EPA FINALIZED TMDL

South Carolina
Department of Health and Environmental Control

Total Maximum Daily Load Development for the Congaree Creek Basin (Hydrological Unit Code: 03050110-020); Stations: C-005, C-008, C-025, and C-067 Fecal Coliform Bacteria

September 1, 2004

Bureau of Water

PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, SC 29201

In compliance with the provisions of the Federal Clean Water Act, 33 U.S.C §1251 et.seq., as amended by the Water Quality Act of 1987, P.L. 400-4, the U.S Environmental Protection Agency is hereby establishing a Total Maximum Daily Load (TMDL) for fecal coliform bacteria in Congaree Creek Basin. Subsequent actions must be consistent with this TMDL.

____________________________________ ____________

James D. Giattina, Director Date
Water Management Division

Abstract

The Congaree Creek basin (11-digit HUC 03050110-020) is located in Lexington County and consists primarily of Congaree Creek and its tributaries (Figure 1-1). Four water quality monitoring stations in the watershed have been placed on the South Carolina §303(d) list of impaired waters for violations of the fecal coliform bacteria standard, as shown in Table 1-1. The 143 square mile basin is composed of mostly forested land (63%), with portions of cropland and urban areas of equivalent portions, approximately 15 percent each. Several municipalities in the basin have or will have Municipal Separate Storm Sewer (MS4) permits. The permits will require that these TMDLs be implemented in the MS4 entities areas of responsibility. There are 13 active continuous point sources discharging fecal coliform bacteria in the Congaree Creek basin of South Carolina.

The load-duration curve methodology was used to establish allowable fecal coliform loads in the watershed. The existing load was determined using measured data from the impaired water quality monitoring stations. Loads were established from measured concentrations and a power trend line was fit to samples violating the instantaneous standard. The existing load and allowable total maximum daily load (TMDL) for impaired stations is presented in Table I. To achieve the TMDL target, reductions of fecal coliform loads will be necessary, as shown in Table I.

Table I Total Maximum Daily Loads for Impaired Water Quality Stations in the Congaree Creek Basin (03050110-020)

Station ID	Existing Waste Load	TMDL WLA		Existing Load	TMDL LA	MOS	TMDL[3]	Percent Reduction[4]
	Continuous (counts/day)	Continuous[1] (counts/day)	MS4[2]	(counts/day)	(counts/day)	(counts/day)	(counts/day)	
C-005	5.30E+08	5.30E+08	27%	1.47E+11	1.01E+11	5.63E+09	1.07E+11	27%
C-008	2.06E+10	2.06E+10	40%	1.84E+12	1.03E+12	5.84E+10	1.11E+12	40%
C-025	5.30E+08	5.30E+08	54%	1.46E+11	6.34E+10	3.55E+09	6.74E+10	54%
C-067	1.82E+10	1.82E+10	36%	3.47E+11	1.93E+11	1.18E+10	2.23E+11	36%

Table Notes:
1. Total monthly wasteload (#/30 days) cannot exceed loads listed in Table 3-3.
2. MS4 expressed as percent reduction equal to LA reduction.
3. TMDLs expressed as monthly load (#/30 days) by station are listed in Table B-1.
4. Percent reduction applies to LA and MS4 components when an MS4 is in the watershed.

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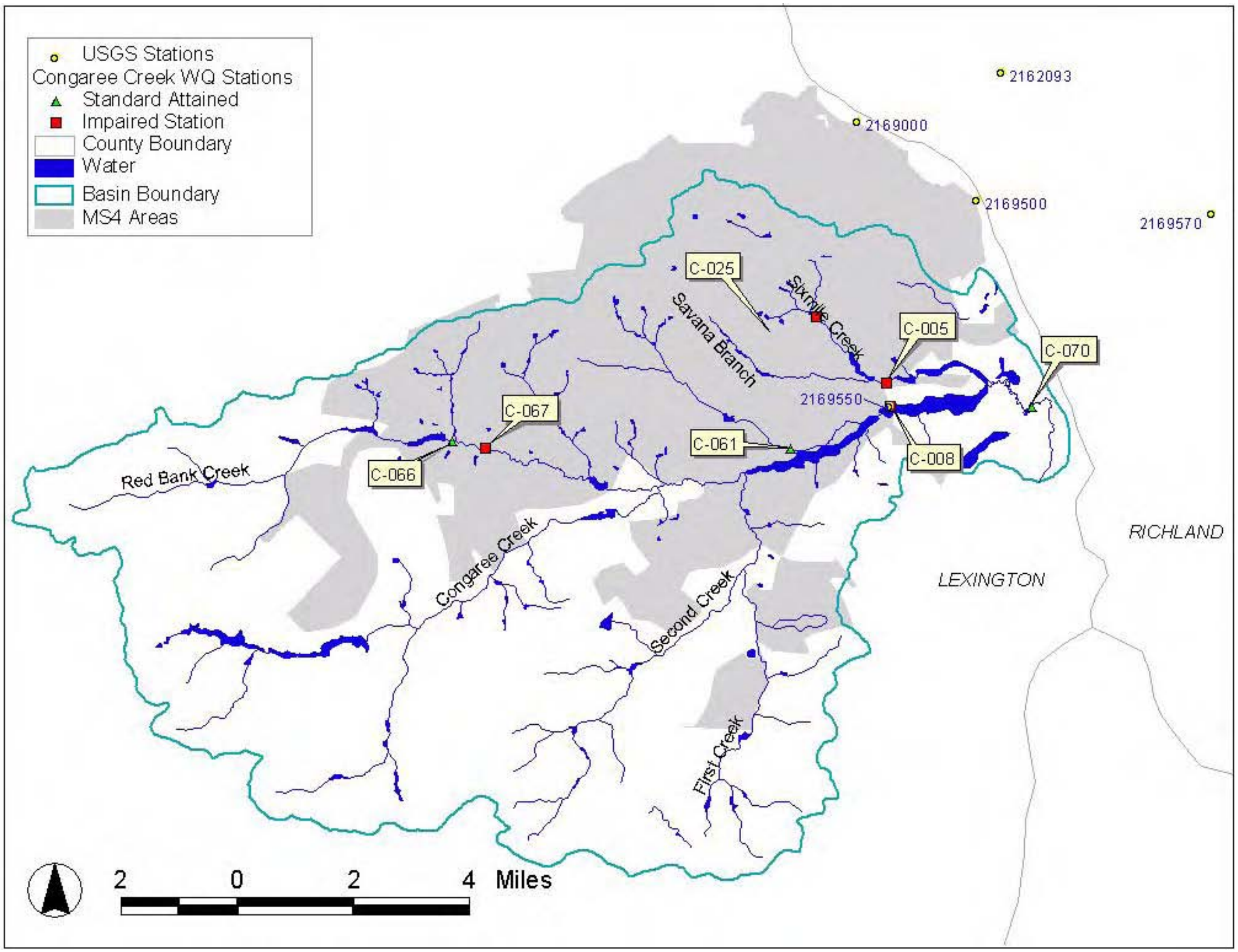

Figure 1-1 Congaree Creek Basin (03050110-020)

1.0 INTRODUCTION

1.1 Background

Levels of fecal coliform bacteria can be elevated in waterbodies as the result of both point and nonpoint sources of pollution. Section §303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop total maximum daily loads (TMDLs) for waterbodies that are not meeting designated uses under technology-based pollution controls. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a waterbody based on the relationship between pollution sources and instream water quality conditions so that states can establish water quality-based controls to reduce pollution and restore and maintain the quality of water resources (USEPA, 1991).

The State of South Carolina has placed four monitoring stations in the Congaree Creek basin (11-digit HUC 03050110-020) on South Carolina’s 2002 Section §303(d) list for impairment due to fecal coliform bacteria. These stations are identified in Table 1-1.

Table 1-1 Water Quality Monitoring Stations Impaired by Fecal Coliform in the Congaree Creek Basin (03050110-020)

Waterbody Name	Waterbody ID	Waterbody Location
SIXMILE CREEK	C-005	SIXMILE CREEK ON US 21 S OF CAYCE
CONGAREE CREEK	C-008	CONGAREE CREEK AT US 21 AT CAYCE WATER INTAKE
LAKE CAROLINE	C-025	Sixmile Creek at foot bridge near SC602
RED BANK CREEK	C-067	RED BANK CREEK AT SANDY SPRINGS RD BTWN S-32-104 & SC 602

1.2 Watershed Description

The Congaree Creek basin (11-digit HUC 03050110-020) is located in Lexington County and consists primarily of Congaree Creek and its tributaries. The basin drains 143 square miles into the Congaree River (11-digit HUC 03050110-010), near the City of Cayce. Congaree Creek is influenced by Scouter Branch, which flows through Redmond Pond and Shealy Pond to enter Congaree Creek near its origin. Congaree Creek then flows through Hunt Pond before accepting drainage from Red Bank Creek. Further downstream, Congaree Creek accepts drainage from First Creek, which also includes influences from Second Creek, and then accepts the drainage from Savana Branch, Sixmile Creek, and Dry Creek. There are a total of 110.5 stream miles in this basin, all of which are classified freshwater.

Based on 1996 USGS Multi-Resolution Land Characteristic (MRLC) land use data, 63 percent of the watershed is forested land. The remaining 37 percent is composed of cropland (15%), urban areas (15%), barren land (4%), and a small mix of water and pastureland uses (5%). Table 1-2 presents the percentage of total watershed area for each aggregated land use. The percentage of land use area in each monitoring station drainage area is presented in Appendix A (Table A-1). The actual areas in square miles are presented in Table A-2. Figure 1-2 illustrates land use activities in the basin. The forested areas of this basin, which make up the greatest landuse percentage (63%), are mainly deciduous or evergreen in nature. Much of the urban land is located in the upper northeastern and the middle portions of the basin encompassing the southwestern outskirts of the city of Columbia.

Table 1-2 MRLC Aggregated Land Use for the Congaree Creek Basin (03050110-020)

Aggregated Land Use	Percent of Total Area	Total Area ($miles^2$)
Urban	14.8 %	21
Barren	3.9 %	6
Row Crops	15.1 %	22
Pasture	2.5 %	4
Forest	62.5 %	89
Water	1.3 %	2

1.3 Water Quality Standard

The impaired stream segments of the Congaree Creek basin are designated as Class Freshwater. Waters of this class are described as:

> “Freshwaters suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses.” (R.61-68)

South Carolina’s standard for fecal coliform bacteria in freshwater is:

> “Not to exceed a geometric mean of 200/100 mL, based on five consecutive samples during any 30 day period; nor shall more than 10 percent of the total samples during any 30 day period exceed 400/100 mL.” (R.61-68).

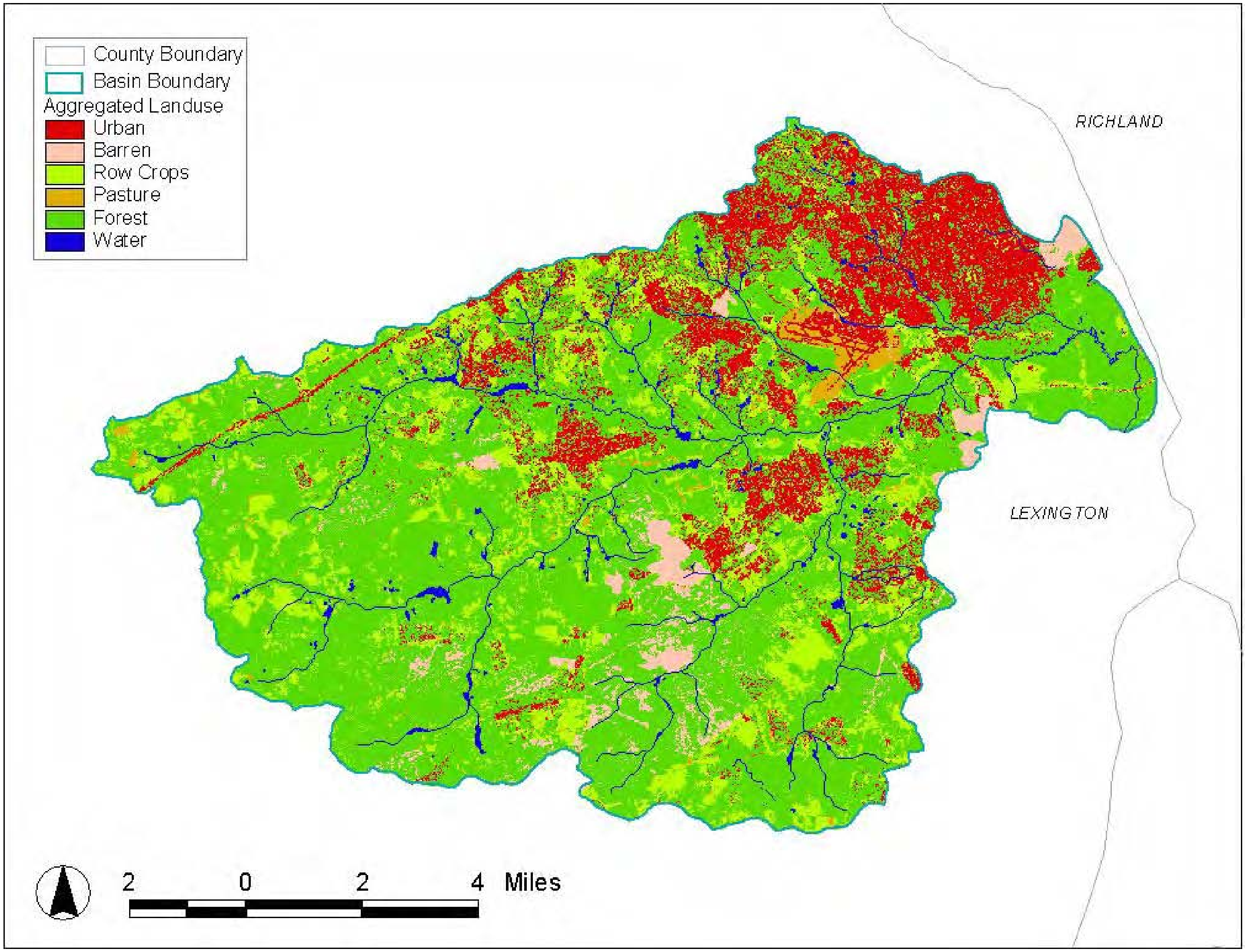

Figure 1-2 Congaree Creek Basin Land Use

2.0 WATER QUALITY ASSESSMENT

Fecal coliform bacteria data collected in the Congaree Creek basin from 1990 through 2001 were assessed to determine impairment of standards for recreational use. The State of South Carolina monitors fecal coliform bacteria at seven stations in the watershed. Figure 1-1 shows the location of water quality monitoring stations in the watershed.

Four water quality monitoring stations in the basin have been identified on the State of South Carolina's Section §303(d) list for 2002 as impaired (Table 1-1). Table 2-1 presents the statistical information supporting the listing of impaired water quality monitoring sites in the watershed. Waters in which no more than 10 percent of the samples collected over a five year period are greater than 400 fecal coliform counts per 100 mL are considered to comply with the South Carolina water quality standard for fecal coliform bacteria. Waters with more than 10 percent of samples greater than 400 counts per 100 mL are considered impaired and were listed for fecal coliform bacteria on the State of South Carolina's Section §303(d) list. The fecal coliform bacteria data collected at impaired water quality monitoring stations is presented in Appendix A (Table A-2).

The assessment of water quality data from stations within the Congaree Creek basin revealed two stations within one mile of each other (Figure 1-1) where the upstream station, C-066, meets water quality standards and the downstream station, C-067, has been identified as impaired. Of 33 samples collected at C-067, 12 percent were reported in violation of the standard. At C-066, 42 samples were collected without violation. Though the proximity of these stations should generally raise questions about the results of this analysis, the identification of an active NPDES facility within that area, permitted for fecal coliform bacteria, further clarifies the results. The discharge point for NPDES facility SC0023680, Lexington County Joint, is located between C-066 and C-067.

Table 2-1 Statistical Assessment of Observed Fecal Coliform Bacteria Collected from 1996 through 2000

Station	Total Number of Samples	Total Number of Samples >400 #/100 mL	Percent of Samples >400 #/100 mL
C-005	38	11	29 %
C-008	62	9	15 %
C-025	36	13	36 %
C-067	33	4	12 %

The timeframe, both annually and seasonally, of water quality monitoring at each station varies greatly. The statistical assessment presented in Table 2-1 was based on data collected over the five-year period from 1996 through 2000.

After determining compliance with water quality standards, observed violations were assessed to determine conditions critical to impairment. Data were compared with estimated streamflows to establish a relationship between instream concentrations and hydrologic conditions. Due to limited streamflow data in the watershed, observed data were plotted with the load-duration curves generated based on area-weighted flows. The development of load-duration curves is discussed further in Section 4.0 of this report. Load-duration curves plotted for each station in Figures B-1 through B-4, and in Figure 2-1 (for C-005) are equal to the TMDL target based on the criteria for instantaneous events. The observed fecal coliform bacteria data were also converted from counts per 100 mL to loads in counts per day to assess hydrologic conditions when the standard is not attained.

The percent of flow exceeded in Figure 2-1 and Figures B-1 through B-4 represent flow conditions at each monitoring station. Hydrologic conditions for very dry events, likely to be exceeded in 99.99 percent of measured events, are represented as 99.99 percent. Extremely wet events that occur rarely are represented as 0.01 percent. Data collected at all impaired stations in the basin have violations during all flow conditions. Violations during various flow events suggest both overland, instream, and continuous sources, such as groundwater, of fecal coliform bacteria.

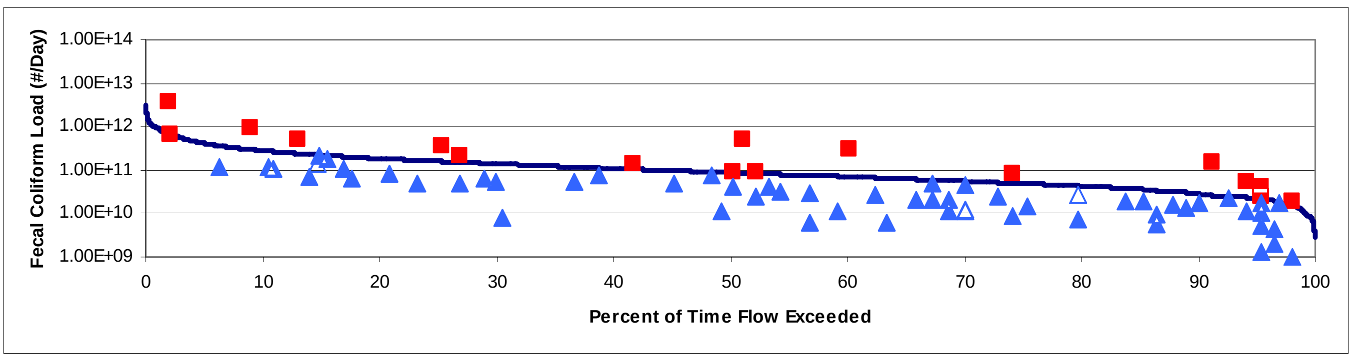

Figure 2-1 Fecal Coliform Bacteria Load-Duration Curve for Station C-005 Illustrating Observed Fecal Coliform Bacteria Loads Over Various Hydrologic Conditions

3.0 SOURCE ASSESSMENT AND LOAD ALLOCATION

Fecal coliform bacteria enter surface waters of the Congaree Creek basin from both point and nonpoint sources. Point sources are facilities that discharge at a specific location through pipes, outfalls, and/or conveyance channels. All point sources must have a National Pollutant Discharge Elimination System (NPDES) permit and are often municipal wastewater treatment plants or industrial waste treatment facilities. Nonpoint sources are diffuse sources that have multiple routes of entry into surface waters. Some nonpoint sources are related to land use activities that accumulate fecal coliform bacteria on the land surface (i.e. pastureland) and runoff during storm events.

3.1 Point Sources

3.1.1 Continuous Point Sources

There are six active continuous point sources discharging fecal coliform bacteria in the Congaree Creek basin. Facilities with continuous discharges of fecal coliform bacteria are listed in Table 3-1 and illustrated in Figure 3-1. In South Carolina, NPDES permittees that discharge sanitary wastewater must meet the State criteria for fecal coliform bacteria at the point of discharge (i.e. a daily maximum concentration of 400 counts per 100 mL, and a 30-day geometric mean of 200 counts per 100 mL).

Table 3-1 Permitted Facilities Discharging Fecal Coliform Bacteria into Waterbodies of the Congaree Creek Basin

Facility Name	NPDES No.	Flow Limits * (MGD)	Receiving Stream
LOXCREEN COMPANY INC	SC0003174	0.0032	SAVANNAH BR-CONGR CK-CONGAR RV
LEX. CO. JOINT/OLD BARNWELL RD	SC0023680	0.8	RED BANK CRK-CONGAREE CRK-CONG
PARKWOOD OF CARO/PARKWOOD MHP	SC0030473	0.035	UNNAMED TRIB-SIX MILE CREEK
CWS/GLENN VILLAGE II SD	SC0030651	0.1284	TRIB-1ST CK-CONGAREE RIVER
LEX. CO. JOINT/TWO NOTCH RD.	SC0040789	0.4	RED BANK CRK TO CONGAREE CREEK
LEXINGTON CO/EDMUND LANDFILL	SC0045110	0.028	BEAR CK/FIRST CK/CONGAREE RVR

* Note: Flow limits are either permit limits or design limits.

Table 3-2 Impaired Water Quality Monitoring Stations Draining NPDES Facilities in the Congaree Creek Basin

C-005	C-008	C-025	C-067
SC0030473	SC0003174	SC0030473	SC0023680
	SC0023680		SC0040789
	SC0030651		
	SC0040789		
	SC0045110		

The TMDLs presented in this report were developed using permitted flows (or design flows when there is no limit permitted flow) and permitted concentrations for fecal coliform bacteria. Limited information was available to determine the survival rate of fecal coliform bacteria discharging from permitted facilities to establish the impact downstream. Therefore, for the purpose of fecal coliform bacteria TMDL development in the Congaree Creek basin, wasteloads for continuous discharges are cumulative for a given drainage area. Estimated existing loads and the permitted geometric mean concentration of 200 counts per 100 mL and instantaneous concentration of 400 counts per 100 mL are listed in Table 3-3.

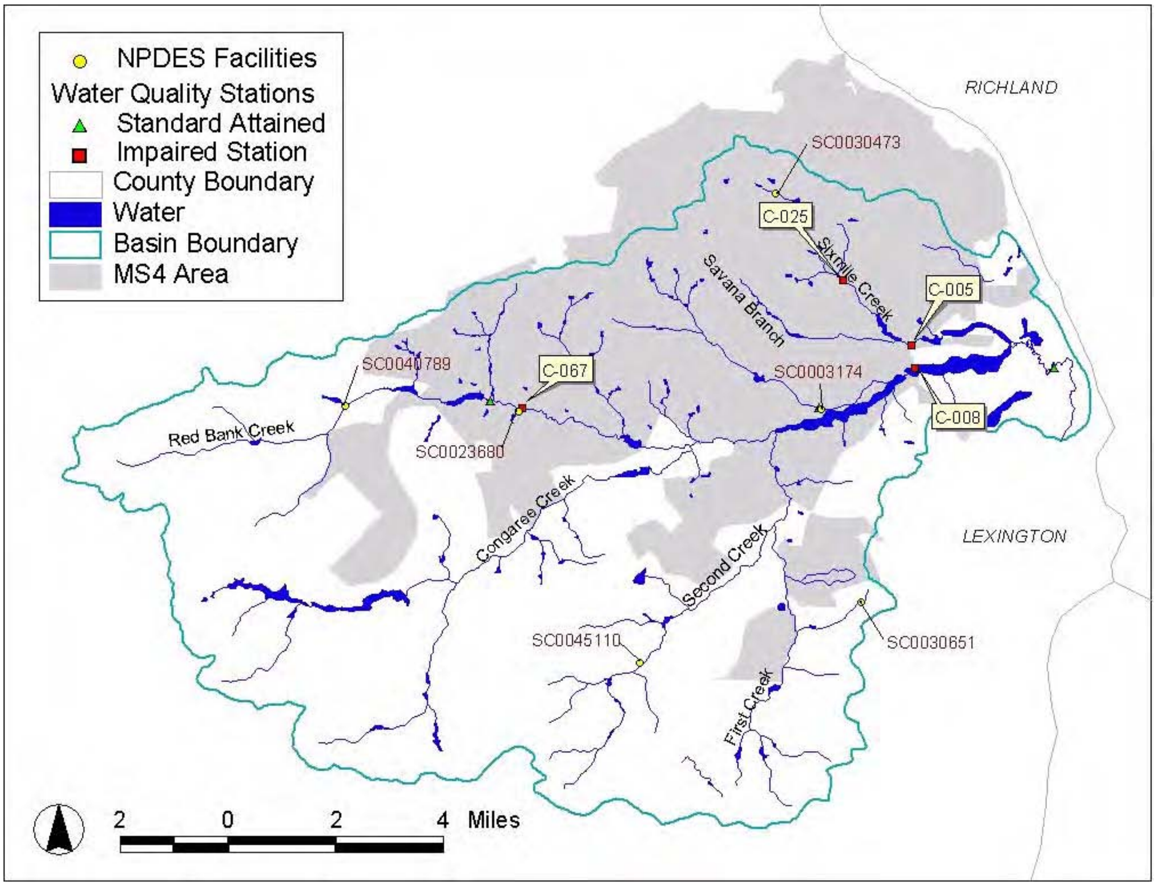

Figure 3-1 Active Fecal Coliform Bacteria Discharging NPDES Facilities

Table 3-3 Estimated Existing Fecal Coliform Bacteria Loads for Facilities in the Congaree Creek River Basin

NPDES Facility	Flow (MGD)	Existing Loading (counts/days)	Existing Loading (counts/30days)
SC0003174	0.0032	4.85E+07	7.27E+08
SC0023680	0.80	1.21E+10	1.82E+11
SC0030473	0.035	5.30E+08	7.95E+09
SC0030651	0.1284	1.94E+09	2.92E+10
SC0040789	0.40	6.06E+09	9.08E+10
SC0045110	0.028	4.24E+08	6.36E+09

The collection systems (sewer lines, pump stations) of domestic wastewater treatment facilities are also potential sources of fecal coliform bacteria. Sewage collection systems typically are placed adjacent to waterways. At these locations, there is a potential for collection system leaks which could result in elevated instream concentrations of fecal coliform bacteria. Sanitary sewer overflows (SSOs) are also a potential source, particularly after periods of intense rainfall. This source is associated with infrequent events, limited in duration and likely to have an insignificant long-term impact instream. Identified collection system and/or SSO problems are addressed by SCDHEC through compliance and enforcement mechanisms. Sewer lines run along Red Bank Creek in Red Bank. Also sewer lines cross Sixmile Creek at SC-602 and run adjacent to the creek downstream.

3.1.2 Municipal Separate Storm System (NPDES)

The Towns of Cayce, Oak Grove, Pine Ridge, Red Bank, South Congaree, and West Columbia and Lexington County have or will have NPDES MS4 (Municipal Separate Storm Sewer System) permits (Figure 1-1). These MS4 areas are in the northeastern and middle portions of the basin, capturing much of the urban land uses in the region. These permitted sewer systems will be treated as point sources in the TMDL calculations below. However for modeling purposes all urban areas will be evaluated together as urban nonpoint sources.

In 1990, EPA developed rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) storm water program, designed to prevent harmful pollutants from being washed by storm water runoff into Municipal Separate Storm Sewer Systems (MS4s) (or from being dumped directly into the MS4) and then discharged into local waterbodies (SCDHEC, 2002). Phase I of the program required operators of medium and large MS4s (those generally serving populations of 100,000 or greater) to implement a storm water management program as a means to control polluted discharges from MS4s. Approved storm water management programs for medium and large MS4s are required to address a variety of water quality related issues including roadway runoff management, municipal owned operations, and hazardous waste treatment.

Phase II of the rule extends coverage of the NPDES storm water program to certain small MS4s. Small MS4s are defined as any MS4 that is not a medium or large MS4 covered by Phase I of the NPDES Storm Water Program. Phase II requires operators of regulated small MS4s to obtain NPDES permits and develop a storm water management program. Programs are to be designed to reduce discharges of pollutants to the “maximum extent practicable”, protect water quality, and satisfy appropriate water quality requirements of the Clean Water Act.

3.2 Nonpoint Sources

The land use distribution of the Congaree Creek basin provides insight into determining nonpoint sources of fecal coliform bacteria (Figure 1-2). In the watershed, 63 percent of the land area is classified as forested lands and cropland and urban areas constitute 15 percent of the total landuse each. Key nonpoint sources identified in the watershed include failing septic systems, illicit discharges (including leaking and overflowing sewers), over land contributions from impervious surfaces, and natural sources.

3.2.1 Wildlife

Fecal coliform bacteria are found in forested areas, pastureland, and cropland due to the presence of wild animal sources such as deer, raccoons, wild turkeys and waterfowl. The Department of Natural Resources in South Carolina estimates the deer habitat in the basin at a density of less than 15 deer per square mile (SC Deer Density 2000 map). Deer habitat was assumed to include forests, cropland, and pastures. Wildlife waste is transported over land surfaces during rainfall events or may be directly deposited by animals into streams. The high percentage of permeable surfaces in forested areas increases the infiltration rate over the watershed area. This process ultimately reduces the runoff reaching streams by overland flow and reduces the significance of fecal coliform contributions transported over land.

3.2.2 Failing Septic Systems and Illicit Discharges

Failing septic systems and illegal discharges represent a nonpoint source that can contribute fecal coliform to receiving waterbodies through surface, subsurface malfunctions or direct discharges. Based on 1990 census information, population change from 1990 and 2000, and assuming an average of 2.5 people per household (U.S. Census, 2000), greater than 7500 people in the Congaree Creek basin use septic systems. Though the precise failure rate is unknown, Schueler (1999) suggests an average septic failure rate of 20 percent. Many of these areas are also on sewer systems that may leak and/or overflow during rain events contributing significant loads of fecal coliform bacteria directly to streams.

3.2.3 Agricultural Activities and Grazing Animals

Agricultural land can be a source of fecal coliform bacteria. Runoff from pastures, improper land application of animal wastes, livestock operations, and livestock with access to water bodies are all agricultural sources of fecal coliform bacteria. Agricultural best management practices (BMPs) such as buffer strips, alternative watering sources, limiting livestock access to streams, and the proper land application of animal wastes reduce fecal coliform bacteria loading to water bodies.

3.2.4 Urban Runoff

Runoff from urban areas not permitted under the MS4 program are probably a significant source of fecal coliform bacteria into Red Bank, Sixmile, and Congaree Creeks. Water quality data collected from streams draining many of the un-permitted communities show existing loads of fecal coliform bacteria at levels greater than the State's instantaneous standards. Best management practices (BMPs) such as buffer strips and the proper disposal of domestic animal wastes reduce fecal coliform bacteria loading to water bodies.

4.0 TECHNICAL APPROACH – LOAD-DURATION METHOD

Load-duration curves were developed for water quality stations in the Congaree Creek basin to establish allowable fecal coliform bacteria loads under various hydrologic conditions. The load-duration methodology uses the cumulative frequency distribution of streamflow and pollutant concentration (fecal coliform bacteria) data to estimate the allowable loads for a waterbody. Allowable load-duration curves were established in the basin using the instantaneous concentration of fecal coliform bacteria, minus a five percent margin of safety (MOS), and streamflow measured at various USGS stations in the Congaree Creek basin and surrounding watersheds, as shown in Figure 1-1 and listed in Table 4-1.

Table 4-1 USGS Stations Used to Establish Area-Weighted Flows

Site Number	Site Name	From	To	Drainage Area (mile^2)
02169570	Gills Creek at Columbia, SC	10/1/1966	9/30/2001	59.6

There was only one USGS streamflow station located within the boundaries of the Congaree Creek basin, 02169550 at Congaree Creek at Cayce. Recorded data points for this station were only available for September 1980. Since streamflow data was not available at each impaired water quality monitoring station, flows were determined by area-weighted data collected at USGS stations within the area. In the case of Congaree Creek basin, due to the large gap of data for over a 20-year period, it remained inappropriate to generate streamflow for such a long period of time. So, a USGS station comparable in land use distribution, total drainage area and with data from 1990 through 2000 was located and incorporated into the analysis. For the purposes of the Congaree Creek basin load duration analysis, streamflow data from USGS station 02169570, identified in Table 4-1, was associated will all the impaired water quality monitoring stations. The location of both USGS and water quality monitoring stations are identified in Figure 1-1.

After calculating stream flow for each impaired monitoring station the data were ranked to determine the percent of time streamflow was exceeded. The streamflow was then multiplied by a concentration of 380 counts/100 mL (based on the instantaneous concentration and a five percent MOS) to generate a load-duration curve for each impaired station, shown in Figures B-1 through B-4 of Appendix B. The result of the load-duration curve is the TMDL target.

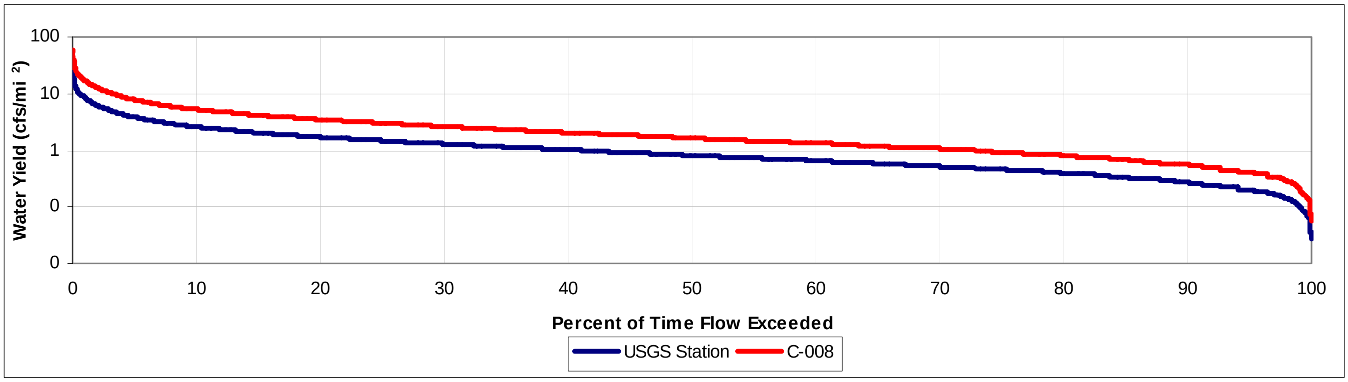

Figure 4-1 Water Yield (cubic feet per second per square mile) Based on Measured Daily Streamflow from USGS station 02169570

To define the TMDL for each station, an average of the load-duration curve was calculated. The average was calculated using loads at five percent intervals from the 10th percentile of flow exceeded to the 90th percentile of flow exceeded. Loads occurring at less than the 10th percentile of flow exceeded are extreme high flow events and the data collected at greater than the 90th percentile of flow exceeded are extreme low flow events and therefore were not considered in developing theses TMDLs. Loads established at intervals and the mean load for each station can be found in Appendix B, Table B-1.

5.0 DEVELOPMENT OF TOTAL MAXIMUM DAILY LOAD

A total maximum daily load (TMDL) for a given pollutant and waterbody is comprised of the sum of individual wasteload allocations (WLAs) for point sources, and load allocations (LAs) for both nonpoint sources and natural background levels. In addition, the TMDL must include a margin of safety (MOS), either implicitly or explicitly, to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. Conceptually, this definition is represented by the equation:

$$TMDL = \sum WLAs + \sum LAs + MOS$$

The TMDL is the total amount of a pollutant that can be assimilated by the receiving waterbody while still achieving water quality standards. In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established and thereby provide the basis to establish water quality-based controls. For some pollutants, TMDLs are expressed on a mass-loading basis (e.g., pounds per day). For bacteria, however, TMDLs can be expressed in terms of organism counts (or resulting concentration), in accordance with 40 CFR 130.2(l).

5.1 Critical Conditions

Critical conditions for fecal coliform bacteria in the Congaree Creek basin occur at various flow regimes. The load-duration curve methodology used to establish TMDLs in the watershed considers various hydrologic conditions critical in maintaining water quality standards.

5.2 Existing Load

The existing load for each impaired station was established using observed fecal coliform bacteria data and area-weighted streamflow. The measured data occurring at less than the 10th percentile of flow exceeded is an extreme high flow event and the data collected at greater than the 90th percentile of flow exceeded is an extreme low flow event and therefore not considered as critical conditions for these TMDLs.

The data violating the instantaneous concentration were isolated and a best-fit trendline was fit to violating data. The power trendline was determined using a best-fit relationship that was most representative of the violating data. The equation representing the trendline was then used to calculate the average violating load that occurred between the 10th and 90th percentiles, at every fifth percentile. This average load is equal to the existing instream fecal coliform bacteria load at the associated station. The existing nonpoint source load is equal to the existing instream load minus the wasteload from point sources.

Figure 5-1 presents the power best-fit trendline for station C-005, the impaired station on Six Mile Creek. Interval loads calculated for existing instream conditions are presented in Table B-2. Power trendlines are presented in Figures B-1 through B-4 of Appendix B. Existing nonpoint loads calculated for each station are listed in Table 5-1.

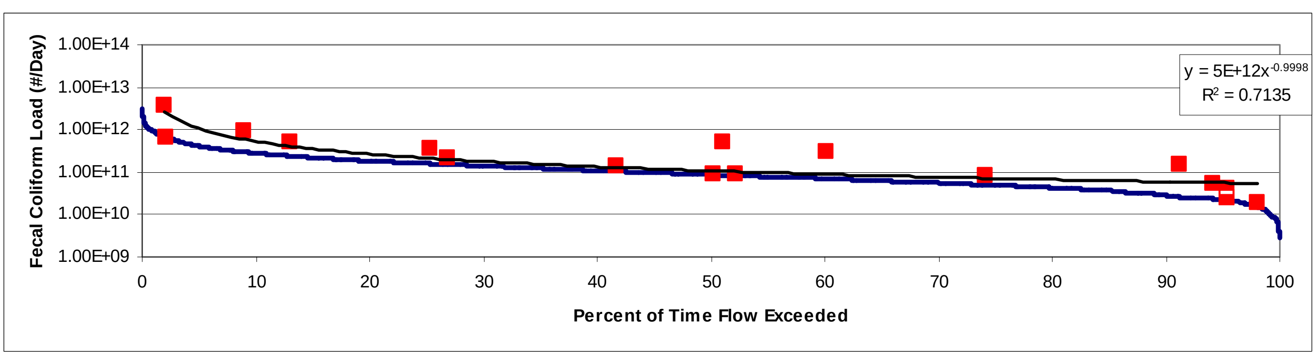

Figure 5-1 Power Trendline Generated from Violating Fecal Coliform Bacteria at C-005

Table 5-1 Existing Loads for Impaired Water Quality Stations in the Congaree Creek Basin (03050110-020)

Station ID	Existing Load (counts/day)
C-005	1.47E+11
C-008	1.84E+12
C-025	1.46E+11
C-067	3.47E+11

5.3 Existing Wasteload

The existing wasteload was calculated for each NPDES permitted continuous discharge. The facilities were assumed to discharge at permitted flows (design flows when a flow limit was not designated in the permit) and permitted limits of fecal coliform bacteria equal to the State criteria for both instantaneous and geometric mean loads. In South Carolina, NPDES permittees that discharge sanitary wastewater must meet the State's criteria for fecal coliform bacteria at the point of discharge (i.e. a daily maximum concentration of 400 counts per 100 mL, and a 30-day geometric mean of 200 counts per 100 mL). Under these permitted concentrations facilities should not be in exceedance of the fecal coliform bacteria water quality criteria, and therefore, not considered to be a major contributing source. If facilities are discharging at greater than permitted concentrations this is an illicit discharge and regulated through the NPDES program. Allowable TMDL wasteloads for impaired stations, as shown in Table 5-2, are equal to loads calculated for facilities in the basin.

Table 5-2 Wasteloads from NPDES Continuous Discharges to Impaired Water Quality Stations in the Congaree Creek Basin (03050110-020)

Station ID	Existing Waste Load Continuous (counts/day)
C-005	5.30E+08
C-008	2.06E+10
C-025	5.30E+08
C-067	1.82E+10

5.4 Margin of Safety

There are two methods for incorporating a margin of safety (MOS) in the analysis: a) by implicitly incorporating the MOS using conservative assumptions to develop allocations; or b) by explicitly specifying a portion of the TMDL as the MOS and using the remainder for allocations. For the Congaree Creek basin TMDLs, both methods were applied to incorporate a MOS. An implicit MOS was incorporated through the use of conservative assumptions in developing the TMDL, such as the use of the design or permitted flow for NPDES facilities and the use of a trendline to establish a total instream load. A five percent explicit MOS was reserved from the water quality criteria in developing the load-duration curves. Specifically, the water quality target was set at 190 counts per 100 mL for the geometric mean 30-day period and 380 counts per 100 mL for the instantaneous criterion, which is five percent lower than the water quality criteria of 200 and 400 counts per 100 mL, respectively.

5.5 Total Maximum Daily Load

The TMDL represents the maximum fecal coliform bacteria load the stream may carry and still meet water quality standards. The TMDL is presented in fecal coliform counts to be protective of both the instantaneous, per day, and geometric mean, per 30-day, criteria. Table 5-3 defines the fecal coliform bacteria total maximum daily load for protection of water quality standards for impaired stations in the Congaree Creek Basin.

There are several municipalities in the watershed that have or will have NPDES MS4 permits. Lexington County and several towns in the county will eventually be covered under one or more NPDES phase II stormwater permits. The reduction percentages in this TMDL apply also to the fecal coliform waste load attributable to those areas of the watershed which are covered or will be covered under NPDES MS4 (Municipal Separate Storm Sewer System) permits. Compliance by these municipalities with the terms of their individual MS4 permits will fulfill any obligations they have towards implementing this TMDL.

Table 5-3 Total Maximum Daily Loads for Impaired Water Quality Stations in the Congaree Creek Basin (03050110-020)

Station ID	Existing Waste Load	TMDL WLA		Existing Load	TMDL LA	MOS	TMDL[3]	Percent Re-duction[4]
	Continuous (counts/day)	Continuous[1] (counts/day)	MS4[2] (counts/ day)	(counts/ day)	(counts/ day)	(counts/ day)	(counts/ day)	
C-005	5.30E+08	5.30E+08	27%	1.47E+11	1.01E+11	5.63E+09	1.07E+11	27%
C-008	2.06E+10	2.06E+10	40%	1.84E+12	1.03E+12	5.84E+10	1.11E+12	40%
C-025	5.30E+08	5.30E+08	54%	1.46E+11	6.34E+10	3.55E+09	6.74E+10	54%
C-067	1.82E+10	1.82E+10	36%	3.47E+11	1.93E+11	1.18E+10	2.23E+11	36%

Table Notes:

1. Total monthly wasteload (#/30 days) cannot exceed loads listed in Table 3-3.
2. MS4 expressed as percent reduction equal to LA reduction.
3. TMDLs expressed as monthly load (#/30 days) by station are listed in Table B-1.
4. Percent reduction applies to LA and MS4 components when an MS4 is in the watershed.

6.0 IMPLEMENTATION

As discussed in the *Implementation Plan for Achieving Total Maximum Daily Load Reductions From Nonpoint Sources for the State of South Carolina* (SCDHEC,1998), South Carolina has several tools available for implementing this nonpoint source TMDL.

Specifically, SCDHEC's animal agriculture permitting program addresses animal operations and land application of animal wastes. In addition, SCDHEC will work with the existing agencies in the area to provide nonpoint source education in the Congaree Creek watershed. Local sources of nonpoint source education and assistance include Clemson Extension Service, the Natural Resource Conservation Service (NRCS), the Lexington County Soil and Water Conservation Services, and the South Carolina Department of Natural Resources. Clemson Extension Service offers a 'Farm-A-Syst' package to farmers. Farm-A-Syst allows the farmer to evaluate practices on their property and determine the nonpoint source impact they may be having. It recommends best management practices (BMPs) to correct nonpoint source problems on the farm. NRCS can provide cost share money to land owners installing BMPs.

SCDHEC is empowered under the State Pollution Control Act to perform investigations of and pursue enforcement for activities and conditions which threaten the quality of waters of the state.

The iterative BMP approach as defined in the general storm water NPDES MS4 permit is expected to provide significant implementation of this TMDL. Discovery and removal of illicit storm drain cross connection is one important element of the storm water NPDES permit. Public nonpoint source pollution education is another.

In addition, other interested parties (universities, local watershed groups, etc.) may apply for section 319 grants to install BMPs that will reduce fecal coliform loading to Congaree, Sixmile, and Red Bank Creeks. TMDL implementation projects are given highest priority for 319 funding.

In addition to the resources cited above for the implementation of this TMDL in the Congaree Creek watershed, Clemson Extension has developed a Home-A-Syst handbook that can help urban or rural homeowners reduce sources of NPS pollution on their property. This document guides homeowners through a self-assessment, including information on proper maintenance practices for septic tanks. SCDHEC also employs a nonpoint source educator who can assist with distribution of these tools as well as provide additional BMP information.

Using existing authorities and mechanisms, these measures will be implemented in the Congaree Creek watershed in order to bring about the necessary reductions in fecal coliform bacteria loading to Red Bank, Sixmile, and Congaree Creeks. DHEC will continue to monitor, according to the basin monitoring schedule, the effectiveness of implementation measures and evaluate stream water quality as the implementation strategy progresses.

7.0 REFERENCES

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APPENDIX A Data

Table A-1 Percent of Watershed Area Aggregated by Land Use Class for Areas Draining to Streamflow and Water Quality Monitoring Stations in the Congaree Creek Basin

Monitoring Station ID	Water	Urban	Row Crop	Pasture	Forest	Barren
02169570	2.1%	37.9%	4.9%	2.2%	48.7%	4.1%
C-005	1.4%	55.9%	7.0%	3.6%	31.5%	0.7%
C-008	1.3%	9.4%	16.5%	2.4%	66.2%	4.1%
C-025	1.5%	57.2%	6.3%	2.1%	32.4%	0.5%
C-067	1.7%	8.3%	19.0%	2.0%	66.9%	2.1%

Table A-2 Watershed Area in Square Miles Aggregated by Land Use Class for Areas Draining to Streamflow and Water Quality Monitoring Stations in the Congaree Creek Basin

Monitoring Station ID	Water	Urban	Row Crop	Pasture	Forest	Barren	Total
02169570	1.2	22	2.9	1.3	29	2.4	59
C-005	0.16	6.5	0.81	0.41	3.6	0.08	12
C-008	1.6	11	20	2.9	79	4.9	120
C-025	0.11	4.2	0.46	0.15	2.4	0.04	7.3
C-067	0.42	2.0	4.6	0.49	16	0.50	24

Table A-3 Fecal Coliform Data Collected between 1990 and 2001 at Water Quality Monitoring Stations in the Congaree Creek Basin

C-005	Value
05/17/90	69
06/07/90	200
07/19/90	310
08/16/90	520
09/13/90	93
10/18/90	900
05/09/91	120
06/13/91	150
07/10/91	150
08/01/91	400
09/03/91	23
10/08/91	48
05/08/92	800
06/18/92	110
07/22/92	180
08/25/92	130
09/09/92	150
10/06/92	120
05/11/93	37
06/03/93	180
07/07/93	170
08/10/93	160
09/01/93	40
10/21/93	66
05/05/94	530
06/08/94	410
07/06/94	270
08/23/94	130
09/20/94	150
10/26/94	32
05/03/95	73
06/20/95	200
07/03/95	400
08/02/95	240
09/20/95	120
10/25/95	84
05/14/96	69
06/12/96	130
07/16/96	360
08/14/96	1200

C-005	Value
09/25/96	200
10/08/96	2100
05/22/97	240
06/11/97	320
07/01/97	110
08/26/97	360
09/23/97	450
10/07/97	250
05/26/98	170
06/30/98	200
07/08/98	900
08/19/98	170
09/09/98	170
10/13/98	140
5/12/1999	60
6/24/1999	210
7/7/1999	620
8/31/1999	2300
9/30/1999	170
10/20/1999	330
5/15/2000	25
6/13/2000	200
7/19/2000	370
8/23/2000	190
9/19/2000	2400
10/11/2000	110
1/9/2001	120
2/8/2001	77
3/29/2001	310
4/4/2001	200
5/30/2001	460
5/30/2001	460
6/19/2001	240
6/19/2001	240
7/24/2001	1700
8/28/2001	320
9/18/2001	470
10/2/2001	100
11/19/2001	25
12/11/2001	800

Table A-3 Continued

C-008	Value
01/11/90	50
02/15/90	42
03/02/90	37
04/05/90	440
05/17/90	200
06/07/90	450
07/19/90	96
08/16/90	780
09/13/90	1600
10/08/90	260
11/26/90	81
12/13/90	64
01/09/91	52
02/06/91	20
03/07/91	58
04/11/91	110
05/08/91	150
06/13/91	130
07/10/91	140
08/06/91	87
09/03/91	220
10/08/91	67
11/13/91	120
12/12/91	230
02/13/92	55
03/26/92	340
04/16/92	77
05/08/92	5000
06/18/92	30
07/22/92	180
08/25/92	82
09/09/92	110
10/06/92	310
12/10/92	68
01/29/93	30
02/10/93	52

C-008	Value
05/11/93	120
05/27/93	81
06/03/93	100
07/07/93	130
08/10/93	120
09/01/93	160
10/21/93	120
11/04/93	160
12/14/93	100
01/06/94	49
01/13/94	220
02/03/94	16
03/22/94	31
05/05/94	520
06/08/94	290
07/06/94	500
08/23/94	240
09/20/94	490
10/26/94	48
11/29/94	230
12/15/94	62
01/12/95	33
02/21/95	34
03/07/95	100
04/04/95	110
05/03/95	140
06/20/95	160
07/03/95	200
08/02/95	99
09/20/95	610
10/24/95	120
11/07/95	130
12/04/95	54
01/10/96	42
02/27/96	54
03/13/96	73

C-008	Value
04/17/96	56
05/14/96	110
06/11/96	120
07/16/96	580
08/14/96	3600
09/25/96	120
10/08/96	2300
11/13/96	160
12/10/96	17
01/22/97	39
02/25/97	40
03/12/97	39
04/24/97	660
05/22/97	40
06/11/97	46
07/01/97	110
08/26/97	460
09/23/97	140
10/07/97	200
11/20/97	38
12/03/97	42
01/07/98	420
02/10/98	25
03/24/98	35
04/21/98	110
05/26/98	180
06/30/98	87
07/08/98	93
08/18/98	200
09/09/98	120
10/13/98	70
11/23/98	80
12/02/98	80
2/9/1999	32
1/6/1999	5
12/16/1999	57

C-008	Value
11/8/1999	110
10/20/1999	100
9/30/1999	170
8/31/1999	110
7/7/1999	360
6/24/1999	59
5/12/1999	120
4/6/1999	68
3/8/1999	30
12/13/2000	68
11/28/2000	120
10/11/2000	90
9/19/2000	720
8/23/2000	83
7/19/2000	130
6/13/2000	150
5/15/2000	94
4/11/2000	68
3/15/2000	23
2/9/2000	35
1/5/2000	240
12/11/2001	1000
11/19/2001	430
10/2/2001	160
9/18/2001	270
8/28/2001	240
7/24/2001	200
6/19/2001	83
6/19/2001	83
5/30/2001	260
5/30/2001	260
4/4/2001	77
3/29/2001	30
2/8/2001	140
1/9/2001	42

Table A-3 Continued

C-025	Value
05/17/90	240
06/07/90	110
07/19/90	130
08/16/90	1800
09/13/90	130
10/18/90	180
05/09/91	520
06/13/91	150
07/25/91	6900
08/01/91	870
09/03/91	100
10/08/91	110
05/01/92	200
06/04/92	1000
07/09/92	170
08/11/92	500
09/15/92	130
05/05/93	1100
06/15/93	230
07/15/93	620
08/25/93	350
09/08/93	470
10/12/93	40
05/12/94	270
06/02/94	760
07/15/94	500
08/22/94	1600
09/01/94	280
10/26/94	120
05/11/95	370
06/13/95	4900
06/25/95	1400
08/15/95	580
09/14/95	940
10/10/95	340
05/01/96	250
06/17/96	270
07/24/96	2600
08/12/96	210

C-025	Value
09/18/96	330
10/01/96	1000
05/22/97	770
06/23/97	450
07/01/97	560
08/26/97	340
09/24/97	620
10/21/97	15000
05/26/98	500
06/24/98	1800
07/14/98	570
08/12/98	530
09/30/98	1000
10/07/98	380
10/27/1999	75
9/23/1999	130
8/4/1999	260
7/27/1999	300
6/15/1999	2200
5/26/1999	130
10/5/2000	230
9/13/2000	220
8/10/2000	130
7/5/2000	1200
6/5/2000	390
5/15/2000	210
2/6/2001	400
1/9/2001	110
12/10/2001	380
11/19/2001	450
10/2/2001	700
9/19/2001	220
7/24/2001	490
6/19/2001	270
6/19/2001	270
5/16/2001	220
4/4/2001	71
3/29/2001	800

Table A-3 Continued

C-067	Value
05/17/90	40
06/07/90	41
07/19/90	92
08/16/90	320
09/13/90	1200
10/18/90	60
05/09/91	66
06/12/91	23
07/25/91	540
08/01/91	160
09/03/91	10
10/09/91	29
05/01/92	140
06/04/92	170
07/09/92	73
08/11/92	39
09/15/92	43
05/05/93	120
06/15/93	39
07/13/93	35
08/25/93	36
09/08/93	120
10/12/93	42
05/12/94	14
06/02/94	43
07/15/94	470
08/22/94	370
09/01/94	250
10/26/94	430
05/11/95	270
06/13/95	1100
07/25/95	290
08/15/95	30
09/14/95	87
10/11/95	48
05/01/96	100
06/17/96	20
07/24/96	70
08/14/96	700

C-067	Value
09/17/96	240
10/01/96	77
05/22/97	53
06/23/97	41
07/01/97	37
08/26/97	6500
09/24/97	1500
10/21/97	170
05/26/98	35
06/23/98	40
07/15/98	3500
08/12/98	150
09/30/98	45
10/07/98	520
10/26/1999	6
9/29/1999	190
8/4/1999	190
7/27/1999	37
6/15/1999	410
5/26/1999	35
9/13/2000	70
8/10/2000	97
7/5/2000	76
6/5/2000	78
5/17/2000	53
10/5/2000	47
11/19/2001	67
10/2/2001	66
9/19/2001	63
8/28/2001	110
7/24/2001	180
6/19/2001	81
6/19/2001	81
5/16/2001	65
4/4/2001	41
3/29/2001	120
1/9/2001	7
12/10/2001	41

APPENDIX B Calculations

Table B-1 TMDL Loads

Station	C-005
Instantaneous Conc. (#/100 ml)	**380**
Geo. Mean Conc. (#/100 ml)	**190**

Mean	1.07E+11
Allowable Load (#/day)	1.07E+11
Geometric Mean Load (#/30days)	1.60E+12

Percent Exceedance (%)	Load(#/Day)
10	2.78E+11
15	2.19E+11
20	1.83E+11
25	1.59E+11
30	1.39E+11
35	1.22E+11
40	1.10E+11
45	9.86E+10
50	8.76E+10
55	7.85E+10
60	7.12E+10
65	6.21E+10
70	5.48E+10
75	4.93E+10
80	4.20E+10
85	3.65E+10
90	2.92E+10

Station	C-008
Instantaneous Conc. (#/100 ml)	**380**
Geo. Mean Conc. (#/100 ml)	**190**

Mean	1.11E+12
Allowable Load (#/day)	1.11E+12
Geometric Mean Load (#/30days)	1.66E+13

Percent Exceedance (%)	Load(#/Day)
10	2.88E+12
15	2.27E+12
20	1.89E+12
25	1.65E+12
30	1.44E+12
35	1.27E+12
40	1.14E+12
45	1.02E+12
50	9.08E+11
55	8.14E+11
60	7.38E+11
65	6.43E+11
70	5.68E+11
75	5.11E+11
80	4.35E+11
85	3.78E+11
90	3.03E+11

Table B-1 Continued

Station	C-025
Instantaneous Conc. (#/100 ml)	380
Geo. Mean Conc. (#/100 ml)	190

Mean	6.74E+10
Allowable Load (#/day)	6.74E+10
Geometric Mean Load (#/30days)	1.01E+12

Percent Exceedance (%)	Load(#/Day)
10	1.75E+11
15	1.38E+11
20	1.15E+11
25	1.00E+11
30	8.75E+10
35	7.71E+10
40	6.91E+10
45	6.22E+10
50	5.53E+10
55	4.95E+10
60	4.49E+10
65	3.91E+10
70	3.45E+10
75	3.11E+10
80	2.65E+10
85	2.30E+10
90	1.84E+10

Station	C-067
Instantaneous Conc. (#/100 ml)	380
Geo. Mean Conc. (#/100 ml)	190

Mean	2.23E+11
Allowable Load (#/day)	2.23E+11
Geometric Mean Load (#/30days)	3.35E+12

Percent Exceedance (%)	Load(#/Day)
10	5.79E+11
15	4.57E+11
20	3.81E+11
25	3.32E+11
30	2.90E+11
35	2.55E+11
40	2.29E+11
45	2.06E+11
50	1.83E+11
55	1.64E+11
60	1.49E+11
65	1.30E+11
70	1.14E+11
75	1.03E+11
80	8.77E+10
85	7.62E+10
90	6.10E+10

Table B-2 Existing Loads

Station	C-005
Trend Line:	**Power**
Equation: y=5E+12*x^(-0.9998)	

Existing Load (#/Day):	**1.47E+11**
Average (#/Day):	**1.47E+11**

Percent Exceedance(%)	Load(#/Day)
10	5.00E+11
15	3.34E+11
20	2.50E+11
25	2.00E+11
30	1.67E+11
35	1.43E+11
40	1.25E+11
45	1.11E+11
50	1.00E+11
55	9.10E+10
60	8.34E+10
65	7.70E+10
70	7.15E+10
75	6.67E+10
80	6.26E+10
85	5.89E+10
90	5.56E+10

Station	C-008
Trend Line:	**Power**
Equation: y=1E+14*x^(-1.1442)	

Existing Load (#/Day):	**1.84E+12**
Average (#/Day):	**1.84E+12**

Percent Exceedance(%)	Load(#/Day)
10	7.17E+12
15	4.51E+12
20	3.25E+12
25	2.51E+12
30	2.04E+12
35	1.71E+12
40	1.47E+12
45	1.28E+12
50	1.14E+12
55	1.02E+12
60	9.24E+11
65	8.43E+11
70	7.74E+11
75	7.15E+11
80	6.64E+11
85	6.20E+11
90	5.81E+11

Table B-2 Continued

Station	C-025
Trend Line:	Power
Equation: y=8E+12*x^(-1.1452)	

Existing Load (#/Day):	1.46E+11
Average (#/Day):	1.46E+11

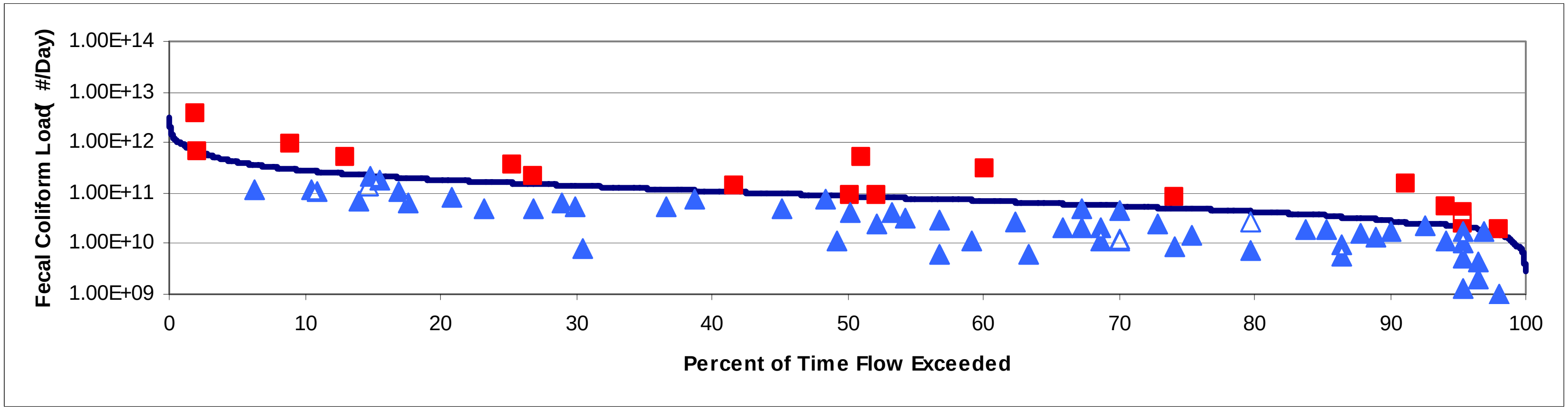
Percent Exceedance(%)	Load(#/Day)
10	5.73E+11
15	3.60E+11
20	2.59E+11
25	2.01E+11
30	1.63E+11
35	1.36E+11
40	1.17E+11
45	1.02E+11
50	9.07E+10
55	8.13E+10
60	7.36E+10
65	6.71E+10
70	6.17E+10
75	5.70E+10
80	5.29E+10
85	4.94E+10
90	4.62E+10

Station	C-067
Trend Line:	Power
Equation: y=5E+12*x^(-0.7434)	

Existing Load (#/Day):	3.47E+11
Average (#/Day):	3.47E+11

Percent Exceedance(%)	Load(#/Day)
10	9.03E+11
15	6.68E+11
20	5.39E+11
25	4.57E+11
30	3.99E+11
35	3.56E+11
40	3.22E+11
45	2.95E+11
50	2.73E+11
55	2.54E+11
60	2.38E+11
65	2.25E+11
70	2.12E+11
75	2.02E+11
80	1.92E+11
85	1.84E+11
90	1.76E+11

Figure B-1 Load Duration Curve with All Measured Data and Power Trend Line Generated from Violating Fecal Coliform Bacteria Measured at C-005



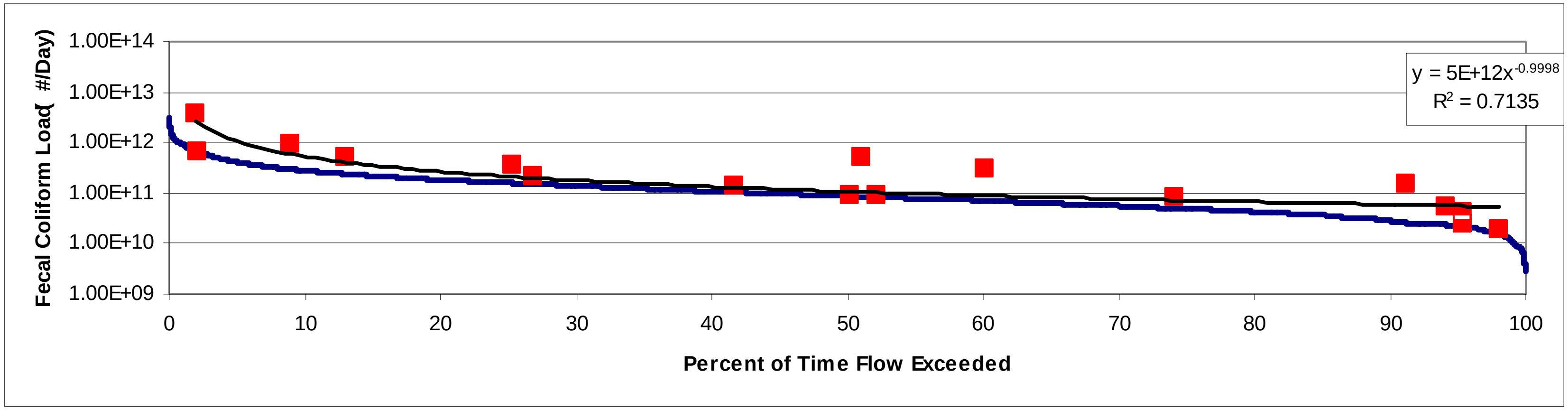
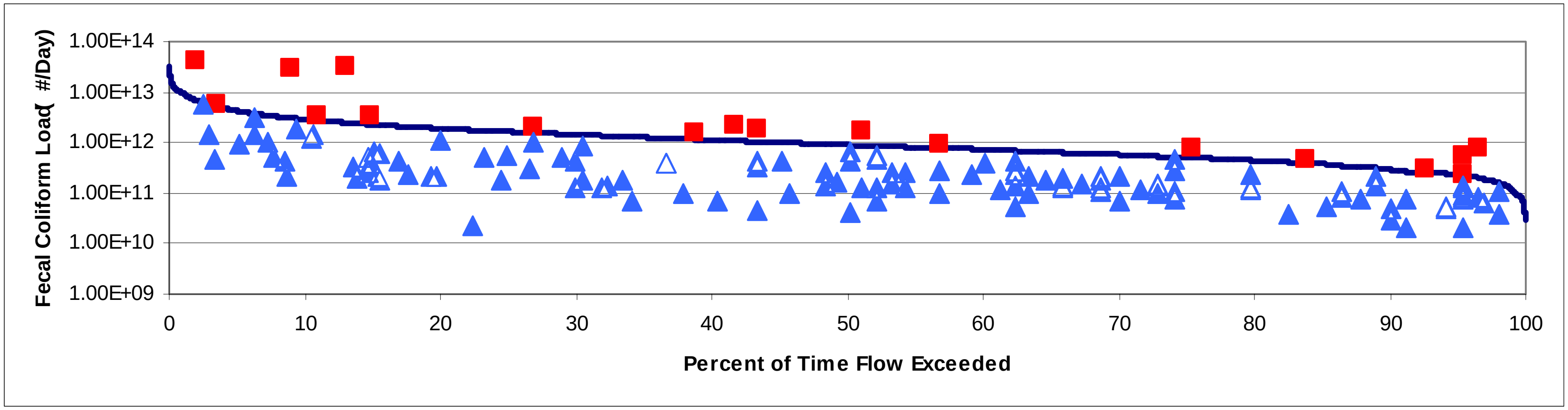


Figure B-2 Load Duration Curve with All Measured Data and Power Trend Line Generated from Violating Fecal Coliform Bacteria Measured at C-008



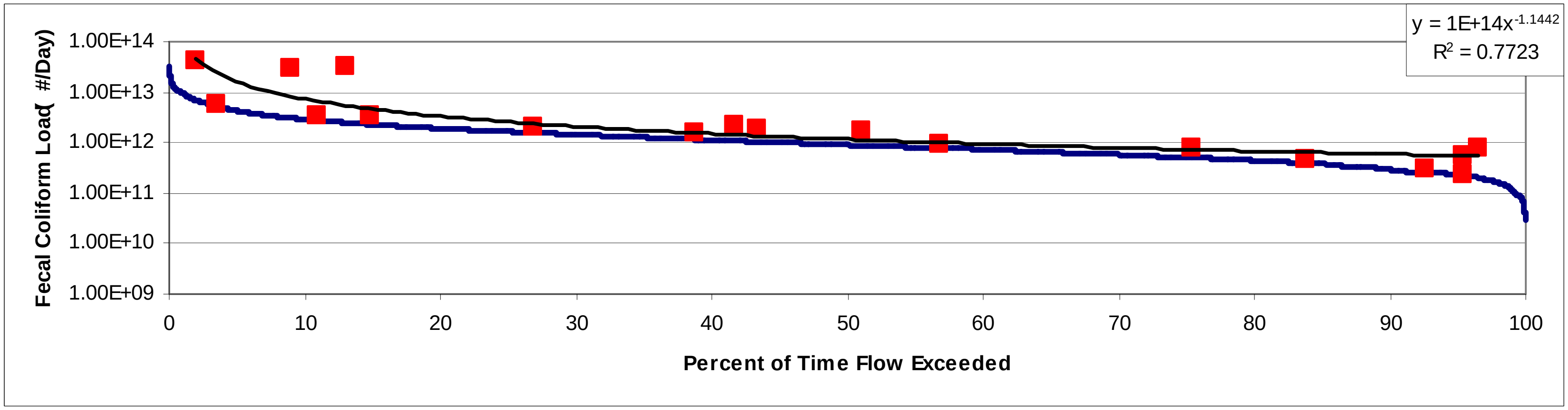
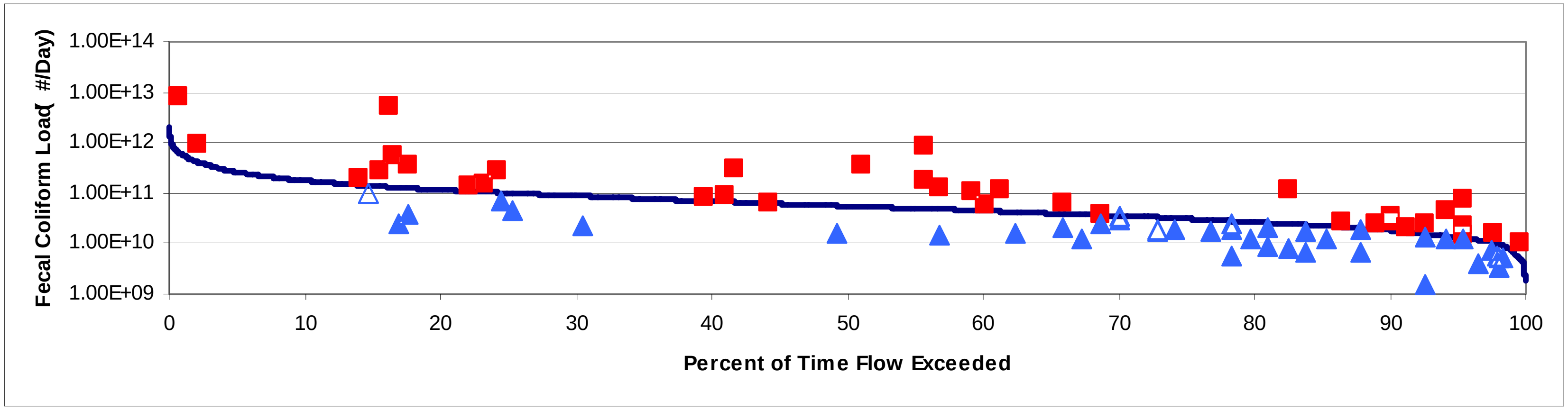


Figure B-3 Load Duration Curve with All Measured Data and Power Trend Line Generated from Violating Fecal Coliform Bacteria Measured at C-025



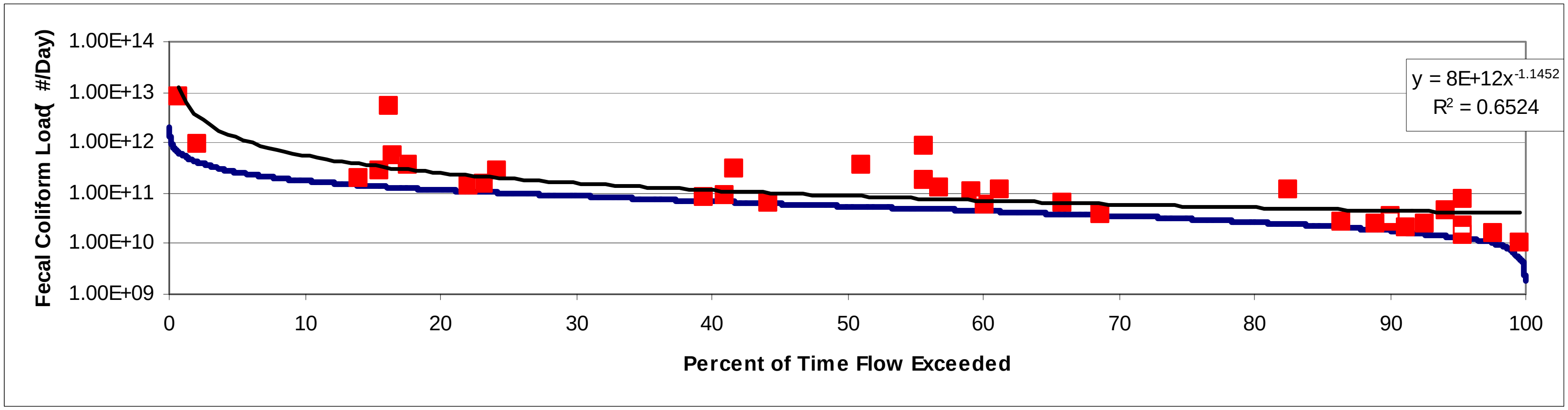
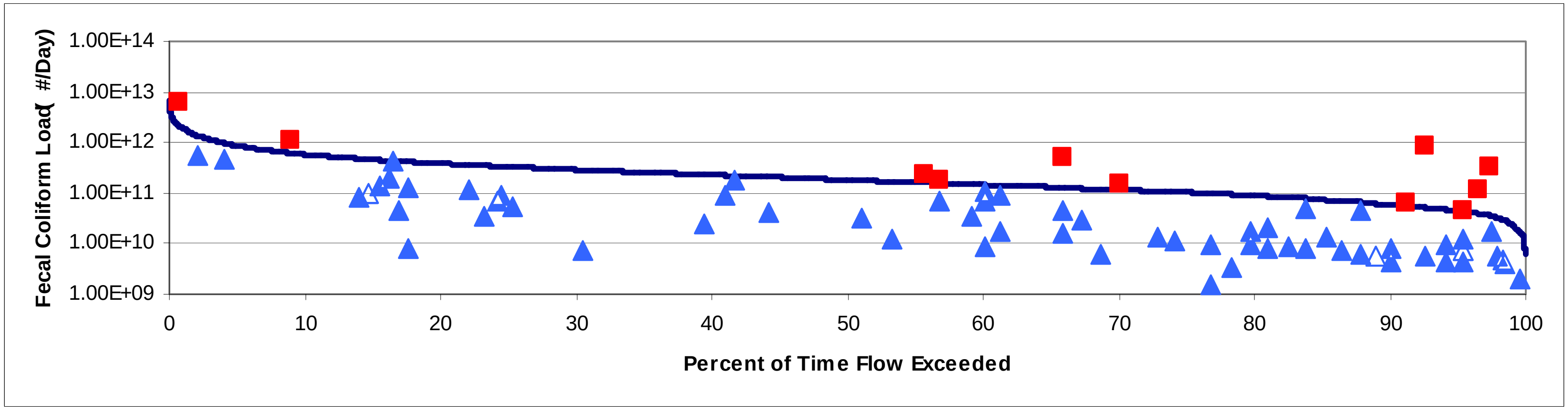


Figure B-4 Load Duration Curve with All Measured Data and Power Trend Line Generated from Violating Fecal Coliform Bacteria Measured at C-067



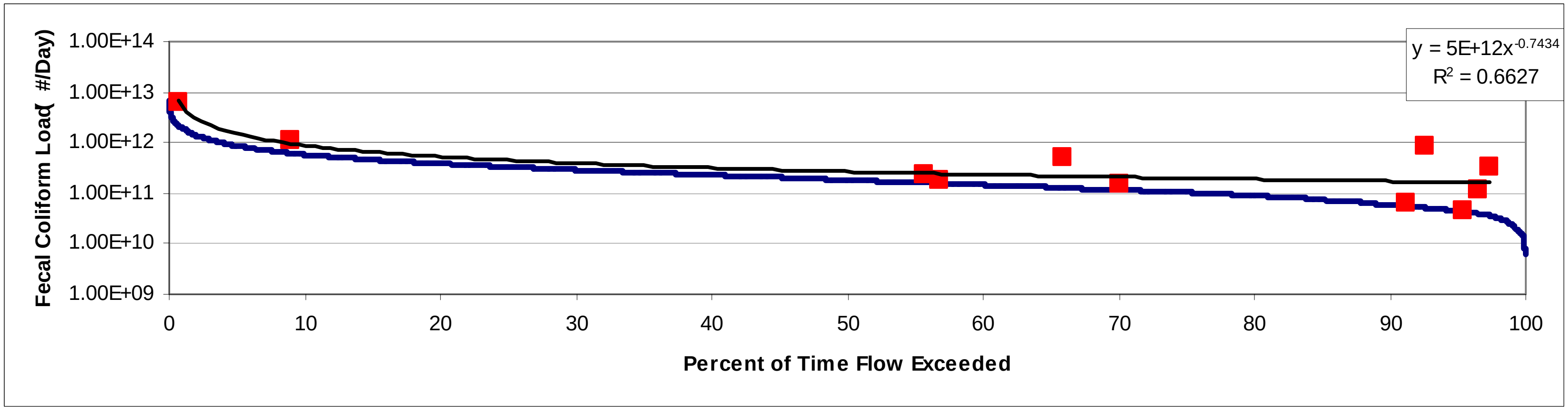


Figure B-5 Water Yield (cubic feet per second per square mile) Based on Measured Daily Streamflow from USGS station 02169570 at C-005

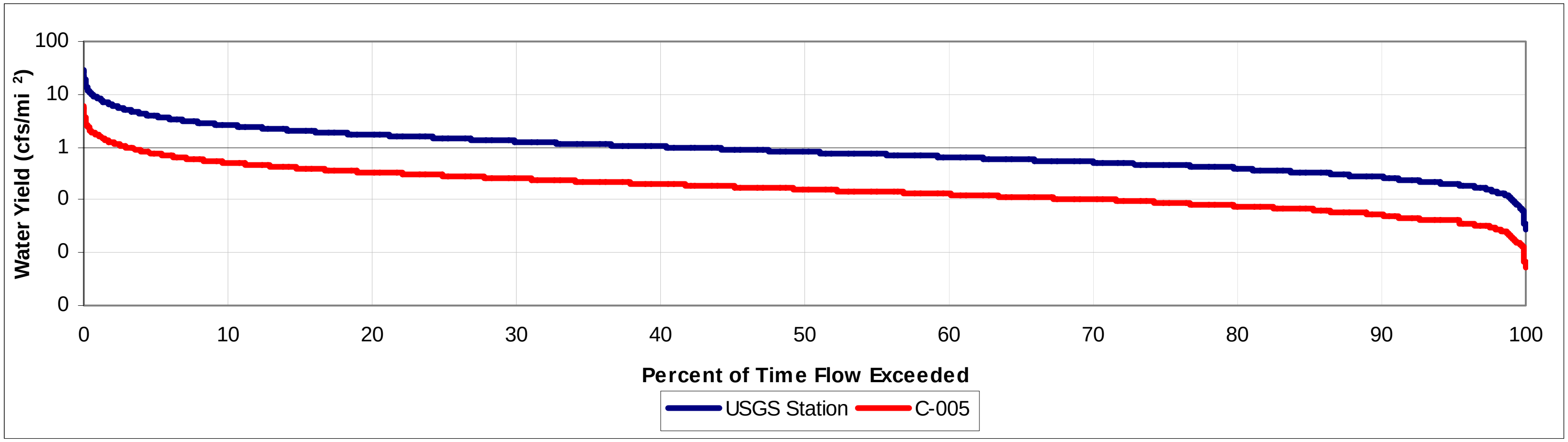


Figure B-6 Water Yield (cubic feet per second per square mile) Based on Measured Daily Streamflow from USGS station 02169570 at C-008

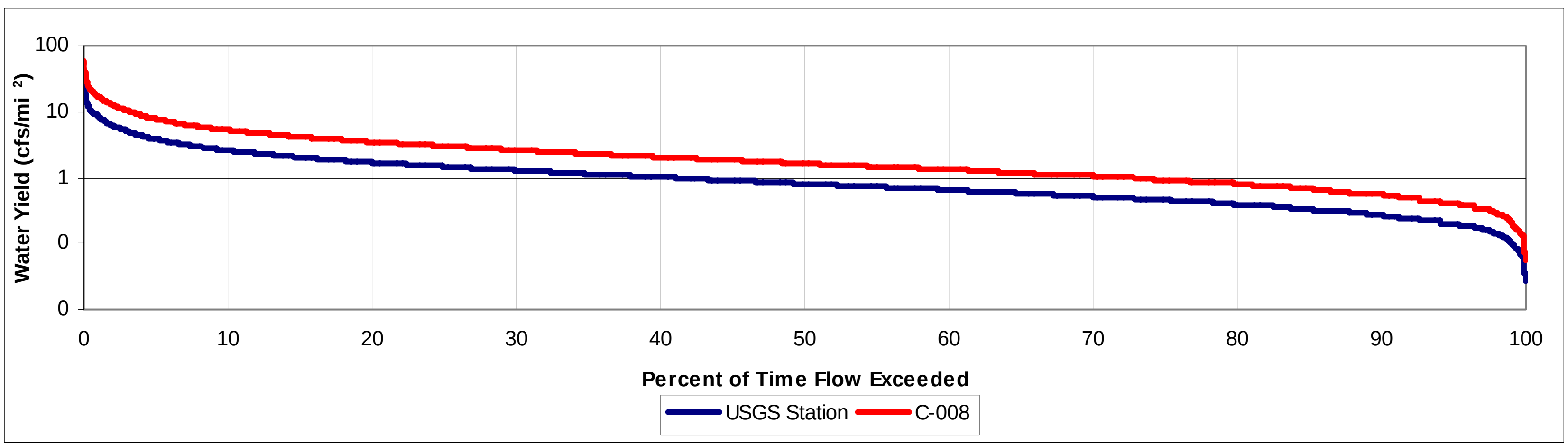


Figure B-7 Water Yield (cubic feet per second per square mile) Based on Measured Daily Streamflow from USGS station 02169570 at C-025

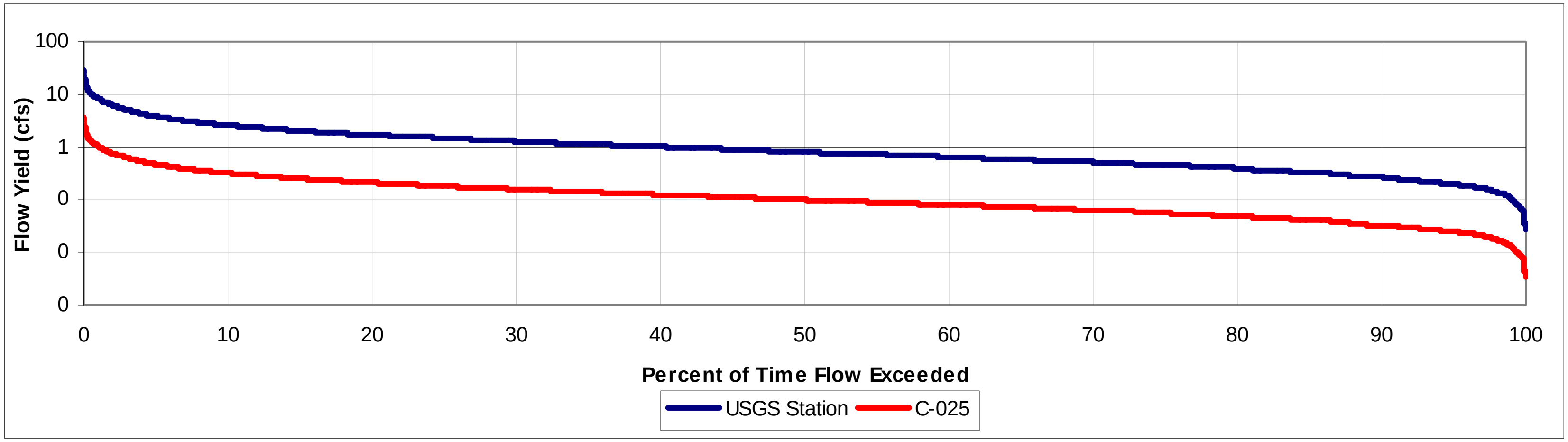
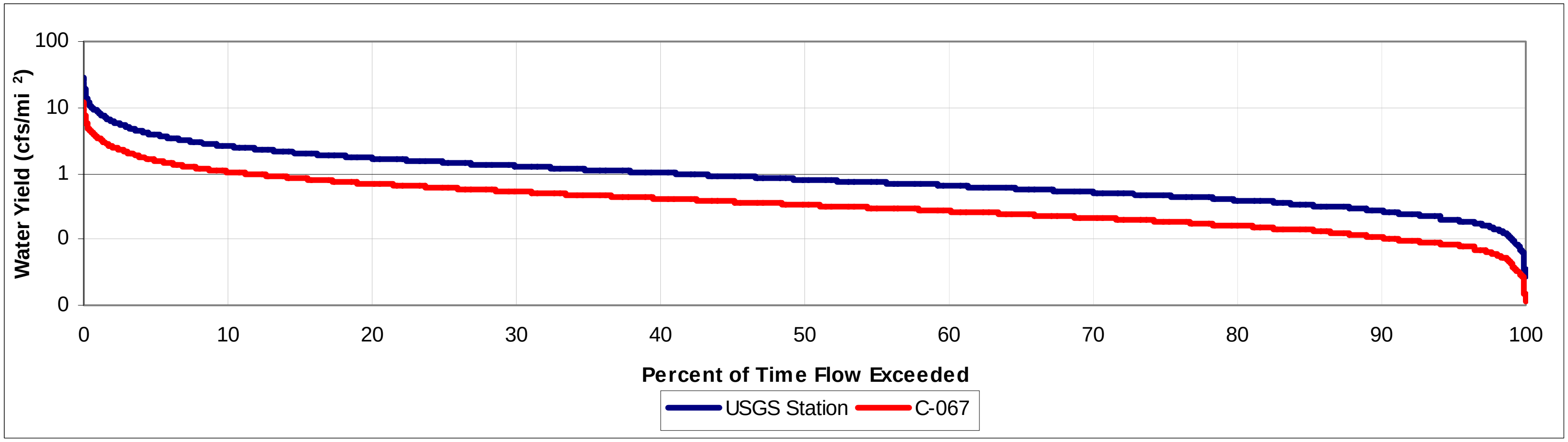


Figure B-8 Water Yield (cubic feet per second per square mile) Based on Measured Daily Streamflow from USGS station 02169570 at C-067



APPENDIX C Public Notification

PUBLIC NOTICE

U.S. Environmental Protection Agency, Region 4
Water Management Division
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960

NOTICE OF AVAILABILITY
TOTAL MAXIMUM DAILY LOADS (TMDLS)
FOR WATER AND POLLUTANTS IN THE STATE OF SOUTH CAROLINA

Section 303(d)(1)(C) of the Clean Water Act (CWA), 33 U.S.C. §1313(d)(1)(C), and the U.S. Environmental Protection Agency's implementing regulation, 40 CFR §130.7(c)(1), require the establishment of Total Maximum Daily Loads (TMDLs) for waters identified by states as not meeting water quality standards under authority of §303(d)(1)(A) of the CWA. These TMDLs are to be established levels necessary to implement applicable water quality standards with seasonal variations and a margin of safety, accounting for lack of knowledge concerning the relationship between pollutant loading and water quality.

The waterbody impairments on South Carolina's 303(d) list that will be addressed by the TMDLs are listed below. These impaired waterbodies are located in the Congaree River Basin in Lexington County.

Waterbody Name	Station ID	§303(d) List Pollutants
Six Mile Creek - on US 21 S of Cayce	C-005	Fecal Coliform Bacteria
Congaree Creek - at US 21 at Cayce Water Intake	C-008	Fecal Coliform Bacteria
Lake Caroline - Six Mile Creek at foot bridge near SC 602	C-025	Fecal Coliform Bacteria
Red Bank Creek - at Sandy Springs Rd between S-32-104 and SC 602	C-067	Fecal Coliform Bacteria

Persons wishing to comment on the proposed TMDLs or to offer new data or information regarding the proposed TMDLs are invited to submit the same in writing no later than May 14, 2004 to the U.S. Environmental Protection Agency, Region 4, Water Management Division, 61 Forsyth Street, S.W., Atlanta, Georgia 30303-8960, ATTENTION: Ms. Sibyl Cole, Standards, Monitoring, and TMDL Branch.

A copy of the proposed TMDLs can be obtained through the Internet or by contacting Ms. Cole at (404) 562-9437 or via electronic mail at cole.sibyl@epa.gov. The URL address for the proposed TMDLs is: http://www.epa.gov/region4/water/tmdl/tennessee/index.htm#sc. The proposed TMDLs and supporting documents, including technical information, data, and analyses, may be reviewed at 61 Forsyth Street, S.W., Atlanta, Georgia, between the hours of 8 AM and 4:30 PM, Monday through Friday. Persons wishing to review this information should contact Ms. Cole to schedule a time for that review.

http://www.epa.gov/region

/s/

James D. Giattina, Director Date
Water Management Division
Region 4
U.S. Environmental Protection Agency

RESPONSE TO COMMENTS

No Comments Received