TOTAL MAXIMUM DAILY LOAD (TMDL) DEVELOPMENT

For FECAL COLIFORM in the

SAVANNAH RIVER WATERSHED

(HUC 03060106)

Richmond County, Savannah River Basin, Georgia

APPROVAL PAGE

for FECAL COLIFORM TMDL in

Savannah River, GA

Georgia=s final 1998 303(d) list identified the Savannah River between Butler and McBean Creek near Augusta, GA as not supporting its designated use, with the pollutant of concern being fecal coliform bacteria. This total maximum daily load (TMDL) is being established pursuant to the 1998 Georgia 303(d) list and the Consent Decree in the Georgia TMDL Lawsuit.

The Total Maximum Daily load for the Savannah River segment between Butler Creek and McBean Creek watershed for fecal coliform for three flow regimes are given below**.**

Flow	TMDL
Min Daily Ave Flow 2810 cfs	1.37×10^{13} Counts/day
7Q10 Flow 4007 cfs	1.96×10^{13} Counts/day
Mean Annual Flow 9717 cfs	4.75×10^{13} Counts/day

The TMDL for Fecal Coliform for the section of the Savannah River between Butler Creek and McBean Creek is 1.37×10^{13} Counts/day.

APPROVED BY:

_____ _____

Robert F. McGhee, Director Date

Water Management Division

EPA-Region 4

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Introduction

Section 303(d) of the Clean Water Act (CWA) as Amended by the Water Quality Act of 1987, Public Law 100-4, and the United States Environmental Protection Agency's (USEPA/EPA) Water Quality Planning and Management Regulations [Title 40 of the Code of Federal Regulation (40 CFR), Part 130] require each State to identify those waters within its boundaries not meeting water quality standards applicable to the water's designated uses. Total maximum daily loads (TMDLs) for all pollutants violating or causing violation of applicable water quality standards are established for each identified water. Such loads are established at levels necessary to implement the applicable water quality standards with consideration given to seasonal variations and margins of safety. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a water body, based on the relationship between pollution sources and in-stream water quality conditions, so that states can establish water-quality based controls to reduce pollution from both point and nonpoint sources and restore and maintain the quality of their water resources (USEPA, 1991).

Problem Definition

Georgia's final 1998 Section 303(d) list identified 23 miles of Savannah River between the confluences of Butler and McBean Creek as not supporting its designated use as fishing and swimming water, with the pollutant of concern being Fecal Coliform. This listing decision was based on historical limited data that was collected.

However, since the water is on the 1998 Georgia 303(d) list and the Consent Decree in the Georgia TMDL lawsuit requires TMDLs to be developed for all waters on the current 303 (d) list, this TMDL is being established.

Target Identification

The target level for the development of the Fecal Coliform TMDL in the Savannah River segment is the numeric criterion established in Georgia's Rules and Regulations for Water Quality Control, Chapter 391-3-6, Revised July 6, 1999. Georgia Regulation 391-3-6-.03(5)(e)(ii)(5)(a) establishes the freshwater criterion for Fecal Coliform expressed in terms of a geometric mean concentration of no more than 200 counts/ml.

Background

The segment that is impaired is located directly downstream of the City of Augusta, Georgia between the confluences of Butler Creek and McBean Creek. This 23-mile segment of the Savannah River is on the State of Georgia's §303 (d) list for violating the total Fecal Coliform standard for the State of Georgia. The City of Augusta over the past 8 years has improved their stormwater conveyance system and separated their stormwater and sanitary sewer systems. These improvements have lead to dramatic decreases in fecal coliform loading to the Savannah River.

Numeric Targets and Sources - Model Development

A steady-state water quality model provides predictions for only a single set of environmental conditions. For NPDES permitting purposes, steady-state models are applied for "critical" environmental conditions that represent conditions when the assimilative capacity of a waterbody is very low. For discharges to riverine systems, critical environmental conditions correspond to drought upstream flows. The assumption behind steady-state modeling is that permit limits that protect water quality during critical conditions will be protective for the large majority of environmental conditions that occur. This TMDL does not consider the impacts of nonpoint source loadings of fecal coliforms due to wet weather events when the assimilative capacity of a waterbody is greater.

Critical Condition Determination

The most critical condition for this segment of the Savannah River will be used to determine the TMDL.

Fecal Coliform will be considered a conservative substance in the TMDL calculation. The influence on the instream Fecal Coliform concentration will be river flow. The critical river flow will be the minimal flow that was measured over the past 20 years.

Low-flow characteristics of the Savannah River (Butler Creek to McBean Creek) were determined by using the USGS Gage #02197000 (Augusta below New Savannah Bluff Lock and Dam). The Savannah River is regulated by a series of impoundments affecting flows in the Greater Augusta Area. Thurmond Dam is the major control structure used to control flows in the River through the Augusta metropolitan area. Thurmond Reservoir encompasses approximately 70,000 acres, is located 22 miles above Augusta on the Savannah River, and represents the first Corps of Engineers flood control project built in the Savannah River Basin (full pool 1955). New Savannah Bluff Lock and Dam, used for flood control and sparingly for navigation below Augusta represents the final control structure before the river enters Savannah Harbor.

USGS flow gage #02197000 is located directly below the New Savannah Bluff Lock and Dam and above the confluence of Butler Creek and the Savannah River. According to USGS daily flow records obtained from the USGS NWIS retrieval web-site, the minimum daily average flow of record for 1955-1998 occurred on 12/7/1981 as 2810 cfs. In addition the, 7Q10 flow for this period is approximated as 4007 cfs.

Total Maximum Daily Load (TMDL)

The TMDL is the total amount of pollutant that can be assimilated by the receiving water body while achieving water quality standards. Since there are no known sources and no known existing fecal coliform water quality problem, this TMDL will be expressed as a loading capacity. If in the future, a point or nonpoint source load of Fecal Coliform is introduced in the system the total of the WLA (wasteload allocations for point source loadings) and LA (load allocation for nonpoint source loadings) shall not exceed this loading capacity.

Margin of Safety

The margin of safety (MOS) is part of the TMDL development process. There are two basic methods for incorporating the MOS (USEPA, 1991a):

1. Implicitly incorporating the MOS using conservative model assumptions to develop allocations, or
2. Explicitly specifying a portion of the total TMDL as the MOS; using the remainder for allocations.

The MOS is incorporated implicitly into this modeling process by selecting the critical low flow from the previous 20 years.

TMDL Calculation

The TMDL calculation will utilize the conservation of mass principle, where the load can be calculated by using the following relationship:

$$\text{Concentration} = \text{Load} / \text{Flow}$$

Rearranging this equation the maximum load can be calculated as follows:

$$\text{Load} = \text{Concentration (Water Quality Standard)} * \text{Flow}$$

The Total Maximum Daily load for the Savannah River segment between Butler Creek and McBean Creek watershed for fecal coliform for three flow regimes are given in Table 1**.**

Table 1 TMDL for Fecal Coliform

Flow	TMDL
Min Daily Ave Flow 2810 cfs	1.37×10^{13} Counts/day
7Q10 Flow 4007 cfs	1.96×10^{13} Counts/day
Mean Annual Flow 9717 cfs	4.75×10^{13} Counts/day

The TMDL for Fecal Coliform for the section of the Savannah River between Butler Creek and McBean Creek is 1.37×10^{13} Counts/day.

Seasonal Variation

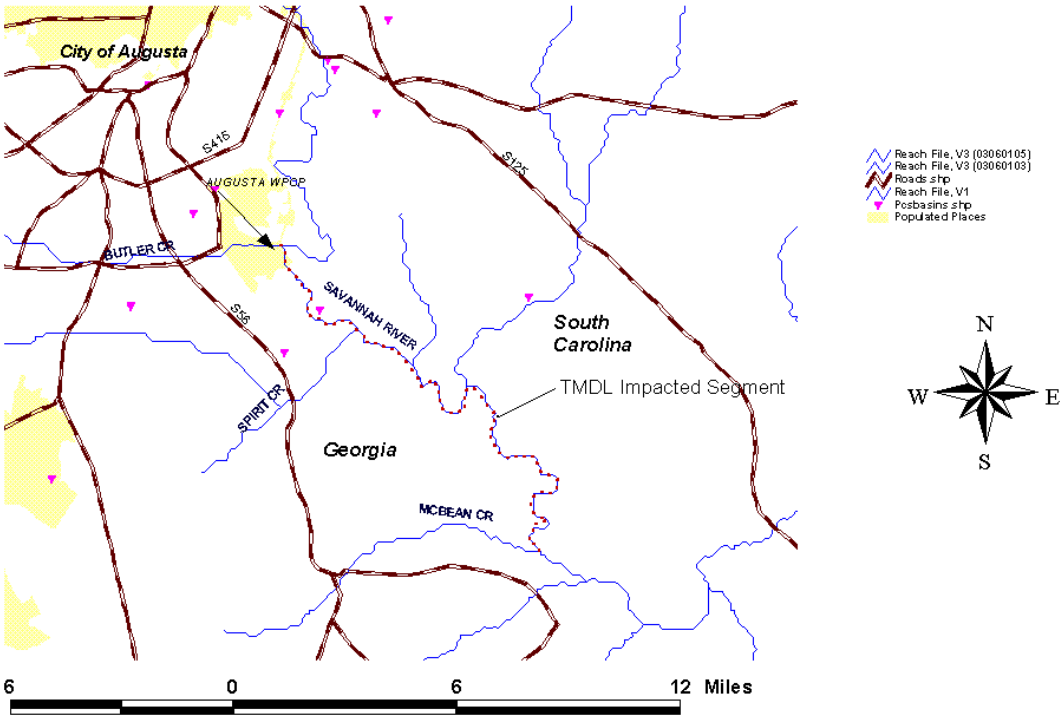
The low flow condition represents the most critical design condition and will provide year round protection. For example at the long term mean flow of 9717 cfs the maximum daily load of fecal coliform counts/day would be 71% lower. There are no seasonal variations that impact the concentration of Fecal Coliform in the river due to biological activities.

Allocation of Responsibility and Recommendations

For a potential future point or nonpoint source of Fecal Coliform loadings introduced into the system, the total of the WLA (wasteload allocations for point source loadings) and LA (load allocation for nonpoint source loadings) shall not exceed this TMDL.

Appendix A -- Site Map

Savannah River TMDL Location Map
(Butler Creek to McBean Creek Segment)



Appendix B – Units Conversion Table

From	To	Multiply by:
Million Gallons per Day (MGD)	Cubic Meters per Second (cms)	0.04381
Cubic Feet per Second (cfs)	Cubic Meters per Second (cms)	0.02832
Pounds (lbs)	Kilograms (Kg)	0.4536
Tons (Short)	Kilograms (Kg)	907.1848
Tons (Long)	Kilograms (Kg)	1016.00

Administrative Record

Augusta, Georgia Municipal Separate Storm Sewer System Suburban Stormwater District NPDES Stormwater Permit No. GAS000201. 1998-99 Annual Report.

Compilation of Georgia's Current Modeling Guidelines for the Development of Wasteload Allocations and NPDES Permit Limitations. January 1991

Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03, Water Use Classifications and Water Quality Standards

STORET Water Quality Data

Georgia Environmental Protection Division Stream Monitoring Data

City of Augusta Stormwater Monitoring Data

USGS Water Quality and Stream Flow Data

On Disk: Excel Spreadsheet to calculate geometric means

Response to Public Comment on the Proposed TMDL

COMMENT:

The public needs to be informed that a TMDL has been established for this water segment.

Douglas P. Haines, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, November 11, 1999

RESPONSE:

This proposed TMDL was public noticed.

COMMENTS:

The commenters request that the TMDL be withdrawn. Where applicable, recalculation should be done using defensible assumptions using all the available site-specific data.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

Comment noted.

COMMENTS:

In the Target Identification section of the TMDL, the latest version of the State standards is not cited.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

The TMDL will cite the current State standards.

COMMENT:

The TMDL ignores any and all point source discharges of fecal coliform into tributaries of the Savannah River that would be causing or contributing to the impairment of the water (examples would be Augusta and several Savannah treatment plants). The TMDL needs to be revised to establish a wasteload allocation. EPA might best address this by establishing a basin-wide fecal coliform TMDL.

Eric E. Huber, EarthJustice Legal Defense Fund, 400 Magazine Street, Suite 401, New Orleans, Louisiana 70130-2453, November 8, 1999

RESPONSE:

There are no direct dischargers to this listed segment of the Savannah River. TMDL's were developed for Butler and Rocky Creek, which contain the majority of the point and non-point sources of Fecal Coliforms to this listed segment.

COMMENT:

Regarding the determination of critical river flow, EPA has stated that the critical flow is the minimal flow that was measured over the past twenty years. EPA has erroneously estimated a 1 in 20 year minimum flow.

Considering the fecal coliform standard, the flow in the TMDL assessment (whether a high flow or a low flow analysis) should be a 30-day average flow. The 30Q3 for the Savannah River at this location is almost 5000 cfs. The use of 2810 cfs in the TMDL introduces an enormous margin of safety.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

The minimum daily average flow on record for the Savannah River was used, as required by Georgia regulations for flow regulated systems.

COMMENT:

Many of the assumptions used by EPA in developing this TMDL are extremely conservative, inconsistently applied, and irrational. Little or no attempt has been made to quantify the effects of the multiplicity of conservative assumptions upon the resulting TMDL. The conservative assumptions build in unknown, and conceivably very large, implicit margins of safety, and the commenters believe that TMDLs should be calculated as accurately as possible taking into account explicit margins of safety. The margin of safety should be quantified to the extent possible and communicated in the TMDL. Until this done, neither EPA nor the regulated community will know if established TMDLs represent an appropriate balance between environmental protection and the ability to use the resource.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

Comment noted.

COMMENT:

According to EPA's own guidance, an acceptable margin of safety in aquatic ecosystems allows for the criterion to be exceeded once every three years. The TMDL should not be formulated, by applying large factors of safety, so that the criterion is never to be exceeded. This assumption ignores the margin of safety that EPA has built into the water quality criteria and makes the TMDL overly conservative.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

Use of the critical low flow is considered an appropriate margin of safety for this TMDL.

COMMENT:

EPA has used a margin of safety (MOS) that is inconsistent with that used in previous fecal coliform analyses. IN 1997, EPA used explicit margins of safety of 25 or 50 cfu / 100 ml in addition to the use of conservative selection of model parameters and assumptions that constituted an implicit MOS. Why was an explicit MOS not used in this case? Why has EPA been inconsistent with its formulation and application of the MOS for fecal coliform bacteria?

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree. Because of the use of critical low flow conditions; EPA feels this provides an adequate margin of safety without using an explicit method.

COMMENT:

EPA has disregarded the fact that the Georgia water quality criterion for fecal coliform is written such that if "water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200/100 ml (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 / 100 ml in lakes and reservoirs and 500 / 100 ml in free-flowing freshwater streams." EPA has not shown that the 200/100 ml standard should not apply in this case. The use of the incorrect water quality criterion would introduce a huge margin of safety.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree.

COMMENT:

EPA has not considered the high flow scenario when water quality criteria for fecal coliform bacteria (November through April) would be 1000/100 ml, not to exceed 4000/100 ml for any sample. This is inconsistent with the fecal coliform TMDLs which were done in 1997 in Georgia in which the BASINS model was used to generate time series of fecal coliform concentrations over a range of flow conditions. Why has EPA been inconsistent with the methodology and assumptions with regard to the assessment of seasonal variations in and establishment of this TMDL ?

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree. The critical conditions for evaluating the NPDES permits is critical low flow.

COMMENT:

The use of a single day low flow rate is inconsistent with the 30-day concentration averaging approach used by EPA when calculating TMDLs for fecal coliforms for Georgia streams in 1997. Why has EPA been inconsistent in its assumptions between this and previous analyses?

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree. The critical condition for evaluating the NPDES permits is critical low flow.

COMMENT:

EPA has considered fecal coliform bacteria as a conservative substance. This is inconsistent with EPA's previous analyses in 1997 for fecal coliforms in which the fecal coliform die-off rate was set to 0.05 / day in model runs. Why has EPA taken a different approach?

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree. All facility permits were meeting criteria end of pipe so no fate needed to be included in the TMDL calculation.

COMMENT:

EPA should follow their own guidelines for delisting the stream segment and not perform a TMDL analysis when it is not warranted. Will the segment be delisted, or will the TMDL be approved and implemented ?

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

This TMDL was used to evaluate the potential impacts of NPDES permitted facilities on water quality as agreed upon in the Georgia TMDL Lawsuit Consent Decree. Any segment in the two basins that were on Georgia's 1998 303(d) potentially impacted by point sources had to have TMDLs developed.

COMMENT:

EPA demonstrates a fundamental misunderstanding of the problem of contamination by fecal coliform bacteria and nonpoint source pollution. A statement in the TMDL implies that if fecal coliform bacteria are still exceeding the standard, nonpoint sources are perhaps the culprit. The statement also implies that combined sewer overflows at the City of Augusta were a source of fecal coliform. These overflows occur during we weather, not during low flow conditions. EPA misses the point that the loadings are greater during high flows and that the critical condition might in fact be a relatively low flow condition following a high fecal coliform loading event. EPA also misses the point that the worst of the fecal coliform problem may not occur in the stretch of the river where the highest loading occurs, but in fact may occur in a downstream section.

J. David Dean, Technical Director, Water Quality, Ogden Environmental and Energy Services, and Ian Lundberg, P.E., Principal, Resolve Environmental Engineering, 1395 South Marietta Parkway, Building 300, Suite 210, Marietta, Georgia 30061, November 12, 1999

RESPONSE:

Comment noted. See earlier responses.

COMMENT:

In the Problem Definition section of the TMDL, it is stated that the non-support is for fishing water. During the summer of 1998, the commenter was assured that all waters in Georgia were protected and classified for swimming. It now appears that this was not correct, and that EPA is not aware of how Georgia has classified its waters. A reading of the State regulations shows that only a few of the waters are so classified, and the rest are set at a lower standard for fishing. This is in conflict with the Clean Water Act's fish/swim language, and what we were told. This is also different from other States such as Tennessee and South Carolina where all waters are correctly classified for protection for swimming.

This TMDL allows for more pollution by fecal coliform than is safe for swimming. Further, one would assume that a river of this size would be used for swimming at times. This issue goes beyond the scope of this TMDL, but does need to be addressed.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

Text has been revised to reflect uses of the water segment for fishing and swimming.

COMMENT:

In the Target Identification section of the TMDL, the regulations cited are not the latest version. It should be July 6, 1999.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

The document has been modified to reflect the new standards.

COMMENT:

In the Target Identification section of the TMDL, the geometric mean criterion cited should be 200-counts/100 ml. It is also not clear that this covers and explains all aspects of the criteria such as single samples, number of samples per month, seasonal, etc. If this TMDL for a single criterion covers all, it should be explained.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

This TMDL was developed to look at potential point source discharges. No attempt has been made to calculate potential inputs from stormwater runoff because the Georgia TMDL lawsuit Consent Decree required TMDLs developed for listed segments with point source discharges. Nonpoint source contributions will be addressed in future TMDLs.

COMMENT:

In the Numeric Targets and Sources - Model Development section of the TMDL, it is stated that this does not address impacts of nonpoint loadings. Thus, this TMDL would be technically and legally deficient since nonpoint/runoff is generally considered a significant contribution of fecal, and a required component of a TMDL.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

This TMDL was developed to look at potential point source discharges. No attempt has been made to calculate potential inputs from stormwater runoff because the Georgia TMDL lawsuit Consent Decree required TMDLs developed for listed segments with point source discharges. Nonpoint source contributions will be addressed in future TMDLs.

COMMENT:

The commenter encourages EPA to find a way to use an explicit MOS - such as a reserved percentage of the TMDL.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

Comment noted.

COMMENT:

In the TMDL Calculation section of the TMDL, it needs to be shown how the load given in counts/day relates or converts to the standard of 200/100 ml. Also, it needs to be explained why there are 3 different flows given in Table 1, and why 3 different TMDLs are given.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

The three different flows illustrate the range of loads that could occur due to changes in flow. The lowest average daily flow is selected because the Savannah River is a regulated stream. You cannot convert the counts/day to 200/100ml, because the later is a function of flow.

COMMENT:

In the Seasonal Variation section of the TMDL, it needs to be explained how other seasons are covered, especially since runoff is being ignored and that is potentially a significant source.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

This TMDL was developed to look at potential point source discharges. No attempt has been made to calculate potential inputs from stormwater runoff because the Georgia TMDL lawsuit Consent Decree required TMDLs developed for listed segments with point source discharges. Non-point source contributions will be addressed in future TMDLs.

COMMENT:

In the Allocation of Responsibility and Recommendations section of the TMDL, there is no explanation if or how the standard is expected to be met.

Douglas P. Haines, Executive Director, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, December 10, 1999

RESPONSE:

Fecal Coliform TMDLs have been developed for Butler and Rocky Creek that assign large reductions in Fecal Coliform loads.

COMMENT:

The commenter opposes removal of this segment for the following reasons:

1. The history of very poor sewage treatment by the City of Augusta and elevated fecal discharges from the Augusta-Richmond County wetland facility show that this water segment has a history of failing to support designated uses.

2. The commenter is unaware of data sufficient to confirm that the water quality limits for the water segment have been met.

3. Other possible point sources impact this water segment with fecal coliform. Multiple listings of adjacent waters (Rocky Creek, Butler Creek, Phinizy Ditch) for fecal coliform indicate that there is still sufficient cause for concern and this segment should be listed as "threatened," as a minimum.

Douglas P. Haines, Georgia Legal Watch, 264 North Jackson Street, Athens, Georgia 30601, November 11, 1999

RESPONSE:

1. EPA is aware of the poor performance of Richmond-Augusta wastewater treatment facility. The State of Georgia and EPA are working with the facility operators to improve the performance of the facility and achieve permit limits.

2. The largest fecal load for this segment of the Savannah River comes from Butler Creek (the upstream point of the listed segment), EPA reminds the commenter that Fecal Coliform TMDL's have been proposed for both Rocky and Butler Creek.

3. EPA reminds the commenter that Fecal Coliform TMDL's have been proposed for both Rocky and Butler Creek.

References:

- Better Assessment Science Integrating Point and Nonpoint Sources, BASINS, Version 2, User's Manual. EPA-823-B-98-006
- Rules and Regulations for Water Quality Control, Chapter 391-3-6-.03, Water Use Classifications and Water Quality Standards
- Sierra Club v. EPA & Hankinson USDC-ND-GA Atlanta Div. #1: 94-CV-2501-MHS
- USEPA. Guidance for Water Quality-based Decisions: The TMDL Process. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. EPA/440/4-91-001, April 1991.