easily into the park's Geographic Information System.

| **Water Quality Station Data File: FODOWQ.DBF in FODOSITE.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| NPSSTATID | 1 | 8 | 8 | NPS Station ID (NPS park code + 4 digit sequence number) |
| AGENCY | 9 | 16 | 8 | Agency Code of Station Owner |
| STORIDP | 17 | 31 | 15 | STORET Primary Station Code |
| STORIDS1 | 32 | 43 | 12 | STORET First Secondary Station Code |
| STORIDS2 | 44 | 55 | 12 | STORET Second Secondary Station Code |
| STORIDS3 | 56 | 65 | 10 | STORET Third Secondary Station Code |
| LATITUDE | 66 | 73 | 8 | Station Latitude [degrees:minutes:seconds] |
| LONGITUDE | 74 | 82 | 9 | Station Longitude [degrees:minutes:seconds] |
| LAT | 83 | 93 | 11.6 | Station Latitude [decimal degrees, (-) below equator] |
| LON | 94 | 104 | 11.6 | Station Longitude [decimal degrees, (-) western hemisphere] |
| LLPREC | 105 | 105 | 1 | Latitude/Longitude Precision Code |
| RMI | 106 | 329 | 224 | River Mile Index |
| STATLOC | 330 | 377 | 48 | Station Location Description |
| CNTYCODE | 378 | 382 | 5 | FIPS State/County Code |
| STNAME | 383 | 398 | 16 | State Name |
| CNTYNAME | 399 | 418 | 20 | County Name |
| HYDUNIT | 419 | 426 | 8 | Hydrologic Unit Code (MAJ/MIN/SUB = Catalog Unit) |
| MAJBASN | 427 | 450 | 24 | Major Basin Name |
| MINBASN | 451 | 490 | 40 | Minor Basin Name |
| STATTYPE | 491 | 550 | 60 | Station Type |
| STORDATE | 551 | 556 | 6 | Date Station was Stored in STORET |
| RF1INDEX | 557 | 567 | 11 | RF1 Reach Number Location [2] |
| RF1MILE | 568 | 575 | 8.3 | Mile Point on RF1 Reach [2] |
| RF1LOC | 576 | 578 | 3 | Indicates the Location as ON or OFF RF1 Reach [2] |
| RF1DIST | 579 | 584 | 6.2 | Distance From RF1 Reach |

| Water Quality Station Data File: FODOWQ.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| RF3INDEX | 585 | 601 | 17 | RF3 Reach Number Location [3] |
| RF3MILE | 602 | 607 | 6.2 | Mile point on RF3 Reach [3] |
| RF3LOC | 608 | 610 | 3 | Indicates the Location as ON or OFF RF3 Reach [2] |
| RF3DIST | 611 | 616 | 6.2 | Distance From RF3 Reach |
| DEPH2O | 617 | 620 | 4 | Depth of Water at Station Location [in feet] |
| ELEV | 621 | 625 | 5 | Station Elevation |
| ECOREG | 626 | 628 | 3 | ECO Region |
| H2OBODY | 629 | 678 | 50 | Waterbody ID |
| AQUIFERS | 679 | 718 | 40 | Aquifer Description |
| STATDESC1 | 719 | 790 | 72 | Station Sentence Description |
| STATDESC2 | 791 | 862 | 72 | Station Sentence Description |
| STATDESC3 | 863 | 934 | 72 | Station Sentence Description |
| STATDESC4 | 935 | 1006 | 72 | Station Sentence Description |
| STATDESC5 | 1007 | 1078 | 72 | Station Sentence Description |
| STATDESC6 | 1079 | 1150 | 72 | Station Sentence Description |
| STATDESC7 | 1151 | 1222 | 72 | Station Sentence Description |
| STATDESC8 | 1223 | 1294 | 72 | Station Sentence Description |
| STATDESC9 | 1295 | 1366 | 72 | Station Sentence Description |
| STATDESC10 | 1367 | 1438 | 72 | Station Sentence Description |
| STATDESC11 | 1439 | 1510 | 72 | Station Sentence Description |
| STATDESC12 | 1511 | 1582 | 72 | Station Sentence Description |
| STATDESC13 | 1583 | 1654 | 72 | Station Sentence Description |
| STATDESC14 | 1655 | 1726 | 72 | Station Sentence Description |
| STATDESC15 | 1727 | 1798 | 72 | Station Sentence Description |
| STATLOCKED | 1799 | 1799 | 1 | Station Locked (Logical) True/False |

The following table provides the DBASE III+ database field structures for the EPA Industrial Facilities Discharge database. As this file is geo-referenced, it should import easily into the park's Geographic Information System.

| **Industrial Facilities Discharges File: FODOIFD.DBF in FODOSITE.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| SITEID | 1 | 9 | 9 | Site Identifier (NPDES Number) |
| LATITUDE | 10 | 17 | 8 | Facility Latitude (Degrees:Minutes:Seconds) |
| LONGITUDE | 18 | 26 | 9 | Facility Longitude (Degrees:Minutes:Seconds) |
| LAT | 27 | 37 | 11.6 | Facility Latitude (decimal degrees, (-) below equator) |
| LON | 38 | 48 | 11.6 | Facility Longitude (decimal degrees, (-) west. hem.) |
| RF1INDEX | 49 | 59 | 11 | RF1 Reach Number Location |
| RF1MILE | 60 | 65 | 6.2 | Mile Point on RF1 Reach |
| RF1DIST | 66 | 71 | 6.2 | Distance From RF1 Reach |
| RF3INDEX | 72 | 88 | 17 | RF3 Reach Number Location |
| RF3MILE | 89 | 94 | 6.2 | Mile Point on RF3 Reach |
| RF3DIST | 95 | 100 | 6.2 | Distance From RF3 Reach |
| ADR | 101 | 125 | 25 | Address |
| BFL | 126 | 132 | 7.2 | Total Direct Combined C&P Flow (1000 GPD) |
| CCFLG | 133 | 133 | 1 | Coastal County Flag "Y"/"N"/"E"=Estuary |
| CC1 | 134 | 138 | 5 | City Code #1 (EPA Code) |
| CFL | 139 | 145 | 7.2 | Total Direct Cooling Flow (1000 GPD) |
| CNC | 146 | 148 | 3 | County Code (FIPS) |
| CTY | 149 | 168 | 20 | City Name |
| CZIP | 169 | 177 | 9 | Canadian Zip Code |
| DNB | 178 | 186 | 9 | Dunn & Bradstreet Number |
| DNBFLG | 187 | 187 | 1 | Dunn & Bradstreet PCS Source Flag |
| EGF | 188 | 202 | 15.4 | Flow From Effluent Guidelines (1000 GPD) |
| EGS | 203 | 208 | 6 | Effluent Guidelines Subcategory |
| EXPDT | 209 | 216 | 8 | Expiration Date (mm/dd/yy) |
| E308SN | 217 | 220 | 4 | Effluent Guidelines Survey Number |
| FAC | 221 | 229 | 9 | SCS Facility Identifier (Cross-Reference) |
| FDS | 230 | 232 | 3 | Facility Data Source |

| Industrial Facilities Discharges File: FODOIFD.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| FFL | 233 | 239 | 7.2 | Total Facility Flow (1000 GPD) |
| FHF | 240 | 240 | 1 | Fac. Hit Flag (Reach File) V=Versar Assumed |
| FLOTYP | 241 | 243 | 3 | I=Blow Down, R=Bottom Ash, S=Fly Ash |
| FLR | 244 | 250 | 7.2 | Flow Recvd-Industrial (1000 GPD) Permit Data |
| FRDS | 251 | 259 | 9 | FRDS ID# - XREF To Water Supply |
| FRW | 260 | 289 | 30 | Facility Receiving Water Name |
| FS1 | 290 | 293 | 4 | Facility SIC Code (From PCS) |
| FS2 | 294 | 297 | 4 | Facility SIC Code #1 |
| FS3 | 298 | 301 | 4 | Facility SIC Code #2 |
| FS4 | 302 | 305 | 4 | Facility SIC Code #3 |
| FS5 | 306 | 309 | 4 | Facility SIC Code #4 |
| FUD | 310 | 317 | 8 | Facility Level Last Date Updated (mm/dd/yy) |
| IACC | 318 | 318 | 1 | Inactive/Active Indicator ("I" or "A") |
| ICAT | 319 | 320 | 2 | WQAB Industrial Category |
| ICAT2 | 321 | 322 | 2 | WQAB Industrial Category 2 |
| ICAT3 | 323 | 324 | 2 | WQAB Industrial Category 3 |
| IFL | 325 | 331 | 7 | Total Indirect Flow (1000 GPD) |
| IFT | 332 | 332 | 1 | Illinois Facility Type (A thru Z) |
| IG1 | 333 | 334 | 2 | Facility Industrial Group #1 |
| IG2 | 335 | 336 | 2 | Facility Industrial Group #2 |
| IJCN | 337 | 346 | 10 | Canadian Record Identifier |
| INACT | 347 | 353 | 7 | Inactive/Rescinded P=Based on Permit;A=Actual |
| INDCNT | 354 | 357 | 4 | Computed Number of Indirect Dischargers |
| LATLON | 358 | 372 | 15 | Polygon Retrieval Lat/Long. |
| MAJ | 373 | 373 | 1 | Major-Minor Flag (From PCS) |
| MAPID | 374 | 377 | 4 | Map Identifier |
| MJMN | 378 | 381 | 4 | Major/Minor Basin (EPA-STORET) |
| NAM | 382 | 441 | 60 | Facility Name |
| NDC | 442 | 444 | 3 | Number of Discharges (Pipes) |

| Industrial Facilities Discharges File: FODOIFD.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| NDSFLO | 445 | 451 | 7.2 | NEEDS Flow (1000 GPD) |
| NDSIFLO | 452 | 458 | 7.2 | NEEDS Industrial Flow (1000 GPD) |
| NID | 459 | 462 | 4 | Number of Indirect Dischargers |
| NPC | 463 | 463 | 1 | NEEDS Pre-Treatment Code "Y"=Yes, "N"=No |
| NPS | 464 | 464 | 1 | NPDES Facility Source/Status |
| NSN | 465 | 473 | 9 | NEEDS Survey Number |
| NTC | 474 | 474 | 1 | NEEDS Treatment Code |
| OCP | 475 | 480 | 6 | Organic Chemical Producers ID Number |
| ODESCC | 481 | 481 | 1 | ODES Coastal County "Y"=Yes; "N"=No |
| OFL | 482 | 488 | 7.2 | Total Non-Direct Other Flow (1000 GPD) |
| OWN | 489 | 491 | 3 | Ownership Code |
| PFL | 492 | 498 | 7.2 | Total Direct Process Flow (1000 GPD) |
| REG | 499 | 500 | 2 | EPA Region |
| REGKEY | 501 | 504 | 4 | Region Key |
| RSLOFLO | 505 | 511 | 7.2 | Receiving Stream Low Flow |
| RSMNFLO | 512 | 518 | 7.2 | Receiving Stream Mean Flow |
| STA | 519 | 520 | 2 | State Postal Abbreviation |
| STAID | 521 | 535 | 15 | State Identifier |
| STC | 536 | 537 | 2 | State Code (FIPS) |
| STCITY | 538 | 544 | 7 | State/City Code |
| TFLOW | 545 | 551 | 7.2 | Type Flow (1000 GPD) |
| UFL | 552 | 558 | 7.2 | Total Direct Undefined Flow (1000 GPD) |
| XEGS | 559 | 561 | 3 | Effluent Guidelines Subcat Index |
| XKEY | 562 | 562 | 1 | "1","2","3","4","5","6","7","8","9" |
| XNME | 563 | 565 | 3 | GLP,DIR,F2C,ENF,CET,LAG,PPB,M85,M86 |
| ZIP | 566 | 570 | 5 | Zip Code |

The following table provides the DBASE III+ database field structures for drinking water intakes from the EPA DRINKS database. As this file is geo-referenced, it should import easily into the park's Geographic Information System.

| Drinking Water Intakes File: FODODRIN.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| SITEID | 1 | 20 | 20 | Site Identifier |
| LATITUDE | 21 | 28 | 8 | Facility Latitude (Degrees:Minutes:Seconds) |
| LONGITUDE | 29 | 37 | 9 | Facility Longitude (Degrees:Minutes:Seconds) |
| LAT | 38 | 48 | 11.6 | Facility Latitude (decimal degrees, (-) below equator) |
| LON | 49 | 59 | 11.6 | Facility Longitude (decimal degrees, (-) west. hem.) |
| RF1INDEX | 60 | 70 | 11 | RF1 Reach Number Location |
| RF1MILE | 71 | 76 | 6.2 | Mile Point on RF1 Reach |
| RF1DIST | 77 | 82 | 6.2 | Distance From RF1 Reach |
| RF3INDEX | 83 | 99 | 17 | RF3 Reach Number Location |
| RF3MILE | 100 | 105 | 6.2 | Mile Point on RF3 Reach |
| RF3DIST | 106 | 111 | 6.2 | Distance From RF3 Reach |
| AQCD | 112 | 115 | 4 | Aquifer Code |
| ASC | 116 | 138 | 23 | STORET Agency/Station Code |
| AVGD | 139 | 142 | 4 | Average Depth |
| BUY | 143 | 143 | 1 | Purchase Code |
| CC1 | 144 | 148 | 5 | City Code #1 (EPA Code) |
| CNC | 149 | 151 | 3 | County Code (FIPS) |
| CNME | 152 | 166 | 15 | Contact Name |
| CNN | 167 | 186 | 20 | County Name |
| CTITLE | 187 | 201 | 15 | Contact Title |
| CTY | 202 | 221 | 20 | City Name |
| DUD | 222 | 229 | 8 | Date of Update |
| FRDS | 230 | 238 | 9 | FRDS ID# - Cross-Reference |
| GEOAG | 239 | 258 | 20 | Geologic Age |
| GEOCDE | 259 | 261 | 3 | Geologic Age Code |
| IDAT | 262 | 269 | 8 | Date (mm/dd/yy) |

| Drinking Water Intakes File: FODODRIN.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| INTAKET | 270 | 270 | 1 | Type Source G/S/B |
| INTRVWR | 271 | 285 | 15 | Interviewer |
| MAXD | 286 | 289 | 4 | Maximum Depth |
| MILES | 290 | 296 | 7.2 | Miles |
| MIND | 297 | 300 | 4 | Minimum Depth |
| NAME | 301 | 320 | 20 | Name |
| NPD | 321 | 329 | 9 | NPDES# XREF to IFD Database |
| NWLS | 330 | 332 | 3 | Number of Wells |
| OWN | 333 | 335 | 3 | Ownership |
| PAVGF | 336 | 342 | 7.2 | Production Avg. Daily (Gal/Day) |
| PCTSUP | 343 | 345 | 3 | %Surface / %Ground |
| PHONE | 346 | 355 | 10 | Telephone Number |
| PMAXF | 356 | 362 | 7.2 | Production Max. Daily (Gal/Day) |
| POPSV | 363 | 371 | 9 | Population Served |
| REG | 372 | 373 | 2 | EPA Region |
| SHLAT | 374 | 379 | 6 | Sitehelp Latitude (DDMMSS) |
| SHLNG | 380 | 386 | 7 | Sitehelp Longitude (DDDMMSS) |
| SHMILES | 387 | 393 | 7.2 | Sitehelp Miles |
| SHNME | 394 | 403 | 10 | Sitehelp Source Name |
| SHPCT | 404 | 410 | 7.2 | Sitehelp Percent of Reach Miles |
| SRC | 411 | 413 | 3 | Sitehelp Source Code |
| STA | 414 | 415 | 2 | State Abbreviation |
| STC | 416 | 417 | 2 | State Code (FIPS) |
| TUF | 418 | 424 | 7.2 | Total Utility Flow |
| TYPCDE | 425 | 425 | 1 | Type Code |
| UHF | 426 | 426 | 1 | Utility Hit Flag (Reach File) |
| VCDE | 427 | 427 | 1 | Versar Code='V'=>25K; '*'=<25K POPSVD |
| WFPC | 428 | 428 | 1 | Wellfield Precision Code |
| WFTYP | 429 | 429 | 1 | Well Type (Cassing,Artesian,Infiltration,etc.) |

| Drinking Water Intakes File: FODODRIN.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| WUN | 430 | 449 | 20 | Water Utility Name |

The following table provides the DBASE III+ database field structures for the Water Gage database. As this file is geo-referenced, it should import easily into the park's Geographic Information System.

| **Water Gage File: FODOGAGE.DBF in FODOSITE.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| SITEID | 1 | 20 | 20 | Site Identifier |
| LATITUDE | 21 | 28 | 8 | Facility Latitude (DDMMSS) |
| LONGITUDE | 29 | 37 | 9 | Facility Longitude (DDDMMSS) |
| LAT | 38 | 48 | 11.6 | Facility Latitude (decimal degrees, (-) below equator) |
| LON | 49 | 59 | 11.6 | Facility Longitude (decimal degrees, (-) west. hem.) |
| RF1INDEX | 60 | 70 | 11 | RF1 Reach Number Location |
| RF1MILE | 71 | 76 | 6.2 | Mile Point on RF1 Reach |
| RF1DIST | 77 | 82 | 6.2 | Distance From RF1 Reach |
| RF3INDEX | 83 | 99 | 17 | RF3 Reach Number Location |
| RF3MILE | 100 | 105 | 6.2 | Mile Point on RF3 Reach |
| RF3DIST | 106 | 111 | 6.2 | Distance From RF3 Reach |
| JAN | 112 | 118 | 7.2 | Monthly Flow - January |
| FEB | 119 | 125 | 7.2 | Monthly Flow - February |
| MAR | 126 | 132 | 7.2 | Monthly Flow - March |
| APR | 133 | 139 | 7.2 | Monthly Flow - April |
| MAY | 140 | 146 | 7.2 | Monthly Flow - May |
| JUN | 147 | 153 | 7.2 | Monthly Flow - June |
| JUL | 154 | 160 | 7.2 | Monthly Flow - July |
| AUG | 161 | 167 | 7.2 | Monthly Flow - August |
| SEP | 168 | 174 | 7.2 | Monthly Flow - September |
| OCT | 175 | 181 | 7.2 | Monthly Flow - October |
| NOV | 182 | 188 | 7.2 | Monthly Flow - November |
| DEC | 189 | 195 | 7.2 | Monthly Flow - December |
| RGN | 196 | 197 | 2 | Region Code |
| AREA | 198 | 204 | 7.2 | Drainage Area (SQ.MI.) |
| DUD | 205 | 212 | 8 | Date of Update |

| Water Gage File: FODOGAGE.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| FBCF | 213 | 213 | 1 | Flag - Basic Characteristic File ('Y') |
| FDFF | 214 | 214 | 1 | Flag - Daily Flows File ('Y') |
| FQMINV | 215 | 224 | 10 | IHS Pt. Files Index |
| GHF | 225 | 225 | 1 | Hit Flag (Reach File) |
| ICDE | 226 | 226 | 1 | Integrity Code |
| LFVEL | 227 | 233 | 7.2 | Low Flow Velocity |
| METHOD | 234 | 236 | 3 | Calculation Method Code |
| MFVEL | 237 | 243 | 7.2 | Mean Flow Velocity |
| MNFLO | 244 | 250 | 7.2 | USGS Mean Annual Flow |
| NME | 251 | 298 | 48 | Station Name |
| SHLAT | 299 | 304 | 6 | Sitehelp Latitude (DDMMSS) |
| SHLNG | 305 | 311 | 7 | Sitehelp Longitude (DDDMMSS) |
| SHMILES | 312 | 318 | 7.2 | Sitehelp Miles |
| SHNME | 319 | 328 | 10 | Sitehelp Source Name |
| SHPCT | 329 | 335 | 7.2 | Sitehelp Percent of Reach Miles |
| SITE | 336 | 337 | 2 | Site Location |
| SRC | 338 | 340 | 3 | Sitehelp Source Code |
| STCTY | 341 | 345 | 5 | State/County Numeric Code |
| SVTEN | 346 | 352 | 7.2 | USGS 7-10 Year Flow |
| BEG_WYR | 353 | 356 | 4 | Beginning Water Year |
| END_WYR | 357 | 359 | 4 | Ending Water Year |
| ELEV | 361 | 368 | 8.2 | Elevation (Feet) |
| WELL_DP | 369 | 376 | 8.2 | Well Depth (Feet) |

The following table provides the DBASE III+ database field structures for the Water Impoundment database. As this file is geo-referenced, it should import easily into the park's Geographic Information System.

| **Water Impoundment File: FODODAMS.DBF in FODOSITE.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| SITEID | 1 | 7 | 7 | Site Identifier |
| SOURCE | 8 | 10 | 3 | Source of Data |
| ST1 | 11 | 12 | 2 | Primary State Code Abbreviation |
| STCTY1 | 13 | 17 | 5 | State/County Numeric Code |
| NAME | 18 | 47 | 30 | Official Name of Dam |
| LATITUDE | 48 | 53 | 6 | Facility Latitude (DDMMSS) |
| LONGITUDE | 54 | 60 | 7 | Facility Longitude (DDDMMSS) |
| LAT | 61 | 70 | 10.6 | Facility Latitude (decimal degrees, (-) below equator) |
| LON | 71 | 81 | 11.6 | Facility Longitude (decimal degrees, (-) west. hem.) |
| INME | 82 | 111 | 30 | Impoundment Name |
| RNME | 112 | 139 | 28 | River, Stream, or Tributary Name on Which Dam Built |
| CUSEGMI | 140 | 149 | 10 | Catalog Unit, Segment, and Segment Length |
| REGN | 150 | 151 | 2 | Water Resources Council Region Code |
| RGBSN | 152 | 155 | 4 | Water Resources Region/Basin Code |
| CU | 156 | 163 | 8 | Catalog Unit |
| SEG | 164 | 166 | 3 | Reach Segment of Dam |
| SEGL | 167 | 171 | 5.2 | Reach Segment Length |
| PURP | 172 | 172 | 1 | Major Purpose of Dam |
| | | | | I=Irrigation |
| | | | | H=Hydroelectric |
| | | | | N=Navigation |
| | | | | S=Water Supply |
| | | | | R=Recreation |
| | | | | P=Stock/Farm Pond |
| | | | | D=Debris Control |
| | | | | F=Flood Control |

| Water Impoundment File: FODODAMS.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| | | | | O=Other |
| FRF3 | 173 | 189 | 17 | RF3 Reach Number Location |
| FRF3MI | 190 | 194 | 5 | Mile Point on RF3 Reach |
| PURPKEY | 195 | 195 | 1 | Purpose Key |
| PUR2 | 196 | 196 | 1 | Purpose of Dam 2 (See Above) |
| PUR3 | 197 | 197 | 1 | Purpose of Dam 3 (See Above) |
| PUR4 | 198 | 198 | 1 | Purpose of Dam 4 (See Above) |
| PUR5 | 199 | 199 | 1 | Purpose of Dam 5 (See Above) |
| PUR6 | 200 | 200 | 1 | Purpose of Dam 6 (See Above) |
| PUR7 | 201 | 201 | 1 | Purpose of Dam 7 (See Above) |
| PUR8 | 202 | 202 | 1 | Purpose of Dam 8 (See Above) |
| PUR9 | 203 | 203 | 1 | Purpose of Dam 9 (See Above) |
| PUR10 | 204 | 204 | 1 | Purpose of Dam 10 (See Above) |
| TYPDAM | 205 | 206 | 2 | Major Dam Portion Type |
| | | | | RE=Earth |
| | | | | VA=Vaulted Arch |
| | | | | CD=Buttress |
| | | | | PG=Gravity |
| | | | | ER=Rockfill |
| | | | | MV=Multi-Arch |
| | | | | OT=Other |
| YRCMP | 207 | 210 | 4 | Year Dam Completed |
| SHGT | 211 | 214 | 4 | Structural Height (Feet) |
| HHGT | 215 | 218 | 4 | Hydraulic Height (Feet) |
| VNORM | 219 | 236 | 8 | Normal Storage of Impoundment (Acre-Feet) |
| VMAX | 227 | 234 | 8 | Maximum Storage of Impoundment (Acre-Feet) |
| LCRST | 235 | 239 | 5 | Crest Length of Dam (Feet) |
| TSPL | 240 | 240 | 1 | Spillway Type |
| | | | | C=Controlled |

| Water Impoundment File: FODODAMS.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| | | | | U=Uncontrolled |
| | | | | N=None |
| | | | | X=Unknown |
| WSPL | 241 | 244 | 4 | Dam Spillway Width (Feet) |
| QMAX | 245 | 251 | 7 | Maximum Spillway Discharge (CFS) |
| PINS | 252 | 258 | 7.2 | Quantity of Installed Power (Megawatts) |
| PPRO | 259 | 265 | 7.2 | Quantity of Proposed Power (Megawatts) |
| LOCK | 266 | 266 | 1 | Number of Navigational Locks |
| OWNR | 267 | 290 | 24 | Name of Impoundment Owner |
| PFOWN | 291 | 291 | 1 | Ownership Code |
| | | | | N=Non-Federal |
| | | | | G=Federal Government Agency |
| | | | | C=Corps of Engineers |
| | | | | X=Unknown |
| FEDR | 292 | 292 | 1 | Federally Regulated (Y=Yes, N=No, X=Unknown) |
| FLND | 293 | 293 | 1 | Private Dam on Federal Land (Y=Yes, N=No, X=Unknown) |
| SCSA | 294 | 294 | 1 | Type of Soil Conservation Service Assistance |
| | | | | N=No Assistance |
| | | | | T=Technical Assistance |
| | | | | F=Financial Assistance |
| | | | | B=Both Technical and Financial Assistance |
| | | | | X=Unknown |
| DHAZ | 295 | 295 | 1 | Degree of Downstream Hazard |
| | | | | 1=High (More than a Few Lives Lost; Excessive Economic Loss) |
| | | | | 2=Significant (A Few Lives Lost; Appreciable Economic Loss) |
| | | | | 3=Low (No Lives Expected Lost; Minimal Economic Loss) |
| DCITY | 296 | 319 | 24 | Nearest Downstream City |

| Water Impoundment File: FODODAMS.DBF in FODOSITE.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| POP | 320 | 326 | 7 | Population of Downstream City |
| DMILE | 327 | 331 | 5.2 | Distance of Downstream City From Dam (Miles) |
| RET | 332 | 342 | 11.2 | Retention Coefficient (Dimensionless) |
| MIX | 343 | 353 | 11.2 | Mixing Coefficient (Dimensionless) |
| SAREA | 354 | 361 | 8 | Surface Area of Impoundment (Acres) |
| SAFLG | 362 | 362 | 1 | Surface Area Flag (C=Calc., M=Measured, O=Other) |
| ILNTH | 363 | 367 | 5 | Length of Impoundment (Feet) |
| ILFLG | 368 | 368 | 1 | Impoundment Length Flag (C=Calc., M=Measured, O=Other) |
| UPKEY | 369 | 374 | 6 | Update Key (YYMMDD) |

The following table provides the ASCII and DBASE III+ database field structures for the EPA River Reach File Ver. 3.0 (1:100,000 scale hydrography) attributes. The actual numeric file names will vary depending on the catalog unit(s). This information can be readily incorporated into the park's Geographic Information System.

| **RF3 Structure File: 12345678.RF3 and 12345678.DBF in FODORF3.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| CATUNIT | 1 | 8 | 8 | Cataloging Unit (CU) |
| SEGM | 9 | 12 | 4 | Segment Number (SEG) |
| MI | 13 | 17 | 5.2 | Mile Point (MI) |
| UPMI | 18 | 22 | 5.2 | Upstream Mile Pt. |
| SEQNO | 23 | 33 | 11.6 | Hydro Sequence No. |
| RFLAG | 34 | 34 | 1 | Reach Flag (0,1) |
| OWFLAG | 35 | 35 | 1 | Open Water Flag (0,1) |
| TFLAG | 36 | 36 | 1 | Terminal Flag (0,1) |
| SFLAG | 37 | 37 | 1 | Start Flag (0,1) |
| RCHTYPE | 38 | 38 | 1 | Reach Type Code |
| LEV | 39 | 40 | 2 | Stream Level |
| JUNC | 41 | 42 | 2 | Level of Downstream Reach |
| DIVERGENCE | 43 | 43 | 1 | Divergence Code |
| STARTCU | 44 | 51 | 8 | Start CU |
| STRTSG | 52 | 55 | 4 | Start SEG |
| STOPCU | 56 | 63 | 8 | Stop CU |
| STOPSG | 64 | 67 | 4 | Stop SEG |
| USDIR | 68 | 68 | 1 | Upstream Direction |
| TERMID | 69 | 73 | 5 | Terminal Stream ID |
| TRMBLV | 74 | 74 | 1 | Terminal Base Level |
| PNAME | 75 | 104 | 30 | Primary Name |
| PNMCD | 105 | 115 | 11 | Primary Name Code |
| CNAME | 116 | 145 | 30 | Complement Name |
| CNMCD | 146 | 156 | 11 | Complement Name Code |

| RF3 Structure File: 12345678.RF3 and 12345678.DBF in FODORF3.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| OWNAME | 157 | 186 | 30 | Open Water Name |
| OWNMCD | 187 | 197 | 11 | Open Water Name Code |
| DSCU | 198 | 205 | 8 | Downstream CU |
| DSSEG | 206 | 209 | 4 | Downstream SEG |
| DSMI | 210 | 214 | 5.2 | Downstream MI |
| CCU | 215 | 222 | 8 | Complement CU |
| CSEG | 223 | 226 | 4 | Complement SEG |
| CMILE | 227 | 231 | 5.2 | Complement MI |
| CDIR | 232 | 232 | 1 | Complement Direction |
| ULCU | 233 | 240 | 8 | Upstream Left CU |
| ULSEG | 241 | 244 | 4 | Upstream Left SEG |
| ULMI | 245 | 249 | 5.2 | Upstream Left MI |
| URCU | 250 | 257 | 8 | Upstream Right CU |
| URSEG | 258 | 261 | 4 | Upstream Right SEG |
| URMI | 262 | 266 | 5.2 | Upstream Right MI |
| SEGL | 267 | 272 | 6.2 | Reach Length (Miles) |
| RFORGFLAG | 273 | 273 | 1 | RF Orgin flag(1,2,3) |
| ALTPNMCD | 274 | 281 | 8 | Alt. Primary Name Code |
| ALTOWNMC | 282 | 289 | 8 | Alt. OW Name Code |
| DLAT | 290 | 297 | 8.4 | Downstream Latitude |
| DLONG | 298 | 305 | 8.4 | Downstream Longitude |
| ULAT | 306 | 313 | 8.4 | Upstream Latitude |
| ULONG | 314 | 321 | 8.4 | Upstream Longitude |
| MINLAT | 322 | 329 | 8.4 | Minimum Latitude |
| MINLONG | 330 | 337 | 8.4 | Minimum Longitude |
| MAXLAT | 338 | 345 | 8.4 | Maximum Latitude |
| MAXLONG | 346 | 353 | 8.4 | Maximum Longitude |
| NDLGREC | 354 | 357 | 4 | No. of DLG Records |
| LL1KEY1 | 358 | 367 | 10 | Starting DLG LL Key1 |

| RF3 Structure File: 12345678.RF3 and 12345678.DBF in FODORF3.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| LL2KEY1 | 368 | 377 | 10 | Ending DLG LL Key1 |
| LL1KEY2 | 378 | 387 | 10 | Starting DLG LL Key2 |
| LL2KEY2 | 388 | 497 | 10 | Ending DLG LL Key2 |
| LL1KEY3 | 398 | 407 | 10 | Starting DLG LL Key3 |
| LL2KEY3 | 408 | 417 | 10 | Ending DLG LL Key3 |
| LL1KEY4 | 418 | 427 | 10 | Starting DLG LL Key4 |
| LL2KEY4 | 428 | 437 | 10 | Ending DLG LL Key4 |
| LL1KEY5 | 438 | 447 | 10 | Starting DLG LL Key5 |
| LL2KEY5 | 448 | 457 | 10 | Ending DLG LL Key5 |
| LL1KEY6 | 458 | 467 | 10 | Starting DLG LL Key6 |
| LL2KEY6 | 468 | 477 | 10 | Ending DLG LL Key6 |
| LL1KEY7 | 478 | 487 | 10 | Starting DLG LL Key7 |
| LL2KEY7 | 488 | 597 | 10 | Ending DLG LL Key7 |
| LL1KEY8 | 498 | 507 | 10 | Starting DLG LL Key8 |
| LL2KEY8 | 508 | 517 | 10 | Ending DLG LL Key8 |
| LL1KEY9 | 518 | 527 | 10 | Starting DLG LL Key9 |
| LL2KEY9 | 528 | 537 | 10 | Ending DLG LL Key9 |
| LL1KEY10 | 538 | 547 | 10 | Start DLG LL Key 10 |
| LL2KEY10 | 548 | 557 | 10 | Ending DLG LL Key10 |
| LN1AT2 | 558 | 561 | 4 | DLG Line Attr. 1 |
| LN2AT2 | 562 | 565 | 4 | DLG Line Attr. 2 |
| AREA1 | 566 | 569 | 4 | DLG Area ID 1 |
| AREA2 | 570 | 573 | 4 | DLG Area ID 2 |
| AR1AT2 | 574 | 577 | 4 | DLG Area Attribute |
| AR1AT4 | 578 | 581 | 4 | DLG Area Attribute |
| AR2AT2 | 582 | 585 | 4 | DLG Area Attribute |
| AR2AT4 | 586 | 589 | 4 | DLG Area Attribute |
| UPDATE1 | 590 | 595 | 6 | Update Date #1 (mmddyy) |
| UPDTCD1 | 596 | 603 | 8 | Update Type Code #1 |

| RF3 Structure File: 12345678.RF3 and 12345678.DBF in FODORF3.ZIP | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| UPDTSRC1 | 604 | 611 | 8 | Update Source #1 |
| UPDATE2 | 612 | 617 | 6 | Update Date #2 (mmddyy) |
| UPDTCD2 | 618 | 625 | 8 | Update Type Code#2 |
| UPDTSRC2 | 626 | 633 | 8 | Update Source #2 |
| UPDATE3 | 634 | 639 | 6 | Update Date #3 (mmddyy) |
| UPDTCD3 | 640 | 647 | 8 | Update Type Code #3 |
| UPDTSRC3 | 648 | 655 | 8 | Update Source #3 |
| DIVCU | 656 | 663 | 8 | Divergent CU |
| DIVSEG | 664 | 667 | 4 | Divergent SEG |
| DIVMILE | 668 | 672 | 5.2 | Divergent MI |
| DLGID | 673 | 678 | 6 | DLG Number Special Use For Internal State Codes |
| FILLER | 678 | 685 | 7 | Filler: Future Use |

**Note:** The structure for the .DBF file varies slightly from the RF3 structure displayed here in that the fields UPDATE1, UPDATE2, and UPDATE3 have a width of 8 and the last two fields, DLGID and FILLER, have been replaced with a field named ID of length 17. This ID field combines the CATUNIT, SEGM, and MI fields.

The following table provides the ASCII database field structures for the EPA River Reach File Ver. 3.0 (1:100,000 scale hydrography) traces. The actual numeric file names will vary depending on the catalog unit(s). This file contains the actual hydrographic network and is suitable for conversion into a variety of Geographic Information System formats.

| **RF3 Trace File: 12345678.TRC in FODORF3.ZIP** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| (Header Record) | | | | |
| CATUNIT | 1 | 8 | 8 | Cataloging Unit |
| SEGM | 9 | 12 | 4 | Segment Number |
| MI | 13 | 17 | 5.2 | Mile Point |
| NPTS | 18 | 21 | 4 | Number of Lat/Lon Coordinates |
| (Coordinate Record) | | | | |
| LATITUDE | 1 | 8 | 8.4 | Latitude in Decimal |
| LONGITUDE | 9 | 16 | 8.4 | Longitude in Decimal |
| FILLER | 17 | 21 | 5 | |

The following table provides the ASCII database field structures for the EPA River Reach File Ver. 3.0 (1:100,000 scale hydrography) catalog unit boundary file. The actual numeric file names will vary depending on the catalog unit(s). This file contains the actual catalog unit boundary and is suitable for conversion into a variety of Geographic Information System formats.

| **Catalog Unit Boundary File: 12345678.CUB in FODORF3.ZIP** |
|---|
| |
| First Line = Catalog Unit Number (8 Characters) |
| Subsequent Lines: |
| L=DDMMSS,L=DDDMMSS,L=DDMMSS,L=DDDMMSS,L=DDMMSS,L=DDDMMSS, ... |
| |
| Example: |
| |
| 02070010 |
| L=391259,L=0770809,L=391220,L=0770749,L=391147,L=0770715,L=391120,L=0770633, |
| L=391058,L=0770535,L=391042,L=0770520,L=391016,L=0770427,L=390948,L=0770416, |
| L=390526,L=0765331,L=390500,L=0765149,L=390456,L=0765139,L=390357,L=0765123, |
| ... |
| L=390744,L=0771007,L=390826,L=0771022,L=390910,L=0771022,L=390950,L=0771003, |
| L=391107,L=0770922, |
| |
| There can be as many as four latitude/longitude pairs per line. |

The following table provides the DBASE III+ database field structure of the Water Resources Division's "encyclopedia" file that documents the minimum and maximum parameter values found and the park(s) where they occurred. This file is intended for Water Resources Division internal use, but will be available to anyone upon request after Baseline Water Quality Data Inventory and Analysis reports have been completed for all parks.

| **Encyclopedia File: WRD File For Internal Use Only** | | | | |
|---|---|---|---|---|
| **Field Name** | **Start** | **Stop** | **Length** | **Field Description** |
| PARM | 1 | 5 | 5 | STORET Parameter Code |
| PARMNAME | 6 | 45 | 40 | Parameter Name |
| MINVAL | 46 | 61 | 16.7 | Minimum Value |
| MINVALPARK | 62 | 65 | 4 | Park Unit with Minimum Value |
| MAXVAL | 66 | 71 | 16.7 | Maximum Value |
| MAXVALPARK | 72 | 75 | 4 | Park Unit with Maximum Value |

## Appendix C

## STORET Water Quality Control/Edit Checking

The following table provides the high and low values used by STORET since November 1983 for 190 common water quality parameters to screen or error check data. Data entered into STORET prior to November 1983, however, were not subjected to this edit/bounds check. Additionally, data from the USGS WATSTORE system that is loaded into STORET is never subjected to these edit criteria and agencies entering data in STORET can override these edit criteria to enter data values that fall outside a range. As a consequence, all data downloaded from STORET for the purposes of this project were filtered through these edit criteria to document values outside the generally accepted ranges. Decisions were then made on a case-by-case basis to retain or discard obviously incorrect data. Refer to the Water Quality Observations Outside STORET Edit Criteria section of the Interpretive Guide To Water Quality Results chapter for more information on this subject.

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | 37.0 | -2.0 |
| 00011 | TEMPERATURE, WATER (DEGREES FAHRENHEIT) | 98.0 | 31.0 |
| 00020 | TEMPERATURE, AIR (DEGREES CENTIGRADE) | 52.0 | -40.0 |
| 00021 | TEMPERATURE, AIR (DEGREES FAHRENHEIT) | 125.0 | -40.0 |
| 00026 | TOXICS-IDENTIFY DATA COLLECTION BY EPA DIRECTIVE | 1990.9 | 1977.0 |
| 00032 | CLOUD COVER (PERCENT) | 101.0 | 0.0 |
| 00035 | WIND VELOCITY (MILES PER HOUR) | 85.0 | 0.0 |
| 00036 | WIND DIRECTION IN DEGREES FROM TRUE N (CLOCKWISE) | 361.0 | 0.0 |
| 00045 | PRECIPITATION, TOTAL (INCHES PER DAY) | 15.0 | 0.0 |
| 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | 1500.0 | 0.0 |
| 00074 | TURBIDITY, TRANSMISSOMETER, PERCENT TRANSMISSION | 101.0 | 0.0 |
| 00075 | TURBIDITY, HELLIGE (PPM AS SILICON DIOXIDE) | 500.0 | 0.0 |
| 00076 | TURBIDITY,HACH TURBIDIMETER (FORMAZIN TURB UNIT) | 1000.0 | 0.0 |
| 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | 600.0 | 0.0 |
| 00080 | COLOR (PLATINUM-COBALT UNITS) | 500.0 | 0.0 |
| 00081 | COLOR,APPARENT(UNFILTERED SAMPLE) PLAT-COB UNITS | 500.0 | 0.0 |
| 00085 | ODOR (THRESHOLD NUMBER AT ROOM TEMPERATURE) | 250.0 | 0.0 |
| 00094 | SPECIFIC CONDUCTANCE,FIELD (UMHOS/CM @ 25C) | 60000.0 | 1.0 |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | 60000.0 | 1.0 |
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE (MG/L) | 30.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 00300 | OXYGEN, DISSOLVED (MG/L) | 30.0 | 0.0 |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION% | 200.0 | 0.0 |
| 00310 | BOD, 5 DAY, 20 DEG C (MG/L) | 150.0 | 0.0 |
| 00335 | COD, .025N K2CR2O7 (MG/L) | 1000.0 | 0.0 |
| 00340 | COD, .25N K2CR2O7 (MG/L) | 1000.0 | 0.0 |
| 00365 | CHLORINE DEMAND, 15 MINUTE (MG/L) | 15.0 | 0.0 |
| 00400 | PH (STANDARD UNITS) | 12.0 | 0.9 |
| 00403 | PH, LAB, STANDARD UNITS, (STANDARD UNITS) | 12.0 | 0.9 |
| 00405 | CARBON DIOXIDE (MG/L AS CO2) | 100.0 | 0.0 |
| 00406 | PH, FIELD (STANDARD UNITS) | 12.0 | 0.9 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 1000.0 | 0.0 |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 750.0 | 0.0 |
| 00435 | ACIDITY, TOTAL (MG/L AS CACO3) | 1000.0 | 0.0 |
| 00436 | ACIDITY, MINERAL (METHYL ORANGE) (MG/L AS CACO3) | 1000.0 | 0.0 |
| 00437 | ACIDITY, CO2 (PHENOLPHTHALEIN) (MG/L AS CACO3) | 750.0 | 0.0 |
| 00440 | BICARBONATE ION (MG/L AS HCO3) | 450.0 | 0.0 |
| 00445 | CARBONATE ION (MG/L AS CO3) | 100.0 | 0.0 |
| 00480 | SALINITY - PARTS PER THOUSAND | 40.0 | 0.0 |
| 00500 | RESIDUE, TOTAL (MG/L) | 15000.0 | 0.0 |
| 00505 | RESIDUE, TOTAL VOLATILE (MG/L) | 10000.0 | 0.0 |
| 00510 | RESIDUE, TOTAL FIXED (MG/L) | 10000.0 | 0.0 |
| 00515 | RESIDUE, TOTAL FILTRABLE (DRIED AT 105C), (MG/L) | 20000.0 | 0.0 |
| 00520 | RESIDUE, VOLATILE FILTRABLE (MG/L) | 10000.0 | 0.0 |
| 00525 | RESIDUE, FIXED FILTRABLE (MG/L) | 10000.0 | 0.0 |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | 10000.0 | 0.0 |
| 00535 | RESIDUE, VOLATILE NONFILTRABLE (MG/L) | 10000.0 | 0.0 |
| 00540 | RESIDUE, FIXED NONFILTRABLE (MG/L) | 10000.0 | 0.0 |
| 00545 | RESIDUE, SETTLEABLE (ML/L) | 1000.0 | 0.0 |
| 00546 | RESIDUE, SETTLEABLE (MG/L) | 1000.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 00550 | OIL & GREASE (SOXHLET EXTRACTION) TOTAL,REC., (MG/L) | 250.0 | 0.0 |
| 00600 | NITROGEN, TOTAL (MG/L AS N) | 100.0 | 0.0 |
| 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 15.0 | 0.0 |
| 00608 | NITROGEN, AMMONIA, DISSOLVED (MG/L AS N) | 25.0 | 0.0 |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 20.0 | 0.0 |
| 00615 | NITRITE NITROGEN, TOTAL (MG/L AS N) | 5.0 | 0.0 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 50.0 | 0.0 |
| 00625 | NITROGEN, KJELDAHL, TOTAL, (MG/L AS N) | 50.0 | 0.0 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 55.0 | 0.0 |
| 00635 | NITROGEN, AMMONIA & ORG., TOTAL 1 DET (MG/L AS N) | 70.0 | 0.0 |
| 00650 | PHOSPHATE, TOTAL (MG/L AS PO4) | 30.0 | 0.0 |
| 00653 | PHOSPHATE, TOTAL SOLUBLE (MG/L) | 30.0 | 0.0 |
| 00655 | PHOSPHATE, POLY (MG/L AS PO4) | 30.0 | 0.0 |
| 00660 | PHOSPHATE, ORTHO (MG/L AS PO4) | 30.0 | 0.0 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 10.0 | 0.0 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 10.0 | 0.0 |
| 00680 | CARBON, TOTAL ORGANIC (MG/L AS C) | 100.0 | 0.0 |
| 00681 | CARBON, DISSOLVED ORGANIC (MG/L AS C) | 100.0 | 0.0 |
| 00685 | CARBON, TOTAL INORGANIC (MG/L AS C) | 100.0 | 0.0 |
| 00690 | CARBON, TOTAL (MG/L AS C) | 150.0 | 0.0 |
| 00720 | CYANIDE, TOTAL (MG/L AS CN) | 10.0 | 0.0 |
| 00745 | SULFIDE, TOTAL (MG/L AS S) | 1500.0 | 0.0 |
| 00746 | SULFIDE, DISSOLVED (MG/L AS S) | 1500.0 | 0.0 |
| 00760 | SULFITE WASTE LIQUOR, PEARL BENSON INDEX (MG/L) | 150.0 | 0.0 |
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 5000.0 | 0.0 |
| 00910 | CALCIUM (MG/L AS CACO3) | 3000.0 | 0.0 |
| 00915 | CALCIUM, DISSOLVED (MG/L AS CA) | 1000.0 | 0.0 |
| 00916 | CALCIUM, TOTAL (MG/L AS CA) | 1000.0 | 0.0 |
| 00920 | MAGNESIUM (MG/L AS CACO3) | 3000.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 00925 | MAGNESIUM, DISSOLVED (MG/L AS MG) | 1000.0 | 0.0 |
| 00927 | MAGNESIUM, TOTAL (MG/L AS MG) | 1000.0 | 0.0 |
| 00929 | SODIUM, TOTAL (MG/L AS NA) | 5000.0 | 0.0 |
| 00930 | SODIUM, DISSOLVED (MG/L AS NA) | 5000.0 | 0.0 |
| 00931 | SODIUM ADSORPTION RATIO | 50.0 | 0.0 |
| 00935 | POTASSIUM, DISSOLVED (MG/L AS K) | 175.0 | 0.0 |
| 00937 | POTASSIUM, TOTAL MG/L AS K) | 175.0 | 0.0 |
| 00940 | CHLORIDE, TOTAL IN WATER, (MG/L) | 22000.0 | 0.0 |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 2500.0 | 0.0 |
| 00946 | SULFATE, DISSOLVED (MG/L AS SO4) | 2500.0 | 0.0 |
| 00950 | FLUORIDE, DISSOLVED (MG/L AS F) | 15.0 | 0.0 |
| 00951 | FLUORIDE, TOTAL (MG/L AS F) | 15.0 | 0.0 |
| 00955 | SILICA, DISSOLVED (MG/L AS SI02) | 2000.0 | 0.0 |
| 00956 | SILICA, TOTAL (MG/L AS SI02) | 2000.0 | 0.0 |
| 01000 | ARSENIC, DISSOLVED (UG/L AS AS) | 5000.0 | 0.0 |
| 01002 | ARSENIC, TOTAL (UG/L AS AS) | 5000.0 | 0.0 |
| 01005 | BARIUM, DISSOLVED (UG/L AS BA) | 2000.0 | 0.0 |
| 01007 | BARIUM, TOTAL (UG/L AS BA) | 2000.0 | 0.0 |
| 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 2000.0 | 0.0 |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 2000.0 | 0.0 |
| 01020 | BORON, DISSOLVED (UG/L AS B) | 5000.0 | 0.0 |
| 01022 | BORON, TOTAL (UG/L AS B) | 5000.0 | 0.0 |
| 01025 | CADMIUM, DISSOLVED (UG/L AS CD) | 500.0 | 0.0 |
| 01027 | CADMIUM, TOTAL (UG/L AS CD) | 500.0 | 0.0 |
| 01030 | CHROMIUM, DISSOLVED (UG/L AS CR) | 2000.0 | 0.0 |
| 01032 | CHROMIUM, HEXAVALENT (UG/L AS CR) | 2000.0 | 0.0 |
| 01033 | CHROMIUM, TRI-VAL (UG/L AS CR) | 2000.0 | 0.0 |
| 01034 | CHROMIUM, TOTAL (UG/L AS CR) | 2000.0 | 0.0 |
| 01040 | COPPER, DISSOLVED (UG/L AS CU) | 2000.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 01042 | COPPER, TOTAL (UG/L AS CU) | 5000.0 | 0.0 |
| 01045 | IRON, TOTAL (UG/L AS FE) | 56000.0 | 0.0 |
| 01046 | IRON, DISSOLVED (UG/L AS FE) | 56000.0 | 0.0 |
| 01047 | IRON, FERROUS (UG/L AS FE) | 56000.0 | 0.0 |
| 01049 | LEAD, DISSOLVED (UG/L AS PB) | 1000.0 | 0.0 |
| 01051 | LEAD, TOTAL (UG/L AS PB) | 1000.0 | 0.0 |
| 01055 | MANGANESE, TOTAL (UG/L AS MN) | 5000.0 | 0.0 |
| 01056 | MANGANESE, DISSOLVED (UG/L AS MN) | 5000.0 | 0.0 |
| 01065 | NICKEL, DISSOLVED (UG/L AS NI) | 2000.0 | 0.0 |
| 01067 | NICKEL, TOTAL (UG/L AS NI) | 2000.0 | 0.0 |
| 01075 | SILVER, DISSOLVED (UG/L AS AG) | 5000.0 | 0.0 |
| 01077 | SILVER, TOTAL (UG/L AS AG) | 5000.0 | 0.0 |
| 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 25000.0 | 0.0 |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 25000.0 | 0.0 |
| 01105 | ALUMINUM, TOTAL (UG/L AS AL) | 20000.0 | 0.0 |
| 01106 | ALUMINUM, DISSOLVED (UG/L AS AL) | 20000.0 | 0.0 |
| 01145 | SELENIUM, DISSOLVED (UG/L AS SE) | 100.0 | 0.0 |
| 01501 | ALPHA, TOTAL | 200.0 | 0.0 |
| 01503 | ALPHA, DISSOLVED | 75.0 | 0.0 |
| 01505 | ALPHA, SUSPENDED | 150.0 | 0.0 |
| 03501 | BETA, TOTAL | 3500.0 | 0.0 |
| 03503 | BETA, DISSOLVED | 3000.0 | 0.0 |
| 03505 | BETA, SUSPENDED | 1500.0 | 0.0 |
| 09503 | RADIUM 226, DISSOLVED | 500.0 | 0.0 |
| 13501 | STRONTIUM 90, TOTAL | 500.0 | 0.0 |
| 22703 | URANIUM, NATURAL, DISSOLVED | 500.0 | 0.0 |
| 31501 | COLIFORM, TOT,MEMBRANE FILTER,IMMED.M-ENDO MED, 35C | 24000000.0 | 0.0 |
| 31502 | COLIFORM, TOTAL, 10/ML | 24000000.0 | 0.0 |
| 31503 | COLIFORM, TOT,MEMBR FILTER, DELAYED,M-ENDO MED, 35C | 24000000.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 31504 | COLIFORM, TOT,MEMBR FILTER,IMMED,LES ENDO AGAR, 35C | 24000000.0 | 0.0 |
| 31613 | FECAL COLIFORM, MEMBR FILTER, M-FC AGAR,44.5C, 24HR | 10000000.0 | 0.0 |
| 31615 | FECAL COLIFORM, MPN, EC MED, 44.5C (TUBE 31614) | 10000000.0 | 0.0 |
| 31616 | FECAL COLIFORM, MEMBR FILTER,M-FC BROTH, 44.5C | 10000000.0 | 0.0 |
| 31672 | FECAL STREPTOCOCCI,PLATE COUNT M-ENTER AGAR,35C48HR | 500000.0 | 0.0 |
| 31673 | FECAL STREPTOCOCCI, MBR FILT, KF AGAR, 35C, 48HR | 500000.0 | 0.0 |
| 31677 | FECAL STREPTOCOCCI,MPN,AD-EVA, 35C (TUBE 31678) | 500000.0 | 0.0 |
| 31679 | FECAL STREPTOCOCCI, MF M-ENTEROCOCCUS AGAR,35C,48H | 500000.0 | 0.0 |
| 31749 | PLATE COUNT, TOTAL, TPC AGAR, 20C, 48 HRS | 99999999.0 | 0.0 |
| 31751 | PLATE COUNT, TOTAL, TPC AGAR, 35C, 24 HRS | 99999999.0 | 0.0 |
| 32210 | CHLOROPHYLL-A UG/L TRICHROMATIC UNCORRECTED | 500.0 | 0.0 |
| 32211 | CHLOROPHYLL-A UG/L SPECTROPHOTOMETRIC ACID. METH. | 750.0 | 0.0 |
| 32212 | CHLOROPHYLL-B UG/L TRICHROMATIC UNCORRECTED | 1000.0 | 0.0 |
| 32214 | CHLOROPHYLL-C UG/L TRICHROMATIC UNCORRECTED | 200.0 | 0.0 |
| 32217 | CHLOROPHYLL A UG/L FLUOROMETRIC UNCORRECTED | 500.0 | 0.0 |
| 32218 | PHEOPHYTIN-A UG/L SPECTROPHOTOMETRIC ACID. METH. | 200.0 | 0.0 |
| 32219 | PHEOPHYTIN RATIO(OD 663)SPECTRO,BEFORE/AFTER ACID | 2.0 | 0.0 |
| 32221 | CHLOROPHYLL A,% OF(PHEOPHYTIN A+CHL A),SPEC-ACID. | 101.0 | 0.0 |
| 32230 | CHLOROPHYLL A (MG/L) | 0.5 | 0.0 |
| 32231 | CHLOROPHYLL B (MG/L) | 0.8 | 0.0 |
| 32232 | CHLOROPHYLL C (MG/L) | 0.2 | 0.0 |
| 32234 | CHLOROPHYLL, TOTAL (A+B+C) (MG/L) | 1.0 | 0.0 |
| 32270 | CHLOROFORM EXTRACTABLES TOTAL IN MG PER LITER | 5.0 | 0.0 |
| 32730 | PHENOLICS, TOTAL, RECOVERABLE (UG/L) | 1500.0 | 0.0 |
| 38260 | METHYLENE BLUE ACTIVE SUBST. (DETERGENTS, ETC.) | 10.0 | 0.0 |
| 39330 | ALDRIN IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39340 | GAMMA-BHC(LINDANE),WHOLE WATER, (UG/L) | 20.0 | 0.0 |
| 39350 | CHLORDANE(TECH MIX & METABS),WHOLE WATER, (UG/L) | 20.0 | 0.0 |
| 39360 | DDD IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |

| STORET Code | STORET Parameter Description | High Value | Low Value |
|---|---|---|---|
| 39365 | DDE IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39370 | DDT IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39380 | DIELDRIN IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39390 | ENDRIN IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39400 | TOXAPHENE IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39410 | HEPTACHLOR IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39420 | HEPTACHLOR EPOXIDE IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39480 | METHOXYCHLOR IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39516 | PCBS IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39530 | MALATHION IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39540 | PARATHION IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39600 | METHYL PARATHION IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 39782 | LINDANE IN WHOLE WATER SAMPLE (UG/L) | 20.0 | 0.0 |
| 50060 | CHLORINE, TOTAL RESIDUAL (MG/L) | 5.0 | 0.0 |
| 60050 | ALGAE, TOTAL (CELLS/ML) | 700000.0 | 0.0 |
| 70300 | RESIDUE, TOTAL FILTRABLE (DRIED AT 180C), (MG/L) | 4000.0 | 0.0 |
| 70505 | PHOSPHATE, TOTAL,COLORIMETRIC METHOD (MG/L AS P) | 10.0 | 0.0 |
| 70507 | PHOSPHORUS, IN TOTAL ORTHOPHOSPHATE (MG/L AS P) | 10.0 | 0.0 |
| 71850 | NITRATE NITROGEN, TOTAL (MG/L AS NO3) | 65.0 | 0.0 |
| 71886 | PHOSPHORUS, TOTAL, AS PO4 - (MG/L) | 30.0 | 0.0 |
| 71890 | MERCURY, DISSOLVED (UG/L AS HG) | 10.0 | 0.0 |
| 71895 | MERCURY, SUSPENDED (UG/L AS HG) | 10.0 | 0.0 |
| 71900 | MERCURY, TOTAL (UG/L AS HG) | 10.0 | 0.0 |
| 74010 | IRON, TOTAL (MG/L AS FE) | 56000.0 | 0.0 |

## Appendix D

## STORET Administrative Parameters

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 00022 | LENGTH OF EXPOSURE OF SAMPLE OR TEST - DAYS |
| 00026 | TOXICS-IDENTIFY DATA COLLECTION BY EPA DIRECTIVE |
| 00027 | CODE NO FOR AGENCY COLLECTING SAMPLE |
| 00028 | CODE NO FOR AGENCY ANALYZING SAMPLE |
| 00029 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE |
| 00063 | SAMPLING POINTS, NUMBER OF IN A CROSS SECTION |
| 00073 | SAMPLE LOC CODE DEFINED BY THERMAL STRUCT & DEPTH |
| 00111 | RATIO OF FECAL COLIFORM TO FECAL STREPTOCOCCI |
| 00115 | SAMPLE TREATMENT CODE (1=RAW,2=TREATED) |
| 00116 | INTENSIVE SURVEY IDENTIFICATION NUMBER |
| 00145 | TOTAL PRODUCTION OF PRODUCT MANUFACTURED TONS/DAY |
| 01273 | TOTAL ACID PRIORITY POLLUTANTS MG/L |
| 01274 | TOTAL BASE-NEUTRAL PRIORITY POLLUTANTS MG/L |
| 01275 | TOTAL VOLATILE PRIORITY POLLUTANTS MG/L |
| 01365 | ANALYSIS DATE (DIOXIN) (YYMMDD) |
| 04177 | SAMPLE STABILIZATION, RECOVERY TEST CODE |
| 04178 | FIELD PROTOCOL(CONFDNCE ASSIGNED FIELD SAMPLE) CODE |
| 04179 | SAMPLE STATION LOCKED CODE |
| 04180 | CONDITION OF STATION SITE CODE |
| 04181 | LABORATORY QA/QC PLAN CONFIDENCE CODE |
| 04182 | SAMPLE TYPE CODE |
| 04183 | SAMPLE REMARKS CODE |
| 30333 | BAG MESH SIZE, BEDLOAD SAMPLER, MM |
| 34772 | NPDES NUMBER, CROSS REFERENCE CODE |
| 34785 | GAGE TYPE, METHOD CODE |

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 45575 | GC MAKE AND MODEL INFORMATION CODE |
| 45576 | GC DETECTOR TYPE CODE |
| 45577 | GC COLUMN TYPE CODE |
| 45580 | METHOD OF ANALYSIS CODE |
| 45581 | LABORATORY LOCATION CODE |
| 46107 | SAMPLE LOCATION CODE (TREATMENT PLANT OPERATION) |
| 46390 | TOXICITY CHARACTERISTIC LEACHING PROCEDURE P OR F |
| 46396 | PROCESS TO SIGNIFICANTLY REDUCE PATHOGENS YES OR NO |
| 46397 | PROCESS TO FURTHER REDUCE PATHOGENS YES OR NO |
| 47001 | PERMIT EXPIRATION DATE (JULIAN CALENDAR) |
| 47044 | OBSERVATIONS,WASTE SITE-SEVERITY OF PROBLEMS CODE |
| 47460 | SUBSAMPLE - DECIMAL FRACTION OF WHOLE NUMBER |
| 47477 | COMPOSITION AND/OR DISPOSITION OF CATCH NUM CODE |
| 70231 | CURRENT DIRECTION (DEGREES FROM DOWNSTREAM FLOW) |
| 71999 | SAMPLE PURPOSE CODE |
| 72032 | NUMBER OF SPILLWAY GATES OPEN |
| 73672 | DATE OF ANALYSIS YYMMDD |
| 73673 | DATE OF EXTRACTION YYMMDD |
| 74031 | GRANT, PROJECT COST ELIGIBLE FOR CONSTRUCTION |
| 74032 | GRANT, AMOUNT OF PL 660 GRANT FOR THIS PROJECT |
| 74033 | GRANT, FEDERAL, OTHER THAN PL 660 GRANT |
| 74034 | GRANT, FUTURE PL 660 WHICH MAY APPLY TO THIS PROJ |
| 74035 | GRANT, TOTAL FEDERAL, WHICH APPLIES TO THIS PROJ |
| 74036 | GRANT, PROJ NUMBER ASSIGNED TO THIS APPLICATION |
| 74037 | GRANT, TYPE OF PROJECT TO WHICH GRANT APPLIES |
| 74038 | GRANT, STATUS OF PROJECT TO WHICH GRANT APPLIES |
| 74039 | PCS/STORET WATER QUALITY FILE INTERFACE YR/MO/DAY |
| 74040 | SURVEY NUMBER YYMMNO |
| 74041 | STORET STORAGE TRANSACTION DATE YR/MO/DAY |

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 74050 | RADIOACTIVITY, GENERAL (PERMIT) |
| 74051 | ALGICIDES, GENERAL (PERMIT) |
| 74052 | CHLORINATED HYDROCARBONS, GENERAL (PERMIT) |
| 74053 | PESTICIDES, GENERAL (PERMIT) |
| 74056 | COLIFORM, TOTAL, GENERAL (PERMIT) |
| 74065 | STREAM FLOW CLASS |
| 74066 | ANNUAL RUNOFF |
| 74067 | SOIL CLASSIFICATION |
| 74068 | WATER QUALITY DESIGNATED USE CLASSIFICATION (IA) |
| 74100 | PRIMARY 1972 SIC CODE |
| 74101 | SECONDARY 1972 SIC CODE |
| 74102 | SECONDARY 1972 SIC CODE |
| 74103 | SECONDARY 1972 SIC CODE |
| 74200 | SAMPLE PRESERVATION METHODS ONE OR MORE IN COMB. |
| 74205 | LAND RESOURCE AREA (IOWA) |
| 74206 | SOIL EROSION POTENTIAL (IOWA) |
| 74209 | WATER QUALITY INDEX - STATE OF ILLINOIS, EPA |
| 74210 | FOREST STREAM WATER QUALITY INDEX CALC. NUMBER |
| 74990 | FISH SPECIES NUMERIC CODE - F&W SERVICE |
| 74995 | ANATOMY CODE |
| 75000 | SPECIES CODE-REMARK=SEX (M=MALE,F=FEMALE,U=UNK.) |
| 81028 | WITHDRAWAL OF GROUNDWATER (MILLION GAL/DAY) |
| 82258 | WATER CLASSIFICATION CODE (1-9) CODE |
| 82292 | DATA RELAY GROUND STATION SOURCE NODE CODE, CODE |
| 82309 | CONTAMINATION SOURCE POSSIBLE CODES NUMERIC CODE |
| 82310 | DEPTH CONFIDENCE IN REPORTED VALUES NUMERIC CODES |
| 82373 | FREQUENCY OF SAMPLING M=MON,Q=QUAR,Y=YR,R=RNFFCODE |
| 82519 | DRILLER REGISTRATION NUMBER ALPHA-NUMERIC CODE |
| 82562 | NARRATIVE REQUIREMENT EXCEEDANCES INTEGER |

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 82576 | DAILY EXCURSION TIME, WATER MIN |
| 82577 | MONTHLY EXCURSION TIME, WATER TOTAL MIN |
| 82578 | DAY/MAXIMUM EXCURSION TIME, WATER MIN |
| 82579 | CODE NUMBER FOR PERSON COLLECTING SAMPLE |
| 84002 | CODE, GENERAL INFORMATION - ALPHA, NUMERIC CODE |
| 84003 | WATER SHED ID NUMBER (IOWA) |
| 84005 | FISH SPECIES CODE-FISH & WILDLIFE SER |
| 84006 | OWNERSHIP CLASSIFICATION OF LAKE, ILLINOIS SYSTEM |
| 84010 | PUBLIC ACCESS TO LAKE ILLINOIS SYSTEM |
| 84011 | CONFIDENCE CODE FOR GLC CONFIRMATION CODE |
| 84012 | PATIENT PARAMETERS (AGE, SEX, WT, ETC.) CODE |
| 84013 | SAMPLE PARAMETERS D=DESIGN SPECIMEN, S=SURPLUS |
| 84027 | CODE NUMBER FOR AGENCY COLLECTING SAMPLE |
| 84028 | CODE NO FOR AGENCY ANALYZING SAMPLE |
| 84029 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE FIELD |
| 84033 | EGD ANALYTICAL DATA COMPLETENESS Y=YES N=NO CODE |
| 84034 | EGD SMPL NO.(SMPL.IDENT) NUMERIC=SCS ALPH+4NUM=JRB |
| 84035 | EGD SAMPLE CLASSIFICATION CATEGORY ALPHA CODE |
| 84036 | EGD INDUSTRIAL CATEGORY NUMERIC CODE |
| 84037 | EGD INDUSTRIAL CATEGORY NAME ALPHA CODE |
| 84038 | EGD LABORATORY NUMERIC CODE |
| 84039 | EGD LABORATORY NAME ALPHA CODE |
| 84040 | EGD SAMPLE STATUS (1-5,9,AND BLANK) NUMERIC CODE |
| 84041 | EGD ACID STATUS (1-5,9,AND BLANK) NUMERIC CODE |
| 84042 | EGD BASE STATUS (1-5,9AND BLANK) NUMERIC CODE |
| 84043 | EGD PESTICIDE STATUS (1-5,9,AND BLANK) NUMERIC CODE |
| 84044 | EGD VOA FRACT. STATUS INDICATOR (1-5,9,BLANK) CODE |
| 84045 | EGD ACID EXTRACT DATE (YYMMDD) NUMERIC CODE |
| 84046 | EGD BASE EXTRACTION DATE (YYMMDD) NUMERIC CODE |

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 84047 | EGD PESTICIDE EXTRACTION DATE (YYMMDD) NUMERIC CODE |
| 84048 | EGD VOA FRACTION INJECTION DATE YYMMDD NUMERIC CODE |
| 84049 | EGD ACID CONC. FACTOR (FIVE NUMERIC DIGITS) CODE |
| 84050 | EGD BASE CONC.FACTOR (FIVE NUMERIC DIGITS) CODE |
| 84051 | EGD PESTICIDE CONC.FACTOR (FIVE NUMERIC DIGITS) CODE |
| 84052 | EGD VOA FRACTION CONC. FACTOR (5 NUMERIC DIGITS) CODE |
| 84053 | SAMPLE TYPE AND FREQUENCY OF COLLECTION CODE |
| 84054 | LITHOLOGY ALPHA-NUMERIC CODE |
| 84055 | AVAILABLE LOGS ALPHA-NUMERIC CODE |
| 84056 | WATER USE CATEGORY ALPHA-NUMERIC CODE |
| 84057 | INSPECTION TYPE ALPHA-NUMERIC CODE |
| 84058 | HYDROGEOLOGIC SYSTEM ALPHA-NUMERIC CODE |
| 84059 | WELL OWNERSHIP ALPHA-NUMERIC CODE |
| 84060 | TOPOGRAPHY ALPHA-NUMERIC CODE |
| 84061 | WELL USE ALPHA-NUMERIC CODE |
| 84062 | MEASURING POINT DESCRIPTION ALPHA-NUMERIC CODE |
| 84063 | DRILLING METHOD ALPHA-NUMERIC CODE |
| 84064 | WELL DATA AVAILABILITY ALPHA-NUMERIC CODE |
| 84065 | PERMIT COMPLIANCE DATA ALPHA-NUMERIC CODE |
| 84067 | NATURE OF MONITORING ALPHA-NUMERIC CODE |
| 84073 | REPLACES EXISTING WELL ALPHA-NUMERIC CODE |
| 84074 | AQUIFER TYPE (SEE USGS HANDBOOK) ALPHA CODE |
| 84075 | WELL PERMIT NUMBER ALPHA-NUMERIC CODE |
| 84076 | TSD MONITORING WELL TYPE ALPHA CODE |
| 84077 | TSD MONITORING WELL SAMPLING METHOD ALPHA CODE |
| 84083 | POLLUTION VERIFICATION ALPHA CODE |
| 84084 | WELL SAMPLE PURPOSE ALPHA CODE |
| 84090 | SAMPLE FILE CONTROL PROJECT IDENTIFICATION A-CODE |
| 84091 | INFILTRATION DATE/BEGINNING 'YYMMDD' |

| STORET Code | Description of STORET Administrative Parameters |
|---|---|
| 84092 | INFILTRATION DATE/ENDING 'YYMMDD' |
| 84093 | ENFORCEMENT FORM #2-C,DATA IDENTIFICATION CODE |
| 84102 | SAMPLE SPECIES-SUB ID ALPHA CODE |
| 84103 | DIOXIN LABORATORY ALPHA CODE |
| 84104 | DIOXIN STUDY ALPHA CODE |
| 84112 | SOURCE OF GEOHYDROLOGIC DATA CODE |
| 84119 | SOURCE OF EVACUATION DATA CODE |
| 84121 | REGULATING AGENCY CODE |
| 84122 | SAMPLE PURPOSE CODE |
| 84126 | SOURCE OF DEPTH DATA CODE |
| 84127 | METHOD OF DEPTH MEASUREMENT CODE |
| 84128 | SOURCE OF WATER-LEVEL DATA CODE |
| 84129 | DATA QUALITY |
| 84141 | LAKE, PHYSICAL CONDITION AT SAMPLE TIME, 1-5, CODE |
| 84142 | LAKE,RECREATIONAL SUITABILITY @ SMPL TIME,1-5, CODE |
| 84164 | SAMPLER TYPE, CODE |
| 85300 | PROBLEM CODE NES SURVEY |
| 85327 | WATER LEVEL AT SAMPLE COLLECTION TIME-CODE-NES |
| 85332 | CLOUD COVER AT SAMPLE COLLECTION TIME-CODE-NES |
| 85553 | WELL COMPLETION DATE (MONTH/YEAR) |
| 85554 | WELL WORKOVER DATE, LATEST (MONTH/YEAR) |

## Appendix E

### STORET Parameters Not Suitable for Statistical Analysis

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 00001 | X-SEC. LOC., HORIZ (FT. FROM R BANK LOOK UPSTR.) |
| 00002 | X-SEC. LOC., HORIZ (% FROM R BANK LOOK UPSTR.) |
| 00003 | SAMPLING STATION LOCATION, VERTICAL (FEET) |
| 00005 | X-SEC. LOC., VERTICAL (PERCENT OF TOTAL DEPTH) |
| 00006 | DISTANCE FROM LOCATION IN X MILES |
| 00007 | DISTANCE FROM LOCATION IN Y MILES |
| 00008 | NUMBER USED IN SAMPLE ACCOUNTING PROCEDURE |
| 00009 | X-SEC. LOC.(FT FROM LEFT BANK LOOKING DOWNSTRM) |
| 00027 | CODE NO FOR AGENCY COLLECTING SAMPLE |
| 00028 | CODE NO FOR AGENCY ANALYZING SAMPLE |
| 00033 | WEATHER CODE FOR OCEAN-OBSERV. (WMO CODE 4677) |
| 00037 | WIND FORCE (BEAUFORT UNITS) |
| 00038 | WIND DIRECTION (WMO CODES 0885 + 0887) |
| 00041 | WEATHER (WMO CODE 4501) |
| 00042 | ALTITUDE IN FEET ABOVE MEAN SEA LEVEL |
| 00043 | CLOUD TYPE (WMO CODE 0500) |
| 00044 | CLOUD AMOUNT (WMO CODE 2700) |
| 00047 | TOTAL PARTIAL PRESSURE DISSOLVED GASES (MM HG) |
| 00048 | TOTAL PARTIAL PRESSURE DISSOLVED GASES (% SAT) |
| 00049 | SURFACE AREA IN SQUARE MILES |
| 00050 | EVAPORATION, TOTAL (INCHES PER DAY) |
| 00051 | SURFACE AREA IN SQUARE FEET |
| 00053 | SURFACE AREA, ACRES |
| 00054 | RESERVOIR STORAGE - ACRE FEET |
| 00063 | SAMPLING POINTS, NUMBER OF IN A CROSS SECTION |
| 00067 | TIDE STAGE |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 00069 | SEA WAVES(0=NONE;1=0-3";2=4-20";3=21-48";4=4-8') |
| 00097 | SAMPLING STATION LOCATION, VERTICAL (FEET) |
| 00098 | SAMPLING STATION LOCATION, VERTICAL (METERS) |
| 00111 | RATIO OF FECAL COLIFORM TO FECAL STREPTOCOCCI |
| 00115 | SAMPLE TREATMENT CODE (1=RAW,2=TREATED) |
| 01300 | OIL-GREASE (SEVERITY) |
| 01305 | DETERGENT SUDS (SEVERITY) |
| 01310 | GAS BUBBLES (SEVERITY) |
| 01315 | SLUDGE, FLOATING (SEVERITY) |
| 01320 | GARBAGE, FLOATING (SEVERITY) |
| 01325 | ALGAE, FLOATING MATS (SEVERITY) |
| 01330 | ODOR, ATMOSPHERIC (SEVERITY) |
| 01331 | TASTE (SEVERITY) |
| 01335 | SEWAGE SOLIDS, FRESH, FLOATING (SEVERITY) |
| 01340 | FISH, DEAD (SEVERITY) |
| 01345 | DEBRIS, FLOATING (SEVERITY) |
| 01350 | TURBIDITY (SEVERITY) |
| 01351 | FLOW, STRM,1DRY,2LOW,3NORM,4FLOOD,5ABOVE NORM,CODE |
| 01355 | ICE COVER, FLOATING OR SOLID (SEVERITY) |
| 03595 | BIOASSAY (96 HR), EFFLUENT, TOTAL CODE |
| 03596 | BIOASSAY (48 HR), EFFLUENT, TOTAL CODE |
| 03597 | BIOASSAY (24 HR), EFFLUENT, TOTAL CODE |
| 03598 | TOXICITY, EFFLUENT, TOTAL CODE |
| 03599 | TOXICITY, CHOICE OF SPECIES, EFFLUENT CODE |
| 03600 | TOXICITY, TROUT, EFFLUENT, TOTAL CODE |
| 03601 | TOXICITY, SAND DOLLAR, EFFLUENT CODE |
| 03602 | BIOCHEMICAL OXYGEN DEMAND, EFFLUENT, TOTAL CODE |
| 03603 | SOLIDS, TOTAL SUSPENDABLE, EFFLUENT, TOTAL CODE |
| 03605 | FLOW METER CALIBRATION, WATER CODE |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 03717 | ONCORHYNCHUS MYKISS, WATER CODE |
| 04117 | TETHER LINE USED FOR COLLECTING SAMPLE CODE |
| 04160 | HALOCARBONS, PURGEABLE, SCAN, EFFLUENT CODE |
| 04161 | HALOCARBONS, PURGEABLE, SCAN, SLUDGE CODE |
| 04162 | AROMATIC, PURGEABLE, SCAN, EFFLUENT CODE |
| 04163 | AROMATIC, PURGEABLE, SCAN, SLUDGE CODE |
| 04164 | PHENOLIC, TOTAL, SCAN, EFFLUENT CODE |
| 04165 | PHENOLIC, TOTAL, SCAN, SLUDGE CODE |
| 04166 | PCB, TOTAL, SCAN, EFFLUENT CODE |
| 04167 | PCB, TOTAL, SCAN, SLUDGE CODE |
| 04174 | FREE LIQUIDS IN SEWAGE SLUDGE CODE |
| 34765 | AVIAN NUMERICAL SPECIES CODE (BIRDS) |
| 34766 | MAMMALIAN NUMERICAL SPECIES CODE |
| 34771 | MACROPHYTE, INSTREAM, VISUAL SIGHTING CODE |
| 34773 | ODOR, AMBIENT WATER CODE |
| 34774 | FISH, INSTREAM, VISUAL SIGHTING CODE |
| 34775 | STREAMBANK CHANNEL ALTERATIONS CODE |
| 34776 | HYDRAULIC STRUCTURES, INSTREAM CODE |
| 34780 | LAND USE, ADJACENT STREAM CODE |
| 34781 | SAMPLE POINTS, # OF LONGTDNL TRANSECTS, REACH CODE |
| 34782 | STREAM STAGE TREND CODE |
| 34789 | HABITATS, TYPES SAMPLED CODE |
| 45613 | FLOATING SOLIDS/VISIBLE FOAM, VISUAL, YES=1, NO=0, CODE |
| 45614 | SANITARY WASTE DISCHARGE ASSESSMENT, YES=1, NO=0, CODE |
| 45615 | INTERMITTENT DISCHARGE ASSESSMENT, YES=1, NO=0,CODE |
| 46001 | WATER APPEARANCE CODE (BASED ON FIELD ASSESSMENT) |
| 46478 | EQUIPMENT INSPECTION, VISUAL CODE |
| 46486 | TOXICITY,ACUTE 24HR(STATIC)CERIODAPHNIA (P/F) CODE |
| 47454 | FLOW METER REVOLUTIONS NUMBER |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 47455 | LATITUDE, STARTING, OF A SAMPLE TOW DDMMSS |
| 47456 | LONGITUDE, STARTING, OF A SAMPLE TOW DDDMMSS |
| 47457 | LATITUDE, FINISHING, OF A SAMPLE TOW DDMMSS |
| 47458 | LONGITUDE, FINISHING, OF A SAMPLE TOW DDDMMSS |
| 47459 | LENGTH FREQUENCY NUMBER |
| 47461 | TIME THAT THE EQUIPMENT WAS SAMPLING MINUTES |
| 47476 | DIRECTION OF TOW IN RELATION TO CURRENT NUM CODE |
| 50044 | HYDROGRAPH LIMB, 1BASE, 2RISING, 3PEAK, 4FALLING, CODE |
| 61390 | DIATOMS,FIRST DOMINANT SPECIES OF UNITS - CODE |
| 61391 | DIATOMS,SECOND DOMINANT SPECIES OF UNITS - CODE |
| 61392 | DIATOMS,THIRD DOMINANT SPECIES OF UNITS - CODE |
| 61393 | DIATOMS,FOURTH DOMINANT SPECIES OF UNITS - CODE |
| 70220 | WAVE DIRECTION (WMO CODES 0885 + 0887) |
| 70222 | WAVE HEIGHT (WMO CODE 1555) |
| 70223 | WAVE PERIOD (WMO CODE 3155) |
| 71090 | BIVALVE SPECIES CODE |
| 71500 | EQUITABILITY INDEX,BENTHIC MACROINVER CODE |
| 72000 | ELEVATION OF LAND SURFACE DATUM (FT. ABOVE MSL) |
| 72001 | DEPTH, TOTAL OF HOLE (FT BELOW LAND SURFACE DATUM) |
| 72002 | DEPTH TO TOP OF WATER-BEARING ZONE SAMPLED (FT) |
| 72003 | DEPTH TO BOTTOM OF WATER-BEARING ZONE SAMPLED (FT) |
| 72004 | PUMP OR FLOW PERIOD PRIOR TO SAMPLING MINUTES |
| 72005 | SAMPLE SOURCE CODE (BM WELL DATA) |
| 72006 | SAMPLING CONDITION CODE (BM WELL DATA) |
| 72007 | FORMATION NAME CODE (BM WELL DATA) |
| 72017 | SERIES CODE (BM WELL DATA) |
| 72018 | SYSTEM CODE (BM WELL DATA) |
| 72111 | DIRECT READOUT GROUND STATN TRANSMIT EROR CODE NUM |
| 74054 | FECAL STREPTOCOCCI, GENERAL (PERMIT) |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 74055 | FECAL COLIFORM, GENERAL (PERMIT) |
| 80889 | ACTIVATED SLUDGE PROCESS MODIFICATION CODE |
| 81024 | DRAINAGE AREA IN SQUARE MILES (SQ. MI.) |
| 81637 | SHELLFISH SPECIES NUMERIC CODE |
| 82289 | LAGOON OBSERVATION, VISUAL, Y=YES N=NO CODE |
| 82398 | SAMPLING METHOD (CODES) |
| 82524 | STORAGE COEFFICIENT NUMERICAL CODE |
| 82923 | ATMOSPHERIC DEPOSITION TYPE, WET CODE |
| 83205 | ATMOSPHERIC DEPOSITION TYPE, BULK CODE |
| 84000 | GEOLOGIC AGE CODE (SEE USGS CATALOG) |
| 84001 | AQUIFER NAME CODE (SEE USGS CATALOG) |
| 84004 | LAKE TYPE ILLINOIS CLASSIFICATION SYSTEM |
| 84007 | ANATOMY ALPHA CODE |
| 84008 | LIFE STYLE/HABITAT OF THE INDIVIDUALS IN THE SAMPLE |
| 84009 | SHELLFISH SPECIES ALPHANUMERIC CODE |
| 84014 | SPECIES SEX CODE |
| 84030 | CLOUD AMOUNT ALPHA WEATHER CODES |
| 84031 | PHYSICAL WEATHER ALPHA WEATHER CODES |
| 84032 | STREAM CONDITION ALPHA WEATHER CODES |
| 84066 | OIL AND GREASE, VISUAL, ALPHA-NUMERIC CODE |
| 84068 | SERIES CODE ALPHA-NUMERIC CODE |
| 84069 | FORMATION CODE ALPHA-NUMERIC CODE |
| 84070 | METHOD OF TESTING WELL YIELD ALPHA-NUMERIC CODE |
| 84071 | WATER LEVEL MEASUREMENT CONDITIONS ALPHA-NUM CODE |
| 84072 | WATER LEVEL MEASUREMENT METHOD ALPHA-NUMERIC CODE |
| 84078 | GIARDIA LAMBLIA, 2HSO4 OR SUC GRAD, MICRO, CODE |
| 84079 | BACTERIA, CELLUOLYTIC, AEROBIC-ANAEROBIC, RT 5-7, CODE |
| 84080 | BACTERIA, HYDROCARBONOCLASTIC, SHAKE INC 32C/WK, CODE |
| 84081 | YERSINIA ENTEROCOLITICA, SB BROTH, MAC AGAR,22C, CODE |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 84082 | SALMONELLA/SHIGELLA, QUANT OR QUAL, HVF OR SWAB, CODE |
| 84085 | ORGANICS, VOLATILE, DETECTED, NUMERIC CODE, CODE |
| 84086 | MACROINVERTEBRATE SPECIES NUMERIC CODE |
| 84087 | MACROINVERTEBRATE HABITAT CODE |
| 84088 | BIOLOGY 1 MACROINVERTEBRATE CODE |
| 84089 | BIOLOGY 2 MACROINVERTEBRATE CODE |
| 84094 | PHYTOPLANKTON SPECIES CODE, NUMERIC |
| 84095 | PHYTOPLANKTON SPECIES CODE, ALPHA |
| 84096 | SEVERITY OF NON-PLANKTON ALGAE-MAT COVERAGE CODE |
| 84097 | LAGOON MOUTH CONDITION CODE |
| 84098 | COLOR OF NON-PLANKTONIC ALGAE CODE |
| 84099 | WATER - RELATIVE WATER LEVEL CODE |
| 84100 | SEX(1-MALE,2-FEMALE,3-MIXED,4-UNKNOWN) NUM CODE |
| 84101 | METAFORM, BENTHIC, ADULT(A), PUPAE(P), LARVAE(L) CODE |
| 84105 | OIL-SEPARATOR OBSERVATION ASSESS (0=DID NOT,1=DID) |
| 84106 | EVAPORAT/BED OBS ASSESS (0=DID NOT LOOK, 1=DID LOOK) |
| 84107 | AREA INSPECTION, VISUAL (0=DID NOT, 1=DID) CODE |
| 84108 | DRAIN FIELD INSPECTION ASSESS (0=DID NOT, 1=DID) CODE |
| 84109 | SLUDGE BUILD-UP IN WATER (0=DID NOT OBS, 1=OBS) CODE |
| 84110 | POND OBSERVATION ASSESS WATER (0=DID NOT, 1=DID) CODE |
| 84111 | LITHOLOGIC MODIFIER CODE |
| 84113 | WELL INTAKE FINISH CODE |
| 84114 | WELL CASING MATERIAL CODE |
| 84115 | TYPE OF MATERIAL FROM WHICH OPENING IS MADE CODE |
| 84116 | DRILLING FLUID CODE |
| 84117 | TYPE OF SURFACE SEAL CODE |
| 84118 | METHOD OF DEVELOPMENT CODE |
| 84120 | PACKING MATERIAL CODE |
| 84124 | METHOD OF EVACUTAION CODE |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 84125 | METHOD OF WATER-LEVEL MEASUREMENT CODE |
| 84130 | OUTFALL OBSERVATION, VISUAL, Y=YES N=NO CODE |
| 84131 | SAMPLING METHOD, CONFIDENCE CODE (A,B,C,D) CODE |
| 84132 | STREAMBANK, VEGETATIVE STABILITY RATING CODE |
| 84133 | STREAMBANK, STABILITY (BANK EROSION) RATING CODE |
| 84134 | PARTICLES, DEGREE SURROUNDED BY FINE SEDIMENT, CODE |
| 84135 | STREAMSIDE, (SHORELINE) COVER RATING CODE |
| 84136 | CANOPY TYPE CODE |
| 84137 | CHANNEL STABILITY RATING CODE (E,G,F,P) CODE |
| 84138 | COLIFORM, TOTAL, WATER, WHOLE, MPN, PRES=1, ABSNT=2, CODE |
| 84139 | ENTEROBACTER AGGLOMERANS, WTR, MF, PRES=1, ABSNT=2, CODE |
| 84140 | KLEBSIELLA PNEUMONIAE, WTR, WH, MF, PRES=1, ABSNT=2, CODE |
| 84143 | WELL, PURGING CONDITION CODE |
| 84144 | WELL, SELECTION CRITERIA CODE |
| 84145 | PROJECT COMPONENT CODE |
| 84146 | LAND USE, PREDOMINANT, WITHIN 100 FT OF WELL, CODE |
| 84147 | LAND USE, PREDOMINANT, 1/4 MI.RADIUS OF WELL, CODE |
| 84148 | LAND USE, PREDMNT., FRAC., WITHIN 1/4 MI OF WELL, CODE |
| 84149 | LAND USE, CHANGE, LAST 10 YRS, WITHIN 1/4MI WELL, CODE |
| 84150 | HABITAT QUALITY INDEX RATING CODE |
| 84151 | AQUATIC LIFE, USE CLASSES CODE |
| 84152 | STREAM, STAGE CLASS CODE |
| 84153 | STREAMBANKS, GRAZING DAMAGE CODE |
| 84154 | CHANNEL, MAJOR ALTERATIONS CODE |
| 84155 | RIFFLE/RUNS, OCCURRENCE CODE |
| 84156 | POOL, DESCRIPTION CODE |
| 84157 | SANDBARS, LARGE, OCCURRENCE CODE |
| 84158 | LAND USE, NEAR STREAM, PREDOMINANT CODE |
| 84159 | STREAM,COVER (INSTREAM SHELTER FOR ADULT FISH), CODE |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 84160 | STREAM, DEGRADATION RATING CODE |
| 84161 | STREAM, ORDER CODE |
| 84162 | LAND RESOURCE AREA CODE |
| 84163 | FLOW, STREAM, CLASSIFICATION CODE |
| 84165 | DISCHARGE EVENT OBSERVATION, YES=1 NO=0, CODE |
| 84166 | STORM HYDROGRAPH, DIRECTION, (RISE,FALL), CODE |
| 84167 | MICROSCOPIC EXAMINATION CODE |
| 84168 | AVIAN SPECIES ALPHA CODE (BIRDS) |
| 84169 | MAMMALIAN ALPHA SPECIES CODE |
| 84170 | ALPHA AGE TEXT CODE |
| 84200 | LATITUDE/LONGITUDE COORDINATES OF WELL, METHOD CODE |
| 84201 | NATIONAL REFERENCE DATUM, ALTITUDE(VERTICAL) CODE |
| 84202 | ALTITUDE METHOD CODE |
| 85000 | STREAM MILE, ACTUAL MILES |
| 85014 | HABITAT, 1970 ACRES THIS TYPE FOR THIS STATION |
| 85015 | HAB., ESTIMATED ACRES THIS TYPE THIS STATION |
| 85016 | HAB., ESTIMATED ACRES THIS TYPE THIS STA. BY 1990 |
| 85017 | HAB., ESTIMATED ACRES THIS TYPE THIS STA. BY 2000 |
| 85018 | TYPE CODES: 1=CLEAR CUT/2=SELECT CUT/3=RNGE DEVLP |
| 85019 | ACRES, NO. ALTERED FROM 1965-1970 (0-5 YEARS OLD) |
| 85020 | ACRES, NO. ALTERED 1960-1965 (5-10 YEARS OLD) |
| 85021 | ACRES, NO. ALTERED 1955-1960 (10-15 YEARS OLD) |
| 85022 | ACRES, NO. ALTERED 1950-1955 (15-20 YEARS OLD) |
| 85023 | ACRES, NO. ALTERED BEFORE 1950 (20+ YEARS OLD) |
| 85024 | ACRES,PREDICTED YRLY.AVE.TO BE ALTERED IN FUTURE |
| 85025 | LANDOWNERS, CODES FOR ALL IN STATE OF OREGON |
| 85026 | ACRES, CURRENT OWNED THIS LANDOWNER THIS STATION |
| 85027 | ACRES, ESTIMATED OWNED BY L-O THIS STA. BY 1980 |
| 85028 | ACRES, ESTIMATED OWNED BY L-O THIS STA. BY 1990 |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 85029 | ACRES, ESTIMATED OWNED BY L-O THIS STA. BY 2000 |
| 85030 | LAND USES, CODES FOR ALL IN STATE OF OREGON |
| 85031 | ACRES, CURRENT DEDICATED TO THIS USE THIS STATION |
| 85032 | ACRES, ESTM. DEDICTD TO THIS USE THIS STA BY 1980 |
| 85033 | ACRES, ESTM. DEDICTD TO THIS USE THIS STA BY 1990 |
| 85034 | ACRES, ESTM. DEDICTD TO THIS USE BY YR.2000 --STA. |
| 85035 | HAB., INDICATED ANIMAL USES THIS TYPE IN WINTER |
| 85036 | HAB., INDICATED ANIMAL USES THIS TYPE IN SPRING |
| 85037 | HAB., INDICATED ANIMAL USES THIS TYPE IN SUMMER |
| 85038 | HAB., INDICATED ANIMAL USES THIS TYPE IN FALL |
| 85039 | HAB., INDICATED ANML USES THIS TYPE FOR WINTERING |
| 85040 | HAB., INDICATED ANML USES THIS TYPE FOR FEEDING |
| 85041 | HAB., INDICATED ANML USES TYPE FOR REARING YOUNG |
| 85042 | HAB., INDICATED BIRD USES THIS TYPE FOR NESTING |
| 85043 | HAB., INDICATED ANML USES THIS TYPE FOR SHELTER |
| 85044 | HAB., INDICATED ANML USES THIS TYPE FOR REST AREA |
| 85045 | ANML, SHOWS PRESENCE/ABSNC OF COMMENTS ON THIS ANML |
| 85046 | HAB.,ACRES OCCUPIED BY THIS ANML THIS UNIT & CO. |
| 85050 | ANIMALS ARE NOT PRESENT THIS STATION |
| 85051 | ANIMALS, ONLY A FEW ARE PRESENT THIS STATION |
| 85052 | ANIMALS COMMONLY SEEN; USE MODERATE THIS STATION |
| 85053 | ANIMALS FREQUENTLY SEEN; USE HEAVY THIS STATION |
| 85070 | OWNERSHIP (.1) AND ACCESS (.2) BY YEAR |
| 85071 | PRIVATE OWNERSHIP AND ACCESS MILEAGE |
| 85072 | FEDERAL OWNERSHIP AND ACCESS MILEAGE |
| 85073 | STATE OWNERSHIP AND ACCESS MILEAGE |
| 85074 | COUNTY OWNERSHIP AND ACCESS MILEAGE |
| 85075 | CITY OWNERSHIP AND ACCESS MILEAGE |
| 85076 | WATER YEAR DATA REFERS TO |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 85077 | CALENDAR YEAR DATA REFERS TO |
| 85088 | MONTHS POLLUTION IS A PROBLEM JAN THRU JUNE |
| 85089 | MONTHS POLLUTION IS A PROBLEM JULY TO DECEMBER |
| 85090 | MAN-CAUSED CHANNEL CHANGE IN MILES |
| 85091 | STREAM BANK HABITAT DESTROYED IN MILES |
| 85092 | STREAMBED SILTED IN MILES |
| 85093 | TURBIDITY PROBLEM IN MILES |
| 85094 | SEVERITY: 1=ELIMINATES 2=INTERFERES 3=NO PROBLEM |
| 85095 | DURATION OF TURBIDITY PROBLEM IN MONTHS |
| 85096 | SEASON OF NATURAL DRY CHANNEL 1=SP 2=SU 3=F 4=W |
| 85097 | NATURAL DRY CHANNEL IN MILES |
| 85098 | MAN-CAUSED DRY CHANNEL SEASON 1=SP 2=SU 3=F 4=W |
| 85099 | MAN-CAUSED DRY CHANNEL IN MILES |
| 85100 | YEAR BARRIER IS PRESENT |
| 85101 | NUMBER OF NATURAL BARRIERS |
| 85102 | MILES BLOCKED BY NATURAL BARRIERS |
| 85103 | NUMBER OF NATURAL BARRIERS TO BE REMOVED |
| 85104 | NUMBER OF DAMS AND MAN CAUSED OBSTRUCTIONS |
| 85105 | MILES BLOCKED BY DAMS OR MAN CAUSED OBSTRUCTIONS |
| 85106 | NUMBER OF DAMS TO BE ALTERED |
| 85107 | MILES OF STREAM OCCUPIED BY IMPOUNDMENT |
| 85108 | LOWER END OF SECTION COVERED BY THIS FORM |
| 85109 | UPPER END OF SECTION COVERED BY THIS FORM |
| 85110 | LOWER LIMIT THIS SPECIES THIS FORM BY RIVER MILE |
| 85111 | UPPER LIMIT THIS SPECIES THIS FORM BY RIVER MILE |
| 85112 | STREAM SURVEY:1=COMPLETE 2=INCOMPLETE 3=NONE |
| 85113 | ABUNDANCE: 1=FSHWY/TAG&R 2=SURVEY 3=EST PLUS 4=EST |
| 85114 | ABUNDANCE: N=S&ST 1=ABUNDANT 4=SCARCE RGH FSH 3=SCARCE |
| 85116 | SQUARE YARDS OF SPAWNING AREA IN 1970 |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 85117 | SQUARE YARDS OF SPAWNING AREA IN 1980 |
| 85118 | SQUARE YARDS OF SPAWNING AREA IN 1990 |
| 85119 | SQUARE YARDS OF SPAWNING AREA IN 2000 |
| 85120 | MILES OF REARING AREA IN 1970 |
| 85121 | MILES OF REARING AREA IN 1980 |
| 85122 | MILES OF REARING AREA IN 1990 |
| 85123 | MILES OF REARING AREA IN 2000 |
| 85124 | CATCH BY SPORT ANGLING IN 1970 |
| 85125 | RECREATION DAYS SPENT ANGLING IN 1970 |
| 85126 | RECREATION DAYS SPENT ANGLING IN 1980 |
| 85127 | RECREATION DAYS SPENT ANGLING IN 1990 |
| 85128 | RECREATION DAYS SPENT ANGLING IN 2000 |
| 85129 | CONTRIBUTION TO COMMERCIAL CATCH IN 1970 |
| 85130 | PERCENT OF TOTAL FISHING DONE FROM BOAT IN 1970 |
| 85131 | PERCENT OF TOTAL FISHING DONE FROM BANK IN 1970 |
| 85132 | PERCENT OF TOTAL FISHING DONE WITH LURE IN 1970 |
| 85133 | PERCENT OF TOTAL FISHING DONE WITH BAIT IN 1970 |
| 85134 | PERCENT OF TOTAL FISHING DONE WITH A FLY IN 1970 |
| 85146 | YEAR THIS FACTOR HAS A LIMITING EFFECT |
| 85157 | MAN DAYS OF WATER SKIING |
| 85158 | SEVERITY: 1=INTERFERES 2=NO INTER. 3=NO ACTIVITY |
| 85159 | MAN DAYS OF BOATING OTHER THAN ANGLING |
| 85160 | SEVERITY: 1=INTERFERES 2=NO INTER. 3=NO ACTIVITY |
| 85161 | MAN DAYS OF SWIMMING |
| 85162 | SEVERITY: 1=INTERFERES 2=NO INTER. 3=NO ACTIVITY |
| 85163 | SEVERITY: 1=INTERFERES 2=NO INTER. 3=NOT PRESENT |
| 85165 | NUMBER OF MONTHS SUSPENDED SOLIDS ARE A PROBLEM |
| 85167 | NUMBER OF MONTHS PLANKTON IS A PROBLEM |
| 85168 | 1=ELIMINATE PROD 2=REDUCE 3=NO INTER. 4=NOT PRES |

| STORET Code | Description of STORET Parameters Not Suitable for Statistical Analysis |
|---|---|
| 85169 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85170 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85171 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85172 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85173 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85174 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85175 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85176 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85177 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85178 | 1=ELIMINATE PROD 2=UNDESIRABLE 3=REDUCE 4=NO PROB |
| 85179 | YEAR THIS NUMBER OF FACILITIES PRESENT |
| 85180 | NUMBER OF BOAT RAMPS |
| 85181 | NUMBER OF MOORAGES |
| 85182 | NUMBER OF PICNIC AREAS |
| 85183 | NUMBER OF CAMP AREAS |
| 85184 | NUMBER OF RESORTS |
| 85185 | YEAR THIS ZONED AREA PRESENT |
| 85186 | ACRES SET ASIDE FOR OTHER BOATING |
| 85187 | ACRES SET ASIDE FOR WATER SKIING |
| 85188 | MILES OF SHORE LOST TO ACCESS BY HOME SITES |
| 85189 | TOTAL MILES OF SHORELINE |
| 85193 | WILL RECR BE INC BY RELEASE OF FINGERL 0=NO 1=YES |
| 85195 | CATCH AND RECREATION ESTIMATE 1=BEST 4=POOREST |
| 85333 | PRECIPITATION-SAMPLE COLLECTION TIME-CODE- NES |
| 85538 | GAMMA SCAN DATE (YR,MO,DAY) |
| 85539 | DATE OF REPORT (YR,MO,DAY) |
| 85658 | TIME NIGHT CO2 HR |
| 85661 | TIME, INTERVAL DAY CO2 HR |

## Appendix F

## National EPA Water Quality Criteria Summary[1]

The following table presents the national water quality criteria that were used to assess water quality data on a station-by-station basis and within the entire study area. Criteria are, for the most part, maximum values (except for dissolved oxygen, pH, and as noted). Criteria exist in any of four categories: Fresh Acute, Drinking Water, Marine Acute, and Other. Acute criteria are the highest 1-hour average concentrations which should not result in unacceptable impacts to aquatic organisms in either fresh or marine waters, respectively. The Drinking Water criteria are intended for human consumption; while the Other criteria represents National Park Service or other concerns. Parameters are listed in ascending order by STORET code. It is important to note that similar parameters often have non-consecutive codes. Consequently, scanning the entire list is necessary to obtain the criteria for all parameters of a particular type (eg. lead, copper, etc.). Refer to the Parameter Period of Record Tabulation to obtain the STORET code for any parameter measured in the park.

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| | 00070 | | | | 50[t] | TURBIDITY, JACKSON CANDLE UNITS | JTU | Physical |
| | 00076 | | | | 50[t] | TURBIDITY, HACH TURBIDIMETER, FORMAZIN TUR. UNITS | FTU | Physical |
| 14808798 | 00154 | | 250[s] | | | SULFATE (AS S) WHOLE WATER | MG/L | General Inorganic |
| 7782447 | 00299 | | | | 4.0[u] | OXYGEN, DISSOLVED, ANALYSIS BY PROBE | MG/L | Dissolved Oxygen |
| 7782447 | 00300 | | | | 4.0[u] | OXYGEN, DISSOLVED | MG/L | Dissolved Oxygen |
| | 00400 | | | | ≤6.5, ≥9.0[#] | PH | SU | Physical |
| | 00403 | | | | ≤6.5, ≥9.0[#] | PH, LAB | SU | Physical |
| | 00406 | | | | ≤6.5, ≥9.0[#] | PH, FIELD | SU | Physical |

[1]Sources: (1) U.S. Environmental Protection Agency, Quality Criteria for Water 1995, Final Draft; (2) U.S. Environmental Protection Agency, 40 CFR 141 - National Primary Drinking Water Regulations, and 40 CFR 143 - National Secondary Drinking Water Regulations, July 1, 1994; and (3) Others as Noted in Footnotes.

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 471341 | 00409 | | | | <200[=] | ALKALINITY, TOTAL, LOW LEVEL GRAN ANALYSIS | UEQ/L | General Inorganic |
| 17778880 | 00613 | | 1 | | | NITRITE NITROGEN, DISSOLVED AS N | MG/L | Nitrogen |
| 17778880 | 00615 | | 1 | | | NITRITE NITROGEN, TOTAL AS N | MG/L | Nitrogen |
| 17778880 | 00618 | | 10 | | | NITRATE NITROGEN, DISSOLVED AS N | MG/L | Nitrogen |
| 17778880 | 00620 | | 10 | | | NITRATE NITROGEN, TOTAL AS N | MG/L | Nitrogen |
| 17778880 | 00628 | | 10 | | | NITRITE + NITRATE, SUSPENDED AS N | MG/L | Nitrogen |
| 17778880 | 00630 | | 10 | | | NITRITE PLUS NITRATE, TOTAL 1 DET. | MG/L | Nitrogen |
| 17778880 | 00631 | | 10 | | | NITRITE PLUS NITRATE, DISSOLVED 1 DET. | MG/L | Nitrogen |
| 57125 | 00718 | 22 | 200 | 1.0 | | CYANIDE, WEAK ACID, DISSOCIABLE, WATER, WHOLE | UG/L | General Inorganic |
| 57125 | 00719 | 22 | 200 | 1.0 | | CYANIDE, FREE,IN WATER&WASTEWATERS, HBG METHOD | UG/L | General Inorganic |
| 57125 | 00720 | 0.022 | 0.2 | 0.001 | | CYANIDE, TOTAL | MG/L | General Inorganic |
| 57125 | 00722 | 0.022 | 0.2 | 0.001 | | CYANIDE, FREE (AMENABLE TO CHLORINATION) | MG/L | General Inorganic |
| 57125 | 00723 | 22 | 200 | 1.0 | | CYANIDE, DISSOLVED STD METHOD | UG/L | General Inorganic |
| 57125 | 00724 | 22 | 200 | 1.0 | | CYANIDE COMPLEXED TO A RANGE OF COMPNDS, WATER | UG/L | General Inorganic |
| 16887006 | 00940 | 860 | 250[s] | | | CHLORIDE,TOTAL IN WATER | MG/L | General Inorganic |
| 16887006 | 00941 | 860 | 250[s] | | | CHLORIDE, DISSOLVED IN WATER | MG/L | General Inorganic |
| 14808798 | 00945 | | 250[s] | | | SULFATE, TOTAL (AS SO4) | MG/L | General Inorganic |
| 14808798 | 00946 | | 250[s] | | | SULFATE, DISSOLVED (AS SO4) | MG/L | General Inorganic |
| 1332214 | 00948 | | 7000000 | | | ASBESTOS, WHOLE SAMPLE | CNT/L | General Inorganic |
| 16984488 | 00950 | | 4.0 | | | FLUORIDE, DISSOLVED AS F | MG/L | General Inorganic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 16984488 | 00951 | | 4.0 | | | FLUORIDE, TOTAL AS F | MG/L | General Inorganic |
| 7782414 | 00953 | | 4000 | | | FLUORINE, TOTAL | UG/L | General Inorganic |
| 7440382 | 00978 | 360 | 50 | 69 | | ARSENIC, TOTAL RECOVERABLE IN WATER AS AS | UG/L | Metal |
| 7782492 | 00981 | 20 | 50 | 300 | | SELENIUM,TOTAL RECOVERABLE IN WATER AS SE | UG/L | Metal |
| 7440280 | 00982 | 1400* | 2.0 | 2130* | | THALLIUM, TOTAL RECOVERABLE IN WATER AS TL | UG/L | Metal |
| 7782492 | 00990 | 20 | 50 | 300 | | SELENITE, TOTAL RECOVERABLE INORGANIC | UG/L | Metal |
| 7440382 | 00991 | 360 | 50 | 69 | | ARSENIC, TOTAL RECOVERABLE TRIVALENT INORGANIC | UG/L | Metal |
| 7440382 | 00995 | 360 | 50 | 69 | | ARSENIC, INORGANIC DISS | UG/L | Metal |
| 7440382 | 00996 | 360 | 50 | 69 | | ARSENIC, INORGANIC SUSP | UG/L | Metal |
| 7440382 | 00997 | 360 | 50 | 69 | | ARSENIC, INORGANIC TOT | UG/L | Metal |
| 7440417 | 00998 | 130* | 4.0 | | | BERYLLIUM,TOTAL RECOVERABLE IN WATER AS BE | UG/L | Metal |
| 7440382 | 01000 | 360 | 50 | 69 | | ARSENIC, DISSOLVED | UG/L | Metal |
| 7440382 | 01001 | 360 | 50 | 69 | | ARSENIC, SUSPENDED | UG/L | Metal |
| 7440382 | 01002 | 360 | 50 | 69 | | ARSENIC, TOTAL | UG/L | Metal |
| 7440393 | 01005 | | 2000 | | | BARIUM, DISSOLVED | UG/L | Metal |
| 7440393 | 01006 | | 2000 | | | BARIUM, SUSPENDED | UG/L | Metal |
| 7440393 | 01007 | | 2000 | | | BARIUM, TOTAL | UG/L | Metal |
| 7440393 | 01009 | | 2000 | | | BARIUM,TOTAL RECOVERABLE IN WATER AS BA | UG/L | Metal |
| 7440417 | 01010 | 130* | 4.0 | | | BERYLLIUM, DISSOLVED | UG/L | Metal |
| 7440417 | 01011 | 130* | 4.0 | | | BERYLLIUM, SUSPENDED | UG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7440417 | 01012 | 130* | 4.0 | | | BERYLLIUM, TOTAL | UG/L | Metal |
| 7440439 | 01025 | 3.9+ | 5.0 | 43 | | CADMIUM, DISSOLVED | UG/L | Metal |
| 7440439 | 01026 | 3.9+ | 5.0 | 43 | | CADMIUM, SUSPENDED | UG/L | Metal |
| 7440439 | 01027 | 3.9+ | 5.0 | 43 | | CADMIUM, TOTAL | UG/L | Metal |
| 7440473 | 01030 | | 100 | | | CHROMIUM, DISSOLVED | UG/L | Metal |
| 7440473 | 01031 | | 100 | | | CHROMIUM, SUSPENDED | UG/L | Metal |
| 7440473 | 01032 | 16 | 100 | 1100 | | CHROMIUM, HEXAVALENT | UG/L | Metal |
| 16065831 | 01033 | 1700+ | 100 | 10300* | | CHROMIUM, TRI-VAL | UG/L | Metal |
| 7440473 | 01034 | | 100 | | | CHROMIUM, TOTAL | UG/L | Metal |
| 7440508 | 01040 | 18+ | 1300[a] | 2.9 | | COPPER, DISSOLVED | UG/L | Metal |
| 7440508 | 01041 | 18+ | 1300[a] | 2.9 | | COPPER, SUSPENDED | UG/L | Metal |
| 7440508 | 01042 | 18+ | 1300[a] | 2.9 | | COPPER, TOTAL | UG/L | Metal |
| 7439921 | 01049 | 82+ | 15[a] | 220 | | LEAD, DISSOLVED | UG/L | Metal |
| 7439921 | 01050 | 82+ | 15[a] | 220 | | LEAD, SUSPENDED | UG/L | Metal |
| 7439921 | 01051 | 82+ | 15[a] | 220 | | LEAD, TOTAL | UG/L | Metal |
| 7440280 | 01057 | 1400* | 2.0 | 2130* | | THALLIUM, DISSOLVED | UG/L | Metal |
| 7440280 | 01058 | 1400* | 2.0 | 2130* | | THALLIUM, SUSPENDED | UG/L | Metal |
| 7440280 | 01059 | 1400* | 2.0 | 2130* | | THALLIUM, TOTAL | UG/L | Metal |
| 7440020 | 01065 | 1400+ | 100 | 75 | | NICKEL, DISSOLVED | UG/L | Metal |
| 7440020 | 01066 | 1400+ | 100 | 75 | | NICKEL, SUSPENDED | UG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7440020 | 01067 | 1400[+] | 100 | 75 | | NICKEL, TOTAL | UG/L | Metal |
| 7440020 | 01074 | 1400[+] | 100 | 75 | | NICKEL, TOTAL RECOVERABLE IN WATER AS NI | UG/L | Metal |
| 7440224 | 01075 | 4.1[+] | 100[s] | 0.12 | | SILVER, DISSOLVED | UG/L | Metal |
| 7440224 | 01076 | 4.1[+] | 100[s] | 0.12 | | SILVER, SUSPENDED | UG/L | Metal |
| 7440224 | 01077 | 4.1[+] | 100[s] | 0.12 | | SILVER, TOTAL | UG/L | Metal |
| 7440224 | 01079 | 4.1[+] | 100[s] | 0.12 | | SILVER, TOTAL RECOVERABLE IN WATER AS AG | UG/L | Metal |
| 7440508 | 01089 | 0.018[+] | 1.3[a] | 0.0029 | | COPPER AS SUSPENDED BLACK OXIDE IN WATER | MG/L | General Inorganic |
| 7440666 | 01090 | 120[+] | 5000[s] | 95 | | ZINC, DISSOLVED | UG/L | Metal |
| 7440666 | 01091 | 120[+] | 5000[s] | 95 | | ZINC, SUSPENDED | UG/L | Metal |
| 7440666 | 01092 | 120[+] | 5000[s] | 95 | | ZINC, TOTAL | UG/L | Metal |
| 7440666 | 01094 | 120[+] | 5000[s] | 95 | | ZINC, TOTAL RECOVERABLE IN WATER AS ZN | UG/L | Metal |
| 7440360 | 01095 | 88[p] | 6.0 | 1500[p] | | ANTIMONY, DISSOLVED | UG/L | Metal |
| 7440360 | 01096 | 88[p] | 6.0 | 1500[p] | | ANTIMONY, SUSPENDED | UG/L | Metal |
| 7440360 | 01097 | 88[p] | 6.0 | 1500[p] | | ANTIMONY, TOTAL | UG/L | Metal |
| 7440439 | 01113 | 3.9[+] | 5.0 | 43 | | CADMIUM,TOTAL RECOVERABLE IN WATER AS CD | UG/L | Metal |
| 7439921 | 01114 | 82[+] | 15[a] | 220 | | LEAD, TOTAL RECOVERABLE IN WATER AS PB | UG/L | Metal |
| 7440473 | 01118 | | 100 | | | CHROMIUM TOTAL RECOVERABLE IN WATER AS CR | UG/L | Metal |
| 7440508 | 01119 | 18[+] | 1300[a] | 2.9 | | COPPER, TOTAL RECOVERABLE IN WATER AS CU | UG/L | Metal |
| 7440280 | 01124 | 1400[*] | 2.0 | 2130[*] | | THALLIUM, ACID SOLUBLE, WATER, WHOLE | UG/L | Metal |
| 7440280 | 01128 | 1400[*] | 2.0 | 2130[*] | | THALLIUM, TOTAL RECOVERABLE <95% | UG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7782492 | 01145 | 20 | 50 | 300 | | SELENIUM, DISSOLVED | UG/L | Metal |
| 7782492 | 01146 | 20 | 50 | 300 | | SELENIUM, SUSPENDED | UG/L | Metal |
| 7782492 | 01147 | 20 | 50 | 300 | | SELENIUM, TOTAL | UG/L | Metal |
| 7782492 | 01167 | 20 | 50 | 300 | | SELENIUM, ACID SOLUBLE, WATER, WHOLE | UG/L | Metal |
| 18540299 | 01220 | 16 | 100 | 1100 | | CHROMIUM, HEXAVALENT, DISSOLVED | UG/L | Metal |
| 7440360 | 01268 | 88[p] | 6.0 | 1500[p] | | ANTIMONY (SB), WATER, TOTAL RECOVERABLE | UG/L | Metal |
| 57125 | 01291 | 22 | 200 | 1.0 | | CYANIDE, FILTERABLE, TOTAL IN WATER | UG/L | General Inorganic |
| 7440666 | 01303 | 0.120[+] | 5.0[s] | 0.095 | | ZINC, POTENTIALLY DISSOLVED WATER | MG/L | Metal |
| 7440224 | 01304 | 0.0041[+] | 0.1[s] | 0.00012 | | SILVER, POTENTIALLY DISSOLVED WATER | MG/L | Metal |
| 7440508 | 01306 | 0.018[+] | 1.3[a] | 0.0029 | | COPPER, POTENTIALLY DISSOLVED WATER | MG/L | Metal |
| 18540299 | 01307 | 0.016 | 0.1 | 1.1 | | CHROMIUM, HEXAVALENT, POTENTIALLY DISSOLVED | MG/L | Metal |
| 7440382 | 01309 | 0.36 | 0.05 | 0.069 | | ARSENIC, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7440393 | 01311 | | 2.0 | | | BARIUM, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7440417 | 01312 | 0.13[*] | 0.004 | | | BERYLLIUM, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7440439 | 01313 | 0.0039[+] | 0.005 | 0.043 | | CADMIUM, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 16065831 | 01314 | 1.7[+] | 0.1 | 10.3[*] | | CHROMIUM, TRIVALENT, POTENTIALLY DISSOLVED | MG/L | Metal |
| 7439921 | 01318 | 0.082[+] | 0.015[a] | 0.220 | | LEAD, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7439976 | 01321 | 0.0024 | 0.002 | 0.0021 | | MERCURY, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7440020 | 01322 | 1.4[+] | 0.1 | 0.075 | | NICKEL, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7782492 | 01323 | 0.020 | 0.050 | 0.300 | | SELENIUM, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7440280 | 01324 | 1.4[*] | 0.002 | 2.13[*] | | THALLIUM, POTENTIALLY, DISSOLVED, WATER | MG/L | Metal |
| 7440611 | 01326 | | 0.020[c] | | | URANIUM, POTENTIALLY DISSOLVED, WATER | MG/L | Metal |
| 7440224 | 01523 | 4.1[+] | 100[s] | 0.12 | | SILVER, IONIC | UG/L | Metal |
| 50328 | 03648 | | 0.2 | | | BENZO (A) PYRENE, LIQUID FRACTION, ELUTRIATE | UG/L | General Organic |
| 122349 | 04035 | | 4.0 | | | SIMAZINE, DISSOLVED, WATER, TOTAL RECOVERABLE | UG/L | Pesticide |
| 10028178 | 04124 | | 20[r] | | | TRITIUM, TOTAL, WATER | PC/ML | Radiological |
| 10028178 | 07000 | | 20000[r] | | | TRITIUM, TOTAL | PC/L | Radiological |
| 10028178 | 07005 | | 20000[r] | | | TRITIUM, DISSOLVED | PC/L | Radiological |
| 10028178 | 07010 | | 20000[r] | | | TRITIUM, SUSPENDED | PC/L | Radiological |
| | 09501 | | 5.0 | | | RADIUM 226, TOTAL | PC/L | Radiological |
| | 09503 | | 5.0 | | | RADIUM 226, DISSOLVED | PC/L | Radiological |
| | 09505 | | 5.0 | | | RADIUM 226, SUSPENDED | PC/L | Radiological |
| | 11500 | | 5.0 | | | RADIUM 226 + RADIUM 228, DISSOLVED | PC/L | Radiological |
| | 11501 | | 5.0 | | | RADIUM 228, TOTAL | PC/L | Radiological |
| | 11503 | | 5.0 | | | RADIUM 226 + RADIUM 228, TOTAL | PC/L | Radiological |
| 10098972 | 13501 | | 8.0[r] | | | STRONTIUM 90, TOTAL | PC/L | Radiological |
| 10098972 | 13503 | | 8.0[r] | | | STRONTIUM 90, DISSOLVED | PC/L | Radiological |
| 10098972 | 13505 | | 8.0[r] | | | STRONTIUM 90, SUSPENDED | PC/L | Radiological |
| 7782492 | 22675 | 20 | 50 | 300 | | SELENIUM, DISSOLVED ORGANIC | UG/L | Metal |
| 7782492 | 22676 | 20 | 50 | 300 | | SELENIUM, HEXAVALENT, DISSOLVED | UG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7782492 | 22677 | 20 | 50 | 300 | | SELENIUM, TETRAVALENT, DISSOLVED | UG/L | Metal |
| 7440382 | 22678 | 360 | 50 | 69 | | ARSENIC, DISSOLVED ORGANIC | UG/L | Metal |
| 7440382 | 22679 | 850[*] | 50 | 2319[*] | | ARSENIC, PENTAVALENT,DISSOLVED | UG/L | Metal |
| 7440382 | 22680 | 360 | 50 | 69 | | ARSENIC, TRIVALENT, DISSOLVED | UG/L | Metal |
| 7440611 | 22703 | | 20[c] | | | URANIUM, NATURAL DISSOLVED | UG/L | Metal |
| 7440611 | 22705 | | 20[c] | | | URANIUM, NATURAL SUSPENDED | UG/L | Metal |
| 7440611 | 22706 | | 20[c] | | | URANIUM, TOTAL AS U308 | UG/L | Metal |
| 7440611 | 22708 | | 0.020[c] | | | URANIUM, NATURAL, TOTAL | MG/L | Radiological |
| 7440611 | 28011 | | 20[c] | | | URANIUM, NATURAL, TOTAL | UG/L | Radiological |
| 88857 | 30191 | | 7.0 | | | DINOSEB, WATER, WHOLE RECOVERABLE | UG/L | Pesticide |
| 75990 | 30200 | | 200 | | | DALAPON, WATER, WHOLE RECOVERABLE | UG/L | Pesticide |
| 106934 | 30203 | | 0.05 | | | ETHANE, 1,2-DIBROMO-, WATER, WHOLE, RECOVERABLE | UG/L | Pesticide |
| | 31501 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MEMBRANE FILTER, IMMED. | CFU/100ML | Bacteriological |
| | 31503 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MEMBRANE FILTER, DELAY. M-ENDO | CFU/100ML | Bacteriological |
| | 31504 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MEMBRANE FILTER, IMMED. LES-ENDO | CFU/100ML | Bacteriological |
| | 31505 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MPN, CONF. TEST 35C (TUBE 31506) | MPN/100ML | Bacteriological |
| | 31506 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MPN, CONF. TEST, TUBE CONFIG | MPN/100ML | Bacteriological |
| | 31507 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MPN, COMP. TEST 35C (TUBE 31508) | MPN/100ML | Bacteriological |
| | 31508 | | 1.0[n] | | 1000[b] | COLIFORM, TOTAL, MPN, COMP. TEST, TUBE CONFIG | MPN/100ML | Bacteriological |
| | 31613 | | | | 200[^] | FECAL COLIFORM, MEMBRANE FILTER, AGAR | CFU/100ML | Bacteriological |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| | 31614 | | | | 200^ | FECAL COLIFORM, MPN, TUBE CONFIGURATION | MPN/100ML | Bacteriological |
| | 31615 | | | | 200^ | FECAL COLIFORM, MPN, EC MED, 44.5C (TUBE 31614) | MPN/100ML | Bacteriological |
| | 31616 | | | | 200^ | FECAL COLIFORM, MEMBRANE FILTER, BROTH, 44.5C | CFU/100ML | Bacteriological |
| | 31617 | | | | 200^ | FECAL COLIFORM, MPN, EIJKMAN, 44.5C (TUBE 31618) | MPN/100ML | Bacteriological |
| | 31625 | | | | 200^ | FECAL COLIFORM, MF, M-FC, 0.7 UM | CFU/100ML | Bacteriological |
| | 31648 | | | | 126^ | E. COLI, MTEC, MF | CFU/100ML | Bacteriological |
| | 31649 | | | | 33^ | ENTEROCOCCI, ME, MF | CFU/100ML | Bacteriological |
| 67663 | 32003 | 28900* | 100t | | | CARBON CHLOROFORM AND CARBON ALCOHOL EXTRS.,TOTAL | UG/L | General Organic |
| 67663 | 32005 | 28900* | 100t | | | CARBON CHLOROFORM EXTRACTABLES | UG/L | General Organic |
| 67663 | 32021 | 28900* | 100t | | | CARBON CHLOROFORM EXTRACTS, ETHER INSOLUBLES OF | UG/L | General Organic |
| 67663 | 32022 | 28900* | 100t | | | CARBON CHLOROFORM EXTRACTS, WATER SOLUBLES OF | UG/L | General Organic |
| 75274 | 32101 | | 100t | | | BROMODICHLOROMETHANE, WHOLE WATER | UG/L | General Organic |
| 56235 | 32102 | 35200* | 5.0 | 50000* | | CARBON TETRACHLORIDE, WHOLE WATER | UG/L | General Organic |
| 107062 | 32103 | 118000* | 5.0 | 113000* | | 1,2-DICHLOROETHANE,WHOLE WATER | UG/L | General Organic |
| 75252 | 32104 | | 100t | | | BROMOFORM, WHOLE WATER | UG/L | General Organic |
| 124481 | 32105 | | 100t | | | DIBROMOCHLOROMETHANE, WHOLE WATER | UG/L | General Organic |
| 67663 | 32106 | 28900* | 100t | | | CHLOROFORM, WHOLE WATER | UG/L | General Organic |
| 56235 | 32260 | 35.2* | 0.005 | 50* | | CARBON TETRACHLORIDE EXTRACTABLES | MG/L | General Organic |
| 67663 | 32270 | 28.9* | 0.1t | | | CHLOROFORM EXTRACTABLES TOTAL | MG/L | General Organic |
| 108883 | 34010 | 17500* | 1000 | 6300* | | TOLUENE IN WTR SMPLE GC-MS, HEXADECONE EXTR. | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 1330207 | 34020 | | 10000 | | | XYLENES IN WTR SMPLE GC-MS, HEXADECONE EXTR. | UG/L | General Organic |
| 83329 | 34205 | 1700* | | 970* | | ACENAPHTHENE, TOTAL | UG/L | General Organic |
| 83329 | 34206 | 1700* | | 970* | | ACENAPHTHENE, DISSOLVED | UG/L | General Organic |
| 83329 | 34207 | 1700* | | 970* | | ACENAPHTHENE, SUSPENDED | UG/L | General Organic |
| 107028 | 34210 | 68* | | 55* | | ACROLEIN, TOTAL | UG/L | Pesticide |
| 107028 | 34211 | 68* | | 55* | | ACROLEIN, DISSOLVED | UG/L | Pesticide |
| 107028 | 34212 | 68* | | 55* | | ACROLEIN, SUSPENDED | UG/L | Pesticide |
| 107131 | 34215 | 7550* | | | | ACRYLONITRILE, TOTAL | UG/L | General Organic |
| 107131 | 34216 | 7550* | | | | ACRYLONITRILE, DISSOLVED | UG/L | General Organic |
| 107131 | 34217 | 7550* | | | | ACRYLONITRILE, SUSPENDED | UG/L | General Organic |
| 71432 | 34235 | 5300* | 5.0 | 5100* | | BENZENE, DISSOLVED | UG/L | General Organic |
| 71432 | 34236 | 5300* | 5.0 | 5100* | | BENZENE, SUSPENDED | UG/L | General Organic |
| 92875 | 34239 | 2500* | | | | BENZIDINE, DISSOLVED | UG/L | General Organic |
| 92875 | 34240 | 2500* | | | | BENZIDINE, SUSPENDED | UG/L | General Organic |
| 58899 | 34265 | 2.0 | 0.2 | 0.16 | | R-BHC (LINDANE) GAMMA, DISSOLVED | UG/L | Pesticide |
| 58899 | 34266 | 2.0 | 0.2 | 0.16 | | R-BHC (LINDANE) GAMMA, SUSPENDED | UG/L | Pesticide |
| 75252 | 34288 | | 100[t] | | | BROMOFORM, DISSOLVED | UG/L | General Organic |
| 75252 | 34289 | | 100[t] | | | BROMOFORM, SUSPENDED | UG/L | General Organic |
| 56235 | 34297 | 35200* | 5.0 | 50000* | | CARBON TETRACHLORIDE, DISSOLVED | UG/L | General Organic |
| 56235 | 34298 | 35200* | 5.0 | 50000* | | CARBON TETRACHLORIDE, SUSPENDED | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 108907 | 34301 | | 100 | | | CHLOROBENZENE, TOTAL | UG/L | General Organic |
| 108907 | 34302 | | 100 | | | CHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 108907 | 34303 | | 100 | | | CHLOROBENZENE, SUSPENDED | UG/L | General Organic |
| 124481 | 34306 | | 100[t] | | | CHLORODIBROMOMETHANE, TOTAL | UG/L | General Organic |
| 124481 | 34307 | | 100[t] | | | CHLORODIBROMOMETHANE, DISSOLVED | UG/L | General Organic |
| 124481 | 34308 | | 100[t] | | | CHLORODIBROMOMETHANE, SUSPENDED | UG/L | General Organic |
| 67663 | 34316 | 28900[*] | 100[t] | | | CHLOROFORM, DISSOLVED | UG/L | General Organic |
| 67663 | 34317 | 28900[*] | 100[t] | | | CHLOROFORM, SUSPENDED | UG/L | General Organic |
| 57125 | 34325 | 0.022 | 0.2 | 0.001 | | CYANIDE, SUSPENDED | MG/L | General Inorganic |
| 75274 | 34328 | | 100[t] | | | DICHLOROBROMOMETHANE, DISSOLVED | UG/L | General Organic |
| 75274 | 34329 | | 100[t] | | | DICHLOROBROMOMETHANE, SUSPENDED | UG/L | General Organic |
| 122667 | 34346 | 270[*] | | | | 1,2-DIPHENYLHYDRAZINE, TOTAL | UG/L | General Organic |
| 122667 | 34347 | 270[*] | | | | 1,2-DIPHENYLHYDRAZINE, DISSOLVED | UG/L | General Organic |
| 122667 | 34348 | 270[*] | | | | 1,2-DIPHENYLHYDRAZINE, SUSPENDED | UG/L | General Organic |
| 33213659 | 34356 | 0.22 | | 0.034 | | ENDOSULFAN, BETA, TOTAL | UG/L | Pesticide |
| 33213659 | 34357 | 0.22 | | 0.034 | | ENDOSULFAN, BETA, DISSOLVED | UG/L | Pesticide |
| 33213659 | 34358 | 0.22 | | 0.034 | | ENDOSULFAN, BETA, SUSPENDED | UG/L | Pesticide |
| 959988 | 34361 | 0.22 | | 0.034 | | ENDOSULFAN, ALPHA, TOTAL | UG/L | Pesticide |
| 959988 | 34362 | 0.22 | | 0.034 | | ENDOSULFAN, ALPHA, DISSOLVED | UG/L | Pesticide |
| 959988 | 34363 | 0.22 | | 0.034 | | ENDOSULFAN, ALPHA, SUSPENDED | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 100414 | 34371 | 32000* | 700 | 430* | | ETHYLBENZENE, TOTAL | UG/L | General Organic |
| 100414 | 34372 | 32000* | 700 | 430* | | ETHYLBENZENE, DISSOLVED | UG/L | General Organic |
| 100414 | 34373 | 32000* | 700 | 430* | | ETHYLBENZENE, SUSPENDED | UG/L | General Organic |
| 206440 | 34376 | 3980* | | 40* | | FLUORANTHENE, TOTAL | UG/L | General Organic |
| 206440 | 34377 | 3980* | | 40* | | FLUORANTHENE, DISSOLVED | UG/L | General Organic |
| 206440 | 34378 | 3980* | | 40* | | FLUORANTHENE, SUSPENDED | UG/L | General Organic |
| 77474 | 34386 | 7.0* | 50 | 7.0* | | HEXACHLOROCYCLOPENTADIENE, TOTAL | UG/L | General Organic |
| 77474 | 34387 | 7.0* | 50 | 7.0* | | HEXACHLOROCYCLOPENTADIENE, DISSOLVED | UG/L | General Organic |
| 77474 | 34388 | 7.0* | 50 | 7.0* | | HEXACHLOROCYCLOPENTADIENE, SUSPENDED | UG/L | General Organic |
| 87683 | 34391 | 90* | | 32* | | HEXACHLOROBUTADIENE, TOTAL | UG/L | General Organic |
| 87683 | 34392 | 90* | | 32* | | HEXACHLOROBUTADIENE, DISSOLVED | UG/L | General Organic |
| 87683 | 34393 | 90* | | 32* | | HEXACHLOROBUTADIENE, SUSPENDED | UG/L | General Organic |
| 67721 | 34396 | 980* | | 940* | | HEXACHLOROETHANE, TOTAL | UG/L | General Organic |
| 67721 | 34397 | 980* | | 940* | | HEXACHLOROETHANE, DISSOLVED | UG/L | General Organic |
| 67721 | 34398 | 980* | | 940* | | HEXACHLOROETHANE, SUSPENDED | UG/L | General Organic |
| 118741 | 34401 | 6.0[p] | 1.0 | | | HEXACHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 118741 | 34402 | 6.0[p] | 1.0 | | | HEXACHLOROBENZENE, SUSPENDED | UG/L | General Organic |
| 193395 | 34403 | | 0.40[c] | | | INDENO (1,2,3-CD) PYRENE, TOTAL | UG/L | General Organic |
| 193395 | 34404 | | 0.40[c] | | | INDENO (1,2,3-CD) PYRENE, DISSOLVED | UG/L | General Organic |
| 193395 | 34405 | | 0.40[c] | | | INDENO (1,2,3-CD) PYRENE, SUSPENDED | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 78591 | 34408 | 117000* | | 12900* | | ISOPHORONE, TOTAL | UG/L | Pesticide |
| 78591 | 34409 | 117000* | | 12900* | | ISOPHORONE, DISSOLVED | UG/L | Pesticide |
| 78591 | 34410 | 117000* | | 12900* | | ISOPHORONE, SUSPENDED | UG/L | Pesticide |
| 75092 | 34423 | | 5.0 | | | METHYLENE CHLORIDE, TOTAL | UG/L | General Organic |
| 75092 | 34424 | | 5.0 | | | METHYLENE CHLORIDE, DISSOLVED | UG/L | General Organic |
| 75092 | 34425 | | 5.0 | | | METHYLENE CHLORIDE, SUSPENDED | UG/L | General Organic |
| 91203 | 34443 | 2300* | | 2350* | | NAPHTHALENE, DISSOLVED | UG/L | General Organic |
| 91203 | 34444 | 2300* | | 2350* | | NAPHTHALENE, SUSPENDED | UG/L | General Organic |
| 98953 | 34447 | 27000* | | 6680* | | NITROBENZENE, TOTAL | UG/L | General Organic |
| 98953 | 34448 | 27000* | | 6680* | | NITROBENZENE, DISSOLVED | UG/L | General Organic |
| 98953 | 34449 | 27000* | | 6680* | | NITROBENZENE, SUSPENDED | UG/L | General Organic |
| 59507 | 34452 | 30* | | | | PARACHLOROMETA CRESOL, TOTAL | UG/L | General Organic |
| 59507 | 34453 | 30* | | | | PARACHLOROMETA CRESOL, DISSOLVED | UG/L | General Organic |
| 59507 | 34454 | 30* | | | | PARACHLOROMETA CRESOL, SUSPENDED | UG/L | General Organic |
| 87865 | 34459 | 20*** | 1.0 | 13 | | PCP (PENTACHLOROPHENOL), DISSOLVED | UG/L | Pesticide |
| 87865 | 34460 | 20*** | 1.0 | 13 | | PCP (PENTACHLOROPHENOL), SUSPENDED | UG/L | Pesticide |
| 85018 | 34461 | 30p | | 7.7p | | PHENANTHRENE, TOTAL | UG/L | General Organic |
| 85018 | 34462 | 30p | | 7.7p | | PHENANTHRENE, DISSOLVED | UG/L | General Organic |
| 85018 | 34463 | 30p | | 7.7p | | PHENANTHRENE, SUSPENDED | UG/L | General Organic |
| 108952 | 34466 | 10200* | | 5800* | | PHENOL, DISSOLVED | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 108952 | 34467 | 10200* | | 5800* | | PHENOL, SUSPENDED | UG/L | General Organic |
| 127184 | 34475 | 5280* | 5.0 | 10200* | | TETRACHLOROETHYLENE, TOTAL | UG/L | General Organic |
| 127184 | 34476 | 5280* | 5.0 | 10200* | | TETRACHLOROETHYLENE, DISSOLVED | UG/L | General Organic |
| 127184 | 34477 | 5280* | 5.0 | 10200* | | TETRACHLOROETHYLENE, SUSPENDED | UG/L | General Organic |
| 108883 | 34481 | 17500* | 1000 | 6300* | | TOLUENE, DISSOLVED | UG/L | General Organic |
| 108883 | 34482 | 17500* | 1000 | 6300* | | TOLUENE, SUSPENDED | UG/L | General Organic |
| 79016 | 34485 | 45000* | 5.0 | 2000* | | TRICHLOROETHYLENE, DISSOLVED | UG/L | General Organic |
| 79016 | 34486 | 45000* | 5.0 | 2000* | | TRICHLOROETHYLENE, SUSPENDED | UG/L | General Organic |
| 75014 | 34493 | | 2.0 | | | VINYL CHLORIDE, DISSOLVED | UG/L | General Organic |
| 75014 | 34494 | | 2.0 | | | VINYL CHLORIDE, SUSPENDED | UG/L | General Organic |
| 75354 | 34501 | | 7.0 | | | 1,1-DICHLOROETHYLENE, TOTAL | UG/L | General Organic |
| 75354 | 34502 | | 7.0 | | | 1,1-DICHLOROETHYLENE, DISSOLVED | UG/L | General Organic |
| 75354 | 34503 | | 7.0 | | | 1,1-DICHLOROETHYLENE, SUSPENDED | UG/L | General Organic |
| 71556 | 34506 | | 200 | 31200* | | 1,1,1-TRICHLOROETHANE, TOTAL | UG/L | General Organic |
| 71556 | 34507 | | 200 | 31200* | | 1,1,1-TRICHLOROETHANE, DISSOLVED | UG/L | General Organic |
| 71556 | 34508 | | 200 | 31200* | | 1,1,1-TRICHLOROETHANE, SUSPENDED | UG/L | General Organic |
| 79005 | 34511 | | 5.0 | | | 1,1,2-TRICHLOROETHANE, TOTAL | UG/L | General Organic |
| 79005 | 34512 | | 5.0 | | | 1,1,2-TRICHLOROETHANE, DISSOLVED | UG/L | General Organic |
| 79005 | 34513 | | 5.0 | | | 1,1,2-TRICHLOROETHANE, SUSPENDED | UG/L | General Organic |
| 79345 | 34516 | | | 9020* | | 1,1,2,2-TETRACHLOROETHANE, TOTAL | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 79345 | 34517 | | | 9020* | | 1,1,2,2-TETRACHLOROETHANE, DISSOLVED | UG/L | General Organic |
| 79345 | 34518 | | | 9020* | | 1,1,2,2-TETRACHLOROETHANE, SUSPENDED | UG/L | General Organic |
| 107062 | 34531 | 118000* | 5.0 | 113000* | | 1,2-DICHLOROETHANE, TOTAL | UG/L | General Organic |
| 107062 | 34532 | 118000* | 5.0 | 113000* | | 1,2-DICHLOROETHANE, DISSOLVED | UG/L | General Organic |
| 107062 | 34533 | 118000* | 5.0 | 113000* | | 1,2-DICHLOROETHANE, SUSPENDED | UG/L | General Organic |
| 95501 | 34536 | | 600 | | | 1,2-DICHLOROBENZENE, TOTAL | UG/L | General Organic |
| 95501 | 34537 | | 600 | | | 1,2-DICHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 95501 | 34538 | | 600 | | | 1,2-DICHLOROBENZENE, SUSPENDED | UG/L | General Organic |
| 78875 | 34541 | | 5.0 | | | 1,2-DICHLOROPROPANE, TOTAL | UG/L | General Organic |
| 78875 | 34542 | | 5.0 | | | 1,2-DICHLOROPROPANE, DISSOLVED | UG/L | General Organic |
| 78875 | 34543 | | 5.0 | | | 1,2-DICHLOROPROPANE, SUSPENDED | UG/L | General Organic |
| 156605 | 34546 | | 100 | | | TRANS-1,2-DICHLOROETHENE, TOTAL, IN WATER | UG/L | General Organic |
| 156605 | 34547 | | 100 | | | TRANS-1,2-DICHLOROETHENE, DISSOLVED | UG/L | General Organic |
| 156605 | 34548 | | 100 | | | TRANS-1,2-DICHLOROETHENE, SUSPENDED | UG/L | General Organic |
| 120821 | 34551 | | 70 | | | 1,2,4-TRICHLOROBENZENE, TOTAL | UG/L | General Organic |
| 120821 | 34552 | | 70 | | | 1,2,4-TRICHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 120821 | 34553 | | 70 | | | 1,2,4-TRICHLOROBENZENE, SUSPENDED | UG/L | General Organic |
| 541731 | 34566 | | 600 | | | 1,3-DICHLOROBENZENE, TOTAL | UG/L | General Organic |
| 541731 | 34567 | | 600 | | | 1,3-DICHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 541731 | 34568 | | 600 | | | 1,3-DICHLOROBENZENE, SUSPENDED | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 106467 | 34571 | | 75 | | | 1,4-DICHLOROBENZENE, TOTAL | UG/L | General Organic |
| 106467 | 34572 | | 75 | | | 1,4-DICHLOROBENZENE, DISSOLVED | UG/L | General Organic |
| 106467 | 34573 | | 75 | | | 1,4-DICHLOROBENZENE, SUSPENDED | UG/L | General Organic |
| 95578 | 34586 | 4380* | | | | 2-CHLOROPHENOL, TOTAL | UG/L | General Organic |
| 95578 | 34587 | 4380* | | | | 2-CHLOROPHENOL, DISSOLVED | UG/L | General Organic |
| 95578 | 34588 | 4380* | | | | 2-CHLOROPHENOL, SUSPENDED | UG/L | General Organic |
| 120832 | 34601 | 2020* | | | | 2,4-DICHLOROPHENOL, TOTAL | UG/L | General Organic |
| 120832 | 34602 | 2020* | | | | 2,4-DICHLOROPHENOL, DISSOLVED | UG/L | General Organic |
| 120832 | 34603 | 2020* | | | | 2,4-DICHLOROPHENOL, SUSPENDED | UG/L | General Organic |
| 105679 | 34606 | 2120* | | | | 2,4-DIMETHYLPHENOL, TOTAL | UG/L | General Organic |
| 105679 | 34607 | 2120* | | | | 2,4-DIMETHYLPHENOL, DISSOLVED | UG/L | General Organic |
| 105679 | 34608 | 2120* | | | | 2,4-DIMETHYLPHENOL, SUSPENDED | UG/L | General Organic |
| 121142 | 34611 | 330* | | 590* | | 2,4-DINITROTOLUENE, TOTAL | UG/L | General Organic |
| 121142 | 34612 | 330* | | 590* | | 2,4-DINITROTOLUENE, DISSOLVED | UG/L | General Organic |
| 121142 | 34613 | 330* | | 590* | | 2,4-DINITROTOLUENE, SUSPENDED | UG/L | General Organic |
| 72548 | 34651 | 0.6* | | 3.6* | | P,P'-DDD, DISSOLVED | UG/L | Pesticide |
| 72548 | 34652 | 0.6* | | 3.6* | | P,P'-DDD, SUSPENDED | UG/L | Pesticide |
| 72559 | 34653 | 1050* | | 14* | | P,P'-DDE, DISSOLVED | UG/L | Pesticide |
| 72559 | 34654 | 1050* | | 14* | | P,P'-DDE, SUSPENDED | UG/L | Pesticide |
| 50293 | 34655 | 1.1 | | 0.13 | | P,P'-DDT, DISSOLVED | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 50293 | 34656 | 1.1 | | 0.13 | | P,P'-DDT, SUSPENDED | UG/L | Pesticide |
| 1746016 | 34675 | 0.01* | 0.00003 | | | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN(TCDD), TOT | UG/L | General Organic |
| 1746016 | 34676 | 0.01* | 0.00003 | | | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN(TCDD), DISS | UG/L | General Organic |
| 1746016 | 34677 | 0.01* | 0.00003 | | | 2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN(TCDD), SUSP | UG/L | General Organic |
| 108952 | 34694 | 10200* | | 5800* | | PHENOL (C6H5OH) - SINGLE COMPOUND, TOTAL | UG/L | General Organic |
| 91203 | 34696 | 2300* | | 2350* | | NAPHTHALENE, TOTAL | UG/L | General Organic |
| 75990 | 38432 | | 200 | | | DALAPON, WATER, TOTAL | UG/L | Pesticide |
| 75990 | 38433 | | 200 | | | DALAPON, WATER, DISSOLVED | UG/L | Pesticide |
| 75990 | 38434 | | 200 | | | DALAPON, WATER, SUSPENDED | UG/L | Pesticide |
| 96128 | 38437 | | 0.2 | | | DIBROMOCHLOROPROPANE, WATER, TOTAL | UG/L | Pesticide |
| 96128 | 38438 | | 0.2 | | | DIBROMOCHLOROPROPANE, WATER, DISSOLVED | UG/L | Pesticide |
| 96128 | 38439 | | 0.2 | | | DIBROMOCHLOROPROPANE WATER, SUSPENDED | UG/L | Pesticide |
| 96128 | 38760 | | 0.2 | | | DBCP, WATER, TOTAL | UG/L | Pesticide |
| 96128 | 38761 | | 0.2 | | | DBCP, WATER, DISSOLVED | UG/L | Pesticide |
| 96128 | 38762 | | 0.2 | | | DBCP, WATER, SUSPENDED | UG/L | Pesticide |
| 88857 | 38779 | | 7.0 | | | DINOSEB, DISSOLVED | UG/L | Pesticide |
| 88857 | 38780 | | 7.0 | | | DINOSEB, SUSPENDED | UG/L | Pesticide |
| 23135220 | 38865 | | 200 | | | OXAMYL, TOTAL | UG/L | Pesticide |
| 23135220 | 38866 | | 200 | | | OXAMYL, DISSOLVED | UG/L | Pesticide |
| 23135220 | 38867 | | 200 | | | OXAMYL, SUSPENDED | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 145733 | 38926 | | 100 | | | ENDOTHALL, WHOLE WATER SAMPLE | UG/L | Pesticide |
| 2921882 | 38932 | 0.083 | | 0.011 | | CHLORPYRIFOS, TOTAL RECOVERABLE | UG/L | Pesticide |
| 2921882 | 38933 | 0.083 | | 0.011 | | CHLORPYRIFOS, DISSOLVED | UG/L | Pesticide |
| 2163806 | 38935 | | 50 | | | MONOSODIUM METHANEARSONATE (MSMA) | UG/L | Pesticide |
| 2921882 | 39012 | 0.083 | | 0.011 | | DURSBAN, FLAME PHOTOMETRIC, WATER SAMPLE | UG/L | Pesticide |
| 56382 | 39015 | 0.065 | | | | ETHYLPARATHION, FLAME IONIFATION, WATER SAMPLE | UG/L | Pesticide |
| 122349 | 39025 | | 4.0 | | | SIMAZINE, COULSON CONDUCTIVITY WATER SAMPLE | UG/L | Pesticide |
| 87865 | 39032 | 20*** | 1.0 | 13 | | PCP (PENTACHLOROPHENOL) WHOLE WATER SAMPLE | UG/L | Pesticide |
| 1912249 | 39033 | | 3.0 | | | ATRAZINE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 118741 | 39039 | 6.0[p] | 1.0 | | | HEXACHLOROBENZENE WATER SAMPLE, ELECTRON CPT | UG/L | Pesticide |
| 93721 | 39045 | | 50 | | | 2,4,5-TP INCLUDES ACIDS & SALTS WATER SAMPLE | UG/L | Pesticide |
| 116063 | 39053 | | 3.0 | | | ALDICARB IN WHOLE WATER | UG/L | Pesticide |
| 122349 | 39055 | | 4.0 | | | SIMAZINE IN WHOLE WATER | UG/L | Pesticide |
| 117817 | 39100 | 2000* | 6.0 | | | BIS(2-ETHYLHEXYL) PHTHALATE, WHOLE WATER | UG/L | General Organic |
| 117817 | 39103 | 2000* | 6.0 | | | BIS(2-ETHYLHEXYL) PHTHALATE, DISSOLVED | UG/L | General Organic |
| 117817 | 39104 | 2000* | 6.0 | | | BIS(2-ETHYLHEXYL) PHTHALATE, SUSPENDED | UG/L | General Organic |
| | 39117 | 0.94* | | 2.994* | | PHTHLATE ESTERS IN WATER | MG/L | General Organic |
| 75014 | 39175 | | 2.0 | | | VINYL CHLORIDE-WHOLE WATER SAMPLE | UG/L | General Organic |
| 79016 | 39180 | 45000* | 5.0 | 2000* | | TRICHLOROETHYLENE-WHOLE WATER SAMPLE | UG/L | General Organic |
| 50293 | 39300 | 1.1 | | 0.13 | | P,P' DDT IN WHOLE WATER SAMPLE | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 72548 | 39310 | 0.6* | | 3.6* | | P,P' DDD IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 72559 | 39320 | 1050* | | 14* | | P,P' DDE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 309002 | 39330 | 3.0 | | 1.3 | | ALDRIN IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 309002 | 39331 | 3.0 | | 1.3 | | ALDRIN IN FILT. FRAC. OF WAT. SAMP. | UG/L | Pesticide |
| 309002 | 39332 | 3.0 | | 1.3 | | ALDRIN IN SUSP. FRAC. OF WAT. SAMP. | UG/L | Pesticide |
| 58899 | 39340 | 2.0 | 0.2 | 0.16 | | GAMMA-BHC(LINDANE), WHOLE WATER | UG/L | Pesticide |
| 58899 | 39341 | 2.0 | 0.2 | 0.16 | | GAMMA-BHC(LINDANE), DISSOLVED | UG/L | Pesticide |
| 58899 | 39342 | 2.0 | 0.2 | 0.16 | | GAMMA-BHC(LINDANE), SUSPENDED | UG/L | Pesticide |
| 57749 | 39350 | 2.4 | 2.0 | 0.09 | | CHLORDANE(TECH MIX & METABS), WHOLE WATER | UG/L | Pesticide |
| 57749 | 39352 | 2.4 | 2.0 | 0.09 | | CHLORDANE(TECH MIX & METABS), DISSOLVED | UG/L | Pesticide |
| 57749 | 39353 | 2.4 | 2.0 | 0.09 | | CHLORDANE(TECH MIX & METABS), SUSPENDED | UG/L | Pesticide |
| 72548 | 39360 | 0.6* | | 3.6* | | DDD IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 72548 | 39361 | 0.6* | | 3.6* | | DDD IN FILT. FRAC. OF WATER SMAPLE | UG/L | Pesticide |
| 72548 | 39362 | 0.6* | | 3.6* | | DDD IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 72559 | 39365 | 1050* | | 14* | | DDE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 72559 | 39366 | 1050* | | 14* | | DDE IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 72559 | 39367 | 1050* | | 14* | | DDE IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 50293 | 39370 | 1.1 | | 0.13 | | DDT IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 50293 | 39371 | 1.1 | | 0.13 | | DDT IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 50293 | 39372 | 1.1 | | 0.13 | | DDT IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 60571 | 39380 | 2.5 | | 0.71 | | DIELDRIN IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 60571 | 39381 | 2.5 | | 0.71 | | DIELDRIN IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 60571 | 39382 | 2.5 | | 0.71 | | DIELDRIN IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 115297 | 39388 | 0.22 | | 0.034 | | ENDOSULFAN IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 72208 | 39390 | 0.18 | 2.0 | 0.037 | | ENDRIN IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 72208 | 39391 | 0.18 | 2.0 | 0.037 | | ENDRIN IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 72208 | 39392 | 0.18 | 2.0 | 0.037 | | ENDRIN IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 8001352 | 39400 | 0.73 | 3.0 | 0.21 | | TOXAPHENE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 8001352 | 39401 | 0.73 | 3.0 | 0.21 | | TOXAPHENE IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 8001352 | 39402 | 0.73 | 3.0 | 0.21 | | TOXAPHENE IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 76448 | 39410 | 0.52 | 0.4 | 0.053 | | HEPTACHLOR IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 76448 | 39411 | 0.52 | 0.4 | 0.053 | | HEPTACHLOR IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 76448 | 39412 | 0.52 | 0.4 | 0.053 | | HEPTACHLOR IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 1024573 | 39420 | 0.52 | 0.2 | 0.053 | | HEPTACHLOR EPOXIDE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 1024573 | 39421 | 0.52 | 0.2 | 0.053 | | HEPTACHLOR EPOXIDE IN FILT. FRAC. WATER SAMPLE | UG/L | Pesticide |
| 1024573 | 39422 | 0.52 | 0.2 | 0.053 | | HEPTACHLOR EPOXIDE IN SUSP. FRAC. WATER SAMPLE | UG/L | Pesticide |
| 72435 | 39478 | | 40 | | | METHOXYCHLOR IN WHOLE WATER DISSOLVED | UG/L | Pesticide |
| 72435 | 39479 | | 40 | | | METHOXYCHLOR IN WHOLE WATER SUSPENDED | UG/L | Pesticide |
| 72435 | 39480 | | 40 | | | METHOXYCHLOR IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 56382 | 39540 | 0.065 | | | | PARATHION IN WHOLE WATER SAMPLE | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 56382 | 39542 | 0.065 | | | | PARATHION IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 56382 | 39543 | 0.065 | | | | PARATHION IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 1912249 | 39630 | | 3.0 | | | ATRAZINE(AATREX) IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 1912249 | 39632 | | 3.0 | | | ATRAZINE DISSOLVED IN WATER | PPB | Pesticide |
| 118741 | 39700 | 6.0[p] | 1.0 | | | HEXACHLOROBENZENE IN WHOLE WATER SAMPLE | UG/L | General Organic |
| 87683 | 39702 | 90[*] | | 32[*] | | HEXACHLOROBUTADIENE IN WHOLE WATER SAMPLE | UG/L | General Organic |
| 1918021 | 39720 | | 500 | | | PICLORAM IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 94757 | 39730 | | 70 | | | 2,4-D IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 94757 | 39732 | | 70 | | | 2,4-D IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 94757 | 39733 | | 70 | | | 2,4-D IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 93721 | 39760 | | 50 | | | SILVEX IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 93721 | 39762 | | 50 | | | SILVEX IN FILT. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 93721 | 39763 | | 50 | | | SILVEX IN SUSP. FRAC. OF WATER SAMPLE | UG/L | Pesticide |
| 58899 | 39782 | 2.0 | 0.2 | 0.16 | | LINDANE IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 1071836 | 39941 | | 700 | | | ROUNDUP IN WHOLE WATER SAMPLE (GLYPHOSATE) | UG/L | Pesticide |
| 7782505 | 45650 | 0.019 | | 0.013 | | CHLORINE, IN ORGANIC COMPOUNDS, WATER, WHOLE | MG/L | General Inorganic |
| 56382 | 46315 | 0.065 | | | | ETHYL PARATHION IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 58899 | 46322 | 2.0 | 0.2 | 0.16 | | LINDANE PLUS ISOMERS IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 76448 | 46326 | 0.52 | 0.4 | 0.053 | | HEPTACHLOR AND METABOLITES IN WHOLE H2O SAMPLE | UG/L | Pesticide |
| 15972608 | 46342 | | 2.0 | | | ALACHLOR (LASSO), WATER, DISSOLVED | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7782505 | 46472 | 0.019 | | 0.013 | | CHLORINE, TOTAL RESIDUAL, AVERAGE VALUE, WATER | MG/L | General Inorganic |
| 7782505 | 46473 | 0.019 | | 0.013 | | CHLORINE, FREE AVAILABLE, AVERAGE VALUE, WATER | MG/L | General Inorganic |
| 57125 | 46479 | 22 | 200 | 1.0 | | CYANIDE, DISSOLVED, WATER | UG/L | General Inorganic |
| 7440382 | 46551 | 360 | 50 | 69 | | ARSENIC, FIELD ACIDIFIED W/HNO3, LAB FILTERED | UG/L | Metal |
| 7440393 | 46558 | | 2000 | | | BARIUM, FIELD ACIDIFIED W/HNO3-LAB FILT | UG/L | Metal |
| 7440439 | 46559 | 3.9[+] | 5.0 | 43 | | CADMIUM,FIELD ACIDIFIED-HNO3-LAB FILTER | UG/L | Metal |
| 7440473 | 46560 | | 100 | | | CHROMIUM, FIELD ACIDIFIED-HNO3-LAB FILT. | UG/L | Metal |
| 7440508 | 46562 | 18[+] | 1300[a] | 2.9 | | COPPER, FIELD ACIDIFIED-HNO3- LAB FILTER. | UG/L | Metal |
| 7439921 | 46564 | 82[+] | 15[a] | 220 | | LEAD, FIELD ACIDIFIED-HNO3-LAB FILTERED | UG/L | Metal |
| 7440224 | 46566 | 4.1[+] | 100[s] | 0.12 | | SILVER, FIELD ACIDIFIED-HNO3-LAB FILTER. | UG/L | Metal |
| 7440666 | 46567 | 120[+] | 5000[s] | 95 | | ZINC, EXTRACTABLE, FIELD ACID W/HNO3,LAB FILTR | UG/L | Metal |
| 56382 | 49011 | 0.065 | | | | UNKNOWNS AS PARATHION IN WHOLE WATER SAMPLE | UG/L | Pesticide |
| 7782505 | 50058 | 0.019 | | 0.013 | | CHLORINE DOSE | MG/L | General Inorganic |
| 7782505 | 50060 | 0.019 | | 0.013 | | CHLORINE, TOTAL RESIDUAL | MG/L | General Inorganic |
| 7782505 | 50064 | 0.019 | | 0.013 | | CHLORINE, FREE AVAILABLE | MG/L | General Inorganic |
| 7782505 | 50066 | 0.019 | | 0.013 | | CHLORINE, COMBINED AVAILABLE | MG/L | General Inorganic |
| 7782505 | 50074 | 0.019 | | 0.013 | | CHLORITE, WHOLE WATER | MG/L | General Inorganic |
| | 61215 | | | | 200[^] | FECAL COLIFORM, GENERAL #/100ML | #/100ML | Bacteriological |
| 16887006 | 70352 | 860 | 250[s] | | | CHLORIDE, ORGANIC | MG/L | General Organic |
| 14797558 | 71850 | | 44 | | | NITRATE NITROGEN, TOTAL (AS NO3) | MG/L | Nitrogen |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 14797558 | 71851 | | 44 | | | NITRATE NITROGEN, DISSOLVED (AS NO3) | MG/L | Nitrogen |
| 14797650 | 71855 | | 3.3 | | | NITRITE NITROGEN, TOTAL (AS NO2) | MG/L | Nitrogen |
| 14797650 | 71856 | | 3.3 | | | NITRITE NITROGEN, DISSOLVED (AS NO2) | MG/L | Nitrogen |
| 7439976 | 71890 | 2.4 | 2.0 | 2.1 | | MERCURY, DISSOLVED | UG/L | Metal |
| 7439976 | 71895 | 2.4 | 2.0 | 2.1 | | MERCURY, SUSPENDED | UG/L | Metal |
| 7439976 | 71900 | 2.4 | 2.0 | 2.1 | | MERCURY, TOTAL | UG/L | Metal |
| 7439976 | 71901 | 2.4 | 2.0 | 2.1 | | MERCURY,TOTAL RECOVERABLE IN WATER AS HG | UG/L | Metal |
| 7440439 | 71946 | 3.9[+] | 5.0 | 43 | | CADMIUM, EXTRACTABLE | UG/L | Metal |
| 7440473 | 71947 | | 100 | | | CHROMIUM, EXTRACTABLE | UG/L | Metal |
| 7439921 | 71949 | 82[+] | 15[a] | 220 | | LEAD, EXTRACTABLE | UG/L | Metal |
| 7440666 | 71950 | 120[+] | 5000[s] | 95 | | ZINC, EXTRACTABLE | UG/L | Metal |
| 7440508 | 71951 | 18[+] | 1300[a] | 2.9 | | COPPER, EXTRACTABLE | UG/L | Metal |
| 1336363 | 76011 | 2000 | 500 | 10000 | | PCBS, SUSPENDED, WATER | NG/L | General Organic |
| 1336363 | 76012 | 2000 | 500 | 10000 | | PCBS, TOTAL RECOVERABLE, WATER | NG/L | General Organic |
| 156592 | 77093 | | 70 | | | CIS-1,2-DICHLOROETHYLENE, WHOLE WATER | UG/L | General Organic |
| 100425 | 77128 | | 100 | | | STYRENE, WHOLE WATER | UG/L | General Organic |
| 106489 | 77296 | | | 29700[*] | | P-CHLOROPHENOL, WHOLE WATER | UG/L | General Organic |
| 106934 | 77651 | | 0.05 | | | 1,2-DIBROMOETHANE, WHOLE WATER | UG/L | General Organic |
| 95954 | 77687 | 100[p] | | 240[p] | | 2,4,5-TRICHLOROPHENOL, WHOLE WATER | UG/L | General Organic |
| 935955 | 77769 | | | 440[*] | | 2,3,5,6-TETRACHLOROPHENOL, WHOLE WATER | UG/L | General Organic |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 103231 | 77903 | | 400 | | | BIS (2-ETHYLHEXYL) ADIPATE, WHOLE WATER | UG/L | General Organic |
| 18540299 | 78247 | 16 | 100 | 1100 | | CHROMIUM, HEXAVALENT, TOTAL RECOVERABLE | UG/L | Metal |
| 57125 | 78248 | 22 | 200 | 1.0 | | CYANIDE, TOTAL RECOVERABLE, WATER, WHOLE | UG/L | Metal |
| | 78456 | 11* | | 12* | | HALOMETHANES, SUMMATION, WHOLE WATER | MG/L | General Organic |
| 14808798 | 78462 | | 250[s] | | | SULFATE, WATER, DISSOLVED AS S | MG/L | Metal |
| 85007 | 78885 | | 20 | | | DIQUAT DIBROMIDE (REGLONE) WHOLE WATER SAMPLE | UG/L | Pesticide |
| 7440611 | 80020 | | 20[c] | | | URANIUM, DISS. BY EXTRACTION FLUOROMETRIC | UG/L | Radiological |
| 16065831 | 80357 | 1700 | 100 | 10300* | | CHROMIUM, TRIVALENT, DISSOLVED | UG/L | Metal |
| 57125 | 81208 | 0.022 | 0.2 | 0.001 | | CYANIDE,FREE (NOT AMENABLE TO CHLORINATION) | MG/L | General Inorganic |
| 608731 | 81283 | 100* | | 0.34* | | BENZENEHEXACHLORIDE, WHOLE WATER | UG/L | Pesticide |
| 88857 | 81287 | | 7.0 | | | DNBP(C10H12N2O5), WHOLE WATER SAMPLE | UG/L | Pesticide |
| 26638197 | 81327 | 23000* | 5.0 | 10300* | | DICHLOROPROPANE, WHOLE WATER SAMPLE | UG/L | General Organic |
| 25321226 | 81333 | 1120* | | 1970* | | DICHLOROBENZENE ISOMER, WHOLE WATER SAMPLE | UG/L | General Organic |
| 2921882 | 81403 | 0.083 | | 0.011 | | DURSBAN (CHLOROPYRIFOS) WHOLE WATER SAMPLE | UG/L | Pesticide |
| 1563662 | 81405 | | 40 | | | CARBOFURAN (EURADAN) WHOLE WATER SAMPLE | UG/L | Pesticide |
| 76017 | 81501 | 7240* | | 390* | | PENTACHLOROETHANE, WHOLE WATER SAMPLE | UG/L | General Organic |
| 25321226 | 81524 | 1120* | | 1970* | | DICHLOROBENZENE, WHOLE WATER SAMPLE | UG/L | General Organic |
| 25322207 | 81549 | 9320* | | | | TETRACHLOROETHANE, WHOLE WATER SAMPLE | UG/L | General Organic |
| 26638197 | 81703 | 23* | 0.005* | 10.3* | | DICHLOROPROPANE, WHOLE WATER SAMPLE | MG/L | General Organic |
| 7440508 | 81750 | 18+ | 1300[a] | 2.9 | | COPPER, INTERSTITIAL WATERFROM SEDIMENTS | UG/L | Metal |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 7440020 | 81752 | 1400[+] | 100 | 75 | | NICKEL, INTERSTITIAL WATER FROM SEDIMENTS | UG/L | Metal |
| 7440666 | 81754 | 120[+] | 5000[s] | 95 | | ZINC, INTERSTITIAL WATER FROM SEDIMENTS | UG/L | Metal |
| 25323891 | 81853 | 18000[*] | | | | TRICHLOROETHANE, WHOLE WATER SAMPLE | UG/L | General Organic |
| 7439976 | 81931 | 2.4 | 2.0 | 2.1 | | MERCURY (HG) SUSPENDED FRACTION OF WATER | UG/G | Metal |
| 7440666 | 81933 | 120[+] | 5000[s] | 95 | | ZINC (ZN) SUSPENDED FRACTION OF WATER | UG/G | Metal |
| 7439921 | 81936 | 82[+] | 15[a] | 220 | | LEAD (PB) DISSOLVED CATIONIC SPECIES | UG/L | Metal |
| 7440439 | 81937 | 3.9[+] | 5.0 | 43 | | CADMIUM (CD) DISSOLVED CATIONIC SPECIES | UG/L | Metal |
| 7440473 | 81938 | | 100 | | | CHROMIUM (CR) DISSOLVED CATIONIC SPECIES | UG/L | Metal |
| 7440508 | 81939 | 18[+] | 1300[a] | 2.9 | | COPPER (CU) DISSOLVED CATIONIC SPECIES | UG/L | Metal |
| 7440666 | 81940 | 120[+] | 5000[s] | 95 | | ZINC (ZN) DISSOLVED CATIONIC SPECIES | UG/L | Metal |
| 7440473 | 81941 | | 100 | | | CHROMIUM (CR) DISSOLVED ANIONIC SPECIES | UG/L | Metal |
| 7440508 | 81942 | 18[+] | 1300[a] | 2.9 | | COPPER (CU) DISSOLVED ANIONIC SPECIES | UG/L | Metal |
| 7440666 | 81943 | 120[+] | 5000[s] | 95 | | ZINC (ZN) DISSOLVED ANIONIC SPECIES | UG/L | Metal |
| | 82078 | | | | 50[1] | TURBIDITY, FIELD | NTU | Physical |
| | 82079 | | | | 50[1] | TURBIDITY, LAB | NTU | Physical |
| 88857 | 82226 | | 7.0 | | | 2 SECONDARY BUTYL 4,6-DINITROPHENOL | UG/L | Pesticide |
| 16887006 | 82295 | 860000 | 250000[s] | | | CHLORIDE DISSOLVED AS CL IN WATER | UG/L | General Inorganic |
| 72435 | 82350 | | 40 | | | METHOXYCHLOR, DISSOLVED IN WATER | UG/L | Pesticide |
| 72435 | 82351 | | 40 | | | METHOXYCHLOR, SUSPENDED IN WATER | UG/L | Pesticide |
| 115297 | 82354 | 0.22 | | 0.034 | | ENDOSULFAN, DISSOLVED IN WATER | UG/L | Pesticide |

| C.A.S. Number | STORET Code | FRESH ACUTE | DRINKING WATER | MARINE ACUTE | OTHER | PARAMETER DESCRIPTION | UNITS | CATEGORY |
|---|---|---|---|---|---|---|---|---|
| 115297 | 82355 | 0.22 | | 0.034 | | ENDOSULFAN, SUSPENDED IN WATER | UG/L | Pesticide |
| 57125 | 82573 | 0.022 | 0.2 | 0.001 | | CYANIDE/CHLORINATION IN WATER | MG/L | General Inorganic |
| 1646873 | 82586 | | 4.0 | | | ALDICARB SULFOXIDE, WATER, TOTAL RECOVERABLE | UG/L | General Organic |
| 1646884 | 82587 | | 2.0 | | | ALDICARB SULFONE, WHOLE WATER, TOTAL RECOVERABLE | UG/L | General Organic |
| 23135220 | 82613 | | 200 | | | OXAMYL, WHOLE WATER, TOTAL RECOVERABLE | UG/L | Pesticide |
| 1563662 | 82615 | | 40 | | | CARBOFURAN, WHOLE WATER, TOTAL RECOVERABLE | UG/L | Pesticide |
| 116063 | 82619 | | 3.0 | | | ALDICARB, WHOLE WATER, TOTAL RECOVERABLE | UG/L | Pesticide |
| 33213659 | 82624 | 0.22 | | 0.034 | | ENDOSULFAN, BETA, WH WATER, TOTAL RECOVERABLE | UG/L | Pesticide |
| 96128 | 82625 | | 0.2 | | | DIBROMOCHLOROPROPANE, WATER, TOTAL RECOVERABLE | UG/L | Pesticide |

**Footnote Key:**

[*]Insufficient Data to Develop Criteria. Value Presented is the L.O.E.L. - Lowest Observed Effect Level.
[+]Hardness Dependent Criteria (100 mg/L $CaCO_3$ Used).
[***]pH Dependent Criteria (7.8 pH Used).
[=]Rule of thumb criterion used by the NPS Air Quality Division for determining sensitivity to acid deposition.
[^]Freshwater bathing criterion, EPA geometric mean based on at least 5 samples equally spaced over a 30-day period; Enterococci marine water bathing criterion 35 CFU/100 ml.
[#]EPA freshwater aquatic life chronic criterion; marine criterion is ≤6.5, ≥8.5.
[!]Arizona state standard.
[a]EPA action level, 40 CFR 141.80.
[b]California and Florida state bathing water standards.
[c]A Compilation of Water Quality Goals, California Regional Water Quality Control Board Central Valley Region, Sacramento, California, September, 1991.
[n]Total coliform drinking water maximum contaminant level (1 cfu/100ml or 1 mpn/100ml) was not used in water quality criteria comparisons.
[p]Proposed Criterion.
[r]Average annual concentration assumed to produce a total body or organ dose of 4 mrem/year, 40 CFR 141.16.
[s]EPA National Secondary Drinking Water Regulation, 40 CFR 143.
[t]The maximum contaminant level for the sum of the concentrations of trihalomethanes is 100 µg/L, 40 CFR 141.12.
[u]Coldwater criterion one day minimum; warmwater criterion seven day mean minimum.

## Appendix G

### Inventory Data Evaluation and Analysis (IDEA)
### Servicewide Inventory and Monitoring Program "Level I"
### Parameter Groups

The following table provides the Servicewide Inventory and Monitoring Program's "Level I" water quality inventory parameter groups (National Park Service 1993). In order to determine the presence and/or absence of data for each of these parameter groups in the park, the parameter groups had to be defined by STORET parameter codes. This table provides the STORET codes and parameter descriptions for each parameter comprising one of the Servicewide Inventory and Monitoring Program's "Level I" water quality parameter groups. Additional parameters could have been incorporated into each group, but an effort was made to represent each group with the parameters deemed to most likely occur in STORET and parks. The Toxic Elements Parameter Group was defined as the EPA's Clean Water Act Section 304(a) Priority Toxic Pollutants (40 CFR 131.36). Parameters are listed in ascending order of STORET code within each parameter group. It is important to note that similar parameters often have non-consecutive codes. Consequently, scanning the entire list is necessary to find all the parameters of a particular type (eg. lead, copper, etc.). Refer to the Parameter Period of Record Tabulation to obtain the STORET code for any parameter measured in the park.

| STORET Code | Water Temperature Parameter Group | C.A.S. Number |
|---|---|---|
| 00010 | TEMPERATURE, WATER (DEGREES CENTIGRADE) | - |
| 00011 | TEMPERATURE, WATER (DEGREES FAHRENHEIT) | - |
| | | |
| **STORET Code** | **Flow Parameter Group[1]** | **C.A.S. Number** |
| 00056 | FLOW RATE, GALLONS/DAY | - |
| 00058 | FLOW RATE, GALLONS/MIN. | - |
| 00059 | FLOW RATE, INSTANTANEOUS, GALLONS/MINUTE | - |
| 00060 | FLOW, STREAM, MEAN DAILY CFS | - |
| 00061 | FLOW, STREAM, INSTANTANEOUS CFS | - |
| 00065 | STAGE, STREAM (FEET) | - |
| 00067 | TIDE STAGE CODE | - |
| 00072 | STAGE, STREAM (METERS) | - |
| | | |

[1]Tide stage is included in the Flow Parameter Group for coastal parks.

| STORET Code | Clarity/Turbidity Parameter Group | C.A.S. Number |
|---|---|---|
| 00070 | TURBIDITY, (JACKSON CANDLE UNITS) | - |
| 00075 | TURBIDITY, HELLIGE (PPM AS SILICON DIOXIDE) | - |
| 00076 | TURBIDITY, HACH TURBIDIMETER (FORMAZIN TURB UNIT) | - |
| 00077 | TRANSPARENCY, SECCHI DISC (INCHES) | - |
| 00078 | TRANSPARENCY, SECCHI DISC (METERS) | - |
| 00530 | RESIDUE, TOTAL NONFILTRABLE (MG/L) | - |
| 82078 | TURBIDITY, FIELD NEPHELOMETRIC TURBIDITY UNITS NTU | - |
| 82079 | TURBIDITY, LAB NEPHELOMETRIC TURBIDITY UNITS, NTU | - |

| STORET Code | Conductivity Parameter Group | C.A.S. Number |
|---|---|---|
| 00094 | SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM @ 25C) | - |
| 00095 | SPECIFIC CONDUCTANCE (UMHOS/CM @ 25C) | - |
| 00096 | SALINITY AT 25 DEGREES C (MG/ML) | - |
| 00480 | SALINITY - PARTS PER THOUSAND | - |

| STORET Code | Dissolved Oxygen Parameter Group | C.A.S. Number |
|---|---|---|
| 00299 | OXYGEN, DISSOLVED, ANALYSIS BY PROBE (MG/L) | 7782447 |
| 00300 | OXYGEN, DISSOLVED (MG/L) | 7782447 |
| 00301 | OXYGEN, DISSOLVED, PERCENT OF SATURATION | 7782447 |
| 00389 | OXYGEN, DISSOLVED, LAB ANAL. BY PROBE OF FIELD SAMPLE (MG/L) | 7782447 |

| STORET Code | pH Parameter Group | C.A.S. Number |
|---|---|---|
| 00400 | PH (STANDARD UNITS) | - |
| 00403 | PH, LAB (STANDARD UNITS) | - |
| 00406 | PH, FIELD (STANDARD UNITS) | - |

| STORET Code | Alkalinity Parameter Group | C.A.S. Number |
|---|---|---|
| 00409 | ALKALINITY, TOTAL, LOW LEVEL GRAN ANALYSIS (µEQ/L) | 471341 |
| 00410 | ALKALINITY, TOTAL (MG/L AS CACO3) | 471341 |
| 00415 | ALKALINITY, PHENOLPHTHALEIN (MG/L) | 77098 |
| 00430 | ALKALINITY, CARBONATE (MG/L AS CACO3) | 471341 |
| 00435 | ACIDITY, TOTAL (MG/L AS CACO3) | 471341 |
| 00440 | BICARBONATE ION (MG/L AS HCO3) | 71523 |
| 00445 | CARBONATE ION (MG/L AS CO3) | 3812326 |
| | | |
| **STORET Code** | **Nitrate/Nitrogen Parameter Group** | **C.A.S. Number** |
| 00600 | NITROGEN, TOTAL (MG/L AS N) | 17778880 |
| 00602 | NITROGEN, DISSOLVED (MG/L AS N) | 17778880 |
| 00605 | NITROGEN, ORGANIC, TOTAL (MG/L AS N) | 17778880 |
| 00607 | NITROGEN, ORGANIC, DISSOLVED (MG/L AS N) | 17778880 |
| 00608 | NITROGEN, AMMONIA, DISSOLVED (MG/L AS N) | 17778880 |
| 00610 | NITROGEN, AMMONIA, TOTAL (MG/L AS N) | 17778880 |
| 00612 | AMMONIA, UNIONZED (MG/L AS N) | 7664417 |
| 00618 | NITRATE NITROGEN, DISSOLVED (MG/L AS N) | 17778880 |
| 00620 | NITRATE NITROGEN, TOTAL (MG/L AS N) | 17778880 |
| 00623 | NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N) | 17778880 |
| 00625 | NITROGEN, KJELDAHL, TOTAL (MG/L AS N) | 17778880 |
| 00630 | NITRITE PLUS NITRATE, TOTAL 1 DET. (MG/L AS N) | 17778880 |
| 00631 | NITRITE PLUS NITRATE, DISSOLVED 1 DET. (MG/L AS N) | 17778880 |
| 71845 | NITROGEN, AMMONIA, TOTAL (MG/L AS NH4) | 14798039 |
| 71846 | NITROGEN, AMMONIA, DISSOLVED (MG/L AS NH4) | 14798039 |
| 71850 | NITRATE NITROGEN, TOTAL (MG/L AS NO3) | 14797558 |
| 71851 | NITRATE NITROGEN, DISSOLVED (MG/L AS NO3) | 14797558 |
| 71855 | NITRITE NITROGEN, TOTAL (MG/L AS NO2) | 14797650 |
| 71856 | NITRITE NITROGEN, DISSOLVED (MG/L AS NO2) | 14797650 |

| STORET Code | Phosphate/Phosphorus Parameter Group | C.A.S. Number |
|---|---|---|
| 00650 | PHOSPHATE, TOTAL (MG/L AS PO4) | 14265442 |
| 00655 | PHOSPHATE, POLY (MG/L AS PO4) | 14265442 |
| 00660 | PHOSPHATE, ORTHO (MG/L AS PO4) | 14265442 |
| 00665 | PHOSPHORUS, TOTAL (MG/L AS P) | 7723140 |
| 00666 | PHOSPHORUS, DISSOLVED (MG/L AS P) | 7723140 |
| 00670 | PHOSPHORUS, TOTAL ORGANIC (MG/L AS P) | 7723140 |
| 00671 | PHOSPHORUS, DISSOLVED ORTHOPHOSPHATE (MG/L AS P) | 7723140 |
| 70505 | PHOSPHORUS, TOTAL, COLORIMETRIC METHOD (MG/L AS P) | 7723140 |
| 70507 | PHOSPHORUS, IN TOTAL ORTHOPHOSPHATE (MG/L AS P) | 7723140 |

| STORET Code | Sulfates/Total Dissolved Solids/Hardness Parameter Group | C.A.S. Number |
|---|---|---|
| 00900 | HARDNESS, TOTAL (MG/L AS CACO3) | 471341 |
| 00945 | SULFATE, TOTAL (MG/L AS SO4) | 14808798 |
| 00946 | SULFATE, DISSOLVED (MG/L AS SO4) | 14808798 |
| 70300 | RESIDUE, TOTAL FILTRABLE (DRIED AT 180C), (MG/L) | - |

| STORET Code | Chlorophyll Parameter Group | C.A.S. Number |
|---|---|---|
| 32209 | CHLOROPHYLL A (UG/L) FLUOROMETRIC CORRECTED | 479618 |
| 32210 | CHLOROPHYLL A (UG/L) TRICHROMATIC UNCORRECTED | 479618 |
| 32211 | CHLOROPHYLL A (UG/L) SPECTROPHOTOMETRIC ACID METH. | 479618 |
| 32217 | CHLOROPHYLL A (UG/L) FLUOROMETRIC UNCORRECTED | 479618 |
| 32223 | CHLOROPHYLL A (MG/M2) SPECTROPHOTOMETRIC CORRECTED | 479618 |
| 32228 | CHLOROPHYLL A (MG/M2) PERIPHYTON SPECTRO. | 479618 |
| 32229 | CHLOROPHYLL A (MG/M2) FLUOR. CORRECTED, SUBSTRATER | 479618 |
| 32230 | CHLOROPHYLL A (MG/L) | 479618 |

| STORET Code | Bacteria Parameter Group | C.A.S. Number |
|---|---|---|
| 00111 | RATIO OF FECAL COLIFORM TO FECAL STREPTOCOCCI | - |
| 31501 | COLIFORM, TOT, MEMBRANE FILTER, IMMED., M-ENDO MED,35C | - |
| 31503 | COLIFORM, TOT, MEMBRANE FILTER, DELAY, M-ENDO MED, 35C | - |
| 31504 | COLIFORM, TOT, MEMBRANE FILTER, IMMED., LES-ENDO AGAR, 35C | - |
| 31505 | COLIFORM, TOT, MPN, CONFIRMED TEST,35C(TUBE 31506) | - |
| 31506 | COLIFORM, TOT, MPN, CONFIRMED TEST, TUBE CONFIG. | - |
| 31507 | COLIFORM, TOT, MPN, COMPLETED TEST,35C(TUBE 31508) | - |
| 31508 | COLIFORM, TOT, MPN, COMPLETED TEST, TUBE CONFIG. | - |
| 31613 | FECAL COLIFORM, MEMBR, FILTER,M-FC AGAR,44.5C,24HR | - |
| 31614 | FECAL COLIFORM, MPN, TUBE CONFIGURATION | - |
| 31615 | FECAL COLIFORM, MPN, EC MED, 44.5C (TUBE 31614) | - |
| 31616 | FECAL COLIFORM, MEMBR FILTER, M-FC BROTH, 44.5C | - |
| 31617 | FECAL COLIFORM, MPN,EIJKMAN TEST,44.5C(TUBE 31618) | - |
| 31625 | FECAL COLIFORM, MF, M-FC, 0.7 UM | - |
| 31648 | E. COLI - MTEC-MF | - |
| 31649 | ENTEROCOCCI- ME-MF | - |
| 31673 | FECAL STREPTOCOCCI, MBR FILT, KF AGAR, 35C, 48HR | - |
| 31676 | FECAL STREPTOCOCCI, MPN, KF BROTH, TUBE CONFIG. | - |
| 31677 | FECAL STREPTOCOCCI, MPN, AD-EVA, 35C (TUBE 31678) | - |
| 31751 | PLATE COUNT, TOTAL, TPC AGAR, 35C, 24 HRS | - |
| 61214 | FECAL STREPTOCOCCI, GENERAL #/100ML | - |
| 61215 | FECAL COLIFORM, GENERAL #/100ML | - |
| | | |
| **STORET Code** | **Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants)** | **C.A.S. Number** |
| 00718 | CYANIDE, WEAK ACID, DISSOC. WATER, WHOLE (UG/L) | 57125 |
| 00719 | CYANIDE, FREE, IN WATER & WASTEWATERS, HBG (UG/L) | 57125 |
| 00720 | CYANIDE, TOTAL (MG/L AS CN) | 57125 |
| 00722 | CYANIDE, FREE (AMENABLE TO CHLORINATION) (MG/L) | 57125 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 00723 | CYANIDE, DISSOLVED STD METHOD (UG/L) | 57125 |
| 00724 | CYANIDE COMPLEXED TO A RANGE OF COMPNDS (UG/L) | 57125 |
| 00969 | CHRYSOTILE ASBESTOS FIBERS/LITER | 1332214 |
| 00973 | AMPHIBOLE ASBESTOS FIBERS/LITER | 1332214 |
| 00976 | AMBIGUOUS ASBESTOS FIBERS/LITER | 1332214 |
| 00977 | NON-AMPHIBOLE NON-CHRYSOTILE ASBESTOS FIBERS/LITER | 1332214 |
| 00978 | ARSENIC, TOTAL RECOVERABLE IN WATER AS AS | 7440382 |
| 00981 | SELENIUM, TOTAL RECOVERABLE IN WATER AS SE (UG/L) | 7782492 |
| 00982 | THALLIUM, TOTAL RECOVERABLE IN WATER AS (UG/L) | 7440280 |
| 00990 | SELENITE, TOTAL RECOVERABLE INORGANIC (UG/L) | 7782492 |
| 00991 | ARSENIC, TOTAL RECOVER. TRIVALENT INORGANIC (UG/L) | 7440382 |
| 00995 | ARSENIC, INORGANIC DISSOLVED (UG/L AS AS) | 7440382 |
| 00996 | ARSENIC, INORGANIC SUSPENDED (UG/L AS AS) | 7440382 |
| 00997 | ARSENIC, INORGANIC TOTAL (UG/L AS AS) | 7440382 |
| 00998 | BERYLLIUM, TOTAL RECOVERABLE IN WATER AS BE (UG/L) | 7440417 |
| 01000 | ARSENIC, DISSOLVED (UG/L AS AS) | 7440382 |
| 01001 | ARSENIC, SUSPENDED (UG/L AS AS) | 7440382 |
| 01002 | ARSENIC, TOTAL (UG/L AS AS) | 7440382 |
| 01010 | BERYLLIUM, DISSOLVED (UG/L AS BE) | 7440417 |
| 01011 | BERYLLIUM, SUSPENDED (UG/L AS BE) | 7440417 |
| 01012 | BERYLLIUM, TOTAL (UG/L AS BE) | 7440417 |
| 01025 | CADMIUM, DISSOLVED (UG/L AS CD) | 7440439 |
| 01026 | CADMIUM, SUSPENDED (UG/L AS CD) | 7440439 |
| 01027 | CADMIUM, TOTAL (UG/L AS CD) | 7440439 |
| 01030 | CHROMIUM, DISSOLVED (UG/L AS CR) | 7440473 |
| 01031 | CHROMIUM, SUSPENDED (UG/L AS CR) | 7440473 |
| 01032 | CHROMIUM, HEXAVALENT (UG/L AS CR) | 7440473 |
| 01033 | CHROMIUM, TRI-VAL (UG/L AS CR) | 16065831 |
| 01034 | CHROMIUM, TOTAL (UG/L AS CR) | 7440473 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 01040 | COPPER, DISSOLVED (UG/L AS CU) | 7440508 |
| 01041 | COPPER, SUSPENDED (UG/L AS CU) | 7440508 |
| 01042 | COPPER, TOTAL (UG/L AS CU) | 7440508 |
| 01049 | LEAD, DISSOLVED (UG/L AS PB) | 7439921 |
| 01050 | LEAD, SUSPENDED (UG/L AS PB) | 7439921 |
| 01051 | LEAD, TOTAL (UG/L AS PB) | 7439921 |
| 01057 | THALLIUM, DISSOLVED (UG/L AS TL) | 7440280 |
| 01058 | THALLIUM, SUSPENDED (UG/L AS TL) | 7440280 |
| 01059 | THALLIUM, TOTAL (UG/L AS TL) | 7440280 |
| 01065 | NICKEL, DISSOLVED (UG/L AS NI) | 7440020 |
| 01066 | NICKEL, SUSPENDED (UG/L AS NI) | 7440020 |
| 01067 | NICKEL, TOTAL (UG/L AS NI) | 7440020 |
| 01074 | NICKEL, TOTAL RECOVERABLE IN WATER AS NI (UG/L) | 7440020 |
| 01075 | SILVER, DISSOLVED (UG/L AS AG) | 7440224 |
| 01076 | SILVER, SUSPENDED (UG/L AS AG) | 7440224 |
| 01077 | SILVER, TOTAL (UG/L AS AG) | 7440224 |
| 01079 | SILVER, TOTAL RECOVERABLE IN WATER AS AG (UG/L) | 7440224 |
| 01089 | COPPER AS SUSPENDED BLACK OXIDE IN WATER (MG/L) | 7440508 |
| 01090 | ZINC, DISSOLVED (UG/L AS ZN) | 7440666 |
| 01091 | ZINC, SUSPENDED (UG/L ZN) | 7440666 |
| 01092 | ZINC, TOTAL (UG/L AS ZN) | 7440666 |
| 01094 | ZINC, TOTAL RECOVERABLE IN WATER AS ZN (UG/L) | 7440666 |
| 01095 | ANTIMONY, DISSOLVED (UG/L AS SB) | 7440360 |
| 01096 | ANTIMONY, SUSPENDED (UG/L AS SB) | 7440360 |
| 01097 | ANTIMONY, TOTAL (UG/L AS SB) | 7440360 |
| 01113 | CADMIUM, TOTAL RECOVERABLE IN WATER AS CD (UG/L) | 7440439 |
| 01114 | LEAD, TOTAL RECOVERABLE IN WATER AS PB (UG/L) | 7439921 |
| 01118 | CHROMIUM, TOTAL RECOVERABLE IN WATER AS CR (UG/L) | 7440473 |
| 01119 | COPPER,TOTAL RECOVERABLE IN WATER AS CU (UG/L) | 7440508 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 01124 | THALLIUM, ACID SOLUBLE, WATER, WHOLE (UG/L) | 7440280 |
| 01128 | THALLIUM,TOTAL RECOVERABLE <95%, UG/L AS TL | 7440280 |
| 01138 | SELENIUM, IN WATER, LBS/DAY | 7782492 |
| 01145 | SELENIUM, DISSOLVED (UG/L AS SE) | 7782492 |
| 01146 | SELENIUM, SUSPENDED (UG/L AS SE) | 7782492 |
| 01147 | SELENIUM, TOTAL (UG/L AS SE) | 7782492 |
| 01167 | SELENIUM, ACID SOLUBLE, WATER, WHOLE (UG/L) | 7782492 |
| 01220 | CHROMIUM, HEXAVALENT, DISSOLVED IN (UG/L AS CR) | 18540299 |
| 01252 | ARSENIC, LB/DAY/CFS STREAM FLOW | 7440382 |
| 01253 | CADMIUM, LB/DAY/CFS STREAM FLOW | 7440439 |
| 01254 | CHROMIUM, TOTAL (LBS/DAY/CFS STREAM FLOW) | 7740473 |
| 01255 | CHROMIUM, HEXAVALENT, LB/DAY/CFS STREAM FLOW | 18540299 |
| 01256 | COPPER, LB/DAY/CFS STREAM FLOW | 7440508 |
| 01257 | CYANIDE LB/DAY/CFS STREAM FLOW | 57125 |
| 01259 | LEAD, LB/DAY/CFS STREAM FLOW | 7439921 |
| 01260 | MERCURY, LB/DAY/CFS STREAM FLOW | 7439976 |
| 01261 | NICKEL, LB/DAY/CFS STREAM FLOW | 7440020 |
| 01263 | SILVER, LB/DAY/CFS STREAM FLOW | 7440224 |
| 01264 | ZINC LB/DAY/CFS STREAM FLOW | 7440666 |
| 01268 | ANTIMONY, (SB), WATER, TOTAL RECOVERABLE (UG/L) | 7440360 |
| 01291 | CYANIDE, FILTERABLE, TOTAL IN WATER (UG/L) | 57125 |
| 01303 | ZINC, POTENTIALLY DISSOLVED WATER (MG/L) | 7440666 |
| 01304 | SILVER, POTENTIALLY DISSOLVED WATER (MG/L) | 7440224 |
| 01306 | COPPER, POTENTIALLY DISSOLVED WATER (MG/L) | 7440508 |
| 01307 | CHROMIUM, HEXAVALENT, POTENT. DISS. WATER (MG/L) | 18540299 |
| 01309 | ARSENIC, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7440382 |
| 01312 | BERYLLIUM, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7440417 |
| 01313 | CADMIUM, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7440439 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 01314 | CHROMIUM, TRIVALENT, POTENT., DISS., WATER (MG/L) | 16065831 |
| 01318 | LEAD, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7439921 |
| 01321 | MERCURY, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7439976 |
| 01322 | NICKEL, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7440020 |
| 01323 | SELENIUM, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7782492 |
| 01324 | THALLIUM, POTENTIALLY, DISSOLVED, WATER (MG/L) | 7440280 |
| 01523 | SILVER, IONIC (UG/L) | 7440224 |
| 22675 | SELENIUM, DISSOLVED ORGANIC (UG/L) | 7782492 |
| 22676 | SELENIUM, HEXAVALENT, DISSOLVED (UG/L) | 7782492 |
| 22677 | SELENIUM, TETRAVALENT, DISSOLVED | 7782492 |
| 22678 | ARSENIC, DISSOLVED ORGANIC (UG/L) | 7440382 |
| 22679 | ARSENIC, PENTAVALENT, DISSOLVED (UG/L) | 7440382 |
| 22680 | ARSENIC, TRIVALENT, DISSOLVED (UG/L) | 7440382 |
| 30197 | 2-CHLOROETHYLVINYL ETHER,WATER,WHL,RECOVER (UG/L) | 110758 |
| 30201 | CHLOROMETHANE, WATER, WHOLE, RECOVERABLE (UG/L) | 74873 |
| 30202 | BROMOMETHANE, WATER, WHOLE, RECOVERABLE (UG/L) | 74839 |
| 32003 | CARBON CHLOROFORM AND CARBON ALCOHOL EXT. (UG/L) | 67663 |
| 32005 | CARBON CHLOROFORM EXTRACTABLES (UG/L) | 67663 |
| 32021 | CARBON CHLOROFORM EXTRACTS, ETHER INSOLUBLE (UG/L) | 67663 |
| 32022 | CARBON CHLOROFORM EXTRACTS, WATER SOLUBLES (UG/L) | 67663 |
| 32101 | BROMODICHLOROMETHANE, WHOLE WATER (UG/L) | 75274 |
| 32102 | CARBON TETRACHLORIDE, WHOLE WATER, (UG/L) | 56235 |
| 32103 | 1,2-DICHLOROETHANE, WHOLE WATER (UG/L) | 107062 |
| 32104 | BROMOFORM, WHOLE WATER, (UG/L) | 75252 |
| 32105 | DIBROMOCHLOROMETHANE, WHOLE WATER, (UG/L) | 124481 |
| 32106 | CHLOROFORM, WHOLE WATER (UG/L) | 67663 |
| 32260 | CARBON TETRACHLORIDE EXTRACTABLES (MG/L) | 56235 |
| 32270 | CHLOROFORM EXTRACTABLES TOTAL IN MG PER LITER | 67663 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34010 | TOLUENE IN WTR SMPLE GC-MS, HEXADECONE EXT. (UG/L) | 108883 |
| 34030 | BENZENE IN WTR SMPLE GC-MS, HEXADECONE EXT. (UG/L) | 71432 |
| 34198 | BHC-DELTA, WATER, WHOLE (LBS/DAY) | 319868 |
| 34200 | ACENAPHTHYLENE, TOTAL (UG/L) | 208968 |
| 34201 | ACENAPHTHYLENE, DISSOLVED (UG/L) | 208968 |
| 34202 | ACENAPHTHYLENE, SUSPENDED (UG/L) | 208968 |
| 34205 | ACENAPHTHENE, TOTAL (UG/L) | 83329 |
| 34206 | ACENAPHTHENE, DISSOLVED (UG/L) | 83329 |
| 34207 | ACENAPHTHENE, SUSPENDED (UG/L) | 83329 |
| 34210 | ACROLEIN, TOTAL (UG/L) | 107028 |
| 34211 | ACROLEIN, DISSOLVED (UG/L) | 107028 |
| 34212 | ACROLEIN, SUSPENDED (UG/L) | 107028 |
| 34215 | ACRYLONITRILE, TOTAL (UG/L) | 107131 |
| 34216 | ACRYLONITRILE, DISSOLVED (UG/L) | 107131 |
| 34217 | ACRYLONITRILE, SUSPENDED (UG/L) | 107131 |
| 34220 | ANTHRACENE, TOTAL (UG/L) | 120127 |
| 34221 | ANTHRACENE, DISSOLVED (UG/L) | 120127 |
| 34222 | ANTHRACENE, SUSPENDED (UG/L) | 120127 |
| 34225 | ASBESTOS (FIBROUS) TOTAL (UG/L) | 1332214 |
| 34226 | ASBESTOS (FIBROUS) DISSOLVED (UG/L) | 1332214 |
| 34227 | ASBESTOS (FIBROUS) SUSPENDED (UG/L) | 1332214 |
| 34230 | BENZO(B)FLUORANTHENE, WHOLE WATER (UG/L) | 205992 |
| 34231 | BENZO(B)FLUORANTHENE, DISSOLVED (UG/L) | 205992 |
| 34232 | BENZO(B)FLUORANTHENE, SUSPENDED (UG/L) | 205992 |
| 34235 | BENZENE, DISSOLVED (UG/L) | 71432 |
| 34236 | BENZENE, SUSPENDED (UG/L) | 71432 |
| 34239 | BENZIDINE, DISSOLVED (UG/L) | 92875 |
| 34240 | BENZIDINE, SUSPENDED (UG/L) | 92875 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34242 | BENZO(K)FLUORANTHENE, TOTAL (UG/L) | 207089 |
| 34243 | BENZO(K)FLUORANTHENE, DISSOLVED (UG/L) | 207089 |
| 34244 | BENZO(K)FLUORANTHENE, SUSPENDED (UG/L) | 207089 |
| 34247 | BENZO-A-PYRENE, TOTAL (UG/L) | 50328 |
| 34248 | BENZO-A-PYRENE, DISSOLVED (UG/L) | 50328 |
| 34249 | BENZO-A-PYRENE, SUSPENDED (UG/L) | 50328 |
| 34253 | A-BHC-ALPHA, DISSOLVED (UG/L) | 319846 |
| 34254 | A-BHC-ALPHA, SUSPENDED (UG/L) | 319846 |
| 34255 | B-BHC-BETA, DISSOLVED (UG/L) | 319857 |
| 34256 | B-BHC-BETA, SUSPENDED (UG/L) | 319857 |
| 34259 | DELTA BENZENE HEXACHLORIDE, TOTAL (UG/L) | 319868 |
| 34260 | DELTA BENZENE HEXACHLORIDE, DISSOLVED (UG/L) | 319868 |
| 34261 | DELTA BENZENE HEXACHLORIDE, SUSPENDED (UG/L) | 319868 |
| 34265 | R-BHC (LINDANE) GAMMA, DISSOLVED (UG/L) | 58899 |
| 34266 | R-BHC (LINDANE) GAMMA, SUSPENDED (UG/L) | 58899 |
| 34273 | BIS (2-CHLOROETHYL) ETHER, TOTAL (UG/L) | 111444 |
| 34274 | BIS (2-CHLOROETHYL) ETHER, DISSOLVED (UG/L) | 111444 |
| 34275 | BIS (2-CHLOROETHYL) ETHER, SUSPENDED (UG/L) | 111444 |
| 34278 | BIS (2-CHLOROETHOXY) METHANE, TOTAL (UG/L) | 111911 |
| 34279 | BIS (2-CHLOROETHOXY) METHANE, DISSOLVED (UG/L) | 111911 |
| 34280 | BIS (2-CHLOROETHOXY) METHANE, SUSPENDED (UG/L) | 111911 |
| 34288 | BROMOFORM, DISSOLVED (UG/L) | 75252 |
| 34289 | BROMOFORM, SUSPENDED (UG/L) | 75252 |
| 34292 | N-BUTYL BENZYL PHTHALATE, WHOLE WATER (UG/L) | 85687 |
| 34293 | N-BUTYL BENZYL PHTHALATE, DISSOLVED (UG/L) | 85687 |
| 34294 | N-BUTYL BENZYL PHTHALATE, SUSPENDED (UG/L) | 85687 |
| 34297 | CARBON TETRACHLORIDE, DISSOLVED (UG/L) | 56235 |
| 34298 | CARBON TETRACHLORIDE, SUSPENDED (UG/L) | 56235 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34301 | CHLOROBENZENE, TOTAL (UG/L) | 108907 |
| 34302 | CHLOROBENZENE, DISSOLVED (UG/L) | 108907 |
| 34303 | CHLOROBENZENE, SUSPENDED (UG/L) | 108907 |
| 34306 | CHLORODIBROMOMETHANE, TOTAL (UG/L) | 124481 |
| 34307 | CHLORODIBROMOMETHANE, DISSOLVED (UG/L) | 124481 |
| 34308 | CHLORODIBROMOMETHANE, SUSPENDED (UG/L) | 124481 |
| 34311 | CHLOROETHANE, TOTAL (UG/L) | 75003 |
| 34312 | CHLOROETHANE, DISSOLVED (UG/L) | 75003 |
| 34313 | CHLOROETHANE, SUSPENDED (UG/L) | 75003 |
| 34316 | CHLOROFORM, DISSOLVED (UG/L) | 67663 |
| 34317 | CHLOROFORM, SUSPENDED (UG/L) | 67663 |
| 34320 | CHRYSENE, TOTAL (UG/L) | 218019 |
| 34321 | CHRYSENE, DISSOLVED (UG/L) | 218019 |
| 34322 | CHRYSENE, SUSPENDED (UG/L) | 218019 |
| 34325 | CYANIDE, SUSPENDED (MG/L) | 57125 |
| 34327 | DI-N-BUTYL PHTHALATE, DISSOLVED (UG/L) | 84742 |
| 34328 | DICHLOROBROMOMETHANE, DISSOLVED (UG/L) | 75274 |
| 34329 | DICHLOROBROMOMETHANE, SUSPENDED (UG/L) | 75274 |
| 34336 | DIETHYL PHTHALATE, TOTAL (UG/L) | 84662 |
| 34337 | DIETHYL PHTHALATE, DISSOLVED (UG/L) | 84662 |
| 34338 | DIETHYL PHTHALATE, SUSPENDED (UG/L) | 84662 |
| 34341 | DIMETHYL PHTHALATE, TOTAL (UG/L) | 131113 |
| 34342 | DIMETHYL PHTHALATE, DISSOLVED (UG/L) | 131113 |
| 34343 | DIMETHYL PHTHALATE, SUSPENDED (UG/L) | 131113 |
| 34346 | 1,2-DIPHENYLHYDRAZINE, TOTAL (UG/L) | 122667 |
| 34347 | 1,2-DIPHENYLHYDRAZINE, DISSOLVED (UG/L) | 122667 |
| 34348 | 1,2-DIPHENYLHYDRAZINE, SUSPENDED (UG/L) | 122667 |
| 34351 | ENDOSULFAN SULFATE, TOTAL (UG/L) | 1031078 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34352 | ENDOSULFAN SULFATE, DISSOLVED (UG/L) | 1031078 |
| 34353 | ENDOSULFAN SULFATE, SUSPENDED (UG/L) | 1031078 |
| 34356 | ENDOSULFAN, BETA, TOTAL (UG/L) | 33213659 |
| 34357 | ENDOSULFAN, BETA, DISSOLVED (UG/L) | 33213659 |
| 34358 | ENDOSULFAN, BETA, SUSPENDED (UG/L) | 33213659 |
| 34361 | ENDOSULFAN, ALPHA, TOTAL (UG/L) | 959988 |
| 34362 | ENDOSULFAN, ALPHA, DISSOLVED (UG/L) | 959988 |
| 34363 | ENDOSULFAN, ALPHA, SUSPENDED (UG/L) | 959988 |
| 34371 | ETHYLBENZENE, TOTAL (UG/L) | 100414 |
| 34372 | ETHYLBENZENE, DISSOLVED (UG/L) | 100414 |
| 34373 | ETHYLBENZENE, SUSPENDED (UG/L) | 100414 |
| 34376 | FLUORANTHENE, TOTAL (UG/L) | 206440 |
| 34377 | FLUORANTHENE, DISSOLVED (UG/L) | 206440 |
| 34378 | FLUORANTHENE, SUSPENDED (UG/L) | 206440 |
| 34381 | FLUORENE, TOTAL (UG/L) | 86737 |
| 34382 | FLUORENE, DISSOLVED (UG/L) | 86737 |
| 34383 | FLUORENE, SUSPENDED (UG/L) | 86737 |
| 34386 | HEXACHLOROCYCLOPENTADIENE, TOTAL (UG/L) | 77474 |
| 34387 | HEXACHLOROCYCLOPENTADIENE, DISSOLVED (UG/L) | 77474 |
| 34388 | HEXACHLOROCYCLOPENTADIENE, SUSPENDED (UG/L) | 77474 |
| 34391 | HEXACHLOROBUTADIENE, TOTAL (UG/L) | 87683 |
| 34392 | HEXACHLOROBUTADIENE, DISSOLVED (UG/L) | 87683 |
| 34393 | HEXACHLOROBUTADIENE, SUSPENDED (UG/L) | 87683 |
| 34396 | HEXACHLOROETHANE, TOTAL (UG/L) | 67721 |
| 34397 | HEXACHLOROETHANE, DISSOLVED (UG/L) | 67721 |
| 34398 | HEXACHLOROETHANE, SUSPENDED (UG/L) | 67721 |
| 34401 | HEXACHLOROBENZENE, DISSOLVED (UG/L) | 118741 |
| 34402 | HEXACHLOROBENZENE, SUSPENDED (UG/L) | 118741 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34403 | INDENO (1,2,3-CD) PYRENE, TOTAL (UG/L) | 193395 |
| 34404 | INDENO (1,2,3-CD) PYRENE, DISSOLVED (UG/L) | 193395 |
| 34405 | INDENO (1,2,3-CD) PYRENE, SUSPENDED (UG/L) | 193395 |
| 34408 | ISOPHORONE, TOTAL (UG/L) | 78591 |
| 34409 | ISOPHORONE, DISSOLVED (UG/L) | 78591 |
| 34410 | ISOPHORONE, SUSPENDED (UG/L) | 78591 |
| 34413 | METHYL BROMIDE, TOTAL (UG/L) | 74839 |
| 34414 | METHYL BROMIDE, DISSOLVED (UG/L) | 74839 |
| 34415 | METHYL BROMIDE, SUSPENDED (UG/L) | 74839 |
| 34418 | METHYL CHLORIDE, TOTAL (UG/L) | 74873 |
| 34419 | METHYL CHLORIDE, DISSOLVED (UG/L) | 74873 |
| 34420 | METHYL CHLORIDE, SUSPENDED (UG/L) | 74873 |
| 34423 | METHYLENE CHLORIDE, TOTAL (UG/L) | 75092 |
| 34424 | METHYLENE CHLORIDE, DISSOLVED (UG/L) | 75092 |
| 34425 | METHYLENE CHLORIDE, SUSPENDED (UG/L) | 75092 |
| 34428 | N-NITROSODI-N-PROPYLAMINE, TOTAL (UG/L) | 621647 |
| 34429 | N-NITROSODI-N-PROPYLAMINE, DISSOLVED (UG/L) | 621647 |
| 34430 | N-NITROSODI-N-PROPYLAMINE, SUSPENDED (UG/L) | 621647 |
| 34433 | N-NITROSODIPHENYLAMINE, TOTAL (UG/L) | 86306 |
| 34434 | N-NITROSODIPHENYLAMINE, DISSOLVED (UG/L) | 86306 |
| 34435 | N-NITROSODIPHENYLAMINE, SUSPENDED (UG/L) | 86306 |
| 34438 | N-NITROSODIMETHYLAMINE, TOTAL (UG/L) | 62759 |
| 34439 | N-NITROSODIMETHYLAMINE, DISSOLVED (UG/L) | 62759 |
| 34440 | N-NITROSODIMETHYLAMINE, SUSPENDED (UG/L) | 62759 |
| 34443 | NAPHTHALENE, DISSOLVED (UG/L) | 91203 |
| 34444 | NAPHTHALENE, SUSPENDED (UG/L) | 91203 |
| 34447 | NITROBENZENE, TOTAL (UG/L) | 98953 |
| 34448 | NITROBENZENE, DISSOLVED (UG/L) | 98953 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34449 | NITROBENZENE, SUSPENDED (UG/L) | 98953 |
| 34452 | PARACHLOROMETA CRESOL, TOTAL (UG/L) | 59507 |
| 34453 | PARACHLOROMETA CRESOL, DISSOLVED (UG/L) | 59507 |
| 34454 | PARACHLOROMETA CRESOL, SUSPENDED (UG/L) | 59507 |
| 34457 | PCB - 1242, DISSOLVED (UG/L) | 53469219 |
| 34458 | PCB - 1242, SUSPENDED (UG/L) | 53469219 |
| 34459 | PCP (PENTACHLOROPHENOL), DISSOLVED (UG/L) | 87865 |
| 34460 | PCP (PENTACHLOROPHENOL), SUSPENDED (UG/L) | 87865 |
| 34461 | PHENANTHRENE, TOTAL (UG/L) | 85018 |
| 34462 | PHENANTHRENE, DISSOLVED (UG/L) | 85018 |
| 34463 | PHENANTHRENE, SUSPENDED (UG/L) | 85018 |
| 34466 | PHENOL, DISSOLVED (UG/L) | 108952 |
| 34467 | PHENOL, SUSPENDED (UG/L) | 108952 |
| 34469 | PYRENE, TOTAL (UG/L) | 129000 |
| 34470 | PYRENE, DISSOLVED (UG/L) | 129000 |
| 34471 | PYRENE, SUSPENDED (UG/L) | 129000 |
| 34475 | TETRACHLOROETHYLENE, TOTAL (UG/L) | 127184 |
| 34476 | TETRACHLOROETHYLENE, DISSOLVED (UG/L) | 127184 |
| 34477 | TETRACHLOROETHYLENE, SUSPENDED (UG/L) | 127184 |
| 34481 | TOLUENE, DISSOLVED (UG/L) | 108883 |
| 34482 | TOLUENE, SUSPENDED (UG/L) | 108883 |
| 34485 | TRICHLOROETHYLENE, DISSOLVED (UG/L) | 79016 |
| 34486 | TRICHLOROETHYLENE, SUSPENDED (UG/L) | 79016 |
| 34493 | VINYL CHLORIDE, DISSOLVED (UG/L) | 75014 |
| 34494 | VINYL CHLORIDE, SUSPENDED (UG/L) | 75014 |
| 34496 | 1,1-DICHLOROETHANE, TOTAL (UG/L) | 75343 |
| 34497 | 1,1-DICHLOROETHANE, DISSOLVED (UG/L) | 75343 |
| 34498 | 1,1-DICHLOROETHANE, SUSPENDED (UG/L) | 75343 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34501 | 1,1-DICHLOROETHYLENE, TOTAL (UG/L) | 75354 |
| 34502 | 1,1-DICHLOROETHYLENE, DISSOLVED (UG/L) | 75354 |
| 34503 | 1,1-DICHLOROETHYLENE, SUSPENDED (UG/L) | 75354 |
| 34506 | 1,1,1-TRICHLOROETHANE, TOTAL (UG/L) | 71556 |
| 34507 | 1,1,1-TRICHLOROETHANE, DISSOLVED (UG/L) | 71556 |
| 34508 | 1,1,1-TRICHLOROETHANE, SUSPENDED (UG/L) | 71556 |
| 34511 | 1,1,2-TRICHLOROETHANE, TOTAL (UG/L) | 79005 |
| 34512 | 1,1,2-TRICHLOROETHANE, DISSOLVED (UG/L) | 79005 |
| 34513 | 1,1,2-TRICHLOROETHANE, SUSPENDED (UG/L) | 79005 |
| 34516 | 1,1,2,2-TETRACHLOROETHANE, TOTAL (UG/L) | 79345 |
| 34517 | 1,1,2,2-TETRACHLOROETHANE, DISSOLVED (UG/L) | 79345 |
| 34518 | 1,1,2,2-TETRACHLOROETHANE, SUSPENDED (UG/L) | 79345 |
| 34521 | BENZO(GHI)PERYLENE1,12-BENZOPERYLENE, TOTAL (UG/L) | 191242 |
| 34522 | BENZO(GHI)PERYLENE1,12-BENZOPERYLENE, DISS. (UG/L) | 191242 |
| 34523 | BENZO(GHI)PERYLENE1,12-BENZOPERYLENE, SUSP. (UG/L) | 191242 |
| 34526 | BENZO(A)ANTHRACENE1,2-BENZANTHRACENE, TOTAL (UG/L) | 56553 |
| 34527 | BENZO(A)ANTHRACENE1,2-BENZANTHRACENE, DISS. (UG/L) | 56553 |
| 34528 | BENZO(A)ANTHRACENE1,2-BENZANTHRACENE, SUSP. (UG/L) | 56553 |
| 34531 | 1,2-DICHLOROETHANE, TOTAL (UG/L) | 107062 |
| 34532 | 1,2-DICHLOROETHANE, DISSOLVED (UG/L) | 107062 |
| 34533 | 1,2-DICHLOROETHANE, SUSPENDED (UG/L) | 107062 |
| 34536 | 1,2-DICHLOROBENZENE, TOTAL (UG/L) | 95501 |
| 34537 | 1,2-DICHLOROBENZENE, DISSOLVED (UG/L) | 95501 |
| 34538 | 1,2-DICHLOROBENZENE, SUSPENDED (UG/L) | 95501 |
| 34541 | 1,2-DICHLOROPROPANE, TOTAL (UG/L) | 78875 |
| 34542 | 1,2-DICHLOROPROPANE, DISSOLVED (UG/L) | 78875 |
| 34543 | 1,2-DICHLOROPROPANE, SUSPENDED (UG/L) | 78875 |
| 34546 | TRANS-1,2-DICHLOROETHENE, TOTAL, IN WATER (UG/L) | 156605 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34547 | TRANS-1,2-DICHLOROETHENE, DISSOLVED (UG/L) | 156605 |
| 34548 | TRANS-1,2-DICHLOROETHENE, SUSPENDED (UG/L) | 156605 |
| 34551 | 1,2,4-TRICHLOROBENZENE, TOTAL (UG/L) | 120821 |
| 34552 | 1,2,4-TRICHLOROBENZENE, DISSOLVED (UG/L) | 120821 |
| 34553 | 1,2,4-TRICHLOROBENZENE, SUSPENDED (UG/L) | 120821 |
| 34556 | 1,2,5,6-DIBENZANTHRACENE, TOTAL (UG/L) | 53703 |
| 34557 | 1,2,5,6-DIBENZANTHRACENE, DISSOLVED (UG/L) | 53703 |
| 34558 | 1,2,5,6-DIBENZANTHRACENE, SUSPENDED (UG/L) | 53703 |
| 34561 | 1,3-DICHLOROPROPENE, TOTAL (UG/L) | 542756 |
| 34562 | 1,3-DICHLOROPROPENE, DISSOLVED (UG/L) | 542756 |
| 34563 | 1,3-DICHLOROPROPENE, SUSPENDED (UG/L) | 542756 |
| 34566 | 1,3-DICHLOROBENZENE, TOTAL (UG/L) | 541731 |
| 34567 | 1,3-DICHLOROBENZENE, DISSOLVED (UG/L) | 541731 |
| 34568 | 1,3-DICHLOROBENZENE, SUSPENDED (UG/L) | 541731 |
| 34571 | 1,4-DICHLOROBENZENE, TOTAL (UG/L) | 106467 |
| 34572 | 1,4-DICHLOROBENZENE, DISSOLVED (UG/L) | 106467 |
| 34573 | 1,4-DICHLOROBENZENE, SUSPENDED (UG/L) | 106467 |
| 34576 | 2-CHLOROETHYL VINYL ETHER, TOTAL (UG/L) | 110758 |
| 34577 | 2-CHLOROETHYL VINYL ETHER, DISSOLVED (UG/L) | 110758 |
| 34578 | 2-CHLOROETHYL VINYL ETHER, SUSPENDED (UG/L) | 110758 |
| 34581 | 2-CHLORONAPHTHALENE, TOTAL (UG/L) | 91587 |
| 34582 | 2-CHLORONAPHTHALENE, DISSOLVED (UG/L) | 91587 |
| 34583 | 2-CHLORONAPHTHALENE, SUSPENDED (UG/L) | 91587 |
| 34586 | 2-CHLOROPHENOL, TOTAL (UG/L) | 95578 |
| 34587 | 2-CHLOROPHENOL, DISSOLVED (UG/L) | 95578 |
| 34588 | 2-CHLOROPHENOL, SUSPENDED (UG/L) | 95578 |
| 34591 | 2-NITROPHENOL, TOTAL (UG/L) | 88755 |
| 34592 | 2-NITROPHENOL, DISSOLVED (UG/L) | 88755 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34593 | 2-NITROPHENOL, SUSPENDED (UG/L) | 88755 |
| 34596 | DI-N-OCTYL PHTHALATE, TOTAL (UG/L) | 117840 |
| 34597 | DI-N-OCTYL PHTHALATE, DISSOLVED (UG/L) | 117840 |
| 34598 | DI-N-OCTYL PHTHALATE, SUSPENDED (UG/L) | 117840 |
| 34601 | 2,4-DICHLOROPHENOL, TOTAL (UG/L) | 120832 |
| 34602 | 2,4-DICHLOROPHENOL, DISSOLVED (UG/L) | 120832 |
| 34603 | 2,4-DICHLOROPHENOL, SUSPENDED (UG/L) | 120832 |
| 34606 | 2,4-DIMETHYLPHENOL, TOTAL (UG/L) | 105679 |
| 34607 | 2,4-DIMETHYLPHENOL, DISSOLVED (UG/L) | 105679 |
| 34608 | 2,4-DIMETHYLPHENOL, SUSPENDED (UG/L) | 105679 |
| 34611 | 2,4-DINITROTOLUENE, TOTAL (UG/L) | 121142 |
| 34612 | 2,4-DINITROTOLUENE, DISSOLVED (UG/L) | 121142 |
| 34613 | 2,4-DINITROTOLUENE, SUSPENDED (UG/L) | 121142 |
| 34616 | 2,4-DINITROPHENOL, TOTAL (UG/L) | 51285 |
| 34617 | 2,4-DINITROPHENOL, DISSOLVED (UG/L) | 51285 |
| 34618 | 2,4-DINITROPHENOL, SUSPENDED (UG/L) | 51285 |
| 34621 | 2,4,6-TRICHLOROPHENOL, TOTAL (UG/L) | 88062 |
| 34622 | 2,4,6-TRICHLOROPHENOL, DISSOLVED (UG/L) | 88062 |
| 34623 | 2,4,6-TRICHLOROPHENOL, SUSPENDED (UG/L) | 88062 |
| 34626 | 2,6-DINITROTOLUENE, TOTAL (UG/L) | 606202 |
| 34627 | 2,6-DINITROTOLUENE, DISSOLVED (UG/L) | 606202 |
| 34628 | 2,6-DINITROTOLUENE, SUSPENDED (UG/L) | 606202 |
| 34631 | 3,3'-DICHLOROBENZIDINE, TOTAL (UG/L) | 91941 |
| 34632 | 3,3'-DICHLOROBENZIDINE, DISSOLVED (UG/L) | 91941 |
| 34633 | 3,3'-DICHLOROBENZIDINE, SUSPENDED (UG/L) | 91941 |
| 34636 | 4-BROMOPHENYL PHENYL ETHER, TOTAL (UG/L) | 101553 |
| 34637 | 4-BROMOPHENYL PHENYL ETHER, DISSOLVED (UG/L) | 101553 |
| 34638 | 4-BROMOPHENYL PHENYL ETHER, SUSPENDED (UG/L) | 101553 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34641 | 4-CHLOROPHENYL PHENYL ETHER, TOTAL (UG/L) | 7005723 |
| 34642 | 4-CHLOROPHENYL PHENYL ETHER, DISSOLVED (UG/L) | 7005723 |
| 34643 | 4-CHLOROPHENYL PHENYL ETHER, SUSPENDED (UG/L) | 7005723 |
| 34646 | 4-NITROPHENOL, TOTAL (UG/L) | 100027 |
| 34647 | 4-NITROPHENOL, DISSOLVED (UG/L) | 100027 |
| 34648 | 4-NITROPHENOL, SUSPENDED (UG/L) | 100027 |
| 34651 | P,P'-DDD, DISSOLVED (UG/L) | 72548 |
| 34652 | P,P'-DDD, SUSPENDED (UG/L) | 72548 |
| 34653 | P,P'-DDE, DISSOLVED (UG/L) | 72559 |
| 34654 | P,P'-DDE, SUSPENDED (UG/L) | 72559 |
| 34655 | P,P'-DDT, DISSOLVED (UG/L) | 50293 |
| 34656 | P,P'-DDT, SUSPENDED (UG/L) | 50293 |
| 34657 | DNOC (4,6-DINITRO-ORTHO-CRESOL), TOTAL (UG/L) | 534521 |
| 34658 | DNOC (4,6-DINITRO-ORTHO-CRESOL), DISSOLVED (UG/L) | 534521 |
| 34659 | DNOC (4,6-DINITRO-ORTHO-CRESOL), SUSPENDED (UG/L) | 534521 |
| 34662 | PCB - 1221, DISSOLVED (UG/L) | 11104282 |
| 34663 | PCB - 1221, SUSPENDED (UG/L) | 11104282 |
| 34665 | PCB - 1232, DISSOLVED (UG/L) | 11141165 |
| 34666 | PCB - 1232, SUSPENDED (UG/L) | 11141165 |
| 34671 | PCB - 1016, TOTAL (UG/L) | 12674112 |
| 34672 | PCB - 1016, DISSOLVED (UG/L) | 12674112 |
| 34673 | PCB - 1016, SUSPENDED (UG/L) | 12674112 |
| 34675 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD),TOT(UG/L) | 1746016 |
| 34676 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD)DISS(UG/L) | 1746016 |
| 34677 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD)SUSP(UG/L) | 1746016 |
| 34694 | PHENOL(C6H5OH)-SINGLE COMPOUND TOTAL (UG/L) | 108952 |
| 34696 | NAPHTHALENE, TOTAL (UG/L) | 91203 |
| 34750 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD)TOT(PG/L) | 1746016 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 34751 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD)DISS(PG/L) | 1746016 |
| 34752 | 2,3,7,8-TETRACHLORODIBENZO-PDIOXIN(TCDD)SUSP(PG/L) | 1746016 |
| 39032 | PCP (PENTACHLOROPHENOL) WHOLE WATER SAMPLE (UG/L) | 87865 |
| 39039 | HEXACHLOROBENZENE WATER SAMPLE,ELECTRON CPT (UG/L) | 118741 |
| 39100 | BIS(2-ETHYLHEXYL) PHTHALATE, WHOLE WATER (UG/L) | 117817 |
| 39103 | BIS(2-ETHYLHEXYL) PHTHALATE, DISSOLVED, (UG/L) | 117817 |
| 39104 | BIS(2-ETHYLHEXYL) PHTHALATE, SUSPENDED, (UG/L) | 117817 |
| 39107 | PHTHALATES,DIETHYLHEXYL SUS.FRAC.WTR DWT (MG/KG) | 117817 |
| 39110 | DI-N-BUTYL PHTHALATE, WHOLE WATER (UG/L) | 84742 |
| 39114 | DI-N-BUTYL PHTHALATE, SUSPENDED (UG/L) | 84742 |
| 39115 | PHTHALATES,DIBUTYL SUS.FRAC.WATER DWT (UG/KG) | 84742 |
| 39120 | BENZIDINE IN WHOLE WATER SAMPLE (UG/L) | 92875 |
| 39175 | VINYL CHLORIDE-WHOLE WATER SAMPLE (UG/L) | 75014 |
| 39180 | TRICHLOROETHYLENE-WHOLE WATER SAMPLE (UG/L) | 79016 |
| 39300 | P,P' DDT IN WHOLE WATER SAMPLE (UG/L) | 50293 |
| 39310 | P,P' DDD IN WHOLE WATER SAMPLE (UG/L) | 72548 |
| 39320 | P,P' DDE IN WHOLE WATER SAMPLE (UG/L) | 72559 |
| 39330 | ALDRIN IN WHOLE WATER SAMPLE (UG/L) | 309002 |
| 39331 | ALDRIN IN FILT. FRAC. OF WAT. SAMP. (UG/L) | 309002 |
| 39332 | ALDRIN IN SUSP. FRAC. OF WAT. SAMP. (UG/L) | 309002 |
| 39336 | BHC-ALPHA, WATER, WHOLE (LBS/DAY) | 319846 |
| 39337 | ALPHA BENZENE HEXACHLORIDE IN WHOLE WATER (UG/L) | 319846 |
| 39338 | BETA BENZENE HEXACHLORIDE IN WHOLE WATER (UG/L) | 319857 |
| 39340 | GAMMA-BHC(LINDANE), WHOLE WATER (UG/L) | 58899 |
| 39341 | GAMMA-BHC(LINDANE), DISSOLVED (UG/L) | 58899 |
| 39342 | GAMMA-BHC(LINDANE), SUSPENDED (UG/L) | 58899 |
| 39344 | BHC-GAMMA, WATER, WHOLE (LBS/DAY) | 58899 |
| 39350 | CHLORDANE(TECH MIX & METABS), WHOLE WATER (UG/L) | 57749 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 39352 | CHLORDANE(TECH MIX & METABS), DISSOLVED (UG/L) | 57749 |
| 39353 | CHLORDANE(TECH MIX & METABS), SUSPENDED (UG/L) | 57749 |
| 39360 | DDD IN WHOLE WATER SAMPLE (UG/L) | 72548 |
| 39361 | DDD IN FILT. FRAC. OF WATER SMAPLE (UG/L) | 72548 |
| 39362 | DDD IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 72548 |
| 39365 | DDE IN WHOLE WATER SAMPLE (UG/L) | 72559 |
| 39366 | DDE IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 72559 |
| 39367 | DDE IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 72559 |
| 39370 | DDT IN WHOLE WATER SAMPLE (UG/L) | 50293 |
| 39371 | DDT IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 50293 |
| 39372 | DDT IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 50293 |
| 39380 | DIELDRIN IN WHOLE WATER SAMPLE (UG/L) | 60571 |
| 39381 | DIELDRIN IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 60571 |
| 39382 | DIELDRIN IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 60571 |
| 39390 | ENDRIN IN WHOLE WATER SAMPLE (UG/L) | 72208 |
| 39391 | ENDRIN IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 72208 |
| 39392 | ENDRIN IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 72208 |
| 39400 | TOXAPHENE IN WHOLE WATER SAMPLE (UG/L) | 8001352 |
| 39401 | TOXAPHENE IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 8001352 |
| 39402 | TOXAPHENE IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 8001352 |
| 39410 | HEPTACHLOR IN WHOLE WATER SAMPLE (UG/L) | 76448 |
| 39411 | HEPTACHLOR IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 76448 |
| 39412 | HEPTACHLOR IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 76448 |
| 39420 | HEPTACHLOR EPOXIDE IN WHOLE WATER SAMPLE (UG/L) | 1024573 |
| 39421 | HEPTACHLOR EPOXIDE IN FILT. FRAC. WAT. SAM. (UG/L) | 1024573 |
| 39422 | HEPTACHLOR EPOXIDE IN SUSP. FRAC. WAT. SAM. (UG/L) | 1024573 |
| 39488 | PCB - 1221 IN THE WHOLE WATER SAMPLE (UG/L) | 11104282 |
| 39492 | PCB - 1232 PCB SERIES WHOLE WATER SAMPLE (UG/L) | 11141165 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 39496 | PCB - 1242 PCB SERIES WHOLE WATER SAMPLE (UG/L) | 53469219 |
| 39500 | PCB - 1248 PCB SERIES WHOLE WATER SAMPLE (UG/L) | 12672296 |
| 39501 | PCB - 1248 IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 12672296 |
| 39502 | PCB - 1248 IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 12672296 |
| 39504 | PCB - 1254 PCB SERIES WHOLE WATER SAMPLE (UG/L) | 11097691 |
| 39505 | PCB - 1254 IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 11097691 |
| 39506 | PCB - 1254 IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 11097691 |
| 39508 | PCB - 1260 PCB SERIES WHOLE WATER SAMPLE (UG/L) | 11096825 |
| 39509 | PCB - 1260 IN FILT. FRAC. OF WATER SAMPLE (UG/L) | 11096825 |
| 39510 | PCB - 1260 IN SUSP. FRAC. OF WATER SAMPLE (UG/L) | 11096825 |
| 39700 | HEXACHLOROBENZENE IN WHOLE WATER SAMPLE (UG/L) | 118741 |
| 39702 | HEXACHLOROBUTADIENE IN WHOLE WATER SAMPLE (UG/L) | 87683 |
| 39782 | LINDANE IN WHOLE WATER SAMPLE (UG/L) | 58899 |
| 39920 | DNOC IN WHOLE WATER SAMPLE (UG/L) | 534521 |
| 46322 | LINDANE PLUS ISOMERS IN WHOLE WATER SAMPLE (UG/L) | 58899 |
| 46323 | DELTA-BHC IN WHOLE WATER SAMPLE (UG/L) | 319868 |
| 46326 | HEPTACHLOR AND METABOLITES IN WH. H2O SAMP. (UG/L) | 76448 |
| 46479 | CYANIDE, DISSOLVED, WATER (UG/L) | 57125 |
| 46551 | ARSENIC, FIELD ACIDIFIED W/HNO3, LAB FILT. (UG/L) | 7440382 |
| 46559 | CADMIUM, FIELD ACIDIFIED-HNO3-LAB FILTER (UG/L-CD) | 7440439 |
| 46560 | CHROMIUM, FIELD ACIDIFIED-HN03-LAB FILT. (UG/L-CR) | 7440473 |
| 46562 | COPPER, FIELD ACIDIFIED-HNO3-LAB FILTER. (UG/L-CU) | 7440508 |
| 46564 | LEAD, FIELD ACIDIFIED-HNO3-LAB FILTERED (UG/L-PB) | 7439921 |
| 46566 | SILVER, FIELD ACIDIFIED-HNO3-LAB FILTER.(UG/L-AG) | 7440224 |
| 46567 | ZINC, EXTRACT. FIELD ACID W/HNO3, LAB FILT. (UG/L) | 7440666 |
| 70012 | PARACHLOROMETA CRESOL, WATER, WHOLE (LBS/DAY) | 59507 |
| 70017 | HEXACHLOROCYCLOPENTADIENE, WATER, WHOLE (LBS/DAY) | 77474 |
| 70021 | LEAD, (TCLP), WATER, TOTAL (MG/L) | 7439921 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 71890 | MERCURY, DISSOLVED (UG/L AS HG) | 7439976 |
| 71895 | MERCURY, SUSPENDED (UG/L AS HG) | 7439976 |
| 71900 | MERCURY, TOTAL (UG/L AS HG) | 7439976 |
| 71901 | MERCURY, TOTAL RECOVERABLE IN WATER AS HG (UG/L) | 7439976 |
| 71946 | CADMIUM, EXTRACTABLE (UG/L AS CD) | 7440439 |
| 71947 | CHROMIUM, EXTRACTABLE (UG/L AS CR) | 7440473 |
| 71949 | LEAD, EXTRACTABLE (UG/L AS PB) | 7439921 |
| 71950 | ZINC, EXTRACTABLE (UG/L AS ZN) | 7440666 |
| 71951 | COPPER, EXTRACTABLE (UG/L AS CU) | 7440508 |
| 73063 | CHLOROGUAIACOL,4-, TOTAL, WATER (UG/L) | 16766306 |
| 73522 | PROPANE, 2,2'-OXYBIS(1-CHLORO)- TOTAL (UG/L) | 108601 |
| 77163 | 1,3-DICHLOROPROPENE-1, WHOLE WATER (UG/L) | 542756 |
| 77354 | 1,1-DICHLORO-2,2-DIFLUOROETHANE WHOLE WATER (UG/L) | 471432 |
| 77771 | 3-CHLORO-4-HYDROXYBENZOPHENONE, WHOLE WATER (UG/L) | 55191203 |
| 78113 | ETHYL BENZENE WHOLE WATER SAMPLE (UG/L) | 100414 |
| 78124 | BENZENE IN WATER (VOLATILE ANALYSIS) (UG/L) | 71432 |
| 78131 | TOLUENE IN WHOLE WATER (VOLATILE ANALYSIS) (UG/L) | 108883 |
| 78208 | 2,4-DINITRO-O-CRESOL IN WHOLE WATER SAMPLE (UG/L) | 534521 |
| 78247 | CHROMIUM, HEXAVALENT, TOTAL RECOVERABLE, WT (UG/L) | 18540299 |
| 78248 | CYANIDE, TOTAL RECOVERABLE, WATER, WHOLE (UG/L) | 57125 |
| 80357 | CHROMIUM, TRIVALENT, DISSOLVED, AS CR | 16065831 |
| 81208 | CYANIDE, FREE (NOT AMEN. TO CHLORINATION) (MG/L) | 57125 |
| 81210 | CYANIDE - STATE OF ILLINOIS (MG/L) | 57125 |
| 81214 | CADMIUM - STATE OF ILLINOIS (MG/L)-COLD | 7440439 |
| 81215 | CHROMIUM - STATE OF ILLINOIS (MG/L), COLD DIGEST | 18540299 |
| 81216 | CHROMIUM(TRI)-STATE OF ILLINOIS (MG/L)-COLD DIGEST | 16065831 |
| 81217 | CHROMIUM, TOTAL - STATE OF ILLINOIS (MG/L) COLD DIGEST | 7440473 |
| 81218 | COPPER, STATE OF ILLINOIS, MG/L, COLD DIGEST | 7440508 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 81220 | LEAD, STATE OF ILLINOIS, MG/L, COLD DIGEST | 7439921 |
| 81222 | NICKEL - STATE OF ILLINOIS, MG/L, COLD DIGEST | 7440020 |
| 81223 | SILVER, STATE OF ILLINOIS, MG/L, COLD DIGEST | 7440224 |
| 81224 | ZINC - STATE OF ILLINOIS, MG/L, COLD DIGEST | 7440666 |
| 81642 | SILVER (AG) IN WATER POUNDS PER DAY (LBS/DAY) | 7440224 |
| 81750 | COPPER, INTERSTITIAL WATER FROM SEDIMENTS (UG/L) | 7440508 |
| 81751 | LEAD, INTERSTITIAL WATER FROM SEDIMENTS (UG/L) | 7439921 |
| 81752 | NICKEL, INTERSTITIAL WATER FROM SEDIMENTS (UG/L) | 7440020 |
| 81753 | CADMIUM, INTERSTITIAL WATER FROM SEDIMENT | 7440439 |
| 81754 | ZINC, INTERSTITIAL WATER FROM SEDIMENTS (UG/L) | 7440666 |
| 81766 | HEPTACHLOR EPOXIDE IN EPILITHIC ALGAE SED. (UG/KG) | 1024573 |
| 81931 | MERCURY (HG) SUSPENDED FRACTION OF WATER (UG/G) | 7439976 |
| 81932 | CADMIUM (CD) SUSPENDED FRACTION OF WATER (UG/G) | 7440439 |
| 81933 | ZINC (ZN) SUSPENDED FRACTION OF WATER (UG/G) | 7440666 |
| 81934 | LEAD (PB) SUSPENDED FRACTION OF WATER (UG/G) | 7439921 |
| 81936 | LEAD (PB) DISSOLVED CATIONIC SPECIES (UG/L) | 7439921 |
| 81937 | CADMIUM (CD) DISSOLVED CATIONIC SPECIES (UG/L) | 7440439 |
| 81938 | CHROMIUM, DISSOLVED CATIONIC SPECIES (UG/L) | 7440473 |
| 81939 | COPPER (CU) DISSOLVED CATIONIC SPECIES (UG/L) | 7440508 |
| 81940 | ZINC (ZN) DISSOLVED CATIONIC SPECIES (UG/L) | 7440666 |
| 81941 | CHROMIUM, DISSOLVED ANIONIC SPECIES (UG/L) | 7440473 |
| 81942 | COPPER (CU) DISSOLVED ANIONIC SPECIES (UG/L) | 7440508 |
| 81943 | ZINC (ZN) DISSOLVED ANIONIC SPECIES (UG/L) | 7440666 |
| 82058 | CHROMIUM, TOTAL, PERCENT REMOVAL | 7440473 |
| 82399 | CHROMIUM, HEXAVALENT (KG/BATCH) | 18540299 |
| 82512 | M,P-DICHLOROBENZENE (MEASURES 1,3&1,4) TOT. (UG/L) | 541731 |
| 82573 | CYANIDE/CHLORINATION IN WATER (MG/L) | 57125 |
| 82621 | HEXACHLOROBENZENE, WATER, TOTAL RECOVER. (UG/L) | 118741 |

| STORET Code | Toxic Elements (EPA Section 304(a) Priority Toxic Pollutants) cont.- | C.A.S. Number |
|---|---|---|
| 82622 | ENDRIN ALDEHYDE, WH. WATER, TOTAL RECOVER. (UG/L) | 7421934 |
| 82623 | ENDOSULFAN SULFATE, WATER, TOTAL RECOVER. (UG/L) | 1031078 |
| 82624 | ENDOSULFAN, BETA, WH. WATER, TOTAL RECOVER. (UG/L) | 33213659 |
| 82626 | 1,2-DIPHENYLHYDRAZINE, WATER, TOTAL RECOVER. (UG/L) | 122667 |
| 82627 | PARACHLOROMETA CRESOL, WATER, TOTAL RECOVER. (UG/L) | 59507 |
| 85006 | ZINC, TOTAL - (#/DAY) | 7440666 |
| 85007 | CHROMIUM, TOTAL (#/DAY) | 7440473 |
| 85010 | NICKEL, TOTAL - (#/DAY) | 7440020 |
| 85013 | MERCURY, TOTAL - (#/DAY) | 7439976 |

## Appendix H

## Literature Cited


Code of Federal Regulations. 1994. Protection of Environment. 40 CFR Parts 100 to 149. Revised as of July 1, 1994. Published by the Office of the Federal Register, National Archives and Records Administration. U.S. Government Printing Office, Washington, D.C. 20402.

Gilbert, R. O. 1987. Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold Co., New York, NY. 320p.

GKY and Associates. 1990. Dam Inventory Database and Retrieval Software: Final Report. U.S. Environmental Protection Agency, Water Quality Analysis Branch. Under Contract #68-03-3339.

Kunkle, S. and J. Wilson. 1984. Specific Conductance and pH Measurements in Surface Waters: An Introduction for Park Natural Resource Specialists. Water Resources Field Support Laboratory Report No. 84-3. National Park Service, Water Resources Division, Fort Collins, Colorado 80525. 51p.

National Park Service. 1993. Strategic Plan for Conducting Baseline Natural Resource Inventories in the National Park Service. National Park Service, Washington Office, Servicewide Inventory and Monitoring Program, Washington, D.C. Unpublished. 17p.

U.S. Environmental Protection Agency. 1995. Quality Criteria for Water 1995. Final Draft. Office of Water Regulations and Standards, Washington, D.C.

U.S. Environmental Protection Agency. 1989. STORET User Handbook. U.S. Environmental Proteciton Agency, Office of Water, Washington, D.C. 20460.

U.S. Environmental Protection Agency. 1992. Office of Water Environmental and Program Information Systems Compendium. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. 20460. 152p.

U.S. Environmental Protection Agency. 1993. Technical Description of the Reach File. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. 20460. 23p.

U.S. Geological Survey. 1982. A U.S. Geological Survey Data Standard: Codes for the Identification of Hydrologic Units in the United States and Caribbean Outlying Areas. Geological Survey Circular 878-A. U.S. Geological Survey, Water Resources Division, Reston, VA. 22092. 115p.

U.S. Geological Survey 1992. Hydro-Climatic Data Network: A U.S. Geological Survey Streamflow Data Set for the United States for the Study of Climate Variations 1874-1988. Open File Report 92-129/USGS Water Supply Paper No. 2406. U.S. Geological Survey, Water Resources Division, Reston, VA. 22092. 193p.

Ward, R. C., J. C. Loftis, and G. B. McBride. 1990. Design of Water Quality Monitoring Systems. Van Nostrand Reinhold Co., New York, NY. 231p.

## Appendix I

## Selected General Water Quality References


American Public Health Association. 1989. Standard Methods for the Examination of Water and Wastewater (17th ed.). Washington, D.C. 1476p.

Drever, J. I. 1982. The Geochemistry of Natural Waters. Prentice-Hall, Inc., Englewood Cliffs, NJ. 388p.

Dunne, T. and L. B. Leopold. 1978. Water in Environmental Planning. W.H. Freeman and Company, San Francisco, CA. 818p.

Everett, L. G. 1980. Groundwater Monitoring. General Electric Co., Schenectady, NY. 440p.

Fetter, C. W. 1988. Applied Hydrogeology (2nd ed.). MacMillan Publishing Co., New York, NY. 592p.

Flora, M. D., T. E. Ricketts, J. Wilson, and S. Kunkle. 1984. Water Quality Criteria: An Overview for Park Natural Resource Specialists. WRFSL Report No. 84-4. National Park Service, Water Resources Field Support Laboratory, Fort Collins, CO. 46p.

Gilbert, R. O. 1987. Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold Co., New York, NY. 320p.

Hem, J. D. 1985. Study and Interpretation of the Chemical Characteristics of Natural Water (3rd ed.). U.S. Geological Survey Water-Supply Paper 2254. U.S. Government Printing Office, Washington, D.C. 263p.

Kunkle, S., W. S. Johnson, and M. Flora. 1987. Monitoring Stream Water Quality for Land-Use Impacts: A Training Manual for Natural Resource Management Specialists. Water Resources Division, National Park Service, Fort Collins, CO. 102p.

Kunkle, S. and J. Wilson. 1984. Specific Conductance and pH Measurements in Surface Waters: An Introduction for Park Natural Resource Specialists. Water Resources Field Support Laboratory Report No. 84-3. National Park Service, Water Resources Division, Fort Collins, Colorado 80525. 51p.

Merritt, R. W., and K. W. Cummins (eds.). 1984. An Introduction to the Aquatic Insects of North America (2nd ed.). Kendall/Hunt Publishing Co., Dubuque, IA. 44p.

Morel, F. M. 1983. Principles of Aquatic Chemistry. John Wiley & Sons, Inc., New York, NY. 446p.

Nielsen, D. M. (ed.). 1991. Practical Handbook of Ground-Water Monitoring. Lewis Publishers, Inc. Chelsea, MI. 717p.

Ponce, S. L. 1980a. Statistical Methods Commonly Used in Water Quality Data Analysis. WSDG Technical Paper WSDG-TP-00001. U.S. Department of Agriculture, Forest Service, Watershed Systems Development Group, Fort Collins, CO. 136p.

Ponce, S. L. 1980b. Water Quality Monitoring Programs. WSDG Technical Paper WSDG-TP-00002. U.S. Department of Agriculture, Forest Service, Watershed Systems Development Group, Fort Collins, CO. 68p.

Rand, G. M. and S. R. Petrocelli (eds.). 1985. Fundamentals of Aquatic Toxicology. Hemisphere Publishing Co., New York, NY. 666p.

Rantz, S. E. and others. 1982. Measurement and Computation of Streamflow: Volume 1. Measurement of Stage and Discharge. Volume 2. Computation of Discharge. U.S. Department of the Interior, Geological Survey Water Supply Paper 2175. 631p.

Stednick, J.D. and D. M. Gilbert. 1998. Water Quality Inventory Protocol: Riverine Environments. National Park Service, Water Resources Division Technical Report NPS/NRWRD/NRTR-98/177. Fort Collins, CO. 103p.

Stednick, J. D. 1991. Wildland Water Quality Sampling and Analysis. Academic Press, Inc., San Diego, CA. 217p.

United Nations Educational, Scientific and Cultural Organization (UNESCO). 1978. Water Quality Surveys: A Guide for the Collection and Interpretation of Water Quality Data. IHD-WHO Working Group on the Quality of Water, Paris, France. 350p.

U.S. Department of the Interior. 1977. National Handbook of Recommended Methods for Water-Data Acquisition. U.S. Geological Survey, Office of Water-Data Coordination, Reston, VA. 990p.

U.S. Environmental Protection Agency. 1978. Microbiological Methods for Monitoring the Environment: Water and Wastes. R. H. Border, J. A. Winter, and P. W. Scarpino. EPA-600/8-78-017. Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH. 338p.

U.S. Environmental Protection Agency. 1979b. Methods for Chemical Analysis of Water and Wastes. EPA-600/4-79-020. (Revised March 1983). Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH. 460p.

U.S. Environmental Protection Agency. 1983. Water Quality Standards Handbook. Office of Water Regulations and Standards, Washington, D.C. 218p.

U.S. Environmental Protection Agency. 1995. Quality Criteria for Water 1995. Final Draft. Office of Water Regulations and Standards, Washington, D.C.

U.S. Environmental Protection Agency. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. J. L. Plafkin, M. T. Barbour, K. D. Porter, S. K. Gross, and R. M. Hughes. EPA-444/4-89-001. Office of Water Regulations and Standards, Assessment and Watershed Protection Division, Washington, D.C. 162p.

U.S. Environmental Protection Agency. 1990. Macroinvertebrate Field and Laboratory Methods for Evaluating the Biological Integrity of Surface Waters. D. J. Klemm, P. A. Lewis, F. Fulk, and J. M. Lazorchak. EPA-600/4-90-030. Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH. 256p.

U.S. Environmental Protection Agency. 1991a. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (4th ed.). C. I. Weber, ed. EPA-600/4-90-027. Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH. 293p.

U.S. Environmental Protection Agency. 1991b. Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska. L. H. MacDonald, A. W.Smart, and R. C. Wissmar. EPA-910/9-91-001. Region 10, Seattle, WA. 162p.

U.S. Environmental Protection Agency. 1993. Guide to Federal Water Quality Programs and Information. T. Stuart and N. P. Ross. EPA-230-B-93-001. Office of Strategic Planning and Environmental Data, Environmental Statistics and Information Division. Washington, D.C. 194p.

Verschueren, K. 1983. Handbook of Environmental Data on Organic Chemicals (2nd ed.). Van Nostrand Reinhold Co., New York, NY. 1310p.

Viessman W. and M. J. Hammer. 1985. Water Supply and Pollution Control (4th ed.). Harper and Row, Publishers, Inc. New York, NY. 797p.

Ward, R. C., J. C. Loftis, and G. B. McBride. 1990. Design of Water Quality Monitoring Systems. Van Nostrand Reinhold Co., New York, NY. 231p.

Wetzel, R. G. 1983. Limnology (2nd ed.). Sanders College Publishing, Philadelphia, PA. 767p.

As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The Department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS D-22 December 1997