BUREAU OF WATER

Watershed Water Quality Assessment

Saluda River Basin

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South Carolina Department of Health and Environmental Control

Technical Report No. 005-98
December, 1998

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Prepared By

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Bureau of Water

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PREFACE

In 1993, the South Carolina Department of Health and Environmental Control (SCDHEC) published the first in a series of five watershed management documents. Watershed Water Quality Management Strategy: Saluda-Edisto Basin communicated SCDHEC's innovative watershed approach, summarizing water programs and water quality in the basins. The approach continues to evolve and improve.

The watershed documents facilitate broader participation in the water quality management process. Through these publications, SCDHEC shares water quality information with internal and external partners, providing a common foundation for water quality improvement efforts at the local watershed or large-scale, often interstate, river basin level.

Water quality data from the Saluda River Basin was collected and assessed at the start of this second five-year watershed management cycle. The assessment incorporates data from many more sites than were included in the first round. This updated atlas provides summary information on a watershed basis, as well as geographical presentations of all permitted watershed activities. A waterbody index allows the reader to locate information on specific waters of interest.

A brief summary of the water quality assessments included in the body of this document is provided following the Table of Contents. This summary lists all waters within the Saluda River Basin that fully support recreational and aquatic life uses, followed by those waters not supporting uses. In addition, the summaries list waters that have improved or degraded over the last 5 years since the original strategy was written. More comprehensive information can be found in the individual watershed sections.

As SCDHEC continues basinwide and statewide water quality protection and improvement efforts, we are counting on the support and assistance of all stakeholders in the Saluda River Basin to participate in bringing about water quality improvements. We look forward to working with you.

Questions and comments regarding this document, or if seeking further information on the water quality in the Saluda River Basin, please contact :

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Saluda River Basin - Stations that Improved from 1993 to 1997

REC= Recreational; AL=Aquatic Life; F=Fully Supported; P=Partially Supported; N=Nonsupported

Watershed	Sta.#	Waterbody Name	Use	Status		Cause		Trends	
				1993	1998	1993	1998	1993	1998
03050109-020	S-299	S. Saluda River	REC	N	P	Fecal Coliform	Fecal Coliform		
03050109-040	S-267	Saluda River Trib	AL	P	F	pH		Decreasing Dissolved Oxygen; Increasing Turbidity	Decreasing Dissolved Oxygen; Increasing Turbidity
	S-119	Saluda River	REC	P	F	Fecal Coliform		Increasing Turbidity	Increasing Turbidity
03050109-090	S-289	Broad Mouth Ck	AL	N	F	Dissolved Oxygen			Increasing Fecal Coliform
	S-776	Broad Mouth Ck Trib	AL	N	P	Macroinvertebrates	Macroinvertebrates		
03050109-100	S-072	Reedy River	AL	P	F	Dissolved Oxygen		Increasing pH and Fecal Coliform	
03050109-140	S-233	Wilson Ck	AL	P	F	Dissolved Oxygen		Decreasing pH	Decreasing pH
03050109-150	S-042	Bush River	REC	N	P	Fecal Coliform	Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Total Nitrogen	Decreasing Dissolved Oxygen and pH
03050109-160	S-038	Little River	REC	N	P	Fecal Coliform	Fecal Coliform		
03050109-170	S-123	Little Saluda River	REC	N	P	Fecal Coliform	Fecal Coliform	Decreasing pH	Decreasing pH; Increasing Fecal Coliform
03050109-180	S-255	Clouds Ck	REC	P	F	Fecal Coliform		Decreasing pH	Decreasing pH
03050109-210	S-149	Saluda River	AL	N	P	Dissolved Oxygen	Dissolved Oxygen	Decreasing Dissolved Oxygen	Decreasing Dissolved Oxygen
	C-021	Mill Ck	REC	N	P	Fecal Coliform	Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Turbidity and Fecal Coliform	
	C-022	Mill Ck	AL	P	F	Dissolved Oxygen		Increasing Turbidity	
			REC	P	F	Fecal Coliform			

Watershed	Sta.#	Waterbody Name	Use	Status		Cause		Trends	
				1993	1998	1993	1998	1993	1998
03050110-020	C-061	Savana Branch	REC	P	F	Fecal Coliform		Increasing pH, Turbidity, and Fecal Coliform	Increasing pH, Turbidity and Fecal Coliform
03050110-050	C-069	Cedar Ck	REC	N	P	Fecal Coliform	Fecal Coliform	Increasing Turbidity	Increasing Turbidity

Saluda River Basin - Stations that Degraded from 1993 to 1997

REC= Recreational; AL=Aquatic Life; F=Fully Supported; P=Partially Supported; N=Nonsupported

Watershed	Sta.#	Waterbody Name	Use	Status		Cause		Trends	
				1993	1998	1993	1998	1993	1998
03050109-030	S-103	Oolenoy River	REC	F	N		Fecal Coliform		
03050109-040	S-007	Saluda River	AL	F	N		Copper and Zinc	Decreasing Dissolved Oxygen; Increasing pH	Increasing Turbidity
			REC	F	P		Fecal Coliform		
	S-774	Grove Ck	AL	F	P		Macroinvertebrates		
03050109-060	S-301	Big Brushy Ck	AL	F	P		Macroinvertebrates		
			REC	F	P		Fecal Coliform		
03050109-070	S-302	Big Ck	AL	F	P		Macroinvertebrates		
			REC	F	P		Fecal Coliform		
03050109-080	S-125	Saluda River	REC	F	P		Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Turbidity	Decreasing Dissolved Oxygen and pH; Increasing Turbidity and Fecal Coliform
	S-022	Lake Greenwood	AL	F	P		pH	Decreasing Dissolved Oxygen	Decreasing Dissolved Oxygen and pH
	S-131	Lake Greenwood	AL	F	P		Zinc	Decreasing pH	Decreasing Dissolved Oxygen and pH; Increasing Turbidity and Fecal Coliform
			REC	F	P		Fecal Coliform		
03050109-090	S-304	Broad Mouth Ck	REC	F	N		Fecal Coliform		
03050109-100	S-319	Reedy River	AL	F	N		Zinc		
	S-091	Rocky Ck	AL	F	P		Macroinvertebrates		Decreasing Dissolved Oxygen
03050109-110	S-178	Huff Ck	REC	P	N	Fecal Coliform	Fecal Coliform		
03050109-120	S-311	Boyd Mill Pond	AL	F	N		pH		Decreasing pH; Increasing Turbidity and Fecal Coliform

Watershed	Sta.#	Waterbody Name	Use	Status		Cause		Trends	
				1993	1998	1993	1998	1993	1998
	S-021	Reedy River	REC	F	P		Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Fecal Coliform	Decreasing pH; Increasing Turbidity and Fecal Coliform
	S-308	Lake Greenwood	AL	F	P		pH		
03050109-130	S-307	Lake Greenwood	REC	F	P		Fecal Coliform		
03050109-140	S-235	Wilson Ck	AL	F	P		Macroinvertebrates	Decreasing pH	
	S-093	Ninety Six Ck	AL	F	P		Copper	Decreasing pH	Decreasing pH
03050109-150	S-186	Saluda River	AL	P	N	Dissolved Oxygen	Copper and Zinc	Decreasing pH	Decreasing pH
	S-295	Saluda River	AL	P	N	Dissolved Oxygen	Copper		
	S-309	Lake Murray	AL	F	N		pH		
	S-223	Lake Murray	AL	F	P		Copper	Increasing pH	
03050109-160	S-305	Little River	REC	F	N		Fecal Coliform		
03050109-180	S-112	Moores Ck	AL	F	P		Macroinvertebrates		
03050109-190	S-279	Lake Murray	AL	F	N		Copper	Increasing BOD, pH, and Fecal Coliform	Increasing Turbidity and Fecal Coliform
	S-290	Camping Creek	AL	F	N		Copper and Zinc	Increasing pH	
	S-280	Lake Murray	AL	F	N		Copper	Increasing pH and Fecal Coliform	Increasing Fecal Coliform
	S-273	Lake Murray	AL	F	N		Copper	Increasing pH and Fecal Coliform	Increasing Fecal Coliform
	S-274	Lake Murray	AL	F	N		Copper	Increasing pH and Fecal Coliform	Increasing Fecal Coliform
	S-204	Lake Murray	AL	F	P		Copper	Increasing pH and Fecal Coliform	Increasing Fecal Coliform
03050109-210	S-287	Rawls Ck	AL	F	N		Macroinvertebrates		Increasing TSS and Fecal Coliform

Watershed	Sta.#	Waterbody Name	Use	Status		Cause		Trends	
				1993	1998	1993	1998	1993	1998
	S-294	Twelvemile Ck	AL	F	N		Copper and Zinc	Decreasing pH	Decreasing pH; Increasing Total Nitrogen
	S-260	Kinley Ck	AL	F	N		Macroinvertebrate	Increasing pH	Increasing TSS
	S-298	Saluda River	AL	F	N		Copper and Zinc	Increasing BOD	Increasing TSS
03050110-010	CSB-001L	Congaree River	AL	F	N		Copper and Zinc	Decreasing Dissolved Oxygen	Decreasing Dissolved Oxygen
	CSB-001R	Congaree River	AL	F	N		Copper and Zinc	Decreasing Dissolved Oxygen	Decreasing Dissolved Oxygen and pH
03050110-020	C-067	Red Bank Ck	REC	F	P		Fecal Coliform	Increasing Turbidity	Increasing pH, Turbidity, and Fecal Coliform
	C-008	Congaree Ck	AL	F	N		Copper	Increasing pH, Turbidity, and Fecal Coliform	Increasing pH, Turbidity, TSS, and Fecal Coliform
	C-025	Lake Caroline	REC	P	N	Fecal Coliform	Fecal Coliform	Increasing pH and Turbidity	Increasing Turbidity
	C005	Sixmile Ck	AL	F	P		Macroinvertebrates	Increasing Turbidity	Increasing Turbidity
			REC	F	P		Fecal Coliform		
03050110-030	C-017	Gills Ck	AL	F	N		Zinc	Increasing Turbidity	Increasing Turbidity
03050110-060	C-072	Toms Ck	REC	F	N		Fecal Coliform		

Fully Supported Stations in the Saluda River Basin

* = Station not evaluated for Recreational Support; ** = Not a Predictor of Future Impairement

Watershed	Sta #	Waterbody Name	Improving Trends	Other Trends**
03050109-010	S-292	North Saluda Reservoir	Decreasing BOD, Total Phosphorus, Turbidity, and Fecal Coliform	Decreasing Dissolved Oxygen; Increasing pH
	S-088	North Saluda River	Decreasing BOD, Total Nitrogen, and Fecal Coliform	Decreasing Dissolved Oxygen; Increasing Turbidity
	S-773 *	North Saluda River		
03050109-020	S-291	Table Rock Reservoir	Decreasing BOD, Total Phosphorus, Total Nitrogen, Turbidity, and Fecal Coliform	Decreasing Dissolved Oxygen; Increasing pH
	S-320	South Saluda River	Decreasing Turbidity	
	S-086 *	Matthews Ck		
	S-771 *	South Saluda River		
	S-076 *	Middle Saluda River		
	S-077 *	Middle Saluda River		
	S-317 *	Oil Camp Ck		
03050109-030	S-798 *	Lake Oolenoy		
03050109-040	S-866 *	Shoals Ck		
	S-314	Saluda Lake		
	S-119	Saluda River	Decreasing BOD and Total Phosphorus	Increasing Turbidity
03050109-050	S-865 *	Georges Ck		
03050109-080	S-864 *	Mountain Ck		
	S-858 *	Turkey Ck		
	S-024	Lake Greenwood		
	S-804 *	Cane Ck		
	S-097	Cane Ck		Decreasing Dissolved Oxygen and pH

Watershed	Sta #	Waterbody Name	Improving Trends	Other Trends**
	S-303	Lake Greenwood		
03050109-090	S-775 *	Broad Mouth Ck		
03050109-120	S-862 *	Horse Ck		
	S-861 *	Walnut Ck		
03050109-130	S-859 *	Mountain Ck		
	S-313	Lake Rabon		
	S-860 *	South Rabon Ck		
	S-312	Lake Rabon		
	S-296	Lake Rabon	Decreasing BOD	Decreasing pH; Increasing Fecal Coliform
03050109-140	S-856 *	Ninety Six Ck		
03050109-150	S-047	Saluda River		
	S-852 *	Beaverdam Ck		
	S-310	Lake Murray		
	S-851 *	Bush River		
03050109-160	S-100 *	Little River		
03050109-170	S-222	Lake Murray		
03050109-180	S-111 *	Clouds Ck		
	S-255	Clouds Ck	Decreasing BOD; Increasing Dissolved Oxygen	Decreasing pH
	S-113	Clouds Ck		
03050109-190	S-808 *	Lake Murray Trib.		
	S-211	Lake Murray	Decreasing Total Phosphorus	
	S-212	Lake Murray	Decreasing Total Phosphorus; Increasing Dissolved Oxygen	Increasing Turbidity
	S-850 *	Camping Ck		

Watershed	Sta #	Waterbody Name	Improving Trends	Other Trends**
	S-213	Lake Murray	Decreasing BOD and Total Phosphorus	
03050110-010	C-022	Mill Creek	Decreasing BOD and Total Phosphorus	
	C-074	Congaree River		
	C-010 *	Big Beaver Creek		
	C-577 *	Bates Mill Creek		
03050110-020	C-580 *	Red Bank Creek		
	C-066	Red Bank Creek	Decreasing Total Phosphorus	Increasing pH, Turbidity, and Fecal Coliform
	C-565 *	Congaree Creek		
	C-061	Savana Branch	Increasing Dissolved Oxygen; Decreasing BOD and Total Phosphorus	Increasing pH, Turbidity, and Fecal Coliform
	C-070	Congaree Creek		
	C-583 *	Second Creek		
03050110-030	C-048	Windsor Lake	Decreasing BOD and Total Phosphorus	
	C-068	Forest Lake	Decreasing Total Phosphorus and Total Nitrogen	Increasing Turbidity
03050110-040	C-009	Sandy Run		
03050110-050	C-578 *	Myers Creek		
	C-069	Cedar Creek		Increasing Turbidity
	C-071 *	Cedar Creek		
	C-075	Cedar Creek		
03050110-060	C-579 *	Toms Creek		
03050110-070	C-007	Congaree River	Decreasing BOD, Total Phosphorus, and Fecal Coliform	Increasing Turbidity

Impaired Stations in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; P=Partial Support; N=Nonsupport; *=Eutrophication Assessment; **=Not a Predictor of Future Impairment

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
03050109-010	S-004	North Saluda River	REC	N	Fecal Coliform		Increasing Turbidity
03050109-020	S-087	South Saluda River	REC	P	Fecal Coliform	Increasing Fecal Coliform	Decreasing pH
	S-252	Middle Saluda River	REC	P	Fecal Coliform		
	S-299	South Saluda River	REC	P	Fecal Coliform		
03050109-030	S-103	Oolenoy River	REC	N	Fecal Coliform		
03050109-040	S-250	Saluda River	REC	P	Fecal Coliform	Increasing Fecal Coliform	Increasing Turbidity
	S-315	Mill Ck	AL	N	Zinc and Chromium		
			REC	N	Fecal Coliform		
	S-007	Saluda River	AL	N	Copper and Zinc		Increasing Turbidity
			REC	P	Fecal Coliform		
	S-267	Saluda River Trib.	REC	N	Fecal Coliform		Decreasing Dissolved Oxygen; Increasing Turbidity
	S-171	Grove Ck	REC	N	Fecal Coliform		
	S-774	Grove Ck	AL	P	Macroinvertebrates		
03050109-050	S-005	Georges Ck Trib.	REC	N	Fecal Coliform		Decreasing pH; Increasing Turbidity
	S-300	Georges Ck	REC	N	Fecal Coliform		
03050109-060	S-301	Big Brushy Ck	AL	P	Macroinvertebrates		
			REC	P	Fecal Coliform		
03050109-070	S-302	Big Ck	AL	P	Macroinvertebrates		
			REC	P	Fecal Coliform		

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
03050109-080	S-125	Saluda River	AL	N	Pesticides	Increasing Fecal Coliform	Decreasing Dissolved Oxygen and pH; Increasing Turbidity
			REC	P	Fecal Coliform		
	S-022	Lake Greenwood	AL	P	pH		Decreasing Dissolved Oxygen
				*	Nutrients		
	S-131	Lake Greenwood	AL	P	Zinc	Increasing Fecal Coliform	Decreasing Dissolved Oxygen and pH; Increasing Turbidity
			REC	P	Fecal Coliform		
03050109-090	S-289	Broad Mouth Ck	REC	N	Fecal Coliform	Increasing Fecal Coliform	
	S-776	Broad Mouth Ck Trib.	AL	P	Macroinvertebrates		
	S-010	Broad Mouth Ck	REC	N	Fecal Coliform	Increasing Fecal Coliform	Increasing Turbidity
	S-304	Broad Mouth Ck	REC	N	Fecal Coliform		
03050109-100	S-073	Reedy River	REC	P	Fecal Coliform	Increasing Fecal Coliform	
	S-868	Reedy River	AL	P	Macroinvertebrates		
	S-264	Langston Ck	AL	N	Chromium	Increasing Fecal Coliform	
			REC	N	Fecal Coliform		
	S-319	Reedy River	AL	N	Zinc		
			REC	N	Fecal Coliform		
	S-013	Reedy River	AL	N	Copper, Chromium		Decreasing pH; Increasing TSS
			REC	N	Fecal Coliform		
	S-067	Brushy Ck	REC	N	Fecal Coliform		Decreasing pH
	S-867	Brushy Ck	AL	P	Macroinvertebrates		
	S-018	Reedy River	AL	N	Copper, Zinc, Chromium	Increasing Fecal Coliform	Decreasing pH
			REC	N	Fecal Coliform		

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
	S-091	Rocky Ck	AL	P	Macroinvertebrates		Decreasing Dissolved Oxygen
			REC	N	Fecal Coliform		
	S-072	Reedy River	REC	N	Fecal Coliform		
03050109-110	S-863	Huff Ck	AL	P	Macroinvertebrates		
	S-178	Huff Ck	REC	N	Fecal Coliform		
03050109-120	S-070	Reedy River	REC	P	Fecal Coliform		
	S-311	Boyd Mill Pond	AL	N	pH		Increasing Turbidity and Fecal Coliform
				*	Nutrients		
	S-021	Reedy River	REC	P	Fecal Coliform	Increasing Fecal Coliform	Decreasing pH; Increasing Turbidity
	S-308	Lake Greenwood	AL	P	pH		
				*	Nutrients		
03050109-130	S-321	North Rabon Ck	REC	P	Fecal Coliform		
	S-322	South Rabon Ck	REC	N	Fecal Coliform		
	S-096	Rabon Ck	REC	P	Fecal Coliform		Decreasing Dissolved Oxygen and pH
	S-307	Lake Greenwood	REC	P	Fecal Coliform		
03050109-140	S-184	Coronaca Ck	AL	P	Macroinvertebrates		
	S-092	Coronaca Ck	AL	N	Dissolved Oxygen		Decreasing pH
	S-233	Wilson Ck	REC	P	Fecal Coliform		Decreasing pH
	S-235	Wilson Ck	AL	P	Macroinvertebrates		
			REC	P	Fecal Coliform		
	S-093	Ninety Six Ck	AL	P	Copper		Decreasing pH
			REC	P	Fecal Coliform		

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
03050109-150	S-186	Saluda River	AL	N	Copper, Zinc		Decreasing pH
	S-295	Saluda River	AL	N	Copper		
	S-042	Bush River	AL	N	Dissolved Oxygen	Decreasing Dissolved Oxygen	Decreasing pH
			REC	P	Fecal Coliform		
	S-046	Bush River	REC	N	Fecal Coliform		
	S-044	Scott Ck	REC	N	Fecal Coliform		Decreasing Dissolved Oxygen
	S-102	Bush River	REC	N	Fecal Coliform		
	S-309	Lake Murray	AL	N	pH		
				*	Nutrients		
	S-223	Lake Murray	AL	P	Copper		
03050109-160	S-034	Little River	REC	N	Fecal Coliform		Increasing Turbidity
	S-297	Little River	REC	N	Fecal Coliform		Decreasing pH
	S-135	North Ck	REC	N	Fecal Coliform	Increasing Fecal Coliform	Decreasing pH
	S-038	Little River	REC	P	Fecal Coliform		
	S-099	Little River	REC	N	Fecal Coliform	Increasing Fecal Coliform	
	S-305	Little River	REC	N	Fecal Coliform		
03050109-170	S-050	Little Saluda River	AL	N	Dissolved Oxygen		Decreasing pH
			REC	N	Fecal Coliform		
	S-123	Little Saluda River	AL	P	Dissolved Oxygen	Increasing Fecal Coliform	Decreasing pH
			REC	P	Fecal Coliform		
	S-855	Big Ck	AL	P	Macroinvertebrates		
03050109-180	S-112	Moores Ck	AL	P	Macroinvertebrates		

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
03050109-190	S-279	Lake Murray	AL	N	Copper		Increasing Turbidity and Fecal Coliform
				*	Nutrients		
	S-290	Camping Ck	AL	N	Copper, Zinc		
			REC	N	Fecal Coliform		
	S-280	Lake Murray	AL	N	Copper		Increasing Fecal Coliform
	S-273	Lake Murray	AL	N	Copper		Increasing Fecal Coliform
	S-274	Lake Murray	AL	N	Copper		Increasing Fecal Coliform
	S-204	Lake Murray	AL	P	Copper		Increasing Fecal Coliform
03050109-200	S-306	Hollow Ck	REC	N	Fecal Coliform		
03050109-210	S-152	Saluda River	AL	N	Dissolved Oxygen, pH	Decreasing Dissolved Oxygen	Increasing TSS
	S-287	Rawls Ck	AL	N	Macroinvertebrates	Increasing Fecal Coliform	Increasing TSS
			REC	N	Fecal Coliform		
	S-150	Lorick Branch	REC	N	Fecal Coliform		Decreasing Dissolved Oxygen and pH
	S-149	Saluda River	AL	P	Dissolved Oxygen	Decreasing Dissolved Oxygen	
			REC	P	Fecal Coliform		
	S-848	Fourteenmile Ck	AL	P	Macroinvertebrates		
	S-052	Twelvemile Ck	AL	P	Macroinvertebrates		
	S-294	Twelvemile Ck	AL	N	Copper, Zinc		Decreasing pH; Increasing Total Nitrogen
			REC	P	Fecal Coliform		
	S-260	Kinley Ck	AL	N	Macroinvertebrates		Increasing TSS
			REC	N	Fecal Coliform		

Watershed	Sta.#	Waterbody Name	Use	Status	Cause	Undesirable Trends	Other Trends**
	S-298	Saluda River	AL	N	Copper, Zinc		Increasing TSS
			REC	P	Fecal Coliform		
03050110-010	CSB-001L	Congaree River	AL	N	Copper, Zinc		Decreasing Dissolved Oxygen
	CSB-001R	Congaree River	AL	N	Copper, Zinc		Decreasing Dissolved Oxygen and pH
	C-021	Mill Ck	REC	P	Fecal Coliform		
03050110-020	C-067	Red Bank Ck	REC	P	Fecal Coliform	Increasing Fecal Coliform	Increasing pH, Turbidity
	C-008	Congaree Ck	AL	N	Copper	Increasing Fecal Coliform	Increasing pH, Turbidity, TSS
			REC	P	Fecal Coliform		
	C-025	Lake Caroline	REC	N	Fecal Coliform		Increasing trend in Turbidity
	C-005	Sixmile Creek	AL	P	Macroinvertebrates		Increasing trend in Turbidity
			REC	P	Fecal Coliform		
03050110-030	C-001	Gills Ck	REC	N	Fecal Coliform		Increasing BOD and Turbidity
	C-017	Gills Ck	AL	N	Zinc		Increasing Turbidity
			REC	N	Fecal Coliform		
	C-073	Reeder Point Br	AL	P	Dissolved Oxygen		
			REC	N	Fecal Coliform		
03050110-060	C-072	Tom Ck	REC	N	Fecal Coliform		

Introduction

The South Carolina Department of Health and Environmental Control (SCDHEC or the Department) initiated its first watershed planning activities as a result of a U.S. Environmental Protection Agency (USEPA) grant in June of 1972. These activities were soon extended by §303(e), "Federal Water Pollution Control Act Amendments of 1972", U.S. Public Law 92-500. In 1975, the SCDHEC published basin planning reports for the four major basins in South Carolina. The next major planning activity resulted from §208 of the Federal Water Pollution Control Act, which required states to prepare planning documents on an areawide basis. Areawide plans were completed in the late 1970's for the five designated areas of the State and for the nondesignated remainder of the State. To date, these plans or their updated versions have served as information sources and guides for water quality management.

During the past decade, special water quality initiatives and Congressional mandates have diverted attention and resources from comprehensive water quality assessment and protection. The Bureau of Water now emphasizes watershed planning to better coordinate river basin planning and water quality management. Watershed-based management allows the Department to address Congressional and Legislative mandates in a coordinated manner and to better utilize current resources. The watershed approach also improves communication between the Department, the regulated community, and the public on existing and future water quality issues.

Purpose of the Watershed Water Quality Assessment

By definition, a watershed is a geographic area into which the surrounding waters, sediments, and dissolved materials drain, and whose boundaries extend along surrounding topographic ridges. Watershed-based water quality management recognizes the interdependence of water quality related activities associated with a drainage basin including: monitoring, problem identification and prioritization, water quality modeling, planning, permitting, and other activities. The Bureau of Water's Watershed Water Quality Management Program integrates these activities by watershed, resulting in watershed management plans that appropriately focus water quality protection efforts. While an important aspect of the program is water quality problem identification and solution, the emphasis is on problem prevention.

The Department has divided the State into five regions, along hydrologic lines, which contain approximately the same number of NPDES permitted dischargers. A Watershed Water Quality Assessment (WWQA) will be created for each river basin within each of the five regions and will be updated on a five-year rotational basis. This will allow for effective allocation and coordination of water quality activities and efficient use of available resources. The Saluda River Basin is subdivided into 29 watersheds or hydrologic units. The hydrologic units used are the USDA Natural Resource Conservation Service 11-digit codes for South Carolina. All water quality related evaluations will be made at the watershed level. The stream names used are derived from USGS topographic maps. USEPA Reach data (RF3) was used for the digital hydrography and stream length estimates. Based on the blue line streams of the USGS topo maps, it is likely that a portion of the stream network in terms of perennial, intermittent, and ephemeral streams are not represented.

The watershed-based assessment fulfills a number of USEPA reporting requirements including various activities under §303(d), §305(b), §314, and §319 of the Clean Water Act (CWA). Section 303(d) identifies waters located within a watershed which do not meet applicable water quality standards. Section 305(b) requires that the State biennially submit a report that includes a water quality description and analysis of all navigable waters to estimate environmental impacts. Section (§314) requires that the State submit a biennial report that identifies, classifies, describes, and assesses the status and trends in water quality of publicly owned lakes. The watershed plan is also a logical evaluation, prioritization, and implementation tool for nonpoint source (§319) requirements. Nonpoint source best management practices (BMPs) can be selected by identifying water quality impairments and necessary controls, while considering all the activities occurring in the drainage basin.

The assessment also allows for more efficient issuance of National Pollutant Discharge Elimination System (NPDES) and State wastewater discharge permits. Proposed permit issuances within a watershed will be consolidated and presented to the public in groups, rather than one at a time, allowing the Department to realize a resource savings, and the public to realize an information advantage.

The Watershed Water Quality Assessment is a geographically-based document that describes, at the watershed level, all water quality related activities that may potentially have a negative impact on water quality. The Watershed Implementation Staff investigates the impaired streams mentioned in the WWQA to determine, where possible, the source of the impairment and recommends solutions to correct the problems. As part of this effort, the watershed staff is forging partnerships with various federal and state agencies, local governments, and community groups. In particular, the Department's Watershed Program and the Natural Resource Conservation Service (NRCS) district offices are working together to address some of the nonpoint source (NPS) concerns in the basin. By combining NRCS's local knowledge of land use and the Department's knowledge of water quality, we are able to build upon NRCS's close relationships with landowners and determine where NPS projects are needed. These projects may include educational campaigns or special water quality studies.

Factors Assessed in Watershed Evaluations

Water Quality

The Water Program comprises activities within SCDHEC's Bureau of Water and Bureau of Environmental Services. The Program's objectives are to ensure that the water in South Carolina is safe for drinking and recreation, and that it is suitable to support and maintain aquatic flora and fauna. Functions include planning, permitting, compliance assurance, enforcement, and monitoring. This section provides an overview of water quality evaluation and protection activities.

Monitoring

In an effort to evaluate the State's water quality, the Department operates a permanent Statewide network of primary ambient monitoring stations and flexible, rotating secondary and watershed monitoring stations. The ambient monitoring network is directed toward determining long-term water quality trends, assessing attainment of water quality standards, identifying locations in need of additional attention, and providing background data for planning and evaluating stream classifications and standards.

The monitoring data are also used in the process of formulating permit limits for wastewater discharges with the goal of maintaining State and Federal water quality standards and criteria in the receiving streams in accordance with the goals of the Clean Water Act. These standards and criteria define the instream chemical concentrations that provide for protection and reproduction of aquatic flora and fauna, determine support of the classified uses of each waterbody, and serve as instream limits for the regulation of wastewater discharges or other activities. In addition, these data are used in the preparation of the biennial §305(b) report to Congress, which summarizes the State's water quality with respect to attainment of classified uses by comparing the ambient monitoring network data to the State Water Quality Standards.

SCDHEC's water quality monitoring network comprises three station types: primary (P), secondary (S), and watershed (W) stations. Primary stations are sampled on a monthly basis year round, and are located in high water-use areas or as background stations upstream of high water-use areas. The static primary station network is operated statewide, and receives the most extensive parameter coverage, thus making it best suited for detecting long term trends.

Secondary stations are sampled monthly from May through October, a period critical to aquatic life, characterized by higher water temperatures and lower flows. Secondary stations are located in areas where specific monitoring is warranted due to point source discharges, or areas with a history of water quality problems. Secondary station parameter coverage is less extensive and more flexible than primary or watershed station coverages. The number and locations of secondary stations have greater annual variability than do those in the primary station network, and during a basin's target year may have parameter coverage and sampling frequency duplicating that of primary or watershed stations.

Watershed stations are sampled on a monthly basis, year round, during a basin's target year; additional watershed stations may be sampled monthly from May through October to augment the secondary station network. Watershed stations are located to provide more complete and representative coverage within the larger drainage basin, and to identify additional monitoring needs. Watershed stations have the same parameter coverage as primary stations.

Many pollutants may be components of point source discharges, but may be discharged in a discontinuous manner, or at such low concentrations that water column sampling for them is impractical. Some pollutants are also common in nonpoint source runoff, reaching waterways only after a heavy rainfall; therefore, in these situations, the best media for the detection of these chemicals are sediment and fish tissue where they may accumulate over time. Their impact may also affect the macroinvertebrate community.

Regional ambient trend monitoring is conducted to collect data to indicate general biological conditions of state waters which may be subject to a variety of point and nonpoint source impacts. In 1991, the Department began using ambient macroinvertebrate data to support the development of Watershed Water Quality Management Strategies. Ambient sampling is also used to establish regional reference or "least impacted" sites from which to make comparisons in future monitoring. Additionally, special macroinvertebrate studies, in which stream specific comparisons among stations located upstream and downstream from a known discharge or nonpoint source area, are used to assess impact.

Qualitative sampling of macroinvertebrate communities are the primary bioassessment techniques used in ambient trend monitoring. A habitat assessment of general stream habitat availability and a substrate characterization is conducted at each site. Annual trend monitoring is conducted during low flow "worst case" conditions in July - September. This technique may also be used in special studies for the purpose of determining if, and to what extent, a wastewater discharge or nonpoint source runoff is impacting the receiving stream. A minimum of two sample locations, one upstream and one downstream from a discharge or runoff area, is collected. At least one downstream recovery station is also established when appropriate. Sampling methodology essentially follows procedures described in Standard Operating Procedures, Biological Monitoring.

Aquatic sediments represent a historical record of chronic conditions existing in the water column. Pollutants bind to particulate organic matter in the water column and settle to the bottom where they become part of the sediment "record". This process of sedimentation not only reflects the impact of point source discharges, but also incorporates nonpoint source pollution washed into the stream during rain events. As a result, contaminant concentrations originating from irregular and highly variable sources are recorded in the sediment. The sediment concentrations at a particular location do not vary as rapidly with time as do the water column concentrations. Thus, the sediment record may be read at a later time, unrelated to the actual release time. Lakes act as settling basins for materials entering the lake system directly from a discharge or indirectly from the land surface washed into streams. Therefore, it is not unusual for lake sediment concentrations to be higher than sediment concentrations found in streams. This is especially true for chromium, copper, and zinc.

The ambient monitoring network, as a program, has the capability of sampling a wide range of media and analyzing them for the presence or effects of contaminants. Ambient monitoring data from 39 primary (P) stations, 47 secondary (S) stations (6 with increased coverage during the basin monitoring year), and 29 watershed (W) stations were reviewed for the Saluda and Congaree River Basins, along with 52 biological (BIO) stations to assess macroinvertebrate communities.

Classified Waters, Standards, and Natural Conditions

The waters of the State have been classified in regulation based on the desired uses of each waterbody. State standards for various parameters have been established to protect all uses within each classification. The water-use classifications that apply to this basin are as follows.

Class ORW, or "outstanding resource waters", are freshwaters or saltwaters which constitute an outstanding recreational or ecological resource, or those freshwaters suitable as a source for drinking water supply purposes, with treatment levels specified by the Department.

Class A were freshwaters which were suitable for primary contact recreation. This class was also suitable for uses listed as Class B. As of April, 1992, Class A and Class B waters were reclassified as Class FW which protects for primary contact recreation.

Class B were freshwaters which were suitable for secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters were suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class was also suitable for industrial and agricultural uses. The main difference between the Class A and B freshwater was the fecal coliform standard. Class A waters were not to exceed a geometric mean of 200/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 10% of the total samples during any 30 day period to exceed 400/100ml. Class B waters were not to exceed a geometric mean of 1000/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 20% of the total samples during any 30 day period to exceed 2000/100ml. As of April, 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class Trout Waters is comprised of three types of water:

- **trout natural** waters, which are freshwaters suitable for supporting reproducing trout populations and a cold water balanced indigenous aquatic community of fauna and flora,
- **trout put, grow and take** waters, which are freshwaters suitable for supporting the growth of stocked trout populations and a balanced indigenous aquatic community of fauna and flora,
- **trout put and take** waters, which are freshwaters protected by the standards of Class FW.

Class FW, or "freshwaters", are freshwaters which are 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. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses.

Site specific numeric standards (*) for surface waters may be established by the Department to replace the numeric standards found in Regulation 61-68 or to add new standards not contained in R.61-68. Establishment of such standards shall be subject to public participation and administrative procedures for adopting regulations. In addition, such site specific numeric standards shall not apply to tributary or downstream waters unless specifically described in the water classification listing in R.61-69.

The standards are used as instream water quality goals to maintain and improve water quality and also serve as the foundation of the Bureau of Water's program. They are used to determine permit limits for treated wastewater dischargers and any other activities that may impact water quality. Using mathematical Wasteload Allocation Models, the impact of a wastewater discharge on a receiving stream, where flow is unregulated by dams, is predicted using 7Q10 streamflows. These predictions are then used to set limits for different pollutants on the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The NPDES permit limits are set so that, as long as a permittee (wastewater discharger) meets the established permit limits, the discharge should not cause a standards violation in the receiving stream. All discharges to the waters of the State are required to have an NPDES permit and must abide by those limits, under penalty of law.

Classifications are based on desired uses, not on natural or existing water quality, and are a legal means to obtain the necessary treatment of discharged wastewater to protect designated uses. Actual water quality may not have a bearing on a waterbody's classification. A waterbody may be reclassified if desired or existing public uses justify the reclassification and the water quality necessary to protect these uses is attainable. A classification change is an amendment to a State regulation and requires public participation, SCDHEC Board approval, and General Assembly approval.

Natural conditions may prevent a waterbody from meeting the water quality goals as set forth in the standards. The fact a waterbody does not meet the standards for a particular classification does not mean the waterbody is polluted or of poor quality. Certain types of waterbodies (ie. swamps, lakes, tidal creeks) may naturally have water quality lower than the numeric standards. A waterbody can have water quality conditions below standards due to natural causes and still meet its use classification. A site specific numeric standard may be established by the Department after being subjected to public participation and administrative procedures for adopting regulations. Site specific numeric standards apply only to the stream segment described in the water classification listing, not to tributaries or downstream unspecified waters.

Wetlands

In the §401 water quality certification process, applications for wetland alterations may be denied or modified due to the special nature of a wetland or the functions that a wetland provides. Wetland impacts must be compensated through restoration, enhancement, preservation, or creation and protected in perpetuity. Future development would be prohibited in these mitigated and legally protected areas. Knowledge of areas that are restricted from development due to mitigation or special water classification is useful in planning future development in a watershed. The list of outstanding resource waters (ORW) has been refined to include wetlands that qualify for, and should be afforded, the highest level of protection. In cooperation with the S.C. Department of Natural Resources's (SCDNR) Division of Land, Water and Conservation, Landsat Thematic Mapper (TM) satellite image data are providing an inventory of wetlands in the basin through the SCDNR's GIS data clearing house for subsequent monitoring and tracking efforts.

Lake Eutrophication Assessment

The trophic condition of South Carolina lakes is monitored through SCDHEC's network of routine sampling stations and through periodic sampling of additional lakes. All lakes of at least 40 acres in area that offer public access are monitored. Large (major) lakes are those greater than 850 acres in surface area. Minor lakes are those less than 850 acres in surface area.

Beginning with the 1989 statewide lake water quality assessment, a multi-parameter percentile index has been used to quantify overall lake trophic state. The index includes the following trophic condition indicators: water clarity, total phosphorus, total inorganic nitrogen, chlorophyll *a*, and dissolved oxygen. The baseline data for this relative index were collected during the 1980-81 statewide lake water quality assessment. Use of a baseline data set permits trend detection in subsequent assessments. Percentiles for major and minor lakes are derived separately. All data, as well as the programs for deriving index values, are maintained in USEPA's STORET database. A high index value indicates a desirable trophic condition, while low values indicate the need for further study or restoration.

Water Quality Indicators

Water quality data are used to describe the condition of a waterbody, to help understand why that condition exists, and to provide some clues as to how it may be improved. Water quality indicators include physical, chemical, and biological measurements. Copies of the Standard Operating Procedures used for these measurements are available from the Aquatic Biology Section of the Department's Bureau of Water.

MACROINVERTEBRATE COMMUNITY

Macroinvertebrates are aquatic insects and other aquatic invertebrates associated with the substrates of waterbodies (including, but not limited to, streams, rivers, and lakes). Macroinvertebrates can be useful indicators of water quality because these communities respond to integrated stresses over time which reflect fluctuating environmental conditions. Community responses to various pollutants (e.g. organic, toxic, and sediment) may be assessed through interpretation of diversity, known organism tolerances, and in some cases, relative abundances and feeding types.

FISH TISSUE

Many pollutants occur in such low concentrations in the water column that they are usually below analytical detection limits. Over time many of these chemicals may accumulate in fish tissue to levels that are easily measured. By analyzing fish tissue it is possible to see what pollutants may be present in waterbodies at very low levels. This information can also be used to determine if consumption of the fish pose any undue human health concerns and to calculate consumption rates that are safe.

Dissolved Oxygen

Oxygen is essential for the survival and propagation of aquatic organisms. If the amount of oxygen dissolved in water falls below the minimum requirements for survival, aquatic organisms or their eggs and larvae may die. A severe example is a fish kill. Dissolved oxygen (DO) varies greatly due to natural phenomena, resulting in daily and seasonal cycles. Different forms of pollution also can cause declines in DO.

Changes in DO levels can result from temperature changes or the activity of plants and other organisms present in a waterbody. The natural diurnal (daily) cycle of DO concentration is well documented. Dissolved oxygen concentrations are generally lowest in the morning, climbing throughout the day due to photosynthesis and peaking near dusk, then steadily declining during the hours of darkness.

There is also a seasonal DO cycle in which concentrations are greater in the colder, winter months and lower in the warmer, summer months. Streamflow (in freshwater) is generally lower during the summer and fall, and greatly affects flushing, reaeration, and the extent of saltwater intrusion, all of which affect dissolved oxygen values.

Biochemical Oxygen Demand

Five-day biochemical oxygen demand (BOD_5) is a measure of the amount of dissolved oxygen consumed by the decomposition of carbonaceous and nitrogenous matter in water over a five-day period. The BOD_5 test indicates the amount of biologically oxidizable carbon and nitrogen that is present in wastewater or in natural water. Matter containing carbon or nitrogen uses dissolved oxygen from the water as it decomposes, which can result in a dissolved oxygen decline. The quantity of BOD_5 discharged by point sources is limited through the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The discharge of BOD_5 from a point source is restricted by the permits so as to maintain the applicable dissolved oxygen standard.

pH

pH is a measure of the hydrogen ion concentration of water, and is used to indicate degree of acidity. The pH scale ranges from 0 to 14 standard units (SU). A pH of 7 is considered neutral, with values less than 7 being acidic, and values greater than 7 being basic.

Low pH values are found in natural waters rich in dissolved organic matter, especially in Coastal Plain swamps and black water rivers. The tannic acid released from the decomposition of vegetation causes the tea coloration of the water and low pH.

High pH values in lakes during warmer months are associated with high phytoplankton (algae) densities. The relationship between phytoplankton and daily pH cycles is well established. Photosynthesis by phytoplankton consumes carbon dioxide during the day, which results in a rise in pH. In the dark, phytoplankton respiration releases carbon dioxide. In productive lakes, carbon dioxide decreases to very low levels, causing the pH to rise to 9-10 SU; hence, excursions of pH beyond Standards may be the result of natural processes. Continuous flushing in streams prevents the development of significant phytoplankton populations and the resultant chemical changes in water quality.

Fecal Coliform Bacteria

Coliform bacteria are present in the digestive tract and feces of all warm-blooded animals, including humans, poultry, livestock, and wild animal species. Fecal coliform bacteria are themselves generally not harmful, but their presence indicates that surface waters may contain pathogenic microbes. Diseases that can be transmitted to humans through water contaminated by improperly treated human or animal waste are the primary concern. At present, it is difficult to distinguish between waters contaminated by animal waste and those contaminated by human waste.

Public health studies have established correlations between fecal coliform numbers in recreational and drinking waters and the risk of adverse health effects. Based on these relationships, the USEPA and SCDHEC have developed enforceable standards for surface waters to protect against adverse health effects from various recreational or drinking water uses. Proper waste disposal or sewage treatment prior to discharge to surface waters minimizes this type of pollution.

Nutrients

Oxygen demanding materials and plant nutrients are the most common substances discharged to the environment by man's activities, through wastewater facilities and by agricultural, residential, and stormwater runoff. The most important plant nutrients, in terms of water quality, are phosphorus and nitrogen. In general, increasing nutrient concentrations are undesirable due to the potential for accelerated growth of aquatic plants, including algae. Nuisance plant growth can create imbalances in the aquatic community, as well as aesthetic and access issues. High densities of phytoplankton (algae) can cause wide fluctuations in pH and dissolved oxygen. South Carolina has no official standards or criteria for nutrients in water; however, the USEPA has issued recommendations for phosphorus concentrations to prevent over-enrichment.

The forms of nitrogen routinely analyzed at SCDHEC stations are ammonia and ammonium nitrogen (NH_3/NH_4), total Kjeldahl nitrogen (TKN), and nitrite and nitrate nitrogen (NO_2/NO_3). Ammonia and ammonium are readily used by plants. TKN is a measure of organic nitrogen and ammonia in a sample. Nitrate is the product of aerobic transformation of ammonia, and is the most common form used by aquatic plants. Nitrite is usually not present in significant amounts.

Total phosphorus (TP) is commonly measured to determine phosphorus concentrations in surface waters. TP includes all of the various forms of phosphorus (organic, inorganic, dissolved, and particulate) present in a sample.

Turbidity

Turbidity is an expression of the scattering and absorption of light through water. The presence of clay, silt, fine organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms increases turbidity. Increasing turbidity can be an indication of increased runoff from land. It is an important consideration for drinking water as finished water has turbidity limits. State water quality standards address turbidity in waters classified for Trout.

TOTAL SUSPENDED SOLIDS

Total Suspended Solids (TSS) are the suspended organic and inorganic particulate matter in water. Although increasing TSS can also be an indication of increased runoff from land, TSS differs from turbidity in that it is a measure of the mass of material in, rather than light transmittance through, a water sample. High TSS can adversely impact fish and fish food populations and damage invertebrate populations. There are no explicit state standards for TSS.

HEAVY METALS

Concentrations of cadmium, chromium, copper, lead, mercury, nickel, and zinc in water are routinely measured by the Department to compare to State standards intended to protect aquatic life and human health. These metals occur naturally in the environment, and many are essential trace elements for plants and animals. Human activities, such as land use changes and industrial and agricultural processes, have resulted in an increased flux of metals from land to water. Atmospheric inputs are recognized as important sources of metals to aquatic systems. Metals are released to the atmosphere from the burning of fossil fuels (coal, oil, gasoline), wastes (medical, industrial, municipal), and organic materials. The metals are then deposited on land and in waterways from the atmosphere via rainfall.

Assessment Methodology

The Watershed Water Quality Assessment is a geographically-based document that describes, at the watershed level, water quality as well as conditions and activities related to water quality. This section provides an explanation of the information assessment methodology used to generate the watershed-level summaries. Water quality data used in this assessment are presented in Appendices B and C.

USE SUPPORT DETERMINATION

At the majority of SCDHEC's surface water monitoring stations, samples for analysis are collected as surface grabs once per month, quarter, or year, depending on the parameter. Grab samples collected at a depth of 0.3 meters are considered surface measurements, and are used to establish representative physical conditions and chemical concentrations in the waterbodies sampled. At most stations sampled by boat, dissolved oxygen and temperature are sampled as a water column profile, with measurements being made at a depth of 0.3 meters below the water surface and at one-meter intervals to the bottom. At stations sampled from bridges, these parameters are measured only at a depth of 0.3 meters. All water and sediment samples are collected and analyzed according to standard procedures. Macroinvertebrate community structure is analyzed routinely at selected stations as a means of detecting adverse biological impacts on the aquatic fauna due to water quality conditions which may not be readily detectable in the water column chemistry.

For the purpose of assessment, only results from surface samples are used in water quality standards comparisons and trend assessments. This information is considered to represent "average" conditions, as opposed to extremes, because of the inability to target individual high or low flow events on a statewide basis. The more extreme instream chemical concentrations resulting from nonpoint source inputs from rain events or point source inputs of a variable nature are frequently missed because routine monthly sampling rarely coincides with the time of release. Results from water quality samples can be compared to state standards and USEPA criteria, with some restrictions due to time of collection and sampling frequency. The monthly sampling frequency employed in the ambient monitoring network may be insufficient for strict interpretation of standards. The USEPA does not define the sampling method or frequency other than indicating that it should be "representative". A grab sample is considered to be representative for indicating excursions relative to standards: a single grab sample is more representative of a one-hour average than a four-day average, more representative of a one-day average than a one-month average, and so on (see also Screening & Additional Considerations for Water Column Metals below). When the sampling method or frequency does not agree with the intent of the particular standard, conclusions about water quality should be considered as only an indication of conditions.

The time period used to assess standards compliance is the most recent complete five years of data, which for the Saluda and Congaree River Basins is 1993 through 1997.

AQUATIC LIFE USE SUPPORT

One important goal of the Clean Water Act and state standards is to maintain the quality of surface waters in order to provide for the survival and propagation of a balanced indigenous aquatic community of fauna and flora. The degree to which aquatic life is protected (aquatic life use support) is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with standards. Support of aquatic life uses is based on the percentage of standards excursions and, where data are available, the composition and functional integrity of the biological community. For lakes, support of aquatic life uses is also evaluated using a measure of trophic state. A number of waterbodies have been given specific standards for pH and dissolved oxygen, which reflect natural conditions.

A dissolved oxygen (DO) criterion of not less than 4 mg/l is used for Class SB, a criterion of not less than 6 mg/l is used for TN and TPGT, and a daily average not less than 5 mg/l with a low of 4 mg/l is used for all other Classes. An excursion is an occurrence of a DO concentration less than the stated criterion. For pH, there are several acceptable ranges applied depending on the Class of water: 6-8 SU for TPGT; 6-8.5 SU for FW; 5-8.5 SU for FW*; and 6.5-8.5 for SFH, SA, and SB. For DO and pH, if 10 percent or less of the samples contravene the appropriate standard, then aquatic life uses are said to be fully supported. A percentage of standards excursions between 11-25 is considered partial support, and a percentage greater than 25 is considered to represent nonsupport, unless excursions are due to natural conditions. Dissolved oxygen and pH may vary from the ranges specified in the standards due to a variety of natural causes.

When comparing SCDHEC data to DO standards, it is necessary to consider sampling bias due to season or tide stage. Samples are collected as a single instantaneous grab sample, which is not truly representative of the daily average used as the criterion for most classifications. Secondary stations are sampled only during summer months and generally experience a higher rate of DO excursions as a result. It is essential to examine the data to ascertain such patterns of excursions before summarily concluding that the indicated violations constitute poor water quality.

For any individual toxicant (heavy metals, priority pollutants, chlorine, ammonia), if the acute aquatic life standard is exceeded in more than 10 percent of the samples, based on at least ten samples, aquatic life uses are not supported. If the acute aquatic life standard is exceeded more than once, but in less than or equal to 10 percent of the samples, uses are partially supported. If fewer than ten samples were collected, discretion must be used and other factors considered, such as the magnitude of the excursions or number of toxicants with excursions. In such a circumstance it is noted that aquatic life uses may not be fully supported and the site is prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

Biological data are the ultimate deciding factor for aquatic life uses, regardless of chemical conditions. The goal of the standards is the protection of a balanced indigenous aquatic community.

Macroinvertebrate Data Interpretation

Macroinvertebrate community assessments are used, where available, to supplement or verify Aquatic Life Use Support determinations and to evaluate potential impacts from the presence of sediment contaminants. Aquatic and semi-aquatic macroinvertebrates are identified to the lowest practical taxonomic level depending on the condition and maturity of specimens collected. The EPT Index and the North Carolina Biotic Index are the main indices used in analyzing macroinvertebrate data. To a lesser, extent taxa richness and total abundance may be used to help interpret data.

The EPT Index or the Ephemeroptera (mayflies) - Plecoptera (stoneflies) - Trichoptera (caddisflies) Index is the total taxa richness of these three generally pollution-sensitive orders. EPT values are compared with least impacted regional sites. The biotic index for a sample is the average pollution tolerance of all organisms collected, based on assigned taxonomic tolerance values. A database is currently being developed to establish significant EPT index levels to be used in conjunction with the biotic index to address aquatic life use support.

Taxa richness is the number of distinct taxa collected and is the simplest measure of diversity. High taxa richness is generally associated with high water quality. Increasing levels of pollution progressively eliminate the more sensitive taxa, resulting in lower taxa richness. Total abundance is the enumeration of all macroinvertebrates collected at a sampling location. This is generally not regarded as a qualitative metric. However, when gross differences in abundance occur between stations this metric may be considered as a potential indicator.

RECREATIONAL USE SUPPORT

The degree to which the swimmable goal of the Clean Water Act is attained (recreational use support) is based on the frequency of fecal coliform bacteria excursions, defined as greater than 400/100 ml for all surface water classes. Comparisons to the bacteria geometric mean standard are not considered appropriate based on sampling frequency and the intent of the standard. If 10 percent or less of the samples are greater than 400/100 ml then recreational uses are said to be fully supported. A percentage of standards excursions between 11-25% is considered partial support of recreational uses, and greater than 25% is considered to represent nonsupport of recreational uses.

FISH CONSUMPTION USE SUPPORT

The Department uses a risk-based approach to evaluate mercury concentrations in fish tissue and to issue consumption advisories in affected waterbodies. This approach contrasts the average daily exposure dose to the reference dose (RfD). Using these relationships, fish tissue data are interpreted by determining the consumption rates that would not be likely to pose a health threat to adult males and nonpregnant adult females. Because an acceptable RfD for developmental neurotoxicity has not been developed, pregnant women, infants, and children were advised to avoid consumption of fish from any waterbody where an advisory was issued.

Fish consumption use support is determined by the occurrence of advisories or bans on consumption for a waterbody. For the support of fish consumption uses, a fish consumption advisory indicates partial use support, a consumption ban indicates nonsupport of uses.

HUMAN HEALTH STANDARDS

State standards for human health are also evaluated in the preparation of the Watershed Water Quality Assessment. For contaminants with human health standards (ie. heavy metals, pesticides), a potential human health threat is indicated if the median concentration exceeds the standard.

Additional Screening and Prioritization Tools

Evaluation of water quality data and other supplemental information facilitates watershed planning. Information from the following sources is used to develop watershed-based protection and prevention strategies.

Long-Term Trend Assessment

As part of the watershed assessments, surface data from each station are analyzed for statistically significant long-term trends using a modification of Kendall's tau, which is a nonparametric test removing seasonal effects. Flows are not available for most stations, and the parametric concentrations are not flow-corrected. Seasonal Kendall's tau analysis is used to test for the presence of a statistically significant trend of a parameter, either increasing or decreasing, usually over a twelve to fifteen year period. It indicates whether the concentration of a given parameter is exhibiting consistent change in one direction over the specified time period. A two sided test at $p=0.1$ is used to determine statistically significant trends, and the direction of trend. An estimate of the magnitude of any statistically significant trend is calculated.

A rigorous evaluation for trends in time-series data usually includes a test for autocorrelation. The data are not tested for autocorrelation prior to the trend analysis. It is felt that autocorrelation would not seriously compromise a general characterization of water quality trends based on such a long series of deseasonalized monthly samples.

One of the advantages of the seasonal Kendall test is that values reported as being below detection limits (DL) are valid data points in this nonparametric procedure, since they are all considered to be tied at the DL value. When the DL changed during the period of interest, all values are considered to be tied at the highest DL occurring during that period. Since it is possible to measure concentrations equal to the value of the DL, values less than DL are reduced by subtraction of a constant so that they remain tied with each other, but are less than the values equal to the DL. Since fecal coliform bacteria detection limits vary with sample dilution, there is no set DL; therefore, for values reported as less than some number, the value of the number is used.

Sediment Screening

There are no sediment standards; therefore, to identify sediments with elevated metals concentrations, percentiles are constructed using five years of statewide sediment data. Only values greater than the detection limit were used for chromium, copper, nickel, lead, and zinc. Because so few concentrations of cadmium and mercury are measured above the detection limit, all samples were pooled for these metals. A sediment metal concentration is considered to be high if it is in the top 10% of the pooled results, and very high if it is in the top 5%. Any analytical result above detection limits is flagged for pesticides, PCBs, and other priority pollutants. Sites with noted high metals concentrations or the occurrence of other contaminants above detection limits are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

Water Column Metals Analyses

The USEPA criteria for heavy metals to protect aquatic life are specified as a four-day average and a one-hour average, and have been adopted as state standards. Because of the quarterly sampling frequency for heavy metals, the USEPA advises against comparisons to chronic toxicity standards (four-day average concentration); therefore, only the acute standard (one-hour average) for the protection of aquatic life is used in the water quality assessment (Table 1).

Table 1. Metal Standards in Water (μg/l)

Metal	Present Detection Level	Freshwater 1Hr. Acute Ave.	Saltwater 1Hr. Acute Ave.	Human Health
*Cadmium	10.0	1.79	43.0	5.000
Chromium (VI)	10.0	16.00	1100.0	50.000
*Copper	10.0	9.22	2.9	
*Lead	50.0	33.78	140.0	50.000
Mercury	0.2	2.40	2.1	0.153
*Nickel	20.0	789.00	75.0	4584.000
*Zinc	10.0	65.00	95.0	

* Freshwater standards based on a hardness of 50 mg/l as $CaCO_3$.

Zinc and copper are elevated in surface waters statewide and concentrations are frequently measured in excess of the calculated acute aquatic life standards. To identify areas where zinc, copper, and other metals are elevated in the water column above normal background concentrations, concentrations greater than the detection limit from all SCDHEC monitoring sites statewide for a five year period are pooled and the 90th and 95th percentiles are computed. This is done separately for each metal for both fresh and saltwaters. The individual measurements from each monitoring station are then compared to these percentiles, as well as to state standards. As in sediments, a metal concentration is referred to as "high" if it is in the top 10% of the pooled results, and "very high" if it is in the top 5%. All water column values referred to as "high" or "very high" are also in excess of the acute aquatic life standard listed in Table 1. For chromium, because so few concentrations are above the detection limit, all samples collected are used to generate the percentiles. Sites with high metals concentrations are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

The analytical procedures used by the Department yield total metal concentration, which is a relatively conservative measure, since the total metal concentration is always greater than the acid-soluble or dissolved fraction. Most heavy metal criteria for freshwater are calculated from formulas using water hardness. The formulas used to calculate criteria values are constructed to apply to the entire United States, including Alaska and Hawaii. As with all the USEPA criteria, there is also a large margin of safety built into the calculations. The applicability of the hardness-based criteria derived from the USEPA formulas to South Carolina waters has been a subject of much discussion. Hardness values vary greatly nationwide (from zero into the hundreds), with South Carolina representing the lower end of the range (statewide average value is approximately 20 mg/l). Representatives of the USEPA Region IV standards group have stated that no toxicity data for hardness values less than 50 mg/l were used in the development of the formulas. They have expressed reservations about the validity of the formulas when applied to hardness values below 50 mg/l. Based on this opinion, South Carolina's State standards for metals are based on a hardness of 50 mg/l for waters where hardness is 50 mg/l or less, resulting in several criteria values below the Department's current analytical detection limits. Therefore, any detectable concentration of cadmium, copper, or lead is an excursion beyond recommended criteria.

The SCDHEC monitoring data have historically indicated that zinc and copper levels in South Carolina waters are elevated relative to USEPA criteria, apparently a statewide phenomenon in both fresh and salt waters, and possibly resulting from natural conditions, nonpoint sources, or airborne deposition. These levels do not appear to adversely affect state fisheries, which suggests that the levels are the result of long-term local conditions to which the fauna have adapted, as opposed to point source pollution events. It is difficult to assess the significance of heavy metal excursions due to the questionable applicability of the formulas at low hardness values and calculated criteria below present detection limits.

Point Source Contributions

Wasteload Allocation Process

A wasteload allocation (WLA) is the portion of a stream's assimilative capacity for a particular pollutant which is allocated to an existing or proposed point source discharge. Existing WLAs are updated during the basin review process and included in permits during the normal permit expiration and reissuance process. New WLAs are developed for proposed projects seeking a discharge permit or for existing discharges proposing to increase their effluent loading at the time of application. Wasteload allocations for oxygen demanding parameters are developed by the Water Quality Modeling Section, and WLAs for toxic pollutants and metals are developed by the appropriate permitting division.

The ability of a stream to assimilate a particular pollutant is directly related to its physical and chemical characteristics. Various techniques are used to estimate this capacity. Simple mass balance/dilution calculations may be used for a particular conservative (nondecaying) pollutant while complex models may be used to determine the fate of nonconservative pollutants that degrade in the environment. Waste characteristics, available dilution, and the number of discharges in an area may, along with existing water quality, dictate the use of a simple or complex method of analysis. Projects which generally do not require complex modeling include: groundwater remediation, noncontact cooling water, mine dewatering, air washers, and filter backwash.

Streams are designated either effluent limited or water quality limited based on the level of treatment required of the dischargers to that particular portion of the stream. In cases where the USEPA published effluent guidelines and the minimum treatment levels required by law are sufficient to maintain instream water quality standards, the stream is said to be effluent limited. Streams lacking the assimilative capacity for a discharge at minimum treatment levels are said to be water quality limited. In cases where better than technology limits are required, water quality, not minimum requirements, controls the permit limits. The Department's Water Quality Modelling Section recommends limits for numerous parameters including ammonia nitrogen (NH3-N), dissolved oxygen (DO), total residual chlorine (TRC), and five-day biochemical oxygen demand (BOD5). Limits for other parameters, including metals, toxics, and nutrients are developed by the Water Facilities Permitting Division or the Industrial, Agricultural, and Stormwater Permitting Division in conjunction with support groups within the Department.

Permitting

The Water Facilities Permitting Division and the Industrial, Agricultural, and Stormwater Permitting Division are responsible for drafting and issuing National Pollutant Discharge Elimination System (NPDES) permits. Facilities are defined as either "major" or "minor". For municipal permits, a facility is considered a "major" if it has a permitted flow of 1 MGD or more and is not a private facility. The determination for industrial facilities is based on facility and stream characteristics, including toxicity, amount of flow, load of oxygen, proximity of drinking water source, potential to exceed stream standards, and potential effect on coastal waters.

A completed draft permit is sent to the permittee, the SCDHEC District office, and if it is a major permit, to the USEPA for review. A public notice is issued when the permit draft is finalized. Comments from the public are considered and, if requested, a public hearing may be arranged. Both oral and written comments are collected at the hearing, and after considering all information, the Department staff make the decision whether to issue the permit as drafted, issue a modified permit, or to deny the permit. Everyone who participated in the process receives a notice of the final decision. A copy of the final permit will be sent to anyone who requests a it. It is anticipated that minor permits will be grouped by watershed and publicly noticed together; major permits will individually stand public review. Staff decisions may be appealed according to the procedures in R.61-72.

The permitting Divisions use general permits with statewide coverage for certain categories of minor NPDES permits. Discharges covered under general permits include utility water, potable surface water treatment plants, potable groundwater treatment plants with iron removal, petroleum contaminated groundwater, and mine dewatering activities. Additional activities proposed for general permits include bulk oil terminals, aquacultural facilities, and ready-mix concrete/concrete products. Land application systems for land disposal and lagoons are also permitted.

Nonpoint Source Contributions

Nonpoint source (NPS) pollutants are generally introduced to a waterbody during a storm event and enter the system from diverse areas. NPS contributions originate from a variety of activities that include agriculture, silviculture, construction, urban stormwater runoff, hydrologic modification, landfills, mining, and residual wastes.

Section 319 of the 1987 Amendment to the Clean Water Act required states to assess the NPS water pollution associated with surface and groundwater within their borders and then develop and implement a management strategy to control and abate the pollution. The NPS Management Program develops strategies and targets waterbodies for priority implementation of management projects. Components of the projects vary depending on the particular NPS impacts in the watershed, but all include BMP demonstrations, education, and monitoring. The NPS Management Plan describes programs (both regulatory and voluntary) for NPS abatement, targets watersheds for NPS project implementation, and describes the state's strategy under each of the eight categories of NPS identified in South Carolina. Management measures are "economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution". The management measures address the following major categories: agriculture, forestry, urban areas, marinas/recreational boating, hydromodification, mining, land application, and wetlands.

Landfill Activities

All landfill activities within the State are permitted and regulated by the Department's Bureau of Land and Waste Management. All active and closed industrial and municipal solid waste landfills are identified in the appropriate watershed evaluations.

Mining Activities

Mining activities within the State are permitted by the Mining and Reclamation Division of the Department's Bureau of Land and Waste Management. Active soil excavations for mining purposes and their locations are identified in the appropriate watershed evaluations.

Camping Facilities

The two types of camping facilities permitted by the Department through Regulation 61-39 are resident and family camps. Resident camps are organized camps where one or more buildings are provided for sleeping quarters. These camps are typically operated for educational, recreational, religious, or health purposes. Family camps are organized camps where camp sites are provided for use by the general public or certain groups. The camp sewage is discharged into a public collection, treatment and disposal system if available, or an onsite wastewater treatment and disposal system (septic tank) is used. Camp locations are identified in the appropriate watershed evaluations.

Groundwater Concerns

Groundwater is an important resource for drinking water use, together with agricultural, industrial and commercial usages. Based on USEPA drinking water standards, the overall quality of South Carolina's groundwater is excellent. Contaminated groundwater is expensive and difficult to restore; therefore, groundwater protection for present and future usage is the management emphasis.

Localized sources of groundwater contamination can include: septic tanks, landfills (municipal and industrial), surface impoundments, underground storage tanks, above ground storage tanks, hazardous waste sites (abandoned and regulated), salt water intrusion, land application or treatment, agricultural activities, road salting, spills and leaks. For the purposes of this assessment, only groundwater contamination affecting surface waters will be identified. The groundwater contamination inventory was used to identify groundwater-related problem areas in the basin. Sites in the inventory are referenced by name and county, and are updated annually.

Water Supply

Water treatment facilities are permitted by the Department for municipal and industrial potable water production. As per the 1983 Water Use Reporting and Coordination Act (Act 282), all water uses over 100,000 gallons per day must report their usage. This includes industrial, agricultural, mining, golf courses, public supply, commercial, recreational, hydro power, thermo power, and nuclear power activities. Intake location and the volume removed from a stream are identified in the watershed evaluations for both municipal (potable) and industrial uses.

Growth Potential and Planning

Land use and management can define the impacts to water quality in relation to point and nonpoint sources. Assessing the potential for an area to expand and grow allows for water quality planning to occur and, if appropriate, increased monitoring for potential impairment of water quality. Indicators used to predict growth potential include water and sewer service, road and highway accessibility, and population trends. These indicators and others were used as tools to determine areas within the Saluda River Basin having the greatest potential for impacts to water quality as a result of development.

Many counties in the Saluda Basin lack county wide zoning ordinances; therefore, there is little local regulatory power to influence the direction or magnitude of regional growth. The majority of municipalities have zoning ordinances in place; however, much of the growth takes place just outside the municipal boundaries, where infrastructure is inadequate. Section 208 of the Clean Water Act serves to encourage and facilitate the development and implementation of areawide waste treatment management plans. The §208 Areawide Water Quality Management Plans were completed in great detail during the 1970's and have recently been updated. Information from the updated reports are used in the individual watershed evaluations.

Watershed boundaries extend along topographic ridges and drain surrounding surface waters. Roads are commonly built along ridge tops, with the best drainage conditions. Cities often develop in proximity to ridges as a result of their plateau terrain. It is not uncommon, then, to find cities or road corridors located along watershed boundaries, and thus influencing or impacting several watersheds.

Watershed Stewardship Programs

Public participation is an important component of the Department's Watershed Water Quality Management Program. For the Saluda Basin, workshops were held in the City of Greenville and the Town of Lexington during the assessment development to gain a better understanding of the watershed residents' concerns. Additional benefits to this interaction on the local level include improved public awareness about SCDHEC water programs, and increased local interest and participation in water quality improvement. The meetings are summarized in Appendix A. Described below are some of the Department's water programs that encourage public interest and involvement in water quality.

Source Water Assessment Program

A safe, adequate source of drinking water is key to development of communities and the health of citizens. The Safe Drinking Water Act (SDWA) provides authority to protect sources of drinking water. As a result of the 1996 amendments to the SDWA, source water protection has become a national priority. States are required to develop a plan for assessment of source waters for all federally defined public groundwater and surface water systems.

The Source Water Assessment Program (SWAP) involves determining the boundaries of the areas that are the source of waters for public water systems. For groundwater systems, these areas are defined using groundwater flow models. For surface water systems, the 14-digit Hydrologic Unit Code watershed is the designated protection area (although certain areas within the basin will be segmented as being of greater vulnerability to contamination from overland flow, groundwater contributions to surface water, and direct spills into the surface water). Known and potential sources of contamination in the delineated area must be identified, and the inventoried sources evaluated to determine the susceptibility of public water systems to such contaminants. Assessments must be made available to the public.

Local involvement will be a critical factor in the success of the SWAP, and local government, citizen groups, environmental groups, water suppliers, and the Department must all work together to increase the general public's awareness of where drinking water comes from and how to better protect sources of drinking water. Implementation of source water protection activities will also occur at the local level, and local authorities may wish to base zoning and land-use planning on the source water assessments. The SWAP will be a key part of the Department's watershed management approach. To avoid duplication, information gathered from existing regulatory programs and/or watershed protection efforts will be utilized (e.g., ambient monitoring programs, TMDLs, etc.).

South Carolina Water Watch

South Carolina Water Watch is a unique effort to involve the public and local communities in water quality protection. The Water Watch program was developed to encourage South Carolina's citizens to become stewards of the state's lakes, rivers, streams, estuaries, and wetlands. Volunteers select a water resource on which to focus and perform activities aimed at protecting water quality, such as shoreline surveys, public education, and litter cleanups. The Water Watch coordinator assists participants with materials and training to help make projects successful. SCDHEC invites individuals, school groups, civic organizations, businesses, and local governments to learn about and protect the quality of our waterways by contacting the Water Watch coordinator at 803-898-4300.

Champions of the Environment

Champions of the Environment is a student recognition program that raises awareness of environmental issues. Nationally recognized for its innovative approach to environmental education, the program promotes hands-on learning by recognizing students working on exemplary environmental projects beyond the realm of the classroom. With scholarships and media coverage, Champions of the Environment encourages student initiative and self-esteem. The program promotes environmental awareness, leadership, conservation, creativity, and self-confidence through activities such as group projects, public speaking, and environmental research. Champions of the Environment is jointly sponsored by Dupont, Union Camp, WIS-TV, and SCDHEC. For more information contact the Champions of the Environment coordinator at 803-898-4300.

Clean Water State Revolving Fund

Congress created the Clean Water State Revolving Fund (SRF) in 1987, to replace the §201 Construction Grants program. In doing so, 'state banks' were created to lend money for virtually any type of water pollution control infrastructure project. Project types include construction of wastewater treatment systems, nonpoint source pollution control, wetlands and estuary protection, and other watershed projects. The interest rate on the loans is always below the current market rate. As repayments are made on the loans, funds are recycled to fund additional water protection projects. Approximately $3 billion is available annually on the national level for SRF. South Carolina has approximately $16.5 million available for loans in 1998. The vast majority of the SRF funds have been used for the construction of traditional municipal wastewater treatment systems. Because of its inherent flexibility, the SRF program is well suited to accommodate the watershed approach.

SRF loans are available to units of state, local, and regional government, and special purpose districts. South Carolina law prevents loans from being made directly to private organizations and individuals; however, it is possible for governmental entities to be the SRF recipient and in turn loan the funds to private concerns and individuals. Local governments such as cities and counties and other units of government such as Soil and Water Conservation Districts, Councils of Government, and Water and Sewer Districts are encouraged to apply for SRF loans for nonpoint source projects. Nonpoint source projects may include construction and maintenance of stormwater management facilities, establishment of a stormwater utility, purchase of land for wetlands and riparian zones, and implementation of source water protection assessments. For more information contact the State Revolving Fund coordinator at 803-898-4300.

Watershed Protection and Restoration Strategies

SCDHEC's Bureau of Water is responsible for ensuring that South Carolina's water is safe for drinking and recreation, and suitable to support aquatic life. This section provides an overview of other important Bureau programs and strategies applied statewide to protect and restore water quality. The point and nonpoint source controls described previously assist with achieving these goals.

Under section 303(d) of the Federal Clean Water Act, each state is required to provide a comprehensive inventory of impaired waters for which existing required pollution controls are not stringent enough to achieve State water quality standards or Federal Clean Water Act goals. This biennial list, commonly referred to as the "303(d) list" is the basis for targeting waterbodies for watershed-based solutions. A copy of the current 303(d) list can be obtained by contacting the Bureau of Water. Several Bureau programs address these impaired streams in an effort to restore them.

Total Maximum Daily Load

A Total Maximum Daily Load (TMDL) is the calculated maximum allowable pollutant loading to a waterbody at which water quality standards are maintained. A TMDL is made up of two main components, a load allocation and a wasteload allocation. A load allocation is the portion of the receiving water's loading capacity attributed to existing or future nonpoint sources or to natural background sources. The waste load allocation is the portion of a receiving water's loading capacity allocated to an existing or future point source.

A TMDL is a means for recommending controls needed to meet water quality standards in a particular water or watershed. Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular waterbody segment, for a particular point source, to support setting effluent limitations. In order to address the combined cumulative impacts of all sources, broad watershed-based TMDLs are now being developed.

The TMDL process is linked to all other State water quality activities. Water quality impairments are identified through monitoring and assessment. Watershed-based investigations result in source identification and TMDL development. TMDLs form links between water quality standards and point and nonpoint source controls. Where TMDLs are established, they constitute the basis for NPDES permits and for strategies to reduce nonpoint source pollution. The effectiveness and adequacy of applied controls are evaluated through continued monitoring and assessment.

Antidegradation Implementation

The State's Antidegradation Policy as part of S.C. Regulation 61-68 is represented by a three-tiered approach to maintaining and protecting various levels of water quality and uses; streams included on the 303(d) list are addressed under Tier 1. Tier 1 antidegradation policies apply to all waters of the State and require that existing uses and the minimum level of water quality for those uses be maintained and protected. Tier 2 policies apply to high water quality where the water quality exceeds the mandatory minimum levels to support Clean Water Act's goals of propagation of fish, shellfish, wildlife, and recreation in and on the water. The Department considers all the waters of the State as high quality waters. Tier 3 policies apply to the maintenance of water quality in waters which constitute an Outstanding National Resource Water and do not allow for any permanent permitted dischargers. Outstanding Resource Waters of the State are provided a higher level of protection than Tier 2, but do not meet the requirements of Tier 3.

The antidegradation rules will be implemented for Tier 1 protection when applying narrative standards included in Regulation 61-68 as follows: if nutrient loadings caused a waterbody to be included on the 303(d) list, then the Department will not allow a permitted net increase of loading for the appropriate nutrient(s) until such time as a TMDL is developed for the waterbody. In addition, Tier 1 protection will be implemented when applying numeric standards included in Regulation 61-68 for human health, aquatic life, and organoleptic protection as follows: if a waterbody has been affected by a parameter of concern causing it to be on the 303(d) list, then the Department will not allow a permitted net increase of loading for the parameter of concern unless the concentration will not contribute to a violation of water quality standards. Maintenance of current levels will be achieved by reallocation of existing total loads or by meeting applicable water quality standards at the end-of-pipe. No discharge will be allowed to cause or contribute to further degredation of a 303(d) listed waterbody. This no net increase will be achieved by reallocation of existing total load(s) or by meeting applicable water quality standard(s) at the end-of-pipe.

401 Water Quality Certification Program

If a Federal permit for a discharge into waters of the State, including wetlands, is required, the Department must issue Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act. Certification is required for permits issued by the U.S. Army Corps of Engineers for construction in navigable waters and for deposition of dredged or fill material.

Regulation 61-101 presents administrative and technical guidance for the water quality certification program and requires DHEC to consider whether or not a project is water dependent; whether or not there are feasible alternatives which will have less adverse consequences on water quality and classified uses; the intended purpose of the project; and all potential water quality impacts of the project, both direct and indirect, over the life of the project. Any project with the potential to affect waters of the State must be conducted in such a manner to maintain the specified standards and classified and existing water uses.

As a routine part of the 401 Water Quality Certification review process, the waterbody in question is identified as impaired or not impaired according to the 303(d) list. If it is impaired, the parameter of concern is noted, along with any steps required to prevent further degradation of the water quality of that waterbody. In an effort to facilitate watershed restoration where appropriate, mitigation for unavoidable wetland impacts is encouraged in areas that improve 303(d) listed waters.

Stormwater Program

Stormwater discharges result from precipitation during rain events. Runoff washes pollutants associated with industrial activities (including construction activity), agricultural operations, and commercial and household sites directly into streams, or indirectly into drainage systems that eventually drain into streams. The SCDHEC Stormwater Permitting Program focuses on pollution prevention to reduce or eliminate stormwater pollution. The Department has general permitting authority for stormwater discharges associated with industrial activity, including construction. General permits SCR000000 and SCR100000 for industrial and construction activities, respectively, require permittees to develop and implement stormwater pollution prevention plans that establish best management practices to effectively reduce or eliminate the discharge of pollutants via stormwater runoff. The Stormwater and Agricultural Permitting Section is responsible for issuing NPDES storm water permits to prevent degradation of water quality as well as for issuing sediment and erosion control permits for construction sites. SCDHEC's Bureau of Ocean and Coastal Resource Management manages the State sediment and erosion control in the coastal area.

Regulation 61-9 requires a compilation of all existing State water quality data with STORET data being used as a baseline. If analysis indicates a decrease in water quality then corrective measures must be taken. The permittee will identify all impaired water bodies in a Stormwater Management Plan (SWMP). In addition, existing pollution discharge control methods will be identified and incorporated into the SWMP. Procedures, processes and methods to control the discharge of pollutants from the municipal separate storm sewer system (MS4) into impaired water bodies and publicly owned lakes included on the 303(d) list will be described in the SWMP. The effectiveness of these controls will be assessed and necessary corrective measures, if any, shall be developed and implemented.

South Carolina Animal Feeding Operations Strategy

Among the general categories of pollution sources, agriculture ranks as the number one cause of stream and lake impairment nationwide. Many diseases can potentially be contracted from drinking water or coming into contact with waters contaminated with animal wastes. The Department has recently published SC Regulation 61-43: *Standards for the Permitting of Agricultural Animal Facilities* to address the permitting of animal feeding operations (AFOs) and updated Regulation 61-9: *Water Pollution Control Permits* to address concentrated animal feeding operations (CAFOs). Implementing these regulations and their corresponding compliance efforts are a priority for the Department in order to reduce public health and environmental impacts from AFOs. There are currently no CAFOs in operation in South Carolina, and approximately 2,000 AFOs. Using the Watershed Program cycle and the division of the state into five regions, AFOs will be monitored and inspected by region. The 303(d) list will be used to prioritize the inspections. After all the inspections have been made in a region, the Department will move on the next sub-basin grouping in the watershed cycle. The Department is continuing to work in cooperation and coordination with the US Department of Agriculture, the Natural Resources Conservation Service, the South Carolina

Department of Agriculture, the South Carolina Soil and Water Conservation Districts, and the Clemson Extension Service.

Sanitary Sewer Overflow Strategy

Sanitary sewers are designed to collect municipal and industrial wastewater, with the allowance for some acceptable level of infiltration and infow, and transport these flows to a treatment facility. When the sewer system is unable to carry these flows, the system becomes surcharged and an overflow will occur. Sanitary sewer overflows (SSOs) have existed since the introduction of separate sanitary sewers, and most are caused by inadequate operation, maintenance, and management of the collection system.

The SSO strategy addresses compliance and enforcement efforts by the Department to ensure compliance by publicly/privately owned treatment plants (PPOTWs) with the requirements of the statutes and their NPDES and ND permits. The Department has initiated a Sanitary Sewer Overflow Compliance and Enforcement Strategy to shift resources historically applied to treatment plant inspections to include evaluations of pump stations and collection systems. To assist evaluators in selecting candidate systems, staff will utilize the 303(d) list of impaired waters to identify waters impacted by fecal coliform or other appropriate pollutants and correlate those with collection systems with incidences of SSOs. The Department's Enforcement Referral Procedures Document will be used to determine when a PPOTW should be referred to enforcement for SSOs. The enforcement process allows for the Department to consider actions taken by the PPOTW such as: timely and proper notification, containment and mitigation of discharge, voluntarily conducting self evaluations, and requests for compliance assistance. The Department will take immediate action where it has been determined that SSOs have occurred and the PPOTW has not made timely and proper notification.

Referral Strategy for Effluent Violations

The Department has developed referral effluent violation guidelines to specifically address discharges into impaired waters. The goal of the referral guidelines is to reduce pollutant discharges into impaired waters in order to ultimately restore them to their full potential usage. To achieve this goal, enforcement actions are initiated earlier in an effort to improve the quality of waters which do not meet standards. If a stream is impaired by a pollutant and the permit limit for that pollutant is exceeded more than once in a running annual reporting period, formal enforcement action will be initiated against the discharger.

Saluda River Basin Description

The ***Saluda River Basin*** covers 2,519 square miles and contains 21 watersheds with geographic regions that extend from the Blue Ridge (mountain) to the Piedmont. The Saluda River Basin encompasses 1,612,395 acres of which 8.4% is urban land, 16.2% is agricultural land, 3.4% is scrub/shrub land, 0.5% is barren land, 67.4% is forested land, 0.2% is forested wetland, and 3.9% is water (SCLRCC 1990). The urban land is comprised of the Cities of Greenville and Columbia, and to a lesser extent the Cities of Laurens and Newberry. There are a total of 2,416.2 stream miles in the Saluda River Basin.

The Oolenoy River flows into the South Saluda River, which merges with the North Saluda River to form the Saluda River. Downstream from the confluence, the Saluda River flows past the City of Greenville and is joined by Georges Creek, Big Brushy Creek, Big Creek, and Broad Mouth Creek before forming the headwaters of Lake Greenwood. The Reedy River is joined by Huff Creek and flows through Boyd Mill Pond before joining the Saluda River in the Lake Greenwood headwaters. Rabon Creek flows out of Lake Rabon and into the Reedy River arm of Lake Greenwood. Just downstream of the lake, Ninety Six Creek flows into the Saluda River near the Town of Greenwood. The Little River originates near the City of Laurens and drains into the Saluda River between Lakes Greenwood and Murray. The Saluda River together with the Little Saluda River and the Bush River then form the headwaters of Lake Murray. The Saluda River emerges from the Lake Murray dam and joins the Broad River Basin at the City of Columbia to form the Congaree River. The Broad River Basin is addressed in year five of the Bureau's five-year basin cycle.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources and land uses in common. The physiographic regions that define the Saluda Basin are as follows:

The **Blue Ridge** is an area of dissected (separated by erosion into many closely spaced valleys), rugged mountains with narrow valleys dominated by forests; elevations range from 1,000 to 3,300 feet.

The **Piedmont** is an area of gently rolling to hilly slopes with narrow stream valleys dominated by forests, farms and orchards; elevations range from 375 to 1,000 feet.

The **Sand Hills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the state's major farming areas; elevations range from 100 to 450 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SPOT multispectral satellite images using image mapping software to inventory the state's land classifications. The following classifications describe the Saluda Basin:

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture and orchards, and may include some grass cover in Urban, Scrub/Shrub and Forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series together comprising over 40% of the land area, were recorded for each watershed in percent descending order. The dominant individual soil series for the Saluda River Basin are described as follows:

Appling soils are well drained, deep soils, brownish to red, firm clay in the main part of the subsoil, found on narrow to broad ridges.

Ashe soils are shallow to moderately deep, well drained to excessively drained soils in steep areas.

Cecil soils are deep, well drained, gently sloping to sloping soils that have red subsoil.

Davidson soils are deep, gently sloping to strongly sloping, well drained to somewhat poorly drained soils with a loamy surface layer and a clayey subsoil.

Georgeville soils are gently sloping to sloping, well drained and moderately well drained soils.

Hayesville soils are moderately shallow to deep, well drained soils in gently sloping to steep areas, with red to yellow-brown subsoil.

Helena soils are gently sloping to sloping, moderately well drained to well drained soils.

Herndon soils are gently sloping to sloping, well drained and moderately well drained soils.

Hiwassee soils are well drained, moderately sloping soils with clayey subsoil, moderately deep.

Lakeland soils are well drained, sandy soils with a loamy subsoil and excessively drained soils.

Louisburg soils are well drained to excessively drained, shallow to deep soils, mainly red to yellowish-brown, friable to firm sandy clay loam to clay on narrow ridges and side slopes.

Madison soils are well drained, moderately sloping soils, with clayey subsoil, moderately deep.

Pacolet soils are well drained, moderately steep soils with clayey subsoil, moderately deep.

Tatum soils are dominantly sloping to steep, well drained to excessively drained soils, with a loamy subsoil, moderately deep or shallow to weathered rock.

Wilkes soils are dominantly strongly sloping to steep, well drained soils.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments which do erode. The range of K-factor values in the Saluda River Basin is 0.22 to 0.43.

Climate

Data compiled from National Weather Service stations at Caesars Head, West Pelzer, Greenwood, Laurens, Chappells, Cleveland, Ware Shoals, Little Mountain, and Newberry were used to determine the general climate information for the Saluda River Basin. Historical climatological records were compiled to provide the normal values. The normal annual rainfall in the area was 53.08 inches. The highest level of rainfall occurred in the mountains and upper piedmont region. The highest seasonal rainfall occurred in the spring with 14.88 inches; and 13.28, 11.33, and 13.59 inches of rain fell in the summer, fall, and winter, respectively. The average annual daily temperature was 60.2°F. Spring temperatures averaged 60.1°F and summer, fall, and winter temperatures averaged 76.6, 61.1, and 43.0°F, respectively.

03050109-010

(North Saluda River)

General Description

Watershed 03050109-010 is located in Greenville County and consists primarily of the ***North Saluda River*** and its tributaries. The watershed occupies 48,388 acres of the Blue Ridge and Piedmont regions of South Carolina. The predominant soil types consist of an association of the Ashe-Cecil series. The erodibility of the soil (K) averages 0.25; the slope of the terrain averages 25%, with a range of 2-65%. Land use/land cover in the watershed includes: 1.29% urban land, 3.13% agricultural land, 0.17% scrub/shrub land, 0.95% barren land, 92.67% forested land, and 1.79% water.

The North Saluda River originates near the State boundary with North Carolina and flows through Poinsett Reservoir, which is also known as the North Saluda Reservoir. Tributaries of Poinsett Reservoir include: Brice Creek, Brushy Creek, Big Falls Creek (Falls Creek, Posey Creek, Guest Creek), and Little Falls Creek. The portion of the North Saluda River from its headwaters to and including Poinsett Reservoir (drinking water reservoir for the City of Greenville) and its tributaries are classified ORW. The North Saluda River flows out of Poinsett Reservoir and accepts drainage from Calahan Branch, Beaverdam Creek (Terry Creek, Short Branch), Sprigg Creek, Bull Creek, and Talley Creek. Another Beaverdam Creek enters the river near the Town of Marietta as does Whitmire Creek. The river and its tributaries downstream of Poinsett Reservoir are classified FW. There are a total of 87.8 stream miles in this watershed. Pleasant Ridge State Park is located in this watershed.

Water Quality

Station #	Type	Class	Description
S-292	P	ORW	POINSETT RESERVOIR AT WATER INTAKE
S-088	P	FW/ORW	NORTH SALUDA RIVER AT S-23-42
S-773	BIO	FW	NORTH SALUDA RIVER AT U.S. ROUTE 25
S-004	S	FW	NORTH SALUDA RIVER AT S-23-89

North Saluda River - There are three monitoring stations along the North Saluda River, which was Class B until April, 1992. At the upstream site **(S-088)**, aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen suggest improving conditions for these parameters. P,P'DDE, a metabolite of DDT, was detected in the 1994, 1995, and 1997 sediment samples, and P,P'DDT was detected in the 1994 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. Aquatic life uses are fully supported at the midstream site **(S-773)** based on macroinvertebrate community data. At the downstream site **(S-004)**, aquatic life uses are again fully supported, but there is a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

North Saluda Reservoir or Poinsett Reservoir (S-292) - Aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Permitted Activities

Point Source Contributions

RECEIVING STREAM / FACILITY NAME / PERMITTED FLOW @ PIPE (MGD) / COMMENT	NPDES# / TYPE / LIMITATION
NORTH SALUDA RIVER JPS CONVERTER & INDUSTRIES PIPES #: 001-005 FLOW: M/R	SCG250012 MINOR INDUSTRIAL EFFLUENT
NORTH SALUDA RIVER WCRSA/SLATER/MARIETTA PIPE #: 001 FLOW: 0.672 WQL FOR TRC	SC0026883 MINOR MUNICIPAL WATER QUALITY

Nonpoint Source Contributions

Streambank and Silvicultural Demonstration Project

The streambank component of this project demonstrates BMPs related to streambank stabilization and restoration to homeowners and local governments. It is being implemented by the Greenville County Conservation District and is located on a tributary to the Reedy River. The silvicultural demonstration component of the project is located in the watersheds of the North and South Saluda River watersheds. It is demonstrating proper timber harvesting BMPs to forest landowners in the watershed. The project began in August of 1996 and is scheduled to be completed in April of 1999.

Camp Facilities

FACILITY NAME/TYPE / RECEIVING STREAM	PERMIT # / STATUS
LOOK-UP LODGE/RESIDENT NORTH SALUDA RIVER	23-305-0116 ACTIVE

PLEASANT RIDGE STATE PARK/FAMILY NORTH SALUDA RIVER TRIBUTARY	23-307-0139 ACTIVE
CAMP OLD INDIAN/RESIDENT NORTH SALUDA RIVER TRIBUTARY	23-305-0114 ACTIVE

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
GREENVILLE WATER SYSTEM (M) NORTH SALUDA RESERVOIR	60.0 90.0

Growth Potential

There is a low potential for development within this mountainous watershed. A portion of the watershed is protected by the City of Greenville and the Nature Conservancy as the Greenville Water Commission Watershed.

03050109-020

(South Saluda River)

General Description

Watershed 03050109-020 is located in Pickens and Greenville Counties and consists primarily of the ***South Saluda River*** and its tributaries. The watershed occupies 77,668 acres of the Blue Ridge region of South Carolina. The predominant soil types consist of an association of the Ashe-Hayesville series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 0.67% urban land, 2.37% agricultural land, 0.25% scrub/shrub land, 0.36% barren land, 95.35% forested land, and 1.00% water.

The South Saluda River flows through Table Rock Reservoir and is joined by several tributaries before merging downstream with the North Saluda River. The headwaters of the South Saluda River accepts drainage from Laurel Creek (Big Spring Creek, Rock Laurel Branch) and Flatrock Creek before entering Table Rock Reservoir. Slicking Creek (Little Table Rock Creek, Chestnut Cove) and Galloway Branch flow directly into the reservoir. The South Saluda River and its tributaries, from the headwaters through and including Table Rock Reservoir, are classified ORW. Matthews Creek (Julian Creek) enters the South Saluda River below the reservoir followed by West Fork (Wattacoo Creek, Robinson Branch), the Oolenoy River watershed (03050109-030), and Spain Creek. Julian Creek and Matthews Creek from their headwaters to the end of State land in the Mountain Bridge area are classified ORW. The South Saluda River is classified TPGT from the Table Rock Reservoir dam to the crossing of SC Hwy 8.

The most predominant tributary to the South Saluda River is the Middle Saluda River, which originates in Caesars Head State Park and accepts drainage from Coldspring Branch, Rock Branch, Buck Hollow, and Head Foremost Creek. Gap Creek (Falls Creek, Trammell Lake, Friddle Lake, Bluff Branch, Tankersly Branch, Peters Branch, Cherry Branch) enters the Middle Saluda River next followed by Oil Camp Creek, Jane Branch, Devils Fork Creek, Cox Creek (Grissom Branch), Mill Creek, Wolf Creek, and Spout Spring Branch. Coldspring Branch and the Middle Saluda River, from their headwaters to the end of State land, are classified ORW. Oil Camp Creek is classified ORW from its headwaters to the end of State land, and the remainder of the stream is classified TN. All of Head Foremost Creek is classified ORW, and Falls Creek is ORW from its headwaters to Lake Trammell. Lake Trammell and the remainder of Falls Creek are classified TN. The entire reach of Gap Creek, together with Rock Branch, and Buck Hollow are classified TN, and the Middle Saluda River is classified TN from the end of State land to Oil Camp Creek.

Peters Creek and Carpenter Creek flow into the South Saluda River at the base of the watershed. There are a total of 164.9 stream miles in this watershed, and with the exception of the ORW, TN, and TGPT streams mentioned above, the remaining streams are classified FW. Other natural resource areas in this watershed including Table Rock State Park, Caesars Head State Park, and Jones Gap State Park. A five-mile segment of the Middle Saluda River is protected under the

South Carolina Scenic Rivers Program. Table Rock Reservoir is used for municipal purposes only by the Greenville Water Commission.

Water Quality

Station #	Type	Class	Description
S-291	P	ORW	TABLE ROCK RESERVOIR AT WATER INTAKE
S-320	P	FW	SOUTH SALUDA RIVER AT S-39-113 (TABLE ROCK RD)
S-086	W	TN	MATTHEWS CREEK AT S-23-90
S-318	W	FW	SOUTH SALUDA RIVER AT SC 8
S-771	BIO	FW	SOUTH SALUDA RIVER AT SC ROUTE 11
S-087	S	FW	SOUTH SALUDA RIVER AT S-23-101
S-076	BIO	ORW	MIDDLE SALUDA RIVER AT JONES GAP STATE PARK
S-077	W	FW	MIDDLE SALUDA RIVER AT S-23-41
S-317	W	FW	OIL CAMP CREEK AT S-23-097
S-252	S	FW	M.SALUDA RIVER AT SC 288, 2.3 MI WSW SLATER
S-299	W	FW	SOUTH SALUDA RIVER AT SC 186

South Saluda River - There are four monitoring sites along the South Saluda River, which was Class B until April, 1992. At the upstream site **(S-320)**, aquatic life and recreational uses are fully supported, and a significant decreasing trend in turbidity suggest improving conditions for this parameter. Further downstream **(S-771)**, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are also fully supported at the next site downstream **(S-087)**, but there is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration. Aquatic life uses are again fully supported at the furthest downstream site **(S-299)**, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Table Rock Reservoir (S-291) - Aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen concentration, and a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, total nitrogen concentration, and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Matthews Creek (S-086) - Aquatic life uses are fully supported based on macroinvertebrate data.

Middle Saluda River - There are three monitoring sites along the Middle Saluda River, which was Class B until April, 1992. At the upstream site **(S-076)**, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life and recreational uses are also fully supported at the midstream site **(S-077)**. Aquatic life uses are again fully supported at the downstream site **(S-252)**, and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Oil Camp Creek (S-317) - Aquatic life uses are fully supported based on macroinvertebrate data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	NPDES# TYPE LIMITATION
SOUTH SALUDA RIVER MILLIKEN & CO./GAYLEY PLANT PIPE #: 001 FLOW: 2.15 WQL FOR NH3-N	SC0003191 MAJOR INDUSTRIAL WATER QUALITY
MATTHEWS CREEK ASBURY HILLS UNITED PIPE #: 001 FLOW: 0.015 WQL FOR TRC	SC0029742 MINOR COMMUNITY WATER QUALITY

Nonpoint Source Contributions

Streambank and Silvicultural Demonstration Project

The streambank component of this project demonstrates BMPs related to streambank stabilization and restoration to homeowners and local governments. It is being implemented by the Greenville County Conservation District and is located on a tributary to the Reedy River. The silvicultural demonstration component of the project is located in the watersheds of the North and South Saluda River watersheds. It is demonstrating proper timber harvesting BMPs to forest landowners in the watershed. The project began in August of 1996 and is scheduled to be completed in April of 1999.

Camp Facilities

FACILITY NAME/TYPE RECEIVING STREAM	PERMIT # STATUS
CAMP GREENVILLE/RESIDENT MIDDLE SALUDA RIVER TRIBUTARY	23-305-0109 ACTIVE
PALMETTO BIBLE CAMP/RESIDENT FRIDDLE LAKE	23-305-0115 ACTIVE
CAMP WABAK/RESIDENT GAP CREEK	23-305-0117 ACTIVE

CAMP AWANITA VALLEY GAP CREEK	23-305-0128 ACTIVE
JONES GAP STATE PARK MIDDLE SALUDA RIVER	23-307-0140 ACTIVE

Mining Activities

MINING COMPANY ***MINE NAME*** ***COMMENT***	***PERMIT #*** ***MINERAL***
HENDRIX SAND COMPANY HENDRIX MINE INSTREAM DREDGING (SOUTH SALUDA RIVER)	0717-39 SAND
MARIETTA SAND COMPANY MARIETTA SAND MINE INACTIVE DREDGING (SOUTH SALUDA RIVER)	0640-23 SAND

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
GREENVILLE WATER SYSTEM (M) TABLE ROCK RESERVOIR	32.0 0.0

Growth Potential

There is a low potential for development or intensive agriculture in this mountainous watershed, which is predominately protected as park and forest by Caesars Head and Table Rock State Parks. The primary uses of the watershed are recreation and preservation; however, some relatively small clear and selective cut timber harvesting activities occur on the private land holdings. US 276 crosses the watershed, but very little development occurs along the thoroughfare to North Carolina.

03050109-030

(Oolenoy River)

General Description

Watershed 03050109-030 is located in Pickens County and consists primarily of the ***Oolenoy River*** and its tributaries. The watershed occupies 31,465 acres of the Blue Ridge and Piedmont regions of South Carolina. The predominant soil types consist of an association of the Pacolet-Ashe-Cecil series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 0.21% urban land, 2.39% agricultural land, 0.08% scrub/shrub land, 0.34% barren land, 96.78% forested land, and 0.20% water.

There are a total of 71.8 stream miles in this watershed. Tributaries of the Oolenoy River include Willis Creek, Emory Creek, Rachael Creek, Mill Creek, Carrick Creek (Green Creek, Pinnacle Lake, Oolenoy Lake), Adams Creek (Molly Branch), Weaver Creek (Burgess Creek, Cisson Creek), Hawk Creek, and Gowens Creek. Willis Creek and Emory Creek are classified ORW from their headwaters to the northern boundary of Table Rock Resort property. Green Creek and the headwaters of Carrick Creek through and including Pinnacle Lake are classified ORW, and the remaining streams in the watershed are classified FW. Table Rock State Park is another natural resource in the watershed.

Water Quality

Station #	Type	Class	Description
S-798	W	FW	LAKE OOLENOY AT DRAIN NEAR SPILLWAY AT SC 11
S-103	W	FW	OOLENOY RIVER AT S-39-47

Oolenoy River (S-103) - Aquatic life uses are fully supported based on macroinvertebrate community, physical and chemical data. Recreational uses are not supported due to fecal coliform bacteria excursions.

Oolenoy Lake (S-798) - Oolenoy Lake is a 50-acre impoundment in Table Rock State Park, with a maximum depth of approximately 9.0m and an average depth of approximately 2.7m. The lake's watershed comprises 7.2km^2. Eutrophication assessments indicate that Oolenoy Lake is one of the least eutrophic small lakes in South Carolina, characterized by low nutrient concentrations and very clear water. Preservation of this lake's desirable trophic condition is recommended. Aquatic life and recreational uses are fully supported. Human health standards for mercury were exceeded once in 1997.

The lake was treated in 1993 by the Water Resources Division of the SCDNR with aquatic herbicides and stocked with triploid grass carp in an effort to control the submerged aquatic macrophytes. The stocking rate was 20 fish/vegetated acre, for a total of 700 fish. The lake was restocked in 1997 with 15 fish/vegetated acre in order to improve access to the lake.

Table Rock State Park Swimming Lake - The lake was treated in 1993 by the Water Resources Division of the SCDNR with aquatic herbicides in an attempt to control the aquatic plants that prevent access to the lake for swimming and boating. In addition, grass carp, a biological control agent, was introduced in 1993 at the stocking rate of 20 fish/vegetated acre for a total of 200 fish.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
CARRICK CREEK SCDPRT/TABLE ROCK PIPE #: 001 FLOW: 0.035 WQL FOR NH3-N, TRC	SC0024856 MINOR DOMESTIC WATER QUALITY

Growth Potential

There is an overall low potential for development or intensive agriculture in this watershed; however, there is a high potential for low density residential and tourist commercial development where Scenic S.C. Highway 11 crosses the watershed. Several small residential subdivisions have been constructed, and wastewater disposal for these new areas are by septic tanks. There are a few, relatively small, clear and selective cut timber harvesting activities occurring on the private land holdings along this watershed of mountains and rolling hills.

03050109-040

(Saluda River)

General Description

Watershed 03050109-040 is located in Pickens and Greenville Counties and consists primarily of the ***Saluda River*** and its tributaries from its origin to Big Creek. The watershed occupies 91,064 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Madison-Cecil-Davidson series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 10.65% urban land, 14.98% agricultural land, 3.23% scrub/shrub land, 0.63% barren land, 69.96% forested land, and 0.55% water.

Tributaries draining into the upper portion of this watershed include Shoal Creek, Armstrong Creek, Machine Creek (Doddies Creek), and Coopers Creek. The Saluda River then flows through Saluda Lake (used for power, municipal, and industrial purposes) in the City of Greenville, and is joined by Mill Creek and the Georges Creek watershed (03050109-050). Further downstream, Craven Creek, the Big Brushy Creek watershed (03050109-060), and Hurricane Creek drain into the river. Little Grove Creek and another Mill Creek join to form Grove Creek, which flows into the river at the base of the watershed. This watershed contains a total of 182.2 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
S-866	BIO	FW	SHOALS CREEK AT SR 140
S-250	P	FW	SALUDA RIVER AT FARRS BRIDGE ON SC 183
S-314	W	FW	SALUDA LAKE, 0.5 MI UPSTREAM OF LANDING
S-315	P	FW	MILL CREEK AT BENT BRIDGE RD, BELOW CAROLINA PLATING
S-007	P	FW	SALUDA RIVER AT SC 81, SW OF GREENVILLE
S-267	S	FW	TRIB TO SALUDA R. 350 FT BELOW W.PELZER WWTP ON S-23-53
S-171	S	FW	GROVE CREEK BELOW JP STEVENS ESTES PLT
S-774	BIO	FW	GROVE CREEK AT S-23-541
S-119	S	FW	SALUDA RIVER AT S-04-178, 3.2 MI SE WILLIAMSTON

Saluda River - There are three monitoring sites along this section of the Saluda River, which was Class B until April, 1992. At the upstream site **(S-250)**, aquatic life uses are fully supported. P,P'DDT and P,P'DDE (a metabolite of DDT) were detected in the 1994 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria. At the midstream site **(S-007)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of copper measured in 1996 and high concentrations of zinc measured in 1993 and 1996. Recreational uses are also partially supported at this site due to fecal coliform bacteria excursions. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentrations suggest improving conditions for the two upstream stations for these parameters. At the downstream site **(S-119)**, aquatic life and recreational uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Aquatic life uses at all sites have a significant increasing trend in turbidity.

Saluda Lake (S-314) - Saluda Lake is a 500-acre impoundment on the Saluda River, with a maximum depth of approximately 12.2m and an average depth of approximately 2.4m. The lake's watershed comprises 674.4km^2. Eutrophication assessments indicate that Saluda Lake is one of the least eutrophic small lakes in South Carolina, characterized by low phosphorus concentrations and high levels of dissolved oxygen. Preservation of this lake's desirable trophic condition is recommended. Aquatic life and recreational uses are fully supported at this site. Human health standards for mercury were exceeded once in 1997.

Unnamed Saluda River Tributary (S-267) - Aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in turbidity. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions.

Mill Creek (S-315) - This stream was Class B until April, 1992. Aquatic life uses are not supported due to occurrences of chromium, copper, and zinc in excess of the aquatic life acute standards, including very high concentrations of chromium measured annually from 1993-1997, high concentrations of zinc measured in 1993 and 1994, and a very high concentration of zinc measured in 1993. Human health standards for chromium are consistently exceeded. Signs have been posted on this creek advising people to avoid swimming, wading, drinking, or other contact with water from the creek, and not to consume fish from the creek. This chromium is finding its way into the stream from groundwater contamination originating at the old Carolina Plating and Stamping site. Significant decreasing trends in total phosphorus concentrations and turbidity suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

Grove Creek - There are two monitoring sites along Grove Creek, which was Class B until April, 1992. At the upstream site **(S-171)**, aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are partially supported at the downstream site **(S-774)** based on macroinvertebrate community data.

Shoals Creek (S-866) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM / FACILITY NAME / PERMITTED FLOW @ PIPE (MGD) / COMMENT	NPDES# / TYPE / LIMITATION
SALUDA RIVER DUKE ENERGY CORP./LEE STEAM STATION PIPES #: 001-004 FLOW: M/R	SC0002291 MAJOR INDUSTRIAL EFFLUENT
SALUDA RIVER WCRSA/PIEDMONT PLANT PIPE #: 001 FLOW: 1.200	SC0023906 MAJOR MUNICIPAL EFFLUENT
SALUDA RIVER WCRSA/AVICE DALE PLANT PIPE #: 001 FLOW: 0.035	SC0036072 MINOR MUNICIPAL EFFLUENT
SALUDA RIVER WCRSA/SALUDA RIVER PLANT PIPE #: 001 FLOW: 0.500	SC0034568 MINOR MUNICIPAL EFFLUENT
SALUDA RIVER WCRSA/PARKER PLANT PIPE #: 001 FLOW: 0.20	SC0037451 MINOR MUNICIPAL EFFLUENT
SALUDA RIVER WCRSA/LAKESIDE PLANT PIPE #: 001 FLOW: 0.7	SC0037460 MINOR MUNICIPAL EFFLUENT
SALUDA RIVER TOWN OF PELZER PIPE #: 001 FLOW: 0.20	SC0040797 MINOR MUNICIPAL EFFLUENT
SALUDA RIVER TOWN OF WILLIAMSTON PIPE #: 001 FLOW: 1.0 PROPOSED	SC0046841 MAJOR MUNICIPAL EFFLUENT
SALUDA RIVER WCRSA/GROVE CREEK PLT PIPE #: 001 FLOW: 2.000 PROPOSED	SC0047309 MAJOR MUNICIPAL EFFLUENT
SALUDA RIVER TRIBUTARY VULCAN MATERIALS CO. PIPE #: 002 FLOW: M/R	SC0002950 MINOR INDUSTRIAL EFFLUENT
SALUDA RIVER TRIBUTARY BIBB TOWELS, INC. PIPE #: 001 FLOW: M/R	SCG250093 MINOR INDUSTRIAL EFFLUENT

SALUDA RIVER TRIBUTARY TOWN OF WEST PELZER PIPE #: 001 FLOW: 0.200 WQL FOR NH3-N, DO, TRC	SC0025194 MINOR MUNICIPAL WATER QUALITY
SALUDA RIVER TRIBUTARY FOREST HILL SD PIPE #: 001 FLOW: 0.008 WQL FOR NH3-N, DO, TRC	SC0028525 MINOR DOMESTIC WATER QUALITY
SALUDA LAKE EASLEY COMBINED UTILITY PIPE #: 001-010 FLOW: M/R	SCG641007 MINOR DOMESTIC EFFLUENT
SHOAL CREEK DACUSVILLE ELEM. & HIGH SCHOOL PIPE #: 001 FLOW: 0.014 WQL FOR NH3-N, TRC	SC0028754 MINOR DOMESTIC WATER QUALITY
GROVE CREEK WCRSA/GROVE CREEK PLT PIPE #: 001 FLOW: 2.000 WQL FOR NH3-N, TRC, DO	SC0024317 MAJOR MUNICIPAL WATER QUALITY
GROVE CREEK TRIBUTARY AMOCO PERFORMANCE PRODUCTS PIPE #: 001-005 FLOW: M/R	SCG250009 MINOR INDUSTRIAL EFFLUENT
GROVE CREEK TRIBUTARY DELTA MILLS/ESTES PLT PIPE #: 001-005 FLOW: M/R	SCG250143 MINOR INDUSTRIAL EFFLUENT
GROVE CREEK TRIBUTARY VALLEY BROOK SD PIPE #: 001 FLOW: 0.06 WQL FOR NH3-N, DO, TRC	SC0028673 MINOR COMMUNITY WATER QUALITY

LAND APPLICATION ***FACILITY NAME***	***PERMIT #*** ***TYPE***
SPRAY IRRIGATION AIR PRODUCTS	ND0003000 MINOR INDUSTRIAL

Landfill Activities

SOLID WASTE LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
PIEDMONT LANDFILL, PHASE I MUNICIPAL	DWP-009 CLOSED
PIEDMONT LANDFILL, PHASE II MUNICIPAL	DWP-074 CLOSED
PIEDMONT LANDFILL, PHASE III MUNICIPAL	DWP-095 CLOSED

GREATER GREENVILLE LANDFILL MUNICIPAL	DWP-022 CLOSED
BLACKBERRY VALLEY LANDFILL MUNICIPAL	DWP-107 CLOSED
GRACE ROAD LANDFILL MUNICIPAL	DWP-077 CLOSED

Mining Activities

MINING COMPANY ***MINE NAME*** ***COMMENT***	***PERMIT #*** ***MINERAL***
THOMAS SAND COMPANY RIVER ROAD PLANT INACTIVE INSTREAM DREDGING (SALUDA RIVER)	0908-04 SAND
SALUDA LAKE ASSOC. SALUDA LAKE MINE	1103-39 SAND
VULCAN MATERIALS CO. LAKESIDE QUARRY	0064-23 GRANITE

Groundwater Concerns

The groundwater in the area owned by Carolina Plating & Stamping is contaminated with metals as a result of a spill. The facility is adding more pumping wells and an additional assessment is ongoing. The surface water affected by the groundwater contamination is Mill Creek, which flows directly into the Saluda River in the upper region of the watershed.

The groundwater in the vicinity of the land owned by JP Stevens (Piedmont Plant) is contaminated with volatile organics from unpermitted disposal practices. The facility is beginning the remedial design phase. The surface water affected by the groundwater contamination is an unnamed tributary to the Saluda River near the Big Brushy Creek drainage.

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
EASLEY COMBINED UTILITY (M) SALUDA LAKE	10.1 15.1
GERBER CHILDRENSWEAR (I) SALUDA RIVER	5.76 4,000 GPM
SOFT CARE APPAREL (I) SALUDA RIVER	2.88 2,000 GPM

Growth Potential

The upper area of the watershed has a fairly low potential for extensive development or intensive agricultural (other than orchards), except for nonintensive agricultural and low density residential activity along the Saluda River. The center and lower regions of the watershed have a relatively high potential for urban development; rail lines run through these areas along the Saluda River. Significant growth is projected along both sides of the Saluda River from SC 183 to Williamston. The Southern Connector combined with I-85 interchanges and highway improvements of US 25 and SC 20 will continue to spur industrial and commercial growth. The Saluda River bisects the US 123 high growth corridor between the Cities of Easley and Greenville.

03050109-050

(Georges Creek)

General Description

Watershed 03050109-050 is located in Pickens County and consists primarily of ***Georges Creek*** and its tributaries. The watershed occupies 21,095 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.25; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 18.50% urban land, 13.73% agricultural land, 0.70% scrub/shrub land, 0.49% barren land, 66.24% forested land, and 0.34% water.

The Georges Creek watershed drains into the Saluda River near the City of Greenville. Tributaries draining into Georges Creek include Mad Dog Branch, Burdine Creek, Hamilton Creek (East Creek, Middle Creek), Little Georges Creek, and Crayton Creek. There are a total of 34.4 stream miles in this watershed, all classified FW. Georges Creek Lake (47 acres) is used for flood control and recreation.

Water Quality

Station #	Type	Class	Description
S-005	S	FW	GEORGES CREEK TRIB AT S-39-192, 2.6 MI NE EASLEY
S-865	BIO	FW	GEORGES CREEK AT ROAD ABOVE SR 36
S-300	W	FW	GEORGES CREEK AT S-39-28

Georges Creek - There are two monitoring sites along Georges Creek, which was Class B until April, 1992. At the upstream site **(S-865)**, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are also fully supported at the downstream site **(S-300)**, but recreational uses are not supported due to fecal coliform bacteria excursions.

Georges Creek Tributary (S-005) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there is a significant decreasing trend in pH and an increasing trend in turbidity. A significant increasing trend in dissolved oxygen and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM	*NPDES#*
FACILITY NAME	*TYPE*
PERMITTED FLOW @ PIPE (MGD)	*LIMITATION*
COMMENT	

GEORGES CREEK EASLEY COMBINED UTILITY/GEORGES CREEK PLT PIPE #: 001 FLOW: 0.82 WQL FOR NH3-N, DO, TRC	SC0023043 MINOR MUNICIPAL WATER QUALITY
BURDINE CREEK ALICE MFG/ELLISON PLANT PIPE #: 001 FLOW: 0.0004 PIPE #: 002 FLOW: 0.017 WQL FOR NH3-N, TRC, BOD5	SC0001171 MINOR INDUSTRIAL EFFLUENT WATER QUALITY
HAMILTON CREEK HOLLINGSWORTH SACO LOWELL CORP. PIPE #: 001 FLOW: 0.417 WQL FOR NH3-N, TRC	SC0001155 MAJOR INDUSTRIAL WATER QUALITY
HAMILTON CREEK CROSSWELL ELEM. SCHOOL PIPE #: 001 FLOW: 0.0105	SC0037486 MINOR DOMESTIC EFFLUENT
HAMILTON CREEK TRIBUTARY EASLEY SITE TRUST PIPE #: 001 FLOW: 0.025	SC0046396 MINOR INDUSTRIAL EFFLUENT

Groundwater Concerns

The groundwater in the vicinity of the landfill owned by Hollingsworth Saco Lowell Corp. is contaminated with volatile organics and metals (chromium, copper, and zinc). This is a RCRA facility and the remediation phase is underway to treat the groundwater contamination. The surface waters affected by the groundwater contamination are East Creek and Middle Creek, which drain into Hamilton Creek.

Growth Potential

There is a high potential for urban development in this watershed, which contains the City of Easley. The area north and east of Easley to the Saluda River has been cited in the Appalachian Regional Development Plan as an infrastructure expansion area with potential for both industrial and residential growth. The area where US 123 crosses this watershed is lined with strip shopping centers, fast food restaurants, and large parking areas. Behind this line of fast development are located both residential and industrial areas.

03050109-060

(Big Brushy Creek)

General Description

Watershed 03050109-060 is located in Pickens and Anderson Counties and consists primarily of ***Big Brushy Creek*** and its tributaries. The watershed occupies 23,602 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 20.12% urban land, 23.18% agricultural land, 4.54% scrub/shrub land, 0.79 barren land, 51.11% forested land, and 0.26% water.

The Big Brushy Creek watershed drains into the Saluda River near the Town of Piedmont. Big Brushy Creek is formed by the confluence of Brushy Creek and Middle Branch (Hornbuckle Creek). Little Brushy Creek flows into Big Brushy Creek near the base of the watershed. This watershed contains a total of 43.6 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
S-301	W/BIO	FW	BIG BRUSHY CREEK AT S-04-143

Big Brushy Creek (S-301) - This stream was Class B until April, 1992. Aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
MIDDLE BRANCH	SC0039853
EASLEY COMBINED UTILITY/MIDDLE BRANCH PLT	MAJOR MUNICIPAL
PIPE #: 001 FLOW: 2.50	WATER QUALITY
PIPE #: 001 FLOW: 3.00 & 3.75 (PROPOSED)	WATER QUALITY
WQL FOR NH3-N, DO, TRC	

Growth Potential

The southern edge of the City of Easley and the I-85 corridor are high growth areas in the watershed. Other areas of potential growth are the presently unserved interstate interchanges, which have regional plans to be upgraded with water and sewer to encourage development. There are also several industrial sites dispersed through the watershed.

03050109-070

(Big Creek)

General Description

Watershed 03050109-070 is located in Anderson County and consists primarily of ***Big Creek*** and its tributaries. The watershed occupies 12,531 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 9.28% urban land, 35.58% agricultural land, 6.03% scrub/shrub land, 1.16% barren land, 46.96% forested land, and 0.99% water.

Big Creek flows through Big Creek Reservoir and is joined by Camp Creek (Camp Creek Reservoir), near the Town of Williamston, before draining into the Saluda River. This watershed contains a total of 21.1 stream miles, all classified FW. Big Creek Reservoir (93 acres) and Camp Creek Reservoir (36 acres) are used for flood control and recreation.

Water Quality

Station #	Type	Class	Description
S-302	W/BIO	FW	BIG CREEK AT S-04-116

Big Creek (S-302) - This stream was Class B until April, 1992. Aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	***NPDES# TYPE LIMITATION***
BIG CREEK TOWN OF WILLIAMSTON/BIG CREEK PLT PIPE #: 001 FLOW: 1.0 WQL FOR NH3-N, DO, TRC PROPOSED FOR ELIMINATION TO SALUDA RIVER	SC0025976 MAJOR MUNICIPAL WATER QUALITY
BIG CREEK TOWN OF WILLIAMSTON/WTP PIPE #: 001 FLOW: 0.14 WQL FOR TRC	SCG645009 MINOR DOMESTIC WATER QUALITY
BIG CREEK TRIBUTARY MOHAWK INDUSTRIES/BELTON PLT PIPE #: 001 FLOW: 0.013 WQL FOR NH3-N, DO, TRC, BOD5	SC0023213 MINOR INDUSTRIAL WATER QUALITY

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
ANDERSON COUNTY/BIG CREEK MUNICIPAL	041001-1101 ACTIVE
ANDERSON COUNTY C&D	041001-1202 CLOSED

Growth Potential

Overall, there is a fairly low potential for intensive urban growth in this watershed, except for the area directly adjacent to the Saluda River. The Town of Williamston, although not a high growth area, is expected to experience low to moderate growth. A rail line crosses the watershed running from The Town of Williamston to the Town of Pelzer (en route to the City of Greenville) and contributes to the growth in the area.

03050109-080

(Saluda River)

General Description

Watershed 03050109-080 extends through Anderson, Greenville, Abbeville, Laurens, Greenwood, and Newberry Counties and consists primarily of the ***Saluda River*** and its tributaries from Big Creek to the Lake Greenwood dam. The watershed occupies 169,692 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Wilkes series. The erodibility of the soil (K) averages 0.25; the slope of the terrain averages 15%, with a range of 2-45%. Land use/land cover in the watershed includes: 1.18% urban land, 11.27% agricultural land, 4.37% scrub/shrub land, 0.56% barren land, 76.72% forested land, and 5.90% water.

Toney Creek, Mountain Creek, Little Creek, and the Broadmouth Creek watershed (03050109-090) drain into the Saluda River in the upper portion of this watershed, and further downstream Turkey Creek (Goose Creek, Gypsy Creek, Gibson Creek, Dunns Creek, Little Turkey Creek) enters the river to form an arm of Lake Greenwood. Tributaries of the western side of Lake Greenwood include Mulberry Creek (Dudley Creek), Camp Branch, and Quarter Creek. The Reedy River watershed (03050109-120) and the Rabon Creek watershed (03050109-130) join to form another arm of the lake. Also flowing into the eastern lake shore are Long Lick Branch and Cane Creek. As a reach of the Saluda River, this watershed accepts the drainage of all streams entering the river upstream of the watershed. Another natural resource in this watershed is Greenwood State Park, which is located on the western shores of Lake Greenwood. Lake Greenwood is used for recreation, power generation, municipal purposes, and water supply. There are a total of 281.7 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
S-864	BIO	FW	MOUNTAIN CREEK AT SR 51
S-125	P	FW	SALUDA RIVER AT US 25 BYPASS, 1.5 MI ESE WARE SHOALS
S-858	BIO	FW	TURKEY CREEK AT SR 96
S-024	W	FW	LAKE GREENWOOD HEADWATERS, JUST UPSTREAM OF S-30-33
S-022	S	FW	REEDY FORK OF LAKE GREENWOOD AT S-30-29
S-131	P	FW	LAKE GREENWOOD AT US 221, 7.6 MI NNW 96
S-804	BIO	FW	CANE CREEK AT S-30-19
S-097	S	FW	CANE CREEK AT SC 72, 3.1 MI SW CROSS HILL
S-303	W	FW	LAKE GREENWOOD 200 FT UPSTREAM OF DAM

Saluda River (S-125) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there are significant decreasing trends in dissolved oxygen concentration and pH, and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Fluoranthene was detected in the 1997 sediment sample. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

Mountain Creek (S-864) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Turkey Creek (S-858) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Lake Greenwood - Lake Greenwood is an 11,400-acre impoundment on the Saluda River, with a maximum depth of approximately 21.0m and an average depth of approximately 7.0m. The lake's watershed comprises 1999.5km^2. Eutrophication assessments indicate that, overall, Lake Greenwood is of intermediate trophic condition among large lakes in South Carolina.

There are three monitoring sites along Lake Greenwood. At the furthest uplake site **(S-024)**, aquatic life uses are fully supported. Although pH excursions occurred, they were on the high end and a natural condition in lakes with significant aquatic plant communities. Human health standards for mercury were exceeded once in 1997. Recreational uses are fully supported. At the next site downlake **(S-131)**, aquatic life uses are partially supported due to occurrences of zinc in excess of the aquatic life acute standards including a very high concentration of zinc measured in 1995. In addition, there were significant decreasing trends in dissolved oxygen concentration and pH, and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration. At the furthest downlake site **(S-303)**, aquatic life and recreational uses are fully supported. The lake was treated with aquatic herbicides from 1993-1995, and again in 1997 by the Water Resources Division of the SCDNR in an effort to control the aquatic macrophytes.

Reedy River Arm of Lake Greenwood (S-022) - Eutrophication assessments indicate that the Reedy River arm of Lake Greenwood is among the most eutrophic lake embayments in the state, characterized by high densities of algae and high phosphorus concentrations. Watershed management is recommended to reduce phosphorus loading to this area of the lake. Aquatic life uses are partially supported due to pH excursions and impaired by eutrophic conditions. In addition, there are significant decreasing trends in dissolved oxygen concentrations and pH. Significant decreasing trends in pH, five-day biochemical oxygen demand, and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported.

Cane Creek - There are two monitoring sites along Cane Creek. Aquatic life uses are fully supported at the upstream site **(S-804)** based on macroinvertebrate community data. At the downstream site

(S-097), aquatic life uses are also fully supported, but there are significant decreasing trends in dissolved oxygen concentration and pH. Recreational uses are fully supported.

Permitted Activities

Point Source Contributions

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	
SALUDA RIVER	SC0020214
TOWN OF WARE SHOALS/DAIRY STREET	MAJOR MUNICIPAL
PIPE #: 001 FLOW: 6.0	WATER QUALITY
PIPE #: 001 FLOW: 6.5 (PROPOSED)	WATER QUALITY
PIPE #: 001 FLOW: 8.5 (PROPOSED)	WATER QUALITY
WQL FOR NH3-N, DO, TRC	
SALUDA RIVER	SC0045896
CITY OF BELTON	MAJOR MUNICIPAL
PIPE #: 001 FLOW: 2.5	EFFLUENT
PIPE #: 002 & 003 FLOW: M/R	EFFLUENT
SALUDA RIVER TRIBUTARY	SCG645002
BELTON-HONEA PATH WATER AUTH.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: 0.037	WATER QUALITY
WQL FOR TRC	
TURKEY CREEK	SCG250028
MILLIKEN & CO./HONEA PATH	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
LAKE GREENWOOD	SC0040380
DRIFTWOOD ASSOC.	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.02	WATER QUALITY
WQL FOR NH3-N, DO, BOD5, TP	
LAKE GREENWOOD	SCG641009
LAKE GREENWOOD WTP	MINOR DOMESTIC
PIPE #: 001 FLOW: M/R	EFFLUENT
PIPE #: 002 FLOW: 0.11520	EFFLUENT
LAKE GREENWOOD	SCG250099
GREENWOOD/LAKE GREENWOOD WTP	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
CAMP BRANCH	SCG730051
TARMAC MID-ATLANTIC/GWD QUARRY	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT
PIPE #: 002 FLOW: M/R	EFFLUENT
CAMP BRANCH	SC0047007
WILSON BROTHERS SAND COMPANY, INC.	MINOR INDUSTRIAL
PIPE #: 001 FLOW: M/R	EFFLUENT

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
CAMP FELLOWSHIP/RESIDENT LAKE GREENWOOD	30-305-0900 ACTIVE
GREENWOOD STATE PARK LAKE GREENWOOD	24-307-0911 ACTIVE

Landfill Activities

SOLID WASTE LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
MONSANTO CO. INDUSTRIAL	—— CLOSED
RIEGEL INDUSTRIAL WASTE LANDFILL INDUSTRIAL	—— CLOSED
RIEGEL INDUSTRIAL WASTE LANDFILL INDUSTRIAL (STATE SUPERFUND LIST)	—— CLOSED

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
COOPER SAND & GRAVEL COMPANY, INC. COOPER SAND MINE #1 INACTIVE INSTREAM DREDGING	0242-23 SAND
WILSON BROTHERS SAND COMPANY, INC. TAYLOR MINE OCCASIONAL INSTREAM DIGGING W/DRAGLINE	0944-30 SAND
WILSON BROTHERS SAND COMPANY, INC. WILSON BROTHERS SAND MINE INSTREAM DREDGING W/DRAGLINE ON SANDBAR	0166-01 SAND
WR GRACE & CO. EZELL MINE	0987-30 VERMICULITE
MORGAN CORP. WILSON QUARRY	1010-24 GRANITE
TARMAC CAROLINAS, INC. GREENWOOD QUARRY	0134-24 GRANITE

Groundwater Concerns

The groundwater in the vicinity of the landfill owned by Monsanto Co. is contaminated with volatile organic compounds. The facility is in the assessment and remediation phases. The surface water affected by the groundwater contamination is South Creek.

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
GREENWOOD CPW (M) LAKE GREENWOOD	27.0 39.0
TOWN OF WARE SHOALS (M) LAKE GREENWOOD	7.06 4,900 (GPM)
BELTON-HONEA PATH WTR AUTH. (M) SALUDA RIVER	5.4 8.5

Growth Potential

The Towns of Donalds, Hodges, and Ware Shoals are experiencing some growth due to their close proximity to the greater Greenwood area. US 178 (US 25) and rail lines connect the towns to the City of Greenwood, and the potential exists for some industrial growth due to the existing infrastructure. Infrastructure development in the Ware Shoals-Hodges area has encouraged residential and commercial growth. Lake Greenwood has experienced significant growth; however, the growth is expected to continue at a slower pace in the future. US 221 and a major rail line cross this watershed. A major sewer interceptor connecting Honea Path with Ware Shoals has been completed, and should spur growth in the area.

03050109-090

(Broad Mouth Creek)

General Description

Watershed 03050109-090 is located in Anderson and Abbeville Counties and consists primarily of ***Broad Mouth Creek*** and its tributaries. The watershed occupies 21,744 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 7.89% urban land, 24.15% agricultural land, 6.34% scrub/shrub land, 2.32% barren land, 59.08% forested land, and 0.22% water.

Broad Mouth Creek flows past the City of Belton and accepts the drainage of Chinquola Mill Creek (Still Branch) near the Town of Honea Path before draining into the Saluda River. This watershed contains a total of 46.5 stream miles, all classified FW. There are several ponds in the watershed (10-15 acres) used for flood control and recreation.

Water Quality

Station #	Type	Class	Description
S-289	S	FW	BROAD MOUTH CK AT S-04-267, BELOW BELTON MARSHALL PLT
S-776	BIO	FW	TRIBUTARY TO BROAD MOUTH CREEK AT S-04-205
S-010	S	FW	BROAD MOUTH CREEK AT US 76
S-775	BIO	FW	BROAD MOUTH CREEK AT S-04-81
S-304	W	FW	BROAD MOUTH CREEK AT S-01-111

Broad Mouth Creek - There are four SCDHEC monitoring sites along Broad Mouth Creek, which was Class B until April, 1992. At the furthest upstream site **(S-289)**, aquatic life uses are fully supported, and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Aquatic life uses are also fully supported further downstream **(S-010)**, but there is a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported at either upstream site due to fecal coliform bacteria excursions. In addition, there were significant increasing trends in fecal coliform bacteria. At the next site downstream **(S-775)**, aquatic life uses are fully supported based on macroinvertebrate community data, and aquatic life uses are again fully supported at the furthest downstream site **(S-304)**. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

Unnamed tributary to Broad Mouth Creek (S-776) - This stream was Class B until April, 1992. Aquatic life uses are partially supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
BROAD MOUTH CREEK AMERADA HESS CORP./BELTON PIPE #: 001 FLOW: 0.032 WQL FOR TOXICS	SC0002887 MINOR INDUSTRIAL WATER QUALITY
BROAD MOUTH CREEK SOUTHEAST TERMINAL/BELTON PIPE #: 001 FLOW: M/R	SC0025364 MINOR INDUSTRIAL EFFLUENT
BROAD MOUTH CREEK MARATHON OIL CO./BELTON PIPE #: 001 FLOW: M/R-	SC0037567 MINOR INDUSTRIAL EFFLUENT
BROAD MOUTH CREEK COLONIAL PIPELINE/BELTON PIPE #: 001 FLOW: M/R	SC0041459 MINOR INDUSTRIAL EFFLUENT
BROAD MOUTH CREEK TORRINGTON CO./HONEA PATH PIPE #: 001 FLOW: 0.123	SC0047520 MINOR INDUSTRIAL EFFLUENT
BROAD MOUTH CREEK BELTON INDUSTRIES PIPE #: 002 FLOW: 0.172 PIPE #: 001 FLOW: 0.017 WQL FOR NH3-N, DO, TRC	SC0000698 MINOR INDUSTRIAL EFFLUENT WATER QUALITY
BROAD MOUTH CREEK TRIBUTARY SOUTHEASTERN BULK FUEL/BELTON PIPE #: 001 FLOW: — WQL FOR BOD5, TOXICS	SC0043010 MINOR INDUSTRIAL WATER QUALITY

Growth Potential

There is a low to moderate potential for growth in this watershed. The corridor that runs along US 76 from the Town of Honea Path to the City of Belton, and on to the Town of Williamston will continue to be a growth area.

03050109-100

(Reedy River)

General Description

Watershed 03050109-100 is located in Greenville County and consists primarily of the ***Reedy River*** and its tributaries from its origin to Huff Creek. The watershed occupies 73,748 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 52.75% urban land, 8.15% agricultural land, 1.64% scrub/shrub land, 0.21% barren land, 37.20% forested land, and 0.05% water.

The Reedy River originates near the Town of Travelers Rest and flows through the City of Greenville downstream to the Town of Fork Shoals, where it accepts the drainage of the Huff Creek watershed (03050109-110). Little Creek, Langston Creek, Long Branch, Richland Creek, and Brushy Creek (Cow Creek) drain into the Reedy River as it flows through the City of Greenville. Marrow Bone Creek and Laurel Creek enter the river near the Donaldson Industrial Park, and Maddog Creek and Rocky Creek drain into the river further downstream. This watershed contains a total of 138.6 stream miles, all classified FW. There are several small lakes above and below the City of Greenville used for recreation or industrial purposes. Swan Lake (30 acres) on the Furman University campus is used for recreation.

Water Quality

Station #	Type	Class	Description
S-073	P	FW	REEDY RIVER AT UN# RD OFF US 276, .75 MI E TRAVELERS REST
S-868	BIO	FW	REEDY RIVER AT SR 133
S-264	S	FW	LANGSTON CREEK AT SC 253
S-319	W	FW	REEDY RIVER AT RIVERS ST, DOWNTOWN GREENVILLE
S-013	P	FW	REEDY RIVER AT S-23-30, 3.9 MI SE GREENVILLE
S-067	S	FW	BRUSHY CK ON GREEN ST EXT, BELOW DUNEAN MILL ON SC 20
S-867	BIO	FW	BRUSHY CREEK SR 30
S-018	P	FW	REEDY RIVER AT S-23-448, 1.75 MI SE CONESTEE
S-091	S	FW	ROCKY CREEK AT S-23-453, 3.5 MI SW OF SIMPSONVILLE
S-072	S	FW	REEDY RIVER ON HWY 418 AT FORK SHOALS

Reedy River - There are six monitoring sites along this section of the Reedy River, which was Class B until April, 1992. At the furthest upstream site **(S-073)**, aquatic life uses are fully supported, but there was a very high concentration of zinc measured in 1996. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. The pesticide ethion was detected in the 1994 sediment sample. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria. Aquatic life uses are partially supported at the next site downstream **(S-868)** based on macroinvertebrate community data.

Aquatic life uses are not supported further downstream **(S-319)**, due to occurrences of zinc in excess of the aquatic life acute standards including a high concentration of zinc measured in 1997. Fluoranthene (a polycyclic aromatic hydrocarbon) was detected in the 1997 sediment sample. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream **(S-013)**, aquatic life uses are not supported due to occurrences of copper and chromium in excess of the aquatic life acute standards including very high concentrations of chromium measured in 1996 and 1997, and a very high concentration of lead in 1993. In addition, there was a significant decreasing trend in pH and a significant increasing trend in total suspended solids. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the next site downstream **(S-018)**, aquatic life uses are again not supported due to occurrences of copper, chromium, and zinc in excess of the aquatic life acute standards, including very high concentrations of chromium measured in 1995, 1996, and 1997, a high concentration of zinc measured in 1997, and a very high concentration of zinc measured in 1994. In addition, there was a significant decreasing trend in pH. Dibromochloromethane was detected in the water column in 1994. In sediment samples, a high concentration of chromium was measured in 1993, a very high concentration of zinc was measured in 1997, and bis(2-ethylhexyl) phthalate was detected in the 1994 sample. A significant increasing trend in dissolved oxygen and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

At the furthest downstream site **(S-072)**, aquatic life uses are fully supported, but there was a very high concentration of chromium measured in 1996 and a high concentration of zinc measured in 1997. A significant increasing trend in dissolved oxygen and significant decreasing trend in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

Langston Creek (S-264) - This stream was Class B until April, 1992. Aquatic life uses are not supported due to occurrences of chromium in excess of the aquatic life acute standards including very high concentrations of chromium measured in 1993 and 1994. A significant decreasing trend in total phosphorus suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

Brushy Creek - There are two monitoring sites along Brushy Creek, which was Class B until April, 1992. At the upstream site **(S-067)**, aquatic life uses are fully supported, but there is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen and significant decreasing trend in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are partially supported at the downstream site **(S-867)** based on macroinvertebrate community data.

Rocky Creek (S-091) - This stream was Class B until April, 1992. Aquatic life uses are partially supported based on macroinvertebrate community data, compounded by a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
REEDY RIVER JPS CONVERTER & INDUSTRIES PIPE #: 001 FLOW: M/R	SCG250122 MINOR INDUSTRIAL EFFLUENT
REEDY RIVER WCRSA/LOWER REEDY RIVER PLT PIPE #: 001 FLOW: 7.50 WQL FOR NH3-N, DO, TRC, P	SC0024261 MAJOR MUNICIPAL WATER QUALITY
REEDY RIVER WCRSA/MAULDIN ROAD PLANT PIPE #: 001 FLOW: 29.0 WQL FOR NH3-N, DO, TRC, BOD5, P	SC0041211 MAJOR MUNICIPAL WATER QUALITY
LITTLE CREEK ALTAMONT MOBILE HOME PIPE #: 001 FLOW: 0.0135 WQL FOR TRC	SC0028533 MINOR DOMESTIC WATER QUALITY
RICHLAND CREEK METROMONT MATERIALS PIPE #: 001 FLOW: M/R	SC0001287 MINOR INDUSTRIAL EFFLUENT
BRUSHY CREEK METROMONT MATERIALS PIPE #: 001 FLOW: M/R	SC0001295 MINOR INDUSTRIAL EFFLUENT
BRUSHY CREEK TRIBUTARY JPS AUTOMOTIVE PRODUCTS PIPE #: 001 FLOW: M/R	SCG250116 MINOR INDUSTRIAL EFFLUENT

BRUSHY CREEK TRIBUTARY SOUTHERN WATER TREATMENTS PIPE #: 001 FLOW: M/R	SCG250165 MINOR INDUSTRIAL EFFLUENT
COW CREEK MILLIKEN & CO./JUDSON PLT PIPE #: 001 FLOW: M/R	SCG250026 MINOR INDUSTRIAL EFFLUENT
MARROW BONE CREEK CRUCIBLE CHEMICAL CO. PIPE #: 001 FLOW: M/R	SCG250139 MINOR INDUSTRIAL EFFLUENT
LAUREL CREEK JOHN D. HOLLINGSWORTH ON WHEELS PIPE #: 01S FLOW: M/R	SC0033774 MINOR INDUSTRIAL EFFLUENT
LAUREL CREEK HNA HOLDINGS, INC./GREENVILLE PIPE #: 001 FLOW: M/R WQL FOR NH3-N, DO	SC0002305 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Contributions

Streambank and Silvicultural Demonstration Project

The streambank component of this project demonstrates BMPs related to streambank stabilization and restoration to homeowners and local governments. It is being implemented by the Greenville County Conservation District and is located on a tributary to the Reedy River. The silvicultural demonstration component of the project is located in the watersheds of the North and South Saluda River. It is demonstrating proper timber harvesting BMPs to forest landowners in the watershed. The project began in August of 1996 and is scheduled to be completed in April of 1999.

Landfill Activities

SOLID WASTE LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CITY OF GREENVILLE LANDFILL MUNICIPAL	231002-1101 ACTIVE
CITY OF SIMPSONVILLE LANDFILL #1 MUNICIPAL	—— CLOSED
CITY OF SIMPSONVILLE LANDFILL #2 MUNICIPAL	—— CLOSED

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
BURDETTE ENTERPRISES, INC. CONESTEE ROAD BORROW PIT	1101-23 SAND/CLAY

Groundwater Concerns

The groundwater in the vicinity of the landfill owned by the City of Simpsonville is contaminated with volatile organics and metals (chromium and zinc); a remedial investigation is pending. The surface water affected by the groundwater contamination is an unnamed tributary to the Reedy River.

The groundwater in the vicinity of the surface impoundments owned by Evode Tanner is contaminated with volatile organics. The facility is in the assessment phase. The surface water affected by the groundwater contamination is an unnamed tributary to Richland Creek.

The surface waters of Laurel Creek are affected by facility-related groundwater contamination. Groundwater in the vicinity of the surface impoundments owned by Chemurgy is contaminated with volatile organics, and the facility is in the remediation phase.

The groundwater in the vicinity of the landfill and surface impoundments owned by Hoechst Celanese is contaminated with volatile and semi-volatile organics. The facility is in the remediation phase, and the landfill and lagoon excavations have been completed.

The groundwater in the vicinity of the facility owned by American Fast Print/U.S. Finishing (formerly Cone Mills) is contaminated with chromium and petroleum products due to spills and leaks. The facility is in the remediation phase and the upgraded recovery system is operational. The surface water affected by the groundwater contamination is Langston Creek.

Growth Potential

The City of Greenville is located in this watershed and has a high potential to continue as an urban growth area, particularly in the area south of the city. Both the I-85 and I-385 corridors are in this watershed and contribute greatly to the growth. There are a large number of existing industrial sites near the I-385 corridor, together with the Donaldson Center and several rail lines to encourage more industrial growth. Greenville County's zoning boundary will extend southward to SC 418 and should promote medium density development.

03050109-110

(Huff Creek)

General Description

Watershed 03050109-110 is located in Greenville County and consists primarily of ***Huff Creek*** and its tributaries. The watershed occupies 22,837 acres of South Carolina's Piedmont region. The predominant soil types consist of an association of the Madison-Davidson-Cecil-Pacolet series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 8.08% urban land, 33.88% agricultural land, 6.24% scrub/shrub land, 2.34% barren land, 48.77% forested land, and 0.69% water.

Huff Creek accepts the drainage of Baker Creek and Little Creek before flowing into the Reedy River at the Town of Fork Shoals. There are a total of 36.5 stream miles in this watershed, all classified FW. Trollingwood Lake (32 acres), located on Baker Creek, is used for recreational purposes. There are also several small lakes (19-37 acres) in the watershed used for flood control.

Water Quality

Station #	Type	Class	Description
S-134	W	FW	HUFF CREEK AT S-23-331
S-178	S	FW	HUFF CREEK AT SC 418, 1.6 MI NW FORK SHOALS

Huff Creek - There are two SCDHEC monitoring sites along Huff Creek, which was Class B until April, 1992. Aquatic life uses are partially supported at the upstream site **(S-863)** based on macroinvertebrate community data. At the downstream site **(S-178)**, aquatic life uses are fully supported, and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM
FACILITY NAME
PERMITTED FLOW @ PIPE (MGD)
COMMENT

NPDES#
TYPE
LIMITATION

HUFF CREEK
CROWN METRO INC.
PIPE #: 001 FLOW: 0.16
WQL FOR NH3-N, DO, TRC, BOD5; COOLING WATER

SCG250091
MINOR INDUSTRIAL
WATER QUALITY

HUFF CREEK
WCRSA/IDLEWILD TRUST
PIPE #: 001 FLOW: 0.070
WQL FOR NH3-N, TRC

SC0023973
MINOR MUNICIPAL
WATER QUALITY

BAKER CREEK TROLLINGWOOD WWTP/CAROLINA WATER PIPE #: 001 FLOW: 0.02 WQL FOR TRC PROPOSED EXPANSION TO 0.1 MGD	SC0026611 MINOR DOMESTIC WATER QUALITY
BAKER CREEK CANTERBURY SD/CAROLINA WATER PIPE #: 001 FLOW: 0.08 WQL FOR NH3-N, DO, TRC	SC0028941 MINOR DOMESTIC WATER QUALITY

Groundwater Concerns

The groundwater in the vicinity of the surface impoundments owned by Crown Metro Inc. is contaminated with volatile organics. The facility is currently in the remediation phase. The surface water affected by the groundwater contamination is an unnamed tributary to Huff Creek.

Growth Potential

There is generally a low potential for development in this watershed. There are some industrial sites and land used for agricultural purposes. US 25 to the City of Greenville runs along the western edge of the watershed. Greenville County's zoning boundary will extend southward to SC 418 and should promote medium density development.

03050109-120

(Reedy River)

General Description

Watershed 03050109-120 is located in Greenville and Laurens Counties and consists primarily of the ***Reedy River*** and its tributaries from Huff Creek to Lake Greenwood. The watershed occupies 70,013 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison-Davidson-Pacolet-Wilkes series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 0.21% urban land, 16.34% agricultural land, 8.62% scrub/shrub land, 0.60% barren land, 73.53% forested land, and 0.70% water.

This section of the Reedy River accepts drainage from the upper Reedy River watershed (03050109-100), Martin Creek, and Horse Creek before flowing into and through Boyd Mill Pond. The river then accepts the drainage from Walnut Creek and forms an arm of Lake Greenwood. There are a total of 154.3 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
S-862	BIO	FW	HORSE CREEK AT SR 69
S-070	W	FW	REEDY RIVER AT US 76
S-311	S	FW	BOYD MILL POND .5 MI W OF DAM
S-861	BIO	FW	WALNUT CREEK AT SR 64
S-021	P	FW	REEDY RIVER AT S-30-06, E OF WARE SHOALS
S-308	W	FW	LK GREENWOOD, REEDY R.ARM, 150YDS ABOVE RABON CK

Reedy River - There are two SCDHEC monitoring sites along this section of the Reedy River, which was Class B until April, 1992. Aquatic life uses are fully supported at the upstream site **(S-070)**. Aquatic life uses are again fully supported at the downstream site **(S-021)**, but there is a significant decreasing trend in pH and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported at both sites due to fecal coliform bacteria excursions, and a significant increasing trend in fecal coliform bacteria was noted at the downstream site.

Horse Creek (S-862) - This stream was Class B until April, 1992. Aquatic life uses are fully supported based on macroinvertebrate community data.

Boyd Mill Pond (S-311) - Boyd Mill Pond is a 182-acre impoundment on the Reedy River, with a maximum depth of approximately 9.5m and an average depth of approximately 3.7m. The lake's watershed comprises 627.8km^2. Eutrophication assessments indicate that Boyd Mill Pond is among the most eutrophic small lakes in South Carolina, characterized by high densities of algae and high nutrient concentrations. Watershed management is recommended to reduce phosphorus loading to this lake.

This lake was Class B until April, 1992. Aquatic life uses are not supported due to pH excursions and eutrophication. In addition, there is a significant increasing trend in turbidity. Significant decreasing trends in pH and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria.

Walnut Creek (S-861) - This stream was Class B until April, 1992. Aquatic life uses are fully supported based on macroinvertebrate community data.

Reedy River Arm of Lake Greenwood (S-308) - Eutrophication assessments indicate that the Reedy River arm of Lake Greenwood is among the most eutrophic lake embayments in the state, characterized by high densities of algae and high phosphorus concentrations. Watershed management is recommended to reduce phosphorus loading to this area of the lake. Aquatic life uses are partially supported due to pH excursions and impaired by eutrophic conditions. Recreational uses are fully supported.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
REEDY RIVER WR GRACE & CO./MADDEN-KERNELLS MINE PIPE #: 001 FLOW: 0.1-0.2	SCG730035 MINOR INDUSTRIAL EFFLUENT
HORSE CREEK VULCAN MATERIALS CO./PRINCETON QUARRY PIPE #: 001 FLOW: M/R	PROPOSED MINOR INDUSTRIAL EFFLUENT

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
WR GRACE & CO. MADDEN-KERNELLS MINE	0565-30 VERMICULITE

Growth Potential

There is generally a low potential for growth in this watershed. Some growth could result from the crossing of US 76 to the City of Laurens and from US 25 to the City of Greenville. Medium density residential areas should expand along the river in Laurens County.

03050109-130

(Rabon Creek)

General Description

Watershed 03050109-130 is located in Greenville and Laurens Counties and consists primarily of ***Rabon Creek*** and its tributaries. The watershed occupies 81,459 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison-Davidson-Louisburg series. The erodibility of the soil (K) averages 0.22; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 1.76% urban land, 19.71 agricultural land, 14.54% scrub/shrub land, 1.01% barren land, 61.88% forested land, and 1.18% water.

South Rabon Creek (Payne Branch, Bullit Branch) and North Rabon Creek (Stoddard Creek, Pumpkin Branch, Mountain Creek, Lick Creek) originate near the Town of Fountain Inn, and join together to form Lake Rabon near the City of Laurens. Lake Rabon is managed by the City of Laurens CPW and is used as a drinking water supply. Rabon Creek (Dirty Creek, Burriss Creek) flows out of the Lake Rabon dam to form an arm of Lake Greenwood further downstream. There are several small recreational lakes and a total of 175.2 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
S-859	BIO	FW	MOUNTAIN CREEK AT SR 77
S-321	W	FW	NORTH RABON CREEK AT S-30-32
S-313	W	FW	LAKE RABON, N.RABON CREEK ARM, 2.5 MI UPSTREAM OF DAM
S-860	BIO	FW	SOUTH RABON CREEK AT SR 77
S-322	W	FW	SOUTH RABON CREEK ON DIRT ROAD BETWEEN SC 101 & S-30-76
S-312	W	FW	LAKE RABON, S.RABON CREEK ARM, DOWNSTREAM OF S-30-312
S-296	P	FW	LAKE RABON 300 FT UPSTREAM OF DAM
S-096	S/BIO	FW	RABON CREEK AT S-30-54, 8.8 MI NW OF CROSS HILL
S-307	W	FW	LAKE GREENWOOD, RABON CREEK ARM, 0.8 KM N OF S-30-307

South Rabon Creek **-** There are two monitoring sites along South Rabon Creek. Aquatic life uses are fully supported at the upstream site **(S-860)** based on macroinvertebrate community data. At the downstream site **(S-322)**, aquatic life uses are also fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

North Rabon Creek (S-321) **-** Aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Mountain Creek (S-859) **-** Aquatic life uses are fully supported based on macroinvertebrate community data.

Lake Rabon - Lake Rabon is a 537-acre impoundment on Rabon Creek, with a maximum depth of approximately 8.3m and an average depth of approximately 4.0m. The lake's watershed comprises 229.9km^2. Eutrophication assessments indicate that Lake Rabon is one of the least eutrophic small lakes in South Carolina, characterized by low nutrient concentrations. Preservation of this lake's desirable trophic condition is recommended.

There are three monitoring sites along Lake Rabon. Aquatic life and recreational uses are fully supported in both the North Rabon Creek arm **(S-313)** and the South Rabon Creek arm **(S-312)**. At the downlake site **(S-296)**, aquatic life uses are again fully supported, but there is a significant decreasing trend in pH and a significant increasing trend in total phosphorus concentrations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. A very high concentration of chromium and high concentrations of copper and nickel were measured in the 1993 sediment sample from S-296, and a very high concentration of cadmium was measured in the 1994 sample. Also in sediments, P,P'DDE, a metabolite of DDT, was detected in the 1993 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported at this site.

Rabon Creek (S-096) - Aquatic life uses are fully supported based on macroinvertebrate community data, but there are significant decreasing trends in dissolved oxygen and pH. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Rabon Creek Arm of Lake Greenwood (S-307) - Eutrophication assessments indicate that the Rabon Creek arm of Lake Greenwood is of intermediate trophic condition compared to other sites in large South Carolina lakes. Aquatic life uses are fully supported, but there was a very high concentration of chromium measured in 1997. Although pH excursions occurred, they are considered a natural condition in lakes with significant aquatic plant communities. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT	NPDES# TYPE LIMITATION
STODDARD CREEK VAN DORN PLASTIC MACHINERY PIPE #: 001 FLOW: 0.0004	SCG250131 MINOR INDUSTRIAL EFFLUENT
PAYNE BRANCH FIBERWEB NORTH AMERICA, INC. PIPE #: 001 FLOW: M/R	SCG250106 MINOR INDUSTRIAL EFFLUENT

MOUNTAIN CREEK S & S WASHERETTE PIPE #: 001 FLOW: 0.006 WQL FOR NH3-N, TRC	SC0032298 MINOR INDUSTRIAL WATER QUALITY
LAND APPLICATION **FACILITY NAME**	**PERMIT#** **TYPE**
SPRAYFIELD WEISNER SEPTIC TANK CO.	ND0072010 DOMESTIC

Landfill Activities

SOLID WASTE LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
SOUTHEASTERN ASSOC. C & D	— ACTIVE

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
CITY OF LAURENS CPW (M) LAKE RABON	9.3 17.3
CITY OF LAURENS CPW (M) RABON CREEK	2.0 5.0

Growth Potential

There is an increasing potential for growth along the I-385 corridor in the eastern portion of this watershed near the greater Laurens area. Many residential subdivisions and industrial sites are being constructed. Agricultural and silvicultural activities are prevalent in the western and central portion of the watershed. US 76 crosses Lake Rabon and the watershed en route to the City of Laurens.

03050109-140

(Ninety Six Creek)

General Description

Watershed 03050109-140 is located in Greenwood County and consists primarily of ***Ninety Six Creek*** and its tributaries. The watershed occupies 91,973 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Hiwassee series. The erodibility of the soil (K) averages 0.26; the slope of the terrain averages 10%, with a range of 2-40%. Land use/land cover in the watershed includes: 12.82% urban land, 11.30% agricultural land, 1.46% scrub/shrub land, 0.32% barren land, 73.96% forested land, and 0.14% water.

Rocky Creek (Turner Branch, Sample Branch) flows into Coronaca Creek near the Town of Coronaca, which in turn flows into Wilson Creek (Stockman Branch, Brightmans Creek) near the City of Greenwood. The Wilson Creek drainage flows into Ninety Six Creek, which drains into the Saluda River. Henley Creek accepts drainage from Ropers Creek, Marion Creek (Marion Branch), and Tolbert Branch before draining into Ninety Six Creek near the City of Greenwood and the Town of Ninety Six. There are several small lakes in the watershed used for recreation including Stratford Pond (30 acres), which drains into Henley Creek. Kate Fowler Branch flows into Ninety Six Creek downstream of Stratford Pond. Six Mile Creek and Conally Branch drain into the headwaters of Ninety Six Creek. There are a total of 147.1 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
S-184	BIO	FW	CORONACA CREEK AT SC 221
S-092	S	FW	CORONACA CREEK AT S-24-100, 4 MI NW OF 96
S-233	S	FW	WILSON CREEK AT S-24-101
S-235	S/BIO	FW	WILSON CREEK AT S-24-124
S-856	BIO	FW	NINETY SIX CREEK AT SR 42
S-093	P	FW	NINETY SIX CREEK AT SC 702, 5.2 MI ESE OF 96

Ninety Six Creek - There are two monitoring stations along Ninety Six Creek, which was Class B until April, 1992. Aquatic life uses are fully supported at the upstream site **(S-856)** based on macroinvertebrate community data. At the downstream site **(S-093)**, aquatic life uses are partially supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a significant decreasing trend in pH. A very high concentration of zinc was measured in the 1995 sediment sample. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Coronaca Creek - There are two monitoring stations along Coronaca Creek, which was Class B until April, 1992. Aquatic life uses are partially supported at the upstream site **(S-184)** based on macroinvertebrate community data. At the downstream site (**S-092**), aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in pH. This is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Wilson Creek - There are two monitoring stations along Wilson Creek, which was Class B until April, 1992. Aquatic life uses are fully supported at the upstream site (**S-233**), but there is a significant decreasing trend in pH. In sediments, a very high concentration of zinc was measured in 1994, P,P'DDE (a metabolite of DDT) was detected in 1996, and PCB-1248 was detected in the 1993 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. At the downstream site (**S-235**), aquatic life uses are partially supported based on macroinvertebrate community data. Significant increasing trends in dissolved oxygen concentration and decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and turbidity suggest improving conditions for these parameters at both sites. Recreational uses are partially supported at both sites due to fecal coliform bacteria excursions, and significant decreasing trends in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
NINETY SIX CREEK TOWN OF NINETY SIX PIPE #: 001 FLOW: 0.75 WQL FOR NH3-N, DO, TRC, BOD5	SC0036048 MINOR MUNICIPAL WATER QUALITY
CORONACA CREEK HIGHLAND MHP PIPE #: 001 FLOW: 0.005 WQL FOR NH3-N	SC0031933 MINOR COMMUNITY WATER QUALITY
CORONACA CREEK NORTHFALL ACRES SD PIPE #: 001 FLOW: 0.0364 WQL FOR NH3-N, TRC	SC0032191 MINOR COMMUNITY WATER QUALITY
WILSON CREEK CITY OF GREENWOOD/WILSON CREEK PLANT PIPE #: 001 FLOW: 12.0 WQL FOR NH3-N, DO, TRC, BOD5	SC0021709 MAJOR MUNICIPAL WATER QUALITY

WILSON CREEK
PIER 96 ENTERPRISES
PIPE #: 001 FLOW: 0.06
WQL FOR TRC

SC0042706
MINOR COMMUNITY
WATER QUALITY

ROCKY CREEK
GREENWOOD MILLS, INC./HARRIS PLT
PIPE #: 001 FLOW: M/R

SCG250118
MINOR INDUSTRIAL
EFFLUENT

SAMPLE BRANCH
PANTRY #340
PIPE #: 001 FLOW: M/R

SCG830012
MINOR INDUSTRIAL
EFFLUENT

BRIGHTMANS CREEK
MITCHELL MHP
PIPE #: 001 FLOW: 0.004
WQL FOR TRC

SC0026522
MINOR COMMUNITY
WATER QUALITY

BRIGHTMANS CREEK
GREENWOOD MILLS, INC./MATTHEWS PLT
PIPE #: 002 FLOW: M/R
PIPE #: 003 FLOW: M/R

SCG250127
MINOR INDUSTRIAL
EFFLUENT
EFFLUENT

HENLEY CREEK
EXXON CO. USA/SOUTH POINTE
PIPE #: 001 FLOW: M/R
WQL FOR TOXICS

SCG830013
MINOR INDUSTRIAL
WATER QUALITY

ROPERS CREEK
HIGHLAND FOREST SD
PIPE #: 001 FLOW: 0.075
WQL FOR NH3-N, DO, TRC, BOD5

SC0034444
MINOR COMMUNITY
WATER QUALITY

KATE FOWLER BRANCH
GREENWOOD MILLS, INC./SLOAN PLANT
PIPE #: 002 FLOW: M/R

SCG250128
MINOR INDUSTRIAL
EFFLUENT

KATE FOWLER BRANCH
GREENWOOD MILLS, INC./ADAMS PLANT
PIPE #: 001 FLOW: M/R

SCG250126
MINOR INDUSTRIAL
EFFLUENT

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (GPM)***
GREENWOOD MILLS, INC.-DURST PLANT (I) BRIGHTMANS CREEK	0.325 226
GREENWOOD MILLS, INC.-MATTHEWS PLANT (I) BRIGHTMANS CREEK	0.325 226
GREENWOOD MILLS, INC.-SLOAN PLANT (I) NINETY SIX CREEK	0.420 292

GREENWOOD MILLS, INC.-ADAMS PLANT (I)	0.420
NINETY SIX CREEK	292
GREENWOOD MILLS, INC.-NINETY SIX PLANT (I)	0.420
NINETY SIX CREEK	292

Growth Potential

There is a moderate potential for industrial growth in the Ninety Six-Greenwood area due to existing infrastructure and continued residential and commercial development.

03050109-150

(Saluda River)

General Description

Watershed 03050109-150 is located in Laurens, Newberry, Saluda, and Greenwood Counties and consists primarily of the ***Saluda River*** and its tributaries from the Lake Greenwood dam to the Lake Murray headwaters. The watershed occupies 182,044 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Wilkes-Herndon series. The erodibility of the soil (K) averages 0.28; the slope of the terrain averages 15%, with a range of 2-45%. Land use/land cover in the watershed includes: 6.54% urban land, 23.54% agricultural land, 1.22% scrub/shrub land, 0.45% barren land, 66.98% forested land, and 1.27% water.

This section of the Saluda River flows out of Lake Greenwood and is joined by Halfway Swamp (Thompsons Creek) and Sharps Branch near the Town of Chappells. Further downstream, Terrapin Creek and Mill Creek enter the river, followed by the Little River watershed (03050109-163), Rocky Branch, and Tosity Creek. Beaverdam Creek (Welch Creek) flows past the Town of Silverstreet and drains into the Saluda River arm of Lake Murray.

The Bush River originates near the City of Clinton where it accepts drainage from Shell Creek (Sand Creek). Further downstream, near the City of Newberry, Rocky Creek, Big Beaverdam Creek (Reedy Creek), and Scott Creek flow into the Bush River. The Bush River then accepts drainage from Timothy Creek (Kinards Creek, Dewalt Creek) near the Town of Prosperity and drains into the Saluda River arm of the lake. Big Creek enters the lake just downstream of the confluence of the Saluda and Bush Rivers. Several small lakes exist in the watershed for recreational and/or irrigational purposes. There are a total of 161.0 stream miles in this watershed, all classified FW. As a reach of the Saluda River, this watershed accepts the drainage of all streams entering the river upstream of the watershed.

Water Quality

Station #	Type	Class	Description
S-186	P	FW	SALUDA RIVER AT SC 34, 6.5 MI ESE OF NINETY SIX
S-295	P	FW	SALUDA RIVER AT S.C. ROUTE 39
S-047	W	FW	SALUDA RIVER AT SC 121
S-310	W	FW	LAKE MURRAY, SALUDA RIVER ARM, 3.8 KM UPSTR OF SC 391
S-042	P	FW	BUSH RIVER AT SC 560 S OF JOANNA
S-046	S	FW	BUSH RIVER AT SC ROUTE 34
S-044	S	FW	SCOTT CREEK AT SC 34, SW OF NEWBERRY
S-102	S	FW	BUSH RIVER AT S-36-41, 8.5 MI S OF NEWBERRY
S-309	W	FW	LAKE MURRAY, BUSH RIVER ARM, 4.6 KM UPSTREAM OF SC 391
S-223	P	FW	LAKE MURRAY AT SC 391 (BLACKS BRIDGE)

Saluda River - There are three monitoring sites along this section of the Saluda River, which was Class B until April, 1992. At the upstream site **(S-186)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, compounded by a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. At the midstream site **(S-295)**, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, compounded by a high concentration of copper measured in 1995. Significant increasing trends in dissolved oxygen and significant decreasing trends in five-day biochemical oxygen demand suggest improving conditions for these parameters. At the downstream site **(S-047)**, there were pH excursions, but due to the small number of samples, aquatic life uses are considered to be fully supported. Recreational uses are fully supported at all sites.

Saluda River Arm of Lake Murray - Eutrophication assessments indicate that the headwater area of Lake Murray is of intermediate trophic condition compared to other sites in large South Carolina lakes. There are two monitoring stations in this arm of Lake Murray. Aquatic life uses are fully supported at the uplake site **(S-310)**. At the downlake site **(S-223)**, aquatic life uses are partially supported due to occurrences of copper in excess of the aquatic life acute standards. In addition, there was a very high concentration of zinc measured in 1993. A very high concentration of zinc was measured in the 1993 sediment sample, as were high concentrations of nickel and zinc in 1994, and high concentrations of chromium, copper, lead, nickel, and zinc in 1995. In addition, P,P'DDE (a metabolite of DDT) was detected in the 1994 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Although pH excursions occurred at both sites, they were at the high end, a natural condition in lakes with significant aquatic plant communities. Recreational uses are fully supported at both sites.

Beaverdam Creek (S-852) - This stream was Class B until April, 1992. Aquatic life uses are fully supported based on macroinvertebrate community data.

Bush River - There are four monitoring sites along the Bush River, which was Class B until April, 1992. At the furthest upstream site **(S-042)**, aquatic life uses are not supported due to dissolved oxygen excursions. In addition, there are significant decreasing trends in dissolved oxygen concentration and pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions; however a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Further downstream **(S-046)**, aquatic life uses are fully supported. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions; however a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. At the next site downstream (**S-851**), aquatic life uses are fully supported based on macroinvertebrate community data. At the furthest downstream site (**S-102**), aquatic life uses are fully supported. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

Scott Creek (S-044) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen. Significant decreasing trends in total phosphorus concentrations and turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Bush River Arm of Lake Murray (S-309) - The Bush River arm of Lake Murray is among the most eutrophic lake embayments in the state, characterized by high densities of algae and high phosphorus concentrations. Watershed management is recommended to reduce phosphorus loading to this area of the lake. Aquatic life uses are not supported due to pH excursions and eutrophication. Recreational uses are fully supported.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
BUSH RIVER CITY OF CLINTON/GARY STREET PIPE #: 001 FLOW: VARIABLE PIPE #: 001 FLOW: 4.8 (PROPOSED) WQL FOR TRC	SCG645004 MINOR DOMESTIC WATER QUALITY WATER QUALITY
BUSH RIVER CITY OF NEWBERRY/BUSH RIVER PLANT PIPE #: 001 FLOW: 3.220 PIPE #: 001 FLOW: 4.80 (PROPOSED) WQL FOR NH3-N, DO, TRC, BOD5	SC0024490 MAJOR MUNICIPAL WATER QUALITY WATER QUALITY
BUSH RIVER LAURENS COUNTY WRC/CLINTON PIPE #: 001 FLOW: 2.750 PIPE #: 001 FLOW: 5.50 (PROPOSED) WQL FOR NH3-N, DO, TRC	SC0037974 MAJOR MUNICIPAL WATER QUALITY WATER QUALITY
BUSH RIVER NEWBERRY COUNTY W&S PLT #1 PIPE #: 001 FLOW: 0.5 WQL FOR NH3-N, DO, TRC, BOD5	SC0040860 MINOR MUNICIPAL WATER QUALITY

Nonpoint Source Contributions

Bush River/Camping Creek Watershed Study

This was a comprehensive watershed project in a predominantly agricultural watershed. The project was being implemented with several cooperating agencies, with the SC Dept. of Natural Resources as the lead agency. The project area lies mostly in Newberry County and the watershed drainage is to Lake Murray. The project began in 1990, and concluded in August of 1998. The project provided funding for technical and financial assistance to farmers in the watershed for BMPs related to rowcropping and confined animal operations. Innovative BMP demonstrations funded by the project included provision of manure nutrient testing by a mobile laboratory, portable animal waste lagoon pumpout and spray irrigation equipment available for rent by farmers in the watershed, and effective pesticide management.

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
NEWBERRY CITY LANDFILL DOMESTIC	DWP-023 CLOSED

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
RICHTEX CORP. HICKS MINE	0277-24 SHALE
RICHTEX CORP. BAUKNIGHT MINE	0155-41 SHALE

Camp Facilities

FACILITY NAME/TYPE *RECEIVING STREAM*	*PERMIT #* *STATUS*
SALUDA RIVER RESORT/FAMILY SALUDA RIVER	23-307-36017 ACTIVE

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF NEWBERRY (M) SALUDA RIVER	12.0 20.0

Growth Potential

The growth along the Saluda arm of Lake Murray has been strong and is for the most part residential. The Town of Prosperity is serviced by the Newberry County Water and Sewer Authority, which discharges into Bush River. Bush River continues to be limited in terms of assimilative capacity, and as such there has been discussion among various sewer providers in the county for a larger regional facility which would discharge within 03050109-190, as well as some discussion for a single entity water and sewer provider for the lower part of Newberry County. This would in turn facilitate growth in the area.

03050109-160)

(Little River)

General Description

Watershed 03050109-160 is located in Laurens and Newberry Counties and consists primarily of the ***Little River*** and its tributaries. The watershed occupies 147,032 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Madison-Herndon series. The erodibility of the soil (K) averages 0.28; the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 5.22% urban land, 14.25% agricultural land, 5.26% scrub/shrub land, 0.81% barren land, 74.36% forested land, and 0.10% water.

Reedy Fork Creek flows into the Little River in the City of Laurens, and Burnt Mill Creek (Scout Branch) enters the river further downstream. North Creek, Beaverdam Creek, and Simmons Creek drain into Little River next followed by Garrison Creek, Sandy Run Creek (Reeder Branch), Mechanic Creek, Mudlick Creek (Campbell Creek, North Campbell Creek, Mill Creek, Watkins Creek, Mills Creek, Pages Creek), Davenport Branch, Stephens Creek, and Turners Branch. There are a total of 190.8 stream miles in this watershed, all classified FW. Several small lakes are located in the watershed for recreation, and a large pond (150 acres) is located on Beaverdam Creek for flood control.

Water Quality

Station #	Type	Class	Description
S-034	P	FW	LITTLE RIVER AT US BUSINESS 76, IN LAURENS ABOVE WWTP
S-297	S	FW	LITTLE RIVER AT SC ROUTE 127
S-135	S	FW	NORTH CREEK AT US 76, 2.8 MI W OF CLINTON
S-038	W	FW	LITTLE RIVER AT SC 560
S-100	BIO	FW	LITTLE RIVER AT SR 48
S-099	S	FW	LITTLE RIVER AT S-36-22, 8.3 MI NW SILVERSTREET
S-305	W	FW	LITTLE RIVER AT SC 34

Little River - There are six monitoring sites along the Little River, which was Class B until April, 1992. At the furthest upstream site **(S-034)**, aquatic life uses are fully supported, but there is a significant increasing trend in turbidity and a high concentration of zinc measured in 1993. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Further downstream **(S-297)**, aquatic life uses are again fully supported, but there is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported at either upstream site due to fecal coliform bacteria excursions.

At the next site downstream **(S-038)**, aquatic life uses are fully supported, but there was a very high concentration of chromium measured in 1997. Recreational uses are partially supported due to fecal coliform bacteria excursions. Aquatic life uses are fully supported further downstream **(S-100)** based on macroinvertebrate community data. At the next station downstream **(S-099)**, aquatic life uses are again fully supported, and significant decreasing trend in total phosphorus concentrations suggests improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria. At the furthest downstream site **(S-305)**, aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

North Creek (S-135) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
LITTLE RIVER CITY OF LAURENS PIPE #: 001 FLOW: 4.500 WQL FOR NH3-N, DO, TRC, BOD5	SC0020702 MAJOR MUNICIPAL WATER QUALITY
LITTLE RIVER WR GRACE & CO./CRAIG MINE PIPE #: 001 FLOW: M/R	SCG730003 MINOR INDUSTRIAL EFFLUENT
LITTLE RIVER WR GRACE & CO./HUDGENS MINE PIPE #: 001 FLOW: M/R	SCG730030 MINOR INDUSTRIAL EFFLUENT
DITCH TO LITTLE RIVER CHAMPION INTL. CORP. PIPE #: 001 FLOW: 0.239	SC0022730 MINOR INDUSTRIAL EFFLUENT
LITTLE RIVER TRIBUTARY JPS CONVERTER & INDUSTRIES/WATTS PIPE #: 001 FLOW: .0003	SCG250011 MINOR INDUSTRIAL EFFLUENT
LITTLE RIVER TRIBUTARY WR GRACE & CO./HICKORY MINE PIPE #: 001 FLOW: M/R	SCG730002 MINOR INDUSTRIAL EFFLUENT

LITTLE RIVER TRIBUTARY WR GRACE & CO./STRIBLING MINE PIPE #: 001 FLOW: M/R	SCG730087 MINOR INDUSTRIAL EFFLUENT
SPRAYFIELD TO TURNER BRANCH ISE NEWBERRY, INC. PIPE #: 001 FLOW: WQL FOR BOD5, NH3-N	SC0047686 MINOR INDUSTRIAL WATER QUALITY
REEDY FORK CREEK CITY OF LAURENS/WTP PIPE #: 001 FLOW: 0.03 WQL FOR TRC	SCG645006 MINOR DOMESTIC WATER QUALITY
BURNT MILL CREEK INDUSTRIAL METAL PROCESSING PIPE #: 001 FLOW: M/R	SC0041742 MINOR INDUSTRIAL EFFLUENT
BURNT MILL CREEK WR GRACE & CO./TRISTAN MINE PIPE #: 001 FLOW: M/R	SCG730031 MINOR INDUSTRIAL EFFLUENT

LAND APPLICATION FACILITY NAME	**PERMIT# TYPE**
SPRAYFIELD DOUBLE M FARMS	ND0078191 DOMESTIC

Landfill Activities

SOLID WASTE LANDFILL NAME FACILITY TYPE	***PERMIT # STATUS***
ALSIMAG (GE CERAMICS) INDUSTRIAL	—— CLOSED
LAURENS COUNTY MUNICIPAL	—— CLOSED

Mining Activities

MINING COMPANY MINE NAME	***PERMIT # MINERAL***
WR GRACE & CO. TRISTON MINE	0750-30 VERMICULITE
WR GRACE & CO. HUDGING MINE	0749-30 VERMICULITE
WR GRACE & CO. LEONARD MINE	0835-30 VERMICULITE
WR GRACE & CO. STRIBLING MINE	1117-30 VERMICULITE

WR GRACE & CO. MIMS MINE	1020-30 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. KENNETH HANNA MINE	0642-30 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. WL PATTERSON MINE	1130-30 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. VERENES TRACT	1111-30 VERMICULITE
SOUTHERN BRICK COMPANY SPIGNER MINE	0828-36 CLAY

Groundwater Concerns

The groundwater in the vicinity of the landfill and surface impoundments owned by Alsimag (GE Ceramics) is contaminated with volatile organics. The facility is in the assessment phase, and remediation options are being evaluated for plant two area. The surface water affected by the groundwater contamination is an unnamed tributary to Reedy Fork Creek.

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF LAURENS CPW (M) REEDY FORK CREEK	1.5 3.5

Growth Potential

The City of Laurens is located in the northern portion of this watershed and has a high potential for growth. Factors that influence this growth include two major rail lines, US 221, US 76, and I-385. The Laurens County Industrial Park is a growth area in the predominately rural southern portion of the watershed.

03050109-170

(Little Saluda River)

General Description

Watershed 03050109-170 is located in Saluda County and consists primarily of the ***Little Saluda River*** and its tributaries. The watershed occupies 151,912 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Herndon-Tatum-Helena-Georgeville series. The erodibility of the soil (K) averages 0.43, the highest in the Saluda River Basin; the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 1.08% urban land, 31.33% agricultural land, 1.07% scrub/shrub land, 0.05% barren land, 65.39% forested land, and 1.18% water.

The Little Saluda River is formed by the confluence of Mine Creek (Little Mine Creek, Dry Creek) and Red Bank Creek (Penn Creek, Salem Branch) and flows through the Saluda Reservoir near the Town of Saluda. Further downstream, the Little Saluda River is joined by Canebrake Branch, Burnets Creek, and Richland Creek (Poplar Branch, Corley Branch). Big Creek (Dry Creek, Shiloh Branch, Persimmon Creek, Watermelon Branch) joins the Little Saluda River to form an arm of upper Lake Murray. The Town of Saluda has several lakes along Red Bank Creek and upper region of the Little Saluda River for water supply and municipal purposes. Indian Creek and Dailey Creek flow into the Little Saluda River arm of Lake Murray forming small coves. There are a total of 202.6 stream miles in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
S-050	S	FW	LITTLE SALUDA RIVER AT US 378, E OF SALUDA
S-123	P	FW	LITTLE SALUDA RIVER AT S-41-39, 5.2 MI NE OF SALUDA
S-855	BIO	FW	BIG CREEK AT SR 122
S-222	W	FW	LAKE MURRAY, LITTLE SALUDA ARM AT SC 391

Little Saluda River - There are two monitoring sites along the Little Saluda River, which was Class B until April, 1992. At the upstream site **(S-050)**, aquatic life uses are not supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in pH. This is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the downstream site **(S-123)**, aquatic life uses are partially supported due to dissolved oxygen excursions, again compounded by a significant decreasing trend in pH. A high concentration of copper was measured in the 1997 sediment sample. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Big Creek (S-855) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Little Saluda River Arm of Lake Murray (S-222) - Eutrophication assessments indicate that the Little Saluda River arm of Lake Murray is of intermediate trophic condition compared to other sites in large South Carolina lakes. Although pH excursions occurred, they were on the high end, a natural condition in lake situations with significant aquatic plant communities, and therefore aquatic life uses are considered to be fully supported. Recreational uses are fully supported at this site.

Permitted Activities

Point Source Contributions

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
LITTLE SALUDA RIVER TOWN OF SALUDA/LITTLE SALUDA PLT PIPE #: 001 FLOW: 0.465 WQL FOR NH3-N, DO, TRC, BOD5	SC0022381 MINOR DOMESTIC WATER QUALITY

Growth Potential

Growth for the Town of Saluda, found in the center of this watershed, is limited due to water and sewer constraints. Saluda County recently connected into the Edgefield County Water and Sewer Authority's Regional Sewer Collection System, which should provide more potential for future growth. U.S. Highways 178 and 378 run through the watershed, and together with existing industry may encourage growth in this area.

03050109-180

(Clouds Creek)

General Description

Watershed 03050109-180 is located in Saluda and Lexington Counties and consists primarily of ***Clouds Creek*** and its tributaries. The watershed occupies 62,543 acres of the Piedmont and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Appling-Herndon-Tatum-Lakeland-Helena series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 3.00% urban land, 23.67% agricultural land, 2.52% scrub/shrub land, 0.16% barren land, 70.18% forested land, 0.03% forested wetland (swamp), and 0.44% water.

The Clouds Creek watershed originates near the Town of Ridge Spring, and encompasses a total of 124.7 stream miles, all classified FW, before entering the Little Saluda River. Clouds Creek is joined by Peters Creek and Indian Creek before flowing through Asbill Pond. Downstream of the pond, Clouds Creek accepts the drainage of Jacobs Branch, Moores Creek (Dye Creek), Harris Branch, Warren Branch, Mack Branch, Flat Rock Branch, and Long Branch. West Creek originates near the Town of Batesburg, and accepts the drainage of Bates Branch, Gin Branch, and Lick Creek before entering Clouds Creek at the base of the watershed. Clapboard Branch and Beaverdam Creek enter Clouds Creek just as it drains into the Little Saluda River. There are several small ponds in the watershed that are used for recreation and/or irrigation.

Water Quality

Station #	Type	Class	Description
S-111	BIO	FW	CLOUDS CREEK AT US 178
S-112	BIO	FW	MOORES CREEK AT U.S. ROUTE 178
S-255	S	FW	CLOUDS CREEK AT S-41-26, 4 MI NW OF BATESBURG
S-113	W	FW	CLOUDS CREEK AT S-41-25

Clouds Creek - There are three monitoring sites along Clouds Creek, which was Class B until April, 1992. Aquatic life uses are fully supported at the upstream site **(S-111)** based on macroinvertebrate community data. At the midstream site **(S-255)**, aquatic life and recreational uses are fully supported, but there is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. At the downstream site **(S-113)**, aquatic life and recreational uses are fully supported.

Moores Creek (S-112) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
HARRIS BRANCH AMICKS POULTRY FARMS PIPE #: 001 FLOW: 1.5 WQL FOR NH3-N, DO, TRC, BOD5	SC0025585 MINOR INDUSTRIAL WATER QUALITY
GIN BRANCH COLUMBIA FARMS, INC. PIPE #: 001 FLOW: M/R	SCG250064 MINOR INDUSTRIAL EFFLUENT

LAND APPLICATION **FACILITY NAME**	**PERMIT#** **TYPE**
SPRAYFIELD VALLEY PROTEINS	ND0076945 INDUSTRIAL

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Batesburg-Leesville and Monetta. The majority of the area still does not have water or sewer available.

03050109-190

(Saluda River/Lake Murray)

General Description

Watershed 03050109-190 is located in Newberry, Saluda, Lexington, and Richland Counties and consists primarily of the ***Saluda River*** and its tributaries from the Lake Murray headwaters to the dam. The watershed occupies 150,881 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Tatum-Georgeville-Herndon-Lakeland series. The erodibility of the soil (K) averages 0.28; the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 2.89% urban land, 12.88% agricultural land, 1.82% scrub/shrub land, 0.08% barren land, 53.04% forested land, 0.72% forested wetland (swamp), and 28.57% water.

The Saluda River watershed (03050109-150) and the Little Saluda River watershed (03050109-170) merge to form the headwaters of Lake Murray. Spring Creek, Hawleek Creek, Rocky Creek (Whetstone Creek), and Buffalo Creek flow into the waters of upper Lake Murray. Camping Creek (Susannah Branch, Snap Branch), Stevens Creek (Millers Branch), and Bear Creek (Rocky Branch, Stinking Creek) enter midlake on the northern shore, and the Hollow Creek watershed (03050109-200), Horse Creek (Little Horse Creek), Little Hollow Creek, Beaverdam Creek, Rocky Creek (Clemons Branch), Beech Creek, and Twentymile Creek enter midlake on the southern shore of the lake. Eighteenmile Creek drains into the lake near the dam. Lake Murray is owned and operated by SCE&G Company and is used for power production, recreation, and water supply. There are also several small ponds (10-18 acres) in the watershed used for recreation. Billy Dreher State Park, located midlake on Billy Dreher Island is another natural resource in the watershed. There are a total of 58.3 stream miles (tributaries of Lake Murray), all classified FW.

Water Quality

Station #	Type	Class	Description
S-808	BIO	FW	TRIBUTARY TO LAKE MURRAY AT SR 408
S-279	P	FW	LAKE MURRAY AT MARKER 63
S-211	S	FW	LAKE MURRAY, HOLLANDS LANDING OFF S-36-26
S-212	S	FW	LAKE MURRAY, MACEDONIA LANDING AT END OF S-36-26
S-290	P	FW	CAMPING CREEK S-36-202 BELOW GA PACIFIC
S-850	BIO	FW	CAMPING CREEK AT SR 72
S-213	S	FW	LAKE MURRAY AT S-36-15
S-280	P	FW	LAKE MURRAY AT MARKER 102
S-273	P	FW	LAKE MURRAY AT MARKER 166
S-274	P	FW	LAKE MURRAY AT MARKER 143
S-204	P	FW	LAKE MURRAY AT DAM AT SPILLWAY (MARKER 1)

Lake Murray - Lake Murray is a 51,000-acre impoundment on the Saluda River, with a maximum depth of approximately 57.8m and an average depth of approximately 12.6m. The lake's watershed comprises 3059.6km^2. Eutrophication assessments indicate that, overall, Lake Murray is among the least eutrophic of large lakes in South Carolina. A site in the upper end of the lake (S-279), however, is among the most eutrophic sites in large South Carolina lakes, characterized by high densities of algae. Watershed management is recommended to reduce phosphorus loading to this area of the lake. Treatment for *Hydrilla* in selected areas of Lake Murray (84 acres) began in 1993 by the Water Resources Division of the SCDNR to provide public access. In 1994, 980 acres were treated with herbicides, and 1,332 acres were treated in 1995, 1,098 acres in 1996, and 182 acres in 1998. Better control is seen in the protected coves than in more open waters.

There are eight monitoring sites along the main body of Lake Murray. At the furthest uplake site **(S-279)**, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards and eutrophication. In addition, there were very high concentrations of chromium and lead measured in 1996, and a significant increasing trend in turbidity. In sediment, high concentrations of chromium, copper, lead, nickel, and zinc were measured in 1994, and a high concentration of copper was measured in 1995. P,P'DDE (a metabolite of DDT) and malathion (a pesticide) were also detected in the 1994 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life and recreational uses are fully supported at **S-211**, and a significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. At **S-212**, aquatic life uses are fully supported, but there is a significant increasing trend in turbidity. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are fully supported. Aquatic life and recreational uses are fully supported at **S-213**, and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters.

Aquatic life uses are not supported at **S-280** due to occurrences of copper in excess of the aquatic life acute standards. A very high concentration of chromium was measured in the 1994 sediment sample. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are fully supported at this site, but there is a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life uses are also not supported at **S-273** due to occurrences of copper in excess of the aquatic life acute standards. Very high concentrations of chromium, lead, and nickel, and high concentrations of copper and zinc were measured in the 1994 sediment sample. Also in sediments, P,P'DDE was detected in the 1994 and 1996 samples. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in total phosphorus and total nitrogen concentrations and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria concentration.

At **S-274**, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards. A very high concentration of mercury was measured in the 1993 sediment sample, and a high concentration of copper was measured in 1996. Also in sediments, P,P'DDE and O,P'DDT were detected in 1993, and P,P'DDD was detected in 1995. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in total phosphorus and total nitrogen concentrations and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria concentration.

Aquatic life uses are partially supported at **S-204** due to occurrences of copper in excess of the aquatic life acute standards. A high concentration of nickel was measured in the 1994 sediment sample, high concentrations of chromium, copper, and lead were measured in 1995, and a high concentration of copper was measured in 1996. Also in sediments, P,P'DDE was detected in 1993 and 1995, and P,P'DDD and a-BHC were detected in 1995. Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria concentration.

Proposed "No Discharge" Dessignation for Lake Murray

The Department is considering prohibiting the discharge of sewage from boats into Lake Murray. The waters of Lake Murray are important from both an economical and recreational standpoint. The lake is owned by the South Carolina Electric and Gas (SCE&G) Company, and is a reliable source of drinking water for the Cities of Columbia and West Columbia which maintain water intakes. Although present water quality is good, the Department is concerned about the potential for future water quality degradation and believe that measures are needed to insure that present water quality is maintained. The proposal to prohibit the discharge of sewage from marine toilets has the support of the Lake Murray Association and members of the State Legislature.

Federal water quality standards prohibit the discharge of untreated sewage into the navigable waters of the United States. But sewage from marine toilets on boats is permitted provided it has undergone some disinfection and treatment. For certain waterbodies, like Lake Murray, federal regulations allow states to designate them as "no discharge" to prohibit even treated discharges from boats. If the USEPA agrees to the no discharge designation, the Department will require protection beyond the federal minimum standard and all boats with marine toilets would no longer be allowed to discharge treated sewage into the lake. Instead, boats will have to pump-out their holding tanks at any of the 7 marinas the Department has identified as having pump-out, treatment, and disposal capabilities. A final decision is expected in 1999.

Tributary to Lake Murray (S-808) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Camping Creek - There are two monitoring sites along Camping Creek. At the upstream site **(S-290)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1993. In addition, there were very high concentrations of chromium and lead measured in 1993. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions. At the downstream site **(S-850)**, aquatic life uses are fully supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
LAKE MURRAY SCDPRT/DREHER ISLAND PIPE #: 001 FLOW: 0.06 WQL FOR NH3-N, DO, BOD5	SC0026948 MINOR DOMESTIC WATER QUALITY
CAMPING CREEK NEWBERRY COUNTY W&SA/PLANT 2 PIPE #: 001 FLOW: 0.03 WQL FOR NH3-N, DO, TRC, BOD5	SC0044741 MINOR MUNICIPAL WATER QUALITY
STEVENS CREEK MII-DERA GARDEN APTS PIPE #: 001 FLOW: 0.0144 WQL FOR NH3-N, DO, TRC	SC0032042 MINOR DOMESTIC WATER QUALITY

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *TYPE*
SPRAY IRRIGATION BEDFORD WAY/NCW&SA	ND0062219 MINOR MUNICIPAL
TILE FIELD MALLARD BAY SD/AAA UTIL.	ND0019640 MINOR COMMUNITY
SPRAYFIELD BEDFORD WAY	ND0060577 MINOR COMMUNITY
LOW PRESSURE IRRIGATION SYSTEM SMALL WOODS SD/CAROLINA WATER	ND0007994 MINOR COMMUNITY

Nonpoint Source Contributions

Bush River/Camping Creek Watershed Study

This was a comprehensive watershed project in a predominantly agricultural watershed. The project was being implemented with several cooperating agencies, with the SCDNR as the lead agency. The project area lies mostly in Newberry County and the watershed drainage is to Lake Murray. The project began in 1990 and concluded in August of 1998. The project provided funding for technical and financial assistance to farmers in the watershed for BMPs related to rowcropping and confined animal operations. Innovative BMP demonstrations funded by the project included provision of manure nutrient testing by a mobile laboratory, portable animal waste lagoon pumpout and spray irrigation equipment available for rent by farmers in the watershed, and effective pesticide management.

Camp Facilities

FACILITY NAME/TYPE *RECEIVING STREAM*	*PERMIT #* *STATUS*
EPTING CAMP/FAMILY BEAR CREEK/LAKE MURRAY	32-307-0015 ACTIVE
DREHER STATE PARK/FAMILY CAMPING CREEK/LAKE MURRAY	36-307-36014 ACTIVE
HOLLANDS LANDING/FAMILY LAKE MURRAY	36-307-36011 ACTIVE
HARRIS LANDING/FAMILY BUFFALO CREEK/LAKE MURRAY	36-307-36013 ACTIVE
PUTNAMS LANDING/FAMILY BEAR CREEK/LAKE MURRAY	32-307-0018 ACTIVE
LAKE MURRAY FAMILY CAMPGROUND/FAMILY HORSE CREEK/LAKE MURRAY	32-307-0014 ACTIVE
P&L CAMP/FAMILY LAKE MURRAY	36-307-36012 ACTIVE

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF COLUMBIA (M) LAKE MURRAY	55.0 75.0
CITY OF WEST COLUMBIA (M) LAKE MURRAY	6.0 12.0

Growth Potential

There is and will be continued growth in areas bordering and surrounding Lake Murray. The widening of US 378 to four lanes has increased the expansion rate along the Lexington side of the lake. US 76 runs along the opposite shoreline of the lake, as does a rail line. The widening of I-26 toward the Chapin\Pomaria Exit is encouraging growth on both sides of the interstate.

Residential development continues to grow within the lake region. The area around the dam is the most developed and has water and sewer. The Richland County portion of the lake is also well developed and has several residential subdivisions where water and sewer are available. A study has been prepared and the findings are currently being reviewed to determine the feasibility of providing sewer service to areas surrounding Lake Murray within the 208 management areas of the Town of Chapin, the City of Columbia, Richland County, the Town of Lexington, and the Lexington County Joint Municipal Water and Sewer Commission (those portions of Lexington and Richland Counties bordering the lake). This will facilitate continued development along the shoreline as well as development along US 378. SC 6 is undergoing a corridor study, and the portion crossing the dam (and the dam itself) will be widened. The City of Columbia and Lexington County are currently in the discussion phase in working together to solve Lexington County's water and sewer needs.

The upper lake region in Newberry County is primarily rural: a few small subdivisions, some industry, and agricultural activities on a small scale. The Town of Prosperity is serviced by the Newberry County Water and Sewer Authority, which discharges into Bush River. Bush River continues to be limited in terms of assimilative capacity, and as such there has been discussion among various sewer providers in the county for a larger regional facility which would discharge within this watershed, as well as some discussion for a single entity water and sewer provider for the lower part of Newberry County.

Lake Murray, as the main water-based recreational resource in the region, draws millions of visitors annually to its numerous parks, recreational areas, and waterways. All aspects of growth surrounding Lake Murray (tourist industry, residential development, agricultural activities) are expected to continue.

03050109-200

(Hollow Creek)

General Description

Watershed 03050109-200 is located in Lexington County and consists primarily of ***Hollow Creek*** and its tributaries. The watershed occupies 14,169 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Appling-Lakeland-Tatum-Georgeville series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 6.52% urban land, 24.09% agricultural land, 4.06% scrub/shrub land, 0.04% barren land, 62.05% forested land, 1.24% forested wetland (swamp), and 2.00% water.

Hollow Creek accepts drainage from Caney Branch and Little Creek before draining into the middle region of Lake Murray. There are a total of 15.8 stream miles in this watershed, all classified FW. There are also several small recreation ponds in the watershed.

Water Quality

Station #	Type	Class	Description
S-306	W	FW	HOLLOW CREEK AT S-32-54

Hollow Creek (S-306) - Aquatic life uses are fully supported. This is a blackwater system, which are often characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Recreational uses are not supported due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

There are currently no point source dischargers in this watershed.

Growth Potential

There is a low potential for growth in this watershed.

03050109-210

(Saluda River)

General Description

Watershed 03050109-210 is located in Lexington and Richland Counties and consists primarily of the ***Saluda River*** and its tributaries from the Lake Murray dam to its confluence with the Broad River. The watershed occupies 65,535 acres of the Piedmont and Sandhill regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Tatum-Georgeville-Appling series. The erodibility of the soil (K) averages 0.24; the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 44.70% urban land, 9.08% agricultural land, 3.46% scrub/shrub land, 0.03% barren land, 39.05% forested land, 2.26% forested wetland (swamp), and 1.42% water.

This section of the Saluda River flows out of the Lake Murray dam and merges downstream with the Broad River to form the Congaree River in the City of Columbia. The lower Saluda River is protected under the S.C. Scenic Rivers Act. Rawls Creek (Yost Creek, Koon Branch), Lorick Branch, and Kinley Creek drain into the Saluda River near the City of Irmo. Juniper Creek and Long Creek (Pine Branch, Hamburg Branch) join to form Twelvemile Creek near the Town of Gilbert. Twelvemile Creek accepts drainage from Hogpen Branch, Fall Branch, and Boggy Branch before flowing through the Town of Lexington to accept the drainage of Fourteenmile Creek (Long Branch) and enter the river. Some of the ponds encountered by Twelvemile Creek include: Barr Lake, Gibsons Pond, Lexington Mill Pond, and Corley Mill Pond. Barr Lake (57 acres) is managed by the Lexington Wildlife Department and Lexington Mill Pond (32 acres) is used for water supply. Stoop Creek, Senn Branch, and Double Branch enter the Saluda River just prior to its confluence with the Broad River. There are a total of 77.0 stream miles in this watershed; the mainstem of this section of the Saluda River is classified TGPT* (*DO not less than daily average of 5 mg/l), and all other streams are classified FW.

Water Quality

Station #	Type	Class	Description
S-152	S	TPGT	SALUDA RIVER JUST BELOW LAKE MURRAY DAM
S-287	S/BIO	FW	RAWLS CREEK AT S-32-107
S-150	S	FW	LORICK BR AT POINT UPSTREAM OF JUNCTION WITH SALUDA R.
S-149	S	TPGT*	SALUDA RIVER AT MEPCO ELECTRIC PLANT WATER INTAKE
S-848	BIO	FW	FOURTEENMILE CREEK AT SR 28
S-052	BIO	FW	TWELVEMILE CREEK AT SR 106
S-294	P	FW	TWELVEMILE CREEK AT U.S. ROUTE 378
S-260	S	FW	KINLEY CREEK AT S-32-36 (ST. ANDREWS RD) IN IRMO
S-298	P	TPGT*	SALUDA RIVER AT USGS GAGING STATION, 1/2 MI BELOW I-20

Saluda River - There are three monitoring sites along this section of the Saluda River. At the upstream site **(S-152)**, aquatic life uses are not supported due to dissolved oxygen and pH excursions, compounded by a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in total suspended solids. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. At the midstream site **(S-149)**, aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

At the downstream site **(S-298)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, compounded by a significant increasing trend in total suspended solids. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions, but a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Rawls Creek (S-287) - This stream was Class B until April, 1992. Aquatic life uses are not supported based on macroinvertebrate community data. In addition, there is a significant increasing trend in total suspended solids concentration. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Lorick Branch (S-150) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there are significant decreasing trends in dissolved oxygen concentration and pH. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Kinley Creek (S-260) - This stream was Class B until April, 1992. Aquatic life uses are not supported based on macroinvertebrate community data. In addition, there is a significant increasing trend in total suspended solids concentration. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Twelvemile Creek - There are two monitoring sites along Twelvemile Creek, which was Class B until April, 1992. At the upstream site **(S-052)**, aquatic life uses are partially supported based on macroinvertebrate community data. At the downstream site **(S-294)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1995. In addition, there is a very high concentration of chromium measured in 1993, a significant decreasing trend in pH, and a significant increasing trend in total nitrogen concentration. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Fourteen Mile Creek (S-848) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
SALUDA RIVER SCE&G/MCMEEKIN STEAM STATION PIPE #: 001 FLOW: M/R PIPE #: 002 FLOW: M/R	SC0002046 MAJOR INDUSTRIAL EFFLUENT EFFLUENT
SALUDA RIVER SCE&G/SALUDA HYDRO STATION PIPE #: 001-004 FLOW: 0.835 PIPE #: 005 FLOW: 0.420 PIPE #: 006 FLOW: 0.007 PIPE #: 007 FLOW: 0.0072 PIPE #: 008 FLOW: 0.0086 PIPE #: 009 FLOW: M/R	SC0002071 MINOR INDUSTRIAL EFFLUENT EFFLUENT EFFLUENT EFFLUENT EFFLUENT EFFLUENT
SALUDA RIVER ALLIED FIBERS CORP./COLUMBIA PLANT PIPE #: 001 FLOW: 0.537 WQL FOR DO	SC0003557 MAJOR INDUSTRIAL WATER QUALITY
SALUDA RIVER PHILIPS COMPONENTS PIPE #: 001 FLOW: 0.715 WQL FOR DO	SC0003425 MAJOR INDUSTRIAL WATER QUALITY
SALUDA RIVER WOODLAND HILLS SD PIPE #: 001 FLOW: 0.29 WQL FOR DO	SC0029475 MINOR DOMESTIC WATER QUALITY
SALUDA RIVER BUSH RIVER UTIL., INC. PIPE #: 001 FLOW: 0.4 WQL FOR DO	SC0032743 MINOR DOMESTIC WATER QUALITY

SALUDA RIVER
I-20 REGIONAL SEWER SYSTEM
PIPE #: 001 FLOW: 0.8
WQL FOR DO

SC0035564
MINOR DOMESTIC
WATER QUALITY

SALUDA RIVER
FRIARSGATE SD/RAWLS CREEK
PIPE #: 001 FLOW: 1.2
WQL FOR DO

SC0036137
MINOR DOMESTIC
WATER QUALITY

SALUDA RIVER
RIVERBANKS ZOOLOGICAL PARK
PIPE #: 001 FLOW: 0.781
WQL FOR DO

SC0037613
MINOR INDUSTRIAL
WATER QUALITY

LORICK BRANCH
PHILIPS COMPONENTS
PIPE #: 002 FLOW: M/R

SC0003425
MAJOR INDUSTRIAL
EFFLUENT

KINLEY CREEK
ALLIED FIBERS CORP./COLUMBIA PLANT
PIPE #: 002 FLOW: M/R
STORMWATER

SC0003557
MAJOR INDUSTRIAL
EFFLUENT

TWELVEMILE CREEK
TOWN OF LEXINGTON/COVENTRY WOODS
PIPE #: 001 FLOW: 1.95
WQL FOR NH3-N, DO, TRC

SC0026735
MAJOR MUNICIPAL
WATER QUALITY

TWELVEMILE CREEK
VICTORIAN LAKES ESTATES
PIPE #: 001 FLOW: 0.07
WQL FOR NH3-N, DO, TRC

SC0034932
MINOR COMMUNITY
WATER QUALITY

TWELVEMILE CREEK TRIBUTARY
OAK GROVE ELEMENTARY
PIPE #: 001 FLOW: 0.02
WQL FOR NH3-N, DO, TRC, BOD5

SC0026018
MINOR COMMUNITY
WATER QUALITY

FOURTEENMILE CREEK
WATERGATE DEV./CAROLINA WATER
PIPE #: 001 FLOW: 0.294
WQL FOR NH3-N, DO, TRC, BOD5

SC0027162
MINOR DOMESTIC
WATER QUALITY

FOURTEENMILE CREEK
LAKEWOOD UTILITIES
PIPE #: 001 FLOW: 0.2
WQL FOR NH3-N, DO, TRC, BOD5

SC0034436
MINOR COMMUNITY
WATER QUALITY

FOURTEENMILE CREEK
TOWN OF LEXINGTON/WHITEFORD SD WWTP
PIPE #: 001 FLOW: 0.3
WQL FOR NH3-N, DO, TRC, BOD5

SC0043541
MINOR MUNICIPAL
WATER QUALITY

STOOP CREEK ALPINE UTILITIES, INC. PIPE #: 001 FLOW: 2.0 WQL FOR NH3-N, DO, TRC	SC0029483 MINOR DOMESTIC WATER QUALITY

LAND APPLICATION *FACILITY NAME*	*PERMIT#* *TYPE*
SPRAY IRRIGATION GILBERT ELEMENTARY SCHOOL	ND0013587 MINOR COMMUNITY
SPRAY IRRIGATION LEXINGTON HIGH SCH./VOC.ED.CTR.	ND0067016 MINOR COMMUNITY
SPRAY IRRIGATION WINDY HILL SD	ND0067075 MINOR COMMUNITY

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
SCE&G McMEEKIN STATION INDUSTRIAL	IWP-220 ACTIVE
ALLIED FIBERS CORP. INDUSTRIAL	IWP-143 ACTIVE
PHILLIPS COMPONENT INDUSTRIAL	IWP-216 INACTIVE
MUSTARD COLEMAN CONSTRUCTION INDUSTRIAL	NWP-001 ACTIVE

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
SOUTHEASTERN ASSOC. LEXINGTON COUNTY #1 MINE	1097-32 SAND
BORAL BRICK, INC. CORLEY MILL ROAD	0028-32 SHALE

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
TOWN OF LEXINGTON (M) TWELVEMILE CREEK	3.0 6.6
CITY OF WEST COLUMBIA (M) SALUDA RIVER	6.0 13.0

PHILIPS COMPONENTS (I) SALUDA RIVER	7.5 5,208.3 GPM
ALLIED FIBERS CORP. (I) SALUDA RIVER	38.02 — GPM

Growth Potential

There is a high potential for future residential and industrial development in this watershed. The area surrounding the Town of Lexington has grown rapidly during the past several years and the trend should continue. Several important highways run through the area including: SC 6, which runs from the Lake Murray dam south through the Town of Lexington, and US 1 and US 378, which run west from the City of West Columbia and intersects with Highway 6 in Lexington; I-20 also serves the area. The watershed's industrial corridor is one of the most economically attractive in the Midlands Area for future development. Once sewer is readily available, residential development is expected to increase and large industrial prospects can be attracted to the area.

The recent construction of a water plant on the shore of Lake Murray north of the Town of Lexington, has made available a water supply sufficient to support development. The City of West Columbia and Lexington County have extended major water mains in the area. Non-industrial dischargers in this basin are targeted for elimination with effluent transported to the City of Cayce's WWTP through a regional system. Components of the regional system either have been constructed, are presently being constructed, or are presently being designed. This will decrease discharge levels into the lower portion of the Saluda River.

Congaree River Basin Description

The ***Congaree River Basin*** encompasses 688 square miles and 7 watersheds. The Congaree River Basin is predominately within the Sandhills region of the State, but giving way to the Upper Coastal Plain region near its confluence with the Catawba-Santee Basin. Of the 470,483 acres in the Congaree River Basin, 17.2% is urban land, 9.1% is agricultural land, 7.9% is scrub/shrub land, 0.3% is barren land, 52.6% is forested land, 11.0% is forested wetland, and 1.9% is water (SCLRCC 1990). The urban land percentage is comprised chiefly by the Greater Columbia Metropolitan area. After the confluence of the Broad and Saluda Rivers, the Congaree River flows southeasterly for 50 miles and enters the Catawba-Santee Basin. There are a total of 1,073.5 stream miles in the Congaree River Basin. The Catawba and Santee Basins are addressed in year three of the Bureau's five-year basin cycle.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources and land uses in common. The physiographic regions that define the Congaree Basin are as follows:

The **Sand Hills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the state's major farming areas; elevations range from 100 to 450 feet.

Land Use/Land Cover

General land use/land cover data for South Carolina were derived from SPOT multispectral satellite images using image mapping software to inventory the state's land classifications. The classifications which describe the Congaree Basin are as follows:

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial and residential uses, as well as vegetated portions of urban areas.

Agricultural/Grass land is characterized by cropland, pasture and orchards, and may include some grass cover in Urban, Scrub/Shrub and Forest areas.

Scrub/Shrub land is adapted from the western Rangeland classification to represent the "fallow" condition of the land (currently unused, yet vegetated), and is most commonly found in the dry Sandhills region including areas of farmland, sparse pines, regenerating forest lands and recently harvested timber lands.

Forest land is characterized by deciduous and evergreen trees not including forests in wetland settings.

Forested Wetland (swampland) is the saturated bottomland, mostly hardwood forests that are primarily composed of wooded swamps occupying river floodplains and isolated low-lying wet areas, primarily located in the Coastal Plain.

Nonforested Wetland (marshland) is dependent on soil moisture to distinguish it from Scrub/Shrub since both classes contain grasses and low herbaceous cover; nonforested wetlands are most common along the coast and isolated freshwater areas found in the Coastal Plain.

Barren land is characterized by an unvegetated condition of the land, both natural (rock, beaches and unvegetated flats) and man-induced (rock quarries, mines and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh and tidal waters.

Soil Types

The dominant soil associations, or those soil series together comprising over 40% of the land area, were recorded for each watershed in percent descending order. The dominant individual soil series for the Congaree River Basin are described as follows:

Alpin soils are well drained and excessively drained, sandy soils with a loamy or sandy subsoil.

Blaney soils are nearly level to strongly sloping, excessively drained and well drained soils, some sandy throughout and some with a loamy subsoil and a fragipan on coastal plains.

Chastain soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Chewacla soils are nearly level, somewhat poorly drained and well drained soils.

Congaree soils are nearly level, well drained soils that are predominantly loamy throughout, or flood plains.

Dothan soils are well drained, sandy soils with loamy subsoil.

Faceville soils are well drained, sandy soils with a loamy or clayey subsoil.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Lakeland soils are well drained, sandy soils with a loamy subsoil and excessively drained soils.

Marlboro soils are well drained soils with a sandy or loamy surface layer and a loamy or clayey subsoil.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Pelion soils are well drained and moderately well drained soils that have a sandy surface layer and a loamy subsoil, many with a fragipan in the subsoil.

Tawcaw soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Vaucluse soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments which do erode. The range of K-factor values in the Congaree River Basin is from 0.06 to 0.20.

Climate

Data compiled from National Weather Service stations in Columbia at the Columbia Metropolitan Airport and the University of South Carolina were used to determine the general climate information for the Congaree River Basin. Historical climatological records were compiled to provide the normal values. The normal annual rainfall in the area was 48.09 inches. The highest seasonal rainfall occurred in the summer due to thunderstorm activity with 15.07 inches; and 9.25, 11.49, and 12.28 inches of rain fell in the fall, winter, and spring, respectively. The average annual daily temperature was 60.2°F. On a seasonal basis, summer temperatures averaged 79.9°F and fall, winter, and spring temperatures averaged 64.6, 63.9, and 47.1°F, respectively. This is generally the warmest region in the State during the summer months.

03050110-010

(Congaree River)

General Description

Watershed 03050110-010 is located in Richland, Lexington, and Calhoun Counties and consists primarily of the ***Congaree River*** and its tributaries from its origin to Cedar Creek. The watershed occupies 140,217 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Chewacla-Congaree-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.17; the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 9.45% urban land, 7.24% agricultural land, 2.22% scrub/shrub land, 0.09% barren land, 61.76% forested land, 16.45% forested wetland (swamp), and 2.79% water.

The Congaree River originates with the confluence of the Saluda River Basin and the Broad River Basin in the City of Columbia. There are a total of 260.6 stream miles in this watershed, all classified FW. Rocky Branch flows into the Congaree River within the City of Columbia, followed by the Congaree Creek watershed (03050110-020), Dry Creek, and the Gills Creek watershed (03050110-030). Further downstream, Toms Branch (Silver Lake, Geiger Pond), Big Lake (Cow Cut), and Savany Hunt Creek enter the river. The river then accepts drainage from the Sandy Run watershed (03050110-040) and Mill Creek (Reeder Point Branch, Black Lake, Adams Pond, Pinewood Lake, Ulmers Pond, Sunset Lake, Twin Lakes). Big Beaver Creek accepts drainage from Rock Branch, Branham Branch, Little Beaver Creek (Howell Branch, Falls Branch), and Congaree Spring Branch (Hildebrand Branch) before flowing into the Congaree River. Butlers Gut Creek connects Big Beaver Creek to Buyck Bottom Creek (Sikes Creek) and to the river. Bates Mill Creek (High Hill Creek, Speigner Branch, Dicks Swamp) drains into the river at the base of the watershed. There are numerous recreational lakes and river oxbows in this watershed such as Saylors Lake and Dead River. Another natural resource in the watershed is the Congaree River Swamp National Monument, a wetland preserve, which extends along the northeastern river bank in the lower portion of the watershed.

Water Quality

Station #	Type	Class	Description
CSB-001L	P	FW	CONGAREE RIVER AT BLOSSOM ST (SALUDA RIVER)
CSB-001R	P	FW	CONGAREE RIVER AT BLOSSOM ST (BROAD RIVER)
C-021	S	FW	MILL CREEK AT SC 262
C-022	S	FW	MILL CREEK AT US 76 AT PINEWOOD LAKE, 8 MI SE OF COLA
C-074	P	FW	CONGAREE R-W BOUNDARY OF CONGAREE SWP NATL MON
C-010	BIO	FW	BIG BEAVER CREEK AT US 176
C-577	BIO	FW	BATES MILL CREEK AT R 24
C-073	S	FW	REEDER POINT BRANCH AT SC 48

Congaree River - There are three monitoring sites along this section of the Congaree River, which was Class B until April, 1992. At the upstream site, reflecting Saluda River influence **(CSB-001L)**, aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in both 1995 and 1996. In addition, there was a very high concentration of cadmium and chromium measured in 1995, and a significant decreasing trend in dissolved oxygen concentration. In sediments, a very high concentration of copper was measured in 1994, and very high concentrations of zinc were measured in 1993 and 1994. Isophorone was detected in the 1995 sediment sample and P,P'DDE, a metabolite of DDT, and O,P'DDT were detected in the 1994 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters.

Across the channel at the site reflecting Broad River influence **(CSB-001R)**, aquatic life uses are again not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in both 1996 and 1997. In addition, there are significant decreasing trends in dissolved oxygen concentration and pH. Methylene chloride was detected in the water column in 1997. Benzo(a)pyrene, chrysene, fluoranthene, phenanthrene, pyrene, and benzo(a)anthracene (all polycyclic aromatic hydrocarbons) were detected in the 1994 sediment sample. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. At the downstream site **(C-074)**, aquatic life uses are fully supported, but there was a very high concentration of chromium measured in 1997. Recreational uses are fully supported at all sites.

Mill Creek - There are two monitoring sites along Mill Creek. At the upstream site **(C-021)**, aquatic life uses are fully supported. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the downstream site **(C-022)**, aquatic life and recreational uses are fully supported. This is a blackwater system, and often characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted at both sites, they were typical of values seen in such systems. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations at both sites suggest improving conditions for these parameters.

Reeder Point Branch (C-073) - This stream was Class B until April, 1992. Aquatic life uses are partially supported due to dissolved oxygen excursions. This is a secondary monitoring station and sampling is intentionally biased towards periods with the potential for low dissolved oxygen concentrations. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. The dissolved oxygen excursions were typical of values seen in such systems. Recreational uses are not supported due to fecal coliform bacteria excursions.

Big Beaver Creek (C-010) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Bates Mill Creek (C-577) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
CONGAREE RIVER MARTIN MARIETTA AGGREGATES/CAYCE QUARRY PIPE #: 001 FLOW: M/R	SC0001058 MINOR INDUSTRIAL EFFLUENT
CONGAREE RIVER CAROLINA EASTMAN CO. PIPE #: 001 FLOW: 100.82	SC0001333 MAJOR INDUSTRIAL EFFLUENT
CONGAREE RIVER WESTINGHOUSE ELECTRIC CORP. PIPE #: 001 FLOW: 0.128	SC0001848 MAJOR INDUSTRIAL EFFLUENT
CONGAREE RIVER SCE&G/COLUMBIA HYDRO PLANT PIPE #: 001 FLOW: 0.0058	SC0002062 MINOR INDUSTRIAL EFFLUENT
CONGAREE RIVER CITY OF COLUMBIA/METRO PLANT PIPE #: 001 FLOW: 60.00 WQL FOR NH3-N, DO, TRC	SC0020940 MAJOR MUNICIPAL WATER QUALITY
CONGAREE RIVER CITY OF CAYCE/MAIN PLT PIPE #: 001 FLOW: 12.0 WQL FOR NH3-N, DO, TRC	SC0024147 MAJOR MUNICIPAL WATER QUALITY
CONGAREE RIVER TEEPAK INC./CORIA DIV. PIPE #: 001 FLOW: 0.378	SC0033367 MINOR INDUSTRIAL EFFLUENT
CONGAREE RIVER EAST RICHLAND COUNTY PSD/GILLS CK PLT PIPE #: 001 FLOW: 10.5 PIPE #: 001 FLOW: 14.0 (PROPOSED) WQL FOR NH3-N, DO, TRC	SC0038865 MAJOR MUNICIPAL WATER QUALITY WATER QUALITY
CONGAREE RIVER CITY OF WEST COLUMBIA/WATER PLANT PIPE #: 001 FLOW: M/R	SCG641005 MINOR DOMESTIC EFFLUENT
CONGAREE RIVER SC DEPT. AGRIC./METEOROLOGICAL STATION PIPE #: 001 FLOW: M/R	SC0041386 MINOR INDUSTRIAL EFFLUENT

CONGAREE RIVER SCE&G/COIT GAS TURBINE PIPE #: 001 FLOW: —	SC0044814 MINOR INDUSTRIAL EFFLUENT
CONGAREE RIVER TRIBUTARY CHEVRON USA, INC./CAYCE PIPE #: 001 FLOW: — WQL FOR BOD5, TOXICS	SCG830007 MINOR INDUSTRIAL WATER QUALITY
DRY CREEK BROOKFOREST MH EST. PIPE #: 001 FLOW: 0.027 WQL FOR TRC	SC0031178 MINOR DOMESTIC WATER QUALITY
DRY CREEK TRIBUTARY BELLE MEADE SD WWTP PIPE #: 001 FLOW: 0.08 WQL FOR NH3-N, DO, TRC	SC0030988 MINOR DOMESTIC WATER QUALITY
DRY CREEK TRIBUTARY LLOYDWOOD SD/PINEY GROVE UTIL. PIPE #: 001 FLOW: 0.1548 WQL FOR NH3-N, TRC	SC0031402 MINOR DOMESTIC WATER QUALITY
ROCKY BRANCH TARMAC MID-ATLANTIC PIPE #: 001 FLOW: M/R PIPE #: 002 FLOW: M/R	SCG730054 MINOR INDUSTRIAL EFFLUENT EFFLUENT
TOMS BRANCH SILVER LAKE MHP PIPE #: 001 FLOW: 0.038	SC0031321 MINOR DOMESTIC EFFLUENT
TOMS BRANCH ROLLING MEADOWS MHP PIPE #: 001 FLOW: 0.0715 WQL FOR NH3-N	SC0033685 MINOR DOMESTIC WATER QUALITY
SAVANY HUNT CREEK SC HWY DEPT/I-26 REST AREA PIPE #: 001 FLOW: 0.06	SC0040339 MINOR DOMESTIC EFFLUENT
MILL CREEK CHARLES TOWNE SD/UTILITY PIPE #: 001 FLOW: 0.166 WQL FOR NH3-N, DO, TRC, BOD5	SC0032760 MINOR DOMESTIC WATER QUALITY
REEDER POINT BRANCH STARLITE SD/TERRACEWAY PIPE #: 001 FLOW: 0.8 WQL FOR NH3-N, DO, TRC	SC0030911 MINOR DOMESTIC WATER QUALITY
REEDER POINT BRANCH SC TRACTOR & EQUIPMENT PIPE #: 001 FLOW: —	SC0038024 MINOR INDUSTRIAL EFFLUENT

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *TYPE*
SLUDGE INJECTION BIO TECH, INC.	ND0069761 MINOR COMMUNITY

Nonpoint Source Contributions

Mill Creek Watershed Assessment

This project is an assessment of water quality in the Mill Creek watershed and is being implemented by the University of South Carolina. The purpose of the study is to quantify relationships among rainfall, runoff, and pollutant transport (sediment, nutrients, and fecal coliform bacteria). The data will identify sources of pollutants, conditions causing water quality degradation, and recommend management actions to remediate problems. A long term objective is to develop process-oriented simulation models used for the purpose of predicting NPS runoff impacts and their impact on land use practices. The project commenced in August of 1996 and is scheduled to be completed by August of 1999.

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
FORT JACKSON DOMESTIC	DWP-098 CLOSED

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
ASHMOORE BROTHERS, INC. 418 SAND PIT	0883-30 SAND
LANIER CONSTRUCTION CO., INC. LANIER ASPHALT PLANT	0124-32 SAND
LANIER CONSTRUCTION CO., INC. STROUD PIT	0946-32 SAND
FOSTER-DIXIANA SAND COMPANY SILICA PIT	0141-32 SAND
FOSTER-DIXIANA SAND COMPANY DIXIANA MINE	0140-32 SAND
TARMAC CAROLINAS, INC. COLUMBIA QUARRY	0133-40 GRANITE
MARTIN MARIETTA AGGREGATES CAYCE QUARRY	0102-32 GRANITE

GUIGNARD BRICK WORKS, INC. ROOF MINE	0422-09 KAOLIN

Water Supply

WATER USER (TYPE) *WATERBODY*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (GPM)*
CAROLINA EASTMAN CO. (I) CONGAREE RIVER	181.44 126,000

Groundwater Concerns

The groundwater in the vicinity of the spray irrigation field and surface impoundments owned by Carolina Eastman Co. is contaminated with nitrates and other substances. The groundwater Mixing Zone has been approved, and the Department is in the process of issuing the written portion of the approval. The surface water affected by the groundwater contamination is the Congaree River.

Also affecting the Congaree River is the groundwater in the vicinity of the surface impoundments owned by Teepak, which is also contaminated with nitrates. The facility is currently in the assessment phase.

The groundwater in the vicinity of the property owned by Westinghouse Nuclear Fuel Division is contaminated with nitrates, fluoride, and volatile organics from spills, leaks, and unknown sources. The facility is currently in the remediation phase. The surface waters affected by the groundwater contamination are Sunset Lake and the unnamed tributaries and wetlands draining into Mill Creek.

Growth Potential

There is a low to moderate potential for residential and industrial growth in the Olympia area of the City of Columbia, and high growth and development is projected for the Congaree Vista area in the downtown area. The Three Rivers Greenway will increase recreational use in this area. Growth is also projected along the newly connected I-77 beltway around the city. The Olympia and Bluff Road areas contain heavy industrial development. Only the upper portion of the watershed, near the City of Columbia, has available water and sewer service. The Cities of West Columbia and Cayce are also located in this watershed. There are plans to extend water and sewer facilities capable of handling industrial development within the next five to ten years. The area around Silver Lake is expected to undergo substantial residential and industrial development. The area south of the City of Cayce, along I-26 and US 321, and the Bluff Road/Shop Road area in Columbia are expected to experience heavy growth. The area along US 176 and US 21 should experience moderate growth, primarily industrial.

03050110-020

(Congaree Creek)

General Description

Watershed 03050110-020 is located in Lexington County and consists primarily of ***Congaree Creek*** and its tributaries. The watershed occupies 91,326 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Lakeland-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 5%, with a range of 2-15%. Land use/land cover in the watershed includes: 34.59% urban land, 5.61% agricultural land, 6.60% scrub/shrub land, 0.11% barren land, 46.84% forested land, 5.29% forested wetland (swamp), and 0.96% water.

The Congaree Creek watershed drains into the Congaree River near the City of Cayce. West Fork and East Fork join to form Scrouter 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 the drainage from Red Bank Creek (Turkey Creek, Crystal Lake, Lick Fork Branch, Pole Branch). Second Creek (Hunt Branch, Bear Creek, Reedy Branch) flows into First Creek, which in turn drains into Congaree Creek. Congaree Creek also accepts the drainage from Savana Branch (Pitts Lake), Sixmile Creek (Lake Caroline), and Dry Creek. There are a total of 110.5 stream miles in this watershed, all classified FW, together with numerous recreational ponds. Another natural resource in the watershed is the Peachtree Rock Nature Preserve, located at the headwaters of Hunt Branch.

Water Quality

Station #	Type	Class	Description
C-580	BIO	FW	RED BANK CK AT ROAD CONNECTING SR 1260 & SR 243
C-066	S	FW	RED BANK CREEK AT S-32-244
C-067	S	FW	RED BANK CK AT SANDY SPRINGS RD BETWEEN S-32-104 & SC602
C-565	BIO	FW	CONGAREE CREEK AT SR 34
C-061	S/BIO	FW	SAVANA BRANCH AT S-32-72 1.7 MI NNW OF S CONGAREE
C-008	P	FW	CONGAREE CREEK AT US 21, AT CAYCE WATER INTAKE
C-025	S	FW	LAKE CAROLINE SPILLWAY AT PLATT SPRINGS RD
C-005	S/BIO	FW	SIXMILE CREEK ON US 21, S OF CAYCE
C-070	W	FW	CONGAREE CREEK AT S-32-66
C-583	BIO	FW	SECOND CREEK AT SR 647

Congaree Creek - There are three monitoring sites along Congaree Creek, which was Class B until April, 1992. Aquatic life uses are fully supported at the upstream site **(C-565)** based on macroinvertebrate community data. At the midstream site **(C-008)**, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards, including a very high concentration measured in 1993. In addition, there are significant increasing trends in pH, turbidity, and total suspended solids concentrations. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were considered typical values for these systems. The increasing trend in pH, however, suggests changing conditions in the stream. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration. Aquatic life and recreational uses are fully supported at the downstream site **(C-070)**, which is also a blackwater system characterized by naturally low pH and dissolved oxygen concentrations.

Red Bank Creek **-** There are three monitoring sites along Red Bank Creek. At the upstream site **(C-580)**, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are also fully supported at the midstream site **(C-066)** and downstream site **(C-067)**, but there are significant increasing trends in pH and turbidity. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were considered typical values for these systems. The increasing trend in pH, however, suggests changing conditions in the stream. A significant decreasing trend in total phosphorus concentration at the midstream site suggests improving conditions for this parameter. Recreational uses are fully supported at the midstream site and partially supported downstream, but there is a significant increasing trend in fecal coliform bacteria concentration.

Savana Branch (C-061) **-** Aquatic life uses are fully supported based on macroinvertebrate community data, but there are significant increasing trends in pH and turbidity. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were considered typical values for these systems. The increasing trend in pH, however, suggests changing conditions in the stream. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria concentration.

Sixmile Creek (C-005) **-** This stream was Class B until April, 1992. Aquatic life uses are partially supported based on macroinvertebrate community data, compounded by a significant increasing trend in turbidity. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical of values seen in such systems. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Lake Caroline (C-025) **-** This lake was Class B until April, 1992. Aquatic life uses are fully supported, but there is a significant increasing trend in turbidity. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Second Creek (C-583) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
RED BANK CREEK TOWN OF LEXINGTON/OLD BARNWELL PIPE #: 001 FLOW: 0.8 WQL FOR NH3-N, TRC	SC0023680 MINOR MUNICIPAL WATER QUALITY
RED BANK CREEK TOWN OF LEXINGTON/TWO NOTCH ROAD PIPE #: 001 FLOW: 0.4 WQL FOR NH3-N, TRC	SC0040789 MINOR MUNICIPAL WATER QUALITY
FIRST CREEK GLENN VILLAGE/CAROLINA WATER PIPE #: 001 FLOW: 0.1284 WQL FOR NH3-N, DO, TRC, BOD5	SC0030651 MINOR DOMESTIC WATER QUALITY
BEAR CREEK LEXINGTON COUNTY/EDMUND LANDFILL PIPE #: 001 FLOW: 0.0554 WQL FOR NH3-N, TRC, BOD5	SC0045110 MINOR INDUSTRIAL WATER QUALITY
SAVANA BRANCH LOXCREEN COMPANY PIPE #: 001 FLOW: 0.0045 WQL FOR NH3-N	SC0003174 MINOR INDUSTRIAL WATER QUALITY
SIXMILE CREEK STAR ENTERPRISE/EDMUND RD PIPE #: 001 FLOW: M/R	SCG830014 MINOR INDUSTRIAL EFFLUENT
SIXMILE CREEK SOUTHERN PLASTICS CO. PIPE #: 001 FLOW: 0.182	SCG250129 MINOR INDUSTRIAL EFFLUENT
SIXMILE CREEK SOLAR FARMS PIPE #: 001 FLOW: 0.026 WQL FOR TRC	SC0039021 MINOR INDUSTRIAL WATER QUALITY
SIXMILE CREEK S.C. FIRE ACADEMY PIPE #: 002 FLOW: 0.108	SC0039225 MINOR INDUSTRIAL EFFLUENT

SIXMILE CREEK RACETRAC SERVICE STATION PIPE #: 001 FLOW: 0.0432 WQL FOR BOD5, TOXICS	SCG830022 MINOR INDUSTRIAL WATER QUALITY
SIXMILE CREEK COLUMBIA METROPOLITAN AIRPORT PIPE #: 001 FLOW: 0.00864 STORMWATER	SCR002109 MINOR INDUSTRIAL EFFLUENT
SIXMILE CREEK AMOCO SERVICE STATION PIPE #: 001 FLOW: 0.0144 WQL FOR BOD5, TOXICS	SCG830021 MINOR INDUSTRIAL WATER QUALITY
SIXMILE CREEK PARKWOOD MHP PIPE #: 001 FLOW: .035 WQL FOR NH3-N, DO, TRC, BOD5	SC0030473 MINOR DOMESTIC WATER QUALITY

LAND APPLICATION FACILITY NAME	**PERMIT# TYPE**
SPRAYFIELD WINDY HILL WWTP	ND0067075 COMMUNITY

Landfill Activities

SOLID WASTE LANDFILL NAME FACILITY TYPE	***PERMIT # STATUS***
LEXINGTON COUNTY LANDFILL DOMESTIC	DWP-127 CLOSED
LEXINGTON COUNTY C&D LANDFILL	CWP-044 ACTIVE
LEXINGTON COUNTY LANDFILL (321 SITE) DOMESTIC	DWP-030 CLOSED
SOUTHEASTERN CONCRETE INDUSTRIAL	NWP-005 ACTIVE
U.S. #1 FLEA MARKET INDUSTRIAL	NWP-003 CLOSED

Mining Activities

MINING COMPANY MINE NAME	***PERMIT # MINERAL***
BOWERS LEASING BOWERS MINE	0637-32 SAND
RICHTEX CORPORATION SOX MINE	0184-32 KAOLIN

CAROLINA MATERIALS CORPORATION I-20 PIT	0787-32 SAND
B&T SAND COMPANY, INC. BLEDSOE MINE	0947-32 SAND
CAROLINA MATERIALS CORPORATION RED BANK PIT	0608-32 SAND/CLAY
B&T SAND COMPANY, INC. HWY 6 MINE	0741-32 SAND
LEXINGTON COUNTY RED BANK PIT	0505-32 SAND/CLAY
LA BARRIER & SON, INC. EDMUND MINE	0958-32 SAND
JC TINDAL SAND COMPANY TINDAL MINE	0535-32 SAND
US SILICA COLUMBIA MINE	0150-32 SAND
COLUMBIA SILICA SAND COMPANY, INC. SHULER MINE #2	0010-32 SAND
COLUMBIA SILICA SAND COMPANY, INC. TRUCK PIT	0009-32 SAND
FOSTER-DIXIANA SAND COMPANY GASTON MINE	1139-32 SAND

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
YMCA CAMP/RESIDENT RED BANK CREEK	32-305-0001 ACTIVE
CONGAREE GIRL SCOUT CAMP/RESIDENT SCOUTER BRANCH	32-305-0110 ACTIVE
CAMP BARSTOW/RESIDENT FIRST CREEK	32-305-0002 CLOSED

Water Supply

WATER USER (TYPE) ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
CITY OF CAYCE (M) CONGAREE CREEK	6.0 16.0
US SILICA/PENN GLASS SAND(I) FIRST CREEK	1.44 1000 GPM

US SILICA/PENN GLASS SAND(I) SECOND CREEK	9.5 6600 GPM
US SILICA/PENN GLASS SAND(I) SECOND CREEK	0.72 500 GPM
US SILICA/PENN GLASS SAND(I) SECOND CREEK	0.94 650 GPM

Groundwater Concerns

The groundwater in the vicinity of the property owned by the S.C. Fire Academy is contaminated with volatile organics and petroleum from spills and leaks. The groundwater recovery system has been constructed, and contaminated soils from burn pit areas are being removed. The surface water affected by the groundwater contamination is Sixmile Creek.

Growth Potential

There is a high potential for growth in this watershed, primarily commercial and residential. Expansion of the industrial base is also expected. There are several major highways bisecting the watershed, together with the Columbia Metropolitan Airport and a rail line to aid transportation related growth. Water is available in the urbanized areas and can be easily extended by the Cities of West Columbia and Cayce; however, sewer is not widely available and will require a major investment. Two Notch Road and Old Barnwell WWTPs (under Lexington County Joint Municipal Water and Sewer Commission) are targeted for elimination under the 208 Plan, with effluent transported to the City of Cayce's WWTP. The construction of the line to Cayce could have the effect of making sewer more readily available.

03050110-030

(Gills Creek)

General Description

Watershed 03050110-030 is located in Richland County and consists primarily of ***Gills Creek*** and its tributaries. The watershed occupies 47,679 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Alpin-Lakeland-Pelion-Norfolk series. The erodibility of the soil (K) averages 0.15; the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 56.51% urban land, 5.80% agricultural land, 0.98% scrub/shrub land, 1.05% barren land, 33.23% forested land, 1.68% forested wetland (swamp), and 0.75% water.

Gills Creek flows through the northeastern section of the City of Columbia and drains into the Congaree River. There are a total of 70.5 stream miles in this watershed, all classified FW. Gills Creek originates near Sesquicentennial State Park and accepts the drainage of Bynum Creek (Rose Creek), Rowell Creek, and Mack Creek before flowing through Rockyford Lake and Forest Lake (120 acres). Jackson Creek also originates near Sesquicentennial State Park and flows through Sesquicentennial Pond and Windsor Lake (46 acres) before accepting the drainage of Little Jackson Creek (Lightwood Knot Branch). Jackson Creek then flows through Carys Lakes (Arcadia Lakes) and Spring Lake to join Gills Creek in Forest Lake. Downstream of Forest Lake, Gills Creek accepts the drainage of Eightmile Branch and Pen Branch (Orphanage Branch) before flowing through Lake Katherine (80 acres). Wildcat Creek (Semmes Lake, Fork Creek, Upper Legion Lake, Lower Legion Lake) drains into Gills Creek downstream of Lake Katherine. Gills Creek and its associated wetlands drain into the Congaree River. Several oxbow lakes, including Alligator Lake, drain into Gills Creek near the river.

Water Quality

Station #	Type	Class	Description
C-048	S	FW	WINDSOR LAKE SPILLWAY ON WINSDOR LAKE BLVD
C-068	P	FW	FOREST LAKE AT DAM
C-001	P	FW	GILLS CREEK AT BRIDGE ON US 76 (GARNERS FERRY ROAD)
C-017	P	FW	GILLS CREEK AT SC 48 (BLUFF ROAD)

Gills Creek - There are two monitoring sites along Gills Creek, which was Class B until April, 1992. At the upstream site **(C-001)**, aquatic life uses are fully supported, but there were significant increasing trends in five-day biochemical oxygen demand and turbidity, and a very high concentration of zinc measured in 1995. P,P'DDD (a metabolite of DDT), P,P'DDT, and chlordane (an insecticide) were detected in the 1994 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. At the downstream site **(C-017)**, aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards, including a high concentration measured in 1996 and a very high concentration measured in 1995. In addition, there is a significant increasing trend in turbidity. In sediment, P,P'DDD was detected in 1994, and P,P'DDD, P,P'DDE, P,P'DDT, fluoranthene, a polycyclic aromatic hydrocarbon (PAH), and di-n-butylphthalate were detected in 1997. A significant increasing trend in dissolved oxygen concentration at the upstream site and significant decreasing trends in total phosphorus and total nitrogen concentrations at both sites suggest improving conditions for these parameters. Both sites are within a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Recreational uses are not supported at either site due to fecal coliform bacteria excursions.

Sesquicentennial Pond - The pond was applied with aquatic herbicide in 1996 to improve public access to the lake.

Windsor Lake (C-048) - Aquatic life and recreational uses are fully supported. This lake is located in a blackwater drainage system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters.

Forest Lake (C-068) - Aquatic life uses are fully supported, but there is a significant increasing trend in turbidity and a high concentration of zinc measured in 1996, and one very high concentration each of cadmium and chromium measured in 1997. This lake is located in a blackwater drainage system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Significant decreasing trends in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported.

Permitted Activities

Point Source Contributions

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
GILLS CREEK ANCHOR CONTINENTAL PIPE #: 001-007 FLOW: M/R	SCG250180 MINOR INDUSTRIAL EFFLUENT
DITCH TO GILLS CREEK ARAMARK UNIFORM SERVICES PIPE #: 001 FLOW: 0.0144 WQL FOR BOD5	SC0046566 MINOR INDUSTRIAL WATER QUALITY

GILLS CREEK TRIBUTARY FURON CO./HELICOFLEX CO. PIPE #: 001 FLOW: M/R	SC0046418 MINOR INDUSTRIAL EFFLUENT
JACKSON CREEK AMPHENOL PRODUCTS PIPE #: 001 FLOW: 0.72 (PROPOSED) WQL FOR BOD5, TOXICS	SC0046264 MINOR INDUSTRIAL WATER QUALITY
LITTLE JACKSON CREEK AMERADA HESS CORP. #40245 PIPE #: 001 FLOW: M/R WQL FOR BOD5, TOXICS	SC0044989 MINOR INDUSTRIAL WATER QUALITY

Nonpoint Source Contributions

Gills Creek Watershed Project

The Gills Creek Watershed was selected as a nonpoint source pollution project area due to its urban impact on water quality. The watershed was assigned a top priority ranking by the State Nonpoint Source task force in relation to its level of nonpoint source pollution. The waters of Gills Creek are impacted by sediment, fecal coliform bacteria, and litter. Threatened uses and benefits include swimming, fishing, reproduction and survival of aquatic life, wildlife habitat, lake storage capacity, and property value enhancement.

The project was completed in September 1996. A final report was developed that made general recommendations for control of nonpoint source pollutants and was distributed to important stakeholders and decision makers in the watershed. The report provides a guideline from which groups like the Gills Creek Watershed Association and other concerned members of the community can begin to take actions for water quality improvement in the Gills Creek Watershed.

Camp Facilities

FACILITY NAME/TYPE *RECEIVING STREAM*	*PERMIT #* *STATUS*
SESQUICENTENNIAL STATE PARK/FAMILY JACKSON CREEK	40-307-0006 ACTIVE

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
ANCHOR CONTINENTAL, INC. INDUSTRIAL	403326-1601 ACTIVE
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-108 CLOSED
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-137 CLOSED

CITY OF COLUMBIA C&D LANDFILL	403326-1601 ACTIVE

Mining Activities

MINING COMPANY MINE NAME	***PERMIT # MINERAL***
CHEROKEE, INC. HIGHWAY NO.1 PIT	0548-40 SAND\CLAY
THE JORDAN COMPANY CONGAREE SAND PIT	0545-40 SAND

Groundwater Concerns

The groundwater in the vicinity of the properties owned by Cardinal Company and Anchor Continental are contaminated with volatile organics from spills, leaks, or unknown sources. Anchor Continental is in the assessment and monitoring phases and Cardinal Chemical Company is in the assessment phase (a CERCLA site inspection is in progress). The surface water affected by the groundwater contamination of both facilities is Gills Creek.

The groundwater in the vicinity of the surface impoundments owned by Amphenol Products is contaminated with volatile organics. The facility is in the remediation phase; surface water corrective action initiated. The surface water affected by the groundwater contamination is an unnamed tributary to Jackson Creek.

Growth Potential

There is a high potential for continued growth in this urban watershed. Although primarily residential, there are a substantial number of commercial and industrial areas. Almost the entire watershed, which runs through the City of Columbia, has water and sewer readily available. Growth is also projected along the newly connected I-77 beltway around the city.

03050110-040

(Sandy Run)

General Description

Watershed 03050110-040 is located in Lexington and Calhoun Counties and consists primarily of ***Sandy Run*** and its tributaries. The watershed occupies 23,293 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.10; the slope of the terrain averages 6%, with a range of 2-15%. Land use/land cover in the watershed includes: 8.48% agricultural land, 2.71% scrub/shrub land, 0.16% barren land, 83.76% forested land, 4.02% forested wetland (swamp), and 0.87% water.

Little Sandy Run flows into Sandy Run which drains into the Congaree River. There are a total of 39.9 stream miles and several small recreational lakes (10-45 acres) in this watershed, all classified FW.

Water Quality

Station #	Type	Class	Description
C-009	W/BIO	FW	SANDY RUN AT US 176

Sandy Run - This stream was Class B until April, 1992. Aquatic life uses are fully supported based on macroinvertebrate community data. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Recreational uses are fully supported.

Permitted Activities

Point Source Contributions

There are currently no point source dischargers in the watershed.

Growth Potential

There is a low potential for growth in this watershed. The existing infrastructure of I-26 and US 176 and US 21 may encourage some industrial growth to the area. The construction of the line from the Town of Swansea to the City of Cayce WWTP goes through this watershed, and may provide growth.

03050110-050

(Cedar Creek)

General Description

Watershed 03050110-050 is located in Richland County and consists primarily of ***Cedar Creek*** and its tributaries. The watershed occupies 68,038 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Dothan-Norfolk-Chastain-Marlboro-Tawcaw series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 3%, with a range of 0-15%. Land use/land cover in the watershed includes: 2.38% urban land, 16.36% agricultural land, 2.04% scrub/shrub land, 0.31% barren land, 61.84% forested land, 16.04% forested wetland (swamp), and 1.03% water.

The headwaters of Cedar Creek flow through Westons Pond (240 acres), Harmons Pond (50 acres), Morrells Pond (60 acres), Clarkson Pond (40 acres), and Duffies Pond (80 acres) before accepting the drainage of Reeves Branch and Myers Creek (Cabin Branch, Horsepen Branch, Goose Branch). After the confluence with Myers Creek, Cedar Creek flows through Wise Lake and Weston Lake and accepts drainage from Dry Branch before entering the Congaree River. The lower section of the watershed, from Wise Lake to the river, contains a large portion of the Congaree River Swamp National Monument, a wetland preserve. There are numerous recreational lakes and ponds in this watershed and a total of 138.0 stream miles, all classified FW.

Water Quality

Station #	Type	Class	Description
C-578	BIO	FW	MYERS CREEK AT SR 734
C-069	S/BIO	FW	CEDAR CREEK AT S-40-66
C-071	BIO	FW	CEDAR CREEK AT S-40-734
C-075	P	FW	CEDAR CREEK S OF S-40-734 AT OLD USGS GAGING PLATFORM

Cedar Creek **-** There are three monitoring sites along Cedar Creek, which was Class B until April, 1992. At the upstream site **(C-069)**, aquatic life uses are fully supported based on macroinvertebrate community data, but there is a significant increasing trend in turbidity. At the midstream site **(C-071)**, aquatic life uses are also fully supported based on macroinvertebrate community data. At the downstream site **(C-075)**, aquatic life uses are again fully supported. P,P'DDE, a metabolite of DDT, and P,P'DDT were detected in the 1997 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. These sites are part of a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Recreational uses are fully supported at all sites.

Myers Creek (C-578) **-** This stream was Class B until April, 1992. Aquatic life uses are fully supported based on macroinvertebrate community data.

Permitted Activities

Point Source Contributions

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)* *COMMENT*	*NPDES#* *TYPE* *LIMITATION*
CEDAR CREEK SC AIR NATL. GUARD/MCENTIRE PIPE #: 001 FLOW: M/R	SC0000701 MINOR INDUSTRIAL EFFLUENT
CEDAR CREEK US ARMY/FORT JACKSON PIPE #: 001 FLOW: 0.05 WQL FOR DO	SC0003786 MINOR INDUSTRIAL WATER QUALITY
CEDAR CREEK CEDAR CREEK MHP PIPE #: 001 FLOW: 0.01575	SC0032018 MINOR DOMESTIC EFFLUENT
CEDAR CREEK TRIBUTARY RICHLAND DISTRICT I/GADSDEN PIPE #: 001 FLOW: 0.01 WQL FOR NH3-N, DO, TRC, BOD5	SC0031526 MINOR MUNICIPAL WATER QUALITY
CABIN BRANCH FRANKLIN PARK SD/CAROLINA WATER PIPE #: 001 FLOW: 0.04 WQL FOR TRC	SC0031399 MINOR DOMESTIC WATER QUALITY
CABIN BRANCH TRIBUTARY HOPKINS JR HIGH/RICHLAND CO. PIPE #: 001 FLOW: 0.03 WQL FOR NH3-N, DO, TRC	SC0031500 MINOR MUNICIPAL WATER QUALITY
HORSEPEN BRANCH HOPKINS ELEMENTARY SCHOOL PIPE #: 001 FLOW: 0.03 WQL FOR NH3-N, TRC	SC0031496 MINOR MUNICIPAL WATER QUALITY
GOOSE BRANCH SQUARE D COMPANY PIPE #: 001 FLOW: 0.007 WETLAND; WQL FOR BOD5	SC0004286 MAJOR INDUSTRIAL WATER QUALITY

LAND APPLICATION **FACILITY NAME**	**PERMIT#** **TYPE**
SPRAYFIELD MANCHESTER FARMS	ND0068969 INDUSTRIAL

Nonpoint Source Contributions

Evaluation of Groundwater and Surface Water Agricultural Chemical Loadings and Transport To Support BMP Selection

This project is an assessment of NPS runoff and effects on water quality, and was conducted by the University of South Carolina. It is directed toward characterizing and quantifying the transport of the herbicide trifluralin and the nutrient nitrate from a rowcrop field to groundwaters and streams in the watershed. The study provided data to determine the mechanism for herbicide and nitrate transport, and provided information on which to base the selection of BMPs to reduce the migration of agricultural chemicals. This project commenced in August of 1996 and was finished in April of 1998.

Growth Potential

There is a low to moderate growth potential for this watershed. The area is predominately rural with small residential areas and one industry. U.S. Highway 378 and Bluff Road (Highway 48) cross the watershed, as does a rail line. The area adjacent to the City of Columbia (Garners Ferry/Leesburg Road) has the only available water and sewer service, and is the primary area of growth in the watershed.

03050110-060

(Toms Creek)

General Description

Watershed 03050110-060 is located in Richland County and consists primarily of ***Toms Creek*** and its tributaries. The watershed occupies 33,233 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Dothan-Norfolk-Vaucluse-Marlboro-Chastain series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 0.68% urban land, 15.94% agricultural land, 4.72% scrub/shrub land, 1.58% barren land, 67.10% forested land, 8.43% forested wetland (swamp), and 1.55% water.

Toms Creek watershed contains a total of 60.0 stream miles, all classified FW. The headwaters of Toms Creek flow through Haithcock Pond (60 acres) and Westons Pond (50 acres) before being joined by Ray Branch. The creek then flows through Drafts Pond (80 acres) and accepts drainage from McKenzie Creek before flowing into the Congaree River. Another natural resource in the watershed is the Congaree River Swamp National Monument, which extends across the lower end of the watershed.

Water Quality

Station #	Type	Class	Description
C-579	BIO	FW	TOMS CREEK AT POWER LINE & RR TRACK
C-072	W	FW	TOMS CREEK AT SC 48

Toms Creek - There are two monitoring sites along Toms Creek, which was Class B until April, 1992. Aquatic life uses are fully supported at both the upstream site **(C-579)**, based on macroinvertebrate community data, and the downstream site **(C-072)**. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems. Recreational uses are not supported at the downstream site due to fecal coliform bacteria excursions.

Permitted Activities

Point Source Contributions

There are currently no point source dischargers in this watershed.

Growth Potential

There is a low potential for growth in this watershed. US 378 and Bluff Road cross the area, together with two rail lines. The area along Garners Ferry Road is the only area of potential growth.

03050110-070

(Congaree River)

General Description

Watershed 03050110-070 is located in Richland and Calhoun Counties and consists primarily of the ***Congaree River*** and its tributaries from Toms Creek to its confluence with the Wateree River Basin. The watershed occupies 36,636 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Marlboro-Chastain-Faceville-Tawcaw-Norfolk series. The erodibility of the soil (K) averages 0.20; the slope of the terrain averages 3%, with a range of 0-6%. Land use/land cover in the watershed includes: 0.07% urban land, 13.64% agricultural land, 6.38% scrub/shrub land, 0.25% barren land, 59.75% forested land, 17.01% forested wetland (swamp), 0.11% nonforested wetland (marsh), and 2.79% water.

This section of the Congaree River incorporates a total of 69.0 stream miles, all classified FW. Griffins Creek drains into Running Lake, which in turn flows through Little Lake, Big Lake, and into Running Creek. Running Creek drains into Singleton Creek, which flows through Bates Old River to reach the Congaree River. Buckhead Creek (True Blue Creek) enters the river further downstream. A small portion of the Congaree River Swamp National Monument is located near the top of the watershed, where the Toms Creek watershed (03050110-060) enters. There are several small lakes in this watershed used for recreational purposes. As a reach of the Congaree River, this watershed accepts the drainage of all streams entering the river upstream of the watershed.

Water Quality

Station #	Type	Class	Description
C-007	P	FW	CONGAREE RIVER AT US 601

Congaree River (C-007) - This stream was Class B until April, 1992. Aquatic life uses are fully supported, but there is a significant increasing trend in turbidity and a very high concentration of chromium measured in 1995. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Permitted Activities

Point Source Contributions

RECEIVING STREAM	***NPDES#***
FACILITY NAME	***TYPE***
PERMITTED FLOW @ PIPE (MGD)	***LIMITATION***
COMMENT	

GRIFFINS CREEK TOWN OF EASTOVER/PLT#1 PIPE #: 001 FLOW: 0.025 WQL FOR NH3-N, DO, TRC, BOD5	SC0038237 MINOR MUNICIPAL WATER QUALITY
GRIFFINS CREEK TOWN OF EASTOVER/PLT#2 PIPE #: 001 FLOW: 0.1 WQL FOR NH3-N, DO, TRC, BOD5	SC0041432 MINOR MUNICIPAL WATER QUALITY

Landfill Activities

SOLID WASTE LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
CALHOUN COUNTY MUNICIPAL	DWP-045 CLOSED

Growth Potential

There is a low potential for growth in this rural watershed. The construction of the Eastover/Richland County Regional WWTP on the Wateree River southeast of the Town of Eastover will provide some growth, including industrial, to the area.

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APPENDIX A.

Public Participation Summary

The **Upper Saluda River** Watershed Workshop was held in Greenville on October 2, 1997. We gathered to discuss three questions: (1.) What are your water quality concerns for the watersheds (or waterbodies) in the Upper Saluda River Basin? (2.) What do you see as the contributing factors (sources) to the impaired waters in the watersheds of the Upper Saluda River Basin? (3.) What efforts are needed to address these identified water quality concerns and problems? The complete listing of concerns and comments from the workshop follows.

Water Quality Concerns:

Specific Concerns

Reedy River Impairments
Swimming and fishing in Reedy River - health concerns
Debris (tires) and pollution in Reedy River
Reedy River general condition - pipeline problem, nutrients
Runoff, ash ponds - Saluda River
Maintaining water quality in Saluda River - drinking water source
Flow issues (S. Saluda River)
Additional monitoring stations on S. Saluda River
Flow data for Creighton Creek
Farming on Saluda River north of Saluda Lake causing siltation in river
NPS issues in Saluda and Reedy Rivers more significant than point source
Lake Greenwood drinking water quality - treatment needs, organics
Turbidity in Lake Greenwood
Reedy River arm of Lake Greenwood - sedimentation - nutrients irrelevant if it fills in
Trout waters - water conditions, Table Rock Reservoir
Boyd Mill pond - hypereutrophic, fish kills
Rabon Creek development with no stormwater control
Landfills (Big Creek)
Anderson Co. landfill causing water quality problems in Big Creek upstream of drinking water intake
City of Williamston discharge to Big Creek - upstream of drinking water intake

NPS Concerns

Urban and agricultural runoff, municipal point source discharger
Erosion and sedimentation
Lot clearing on tributaries
Improper silt fencing
Increase in impermeable areas
Stormwater runoff - turbidity - streambank/stream bed erosion
Runoff from pasture land
Change in peak flow due to urbanization and flooding
Metals from runoff

Riparian buffers - destruction due to urbanization
NPS - removal of trees
Need to evaluate BMPs

Other concerns

Historical pollution sources
Aesthetics, turbidity & color
Sand mining - permitted and unpermitted
Lack of good sound science - 305(b) based on science that is 20 years old
Coliforms (recreational uses)
Permits
Conflicting interests for a scarce commodity
Rapid urbanization of Greenville area = more development = difficulty to maintain water quality
Trout habitat impaired and standards not enforced
Groundwater contamination

Contributing factors to 303(d) impaired waters

20 NPDES dischargers on upper Reedy River
NPS on Reedy and Saluda Rivers
Contaminated groundwater in upper Reedy River
Lack of control of solid waste at Anderson County Landfill
Continued growth and development will cause greater water quality problems in Saluda River
Wastewater treatment plants (Matthews Creek/ S. Saluda)
Storm water
Unequal or weak enforcement of sediment control regulation - statewide problem
No political will to address NPS
319 too weak - voluntary; no level at state effort to address issue
Erosion control (IE stream banks)
NPS pollution generally
Flooding due to increased runoff
Natural low flows
Lack of septic tanks
Water intakes
Water temperature (IE trout population)
Loss of recharge zone
Dam release management
Intake management

Efforts needed

Education

Public education ongoing effort
Education for youth and adults

Best Management Practices (BMPs)

Better compliance with forestry BMPs
Greater use of BMPs for agriculture
Widespread distribution of Farming for Clean Water (AG manual)

Sediment and Erosion Control

Revise and enforce sediment control act
Add catch basins and recharge zones along Reedy River (dry dams)
Enforcement (improvements) for appropriately sized catch basins for sand mines
BMP manual for construction BMPs

Buffers

Widen buffer zones
Tax incentives to leave buffers
Grass roots approach to green ways, buffers

Local Solutions

Local partnerships formed to solve problems locally.
Local agencies to solve problems and provide advice
Comprehensive planning on local level - county, city

Other

Completion and implementation of 303(d) plans
Turbidity standards for non-trout waters
Department needs more resources for data collection and technical information
Enforce NPDES permits that are out of compliance
Drinking water act watershed assessments/coordination with other programs
Equal protection of all waterbodies
Holistic approach - not program driven
Legal linkage to look at whole watershed
Determining true impacts - ID sources
Understanding impacts (IE sampling)
Monitoring landfills
Enforcement of standards and regulations for landfills
Include fish community sampling associated with NPDES monitoring
Color standard
Tighter enforcement on private septic systems
Specific standards at high flows
Funding for implementation needed
Better maintenance of roads and drains to prevent NPS

The **Lower Saluda River and Congaree River** Watershed Workshop was held in Lexington on October 16, 1997. We gathered to discuss three questions: (1.) What are your water quality concerns for the watersheds (or waterbodies) in the Lower Saluda River and Congaree River Basins? (2.) What do you see as the contributing factors (sources) to the impaired waters in the watersheds of the Lower Saluda and Congaree River Basins? (3.) What efforts are needed to address these identified water quality concerns and problems? The complete listing of concerns and comments from the workshop follows.

Water Quality Concerns:

Sedimentation
Erosion - urban areas, construction, agriculture and forestry
Congaree Creek - dams breaking
Nutrient loading reservoir
Runoff - nonpoint source to lake (fertilizers, pesticides, and animals)
Septic tanks - lake
Water quality - subdivision with lakes (toxics, health effects, swimming)
Washout of reservoirs
Misuse of floodplains
Loss of wetlands
Development of floodplains
Deleting recharge zones
Water quantity
Overall land use planning
Wastewater discharges (permits)
Assimilative loading capacity of streams (science)
Dead bird disposal (poultry)
Low dissolved oxygen
Lack of communication between resource groups (planners, regulators, etc.)

Contributing Factors to 303(d) Impaired Waters

Below Murray Dam (low DO) Saluda River - stratification, low flow, sediment, turbid water
Sediment, turbidity from urban development at dam, runoff from single lot homes under construction
Vegetative areas converted to urban
Municipal wastes discharges
Septic tank on lake - poor soil, high concentration of tanks, seasonal homes now year round
Lack of flexibility with septic systems - Constructed wetlands as a form of treatment
Leaking sewer collection systems
Nonpoint source
Contributions from other states (other watersheds)
Farming practices (land management around lake)
Cookie cutter subdivisions (homeowners adding nonpoint sources)
Golf courses in floodplains

Efforts needed

Breakdown of communication between public and planning
Better land use planning around small streams (buffering streams)
Greenways - buffering
Master planning that discourages mass destruction of vegetation (high density)
Public transportation to reduce highway growth
Lack of diverse group here
Private property rights
Minimum standards for county planning
Better understanding of hydrology by regulators and planning community (better science in permitting)
County planning with environmental focus
TMDL
Lower Saluda 208 consolidation of projects (wastewater treatment) and removal
Educate the public (understand groundwater/surface water), littering
Turbidity standard
Option of what to do (disposal of hazardous waste) readily available options/incentives

APPENDIX B.

SALUDA RIVER

Water Quality Trends and Status by Station

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- P = Primary station, sampled monthly all year round
- S = Secondary station, sampled monthly May - October
- P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- W = Special watershed station added for the Saluda Basin study
- BIO = Indicates macroinvertebrate community data assessed

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)		
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	NH3	Ammonia (mg/l)
pH	pH (SU)	CD	Cadmium (ug/l)
TP	Total Phosphorus (mg/l)	CR	Chromium (ug/l)
TN	Total Nitrogen (mg/l)	CU	Copper (ug/l)
TURB	Turbidity (NTU)	PB	Lead (ug/l)
TSS	Total Suspended Solids (mg/l)	HG	Mercury (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	NI	Nickel (ug/l)
		ZN	Zinc (ug/l)

Statistical Abbreviations:

N For standards compliance, number of surface samples collected between January, 1993 and December, 1997
For trends, number of surface samples collected between January, 1983 and December, 1997

EXC. Number of samples contravening the appropriate standard

% Percentage of samples contravening the appropriate standard

MEAN EXC. Mean of samples which contravened the applied standard

MED For heavy metals with a human health criterion, this is the median of all surface samples between January, 1993 and December, 1997. DL indicates that the median was the detection limit.

MAG Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units

GEO MEAN Geometric mean of fecal coliform bacteria samples collected between January, 1993 and December, 1997

Key to Trends:

D Statistically significant decreasing trend in parameter concentration

I Statistically significant increasing trend in parameter concentration

* No statistically significant trend

Blank Insufficient data to test for long term trends

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	N	MAG	BOD	N	MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	N	MAG
03050109010																				
S-292	P	N SALUDA RESERVOIR	ORW	72	0	0		D	182	-0.014	D	156	-0.022	64	1	2	10.8	I	173	0.009
S-088	P	N SALUDA RVR	FW/ORW	59	0	0		D	156	-0.1	D	168	-0.017	59	4	7	5.7	*	166	
S-773	BIO	N SALUDA RVR	FW																	
S-004	P*	N SALUDA RVR	FW	34	0	0		*	85		D	89	-0.05	36	0	0		*	88	
03050109020																				
S-291	P	TABLE ROCK RESERVOIR	ORW	69	0	0		D	181	-0.017	D	157	-0.02	65	0	0		I	170	0.03
S-320	P	S SALUDA RVR	FW	56	1	2	0.66	*	51		*	51		54	1	2	5.8	*	49	
S-086	BIO	MATHEWS CREEK	TN																	
S-771	BIO	S SALUDA RVR	FW																	
S-087	S	S SALUDA RVR	FW	25	0	0		I	70	0.033	D	73	-0.05	27	0	0		D	72	-0.017
S-076	BIO	MIDDLE SALUDA RVR	FW																	
S-077	SE	MIDDLE SALUDA RVR	FW	14	0	0								14	0	0				
S-317	BIO	OIL CAMP CREEK	ORW																	
S-252	S	MIDDLE SALUDA RVR	FW	25	0	0		*	77		D	81	-0.061	24	0	0		*	80	
S-299	SE	S SALUDA RVR	FW	14	0	0								14	0	0				
03050109030																				
S-798	SE	LAKE OOLENOY	FW	12	0	0								12	0	0				
S-103	SE/BIO	OOLENOY RVR	FW	15	0	0								15	0	0				
03050109040																				
S-866	BIO	SHOALS CK	FW																	
S-250	P	SALUDA RVR	FW	60	0	0		*	161		D	170	-0.04	58	1	2	5.9	*	168	
S-314	SE	SALUDA LAKE	FW	14	1	7	4							13	0	0				
S-315	P	MILL CK	FW	57	0	0		*	58		*	59		57	4	7	5.9	*	58	
S-007	P	SALUDA RVR	FW	59	0	0		*	156		D	172	-0.052	59	0	0		*	165	
S-267	S	SALUDA RVR TRIB	FW	29	1	3	3.8	D	77	-0.1	*	76		29	0	0		*	78	
S-171	S	GROVE CK	FW	29	0	0		*	76		D	78	-0.05	29	0	0		*	74	
S-774	BIO	GROVE CK	FW																	
S-119	P*	SALUDA RVR	FW	35	0	0		*	84		D	85	-0.363	36	1	3	5.9	*	85	
03050109050																				
S-005	S	GEORGES CK TRIB	FW	29	0	0		I	79	0.036	D	79	-0.229	29	0	0		D	80	-0.008
S-865	BIO	GEORGES CREEK	FW																	
S-300	SE	GEORGES CK	FW	14	0	0								14	0	0				

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TRENDS TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050109010															
S-292	P	N SALUDA RESERVOIR	ORW	D	158	0	*	105		D	154	-0.02			
S-088	P	N SALUDA RVR	FW/ORW	*	170		D	120	-0.011	I	168	0.125			
S-773	BIO	N SALUDA RVR	FW												
S-004	P*	N SALUDA RVR	FW	D	88	-0.003				I	87	0.8			
03050109020															
S-291	P	TABLE ROCK RESERVOIR	ORW	D	156	0	D	106	-0.006	D	155	-0.02			
S-320	P	S SALUDA RVR	FW	*	48					D	51	-0.2			
S-086	BIO	MATHEWS CREEK	TN												
S-771	BIO	S SALUDA RVR	FW												
S-087	S	S SALUDA RVR	FW	*	74					*	71				
S-076	BIO	MIDDLE SALUDA RVR	FW												
S-077	SE	MIDDLE SALUDA RVR	FW												
S-317	BIO	OIL CAMP CREEK	ORW												
S-252	S	MIDDLE SALUDA RVR	FW	D	80	-0.002				*	79				
S-299	SE	S SALUDA RVR	FW												
03050109030															
S-798	SE	LAKE OOLENOY	FW												
S-103	SE/BIO	OOLENOY RVR	FW												
03050109040															
S-866	BIO	SHOALS CK	FW												
S-250	P	SALUDA RVR	FW	D	168	-0.001	D	135	-0.016	I	171	0.333			
S-314	SE	SALUDA LAKE	FW												
S-315	P	MILL CK	FW	D	59	-0.01	*	35		D	58	-1.1			
S-007	P	SALUDA RVR	FW	D	169	-0.001	D	137	-0.019	I	167	0.25			
S-267	S	SALUDA RVR TRIB	FW	D	78	-0.274				I	76	0.7			
S-171	S	GROVE CK	FW	D	79	-0.013				*	75				
S-774	BIO	GROVE CK	FW												
S-119	P*	SALUDA RVR	FW	D	87	-0.002				I	84	1			
03050109050															
S-005	S	GEORGES CK TRIB	FW	D	81	-0.011				I	79	0.894			
S-865	BIO	GEORGES CREEK	FW												
S-300	SE	GEORGES CK	FW												

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109010																			
S-292	P	N SALUDA RESERVOIR	ORW	1.11	58	0	0		D	156	0	56	0	19	1	5	19	0	0
S-088	P	N SALUDA RVR	FW/ORW	2.13	59	0	0		D	168	0	59	0	20	0	0	20	1	5
S-773	BIO	N SALUDA RVR	FW																
S-004	P*	N SALUDA RVR	FW	377.75	36	19	53	1192	*	88		13	0	3	0	0	3	1	33
03050109020																			
S-291	P	TABLE ROCK RESERVOIR	ORW	1.38	60	0	0		D	155	0	57	0	20	0	0	20	1	5
S-320	P	S SALUDA RVR	FW	11.05	56	1	2	15000	*	51		53	0	16	1	6	16	0	0
S-086	BIO	MATHEWS CREEK	TN																
S-771	BIO	S SALUDA RVR	FW																
S-087	S	S SALUDA RVR	FW	234.59	27	4	15	535	I	72	8.54								
S-076	BIO	MIDDLE SALUDA RVR	FW																
S-077	SE	MIDDLE SALUDA RVR	FW	26.3	14	0	0					11	0	4	1	25	4	0	0
S-317	BIO	OIL CAMP CREEK	ORW																
S-252	S	MIDDLE SALUDA RVR	FW	166.25	27	4	15	560	*	80									
S-299	SE	S SALUDA RVR	FW	80.78	14	3	21	717				14	0	4	0	0	4	1	25
03050109030																			
S-798	SE	LAKE OOLENOY	FW	4.55	8	0	0					6	0	2	0	0	2	0	0
S-103	SE/BIO	OOLENOY RVR	FW	152.82	15	4	27	700				13	0	4	0	0	4	0	0
03050109040																			
S-866	BIO	SHOALS CK	FW																
S-250	P	SALUDA RVR	FW	198.47	60	14	23	2218	I	173	4.85	56	0	18	0	0	18	1	6
S-314	SE	SALUDA LAKE	FW	26.18	8	0	0					8	0	2	0	0	2	0	0
S-315	P	MILL CK	FW	253.27	58	24	41	18558	*	59		55	0	23	4	17	21	6	29
S-007	P	SALUDA RVR	FW	196.84	59	13	22	2859	*	171		59	0	19	2	11	19	2	11
S-267	S	SALUDA RVR TRIB	FW	284.13	29	11	38	9094	*	77		1	0						
S-171	S	GROVE CK	FW	477.12	29	15	52	2889	*	76									
S-774	BIO	GROVE CK	FW																
S-119	P*	SALUDA RVR	FW	105.48	36	3	8	1083	*	84		11	0	5	0	0	5	0	0
03050109050																			
S-005	S	GEORGES CK TRIB	FW	753.7	29	22	76	1540	*	80									
S-865	BIO	GEORGES CREEK	FW																
S-300	SE	GEORGES CK	FW	615.92	14	7	50	2673				14	0	4	0	0	4	1	25

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109010																						
S-292	P	N SALUDA RESERVOIR	ORW	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-088	P	N SALUDA RVR	FW/ORW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-773	BIO	N SALUDA RVR	FW																			
S-004	P*	N SALUDA RVR	FW	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	0
03050109020																						
S-291	P	TABLE ROCK RESERVOIR	ORW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-320	P	S SALUDA RVR	FW	16	0	DL	0	16	0	DL	0	16	0	DL	0	16	0	DL	0	16	0	0
S-086	BIO	MATHEWS CREEK	TN																			
S-771	BIO	S SALUDA RVR	FW																			
S-087	S	S SALUDA RVR	FW																			
S-076	BIO	MIDDLE SALUDA RVR	FW																			
S-077	SE	MIDDLE SALUDA RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-317	BIO	OIL CAMP CREEK	ORW																			
S-252	S	MIDDLE SALUDA RVR	FW																			
S-299	SE	S SALUDA RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109030																						
S-798	SE	LAKE OOLENOY	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.295	0	2	0	0
S-103	SE/BIO	OOLENOY RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109040																						
S-866	BIO	SHOALS CK	FW																			
S-250	P	SALUDA RVR	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	0
S-314	SE	SALUDA LAKE	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.25	0	2	0	0
S-315	P	MILL CK	FW	21	0	DL	0	23	22	1200	96	21	0	DL	0	19	0	DL	0	23	0	0
S-007	P	SALUDA RVR	FW	19	0	DL	0	49	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-267	S	SALUDA RVR TRIB	FW																			
S-171	S	GROVE CK	FW																			
S-774	BIO	GROVE CK	FW																			
S-119	P*	SALUDA RVR	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	0
03050109050																						
S-005	S	GEORGES CK TRIB	FW																			
S-865	BIO	GEORGES CREEK	FW																			
S-300	SE	GEORGES CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	TRENDS N	TRENDS MAG	TRENDS BOD	TRENDS N	TRENDS MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	TRENDS N	TRENDS MAG
03050109060																				
S-301	SE/BIO	BIG BRUSHY CK	FW	14	0	0								14	0	0				
03050109070																				
S-302	SE/BIO	BIG CK	FW	13	0	0								14	0	0				
03050109080																				
S-864	BIO	MOUNTAIN CREEK	FW																	
S-125	P	SALUDA RVR	FW	61	0	0		D	168	-0.044	D	175	-0.05	61	0	0		D	180	-0.007
S-858	BIO	TURKEY CREEK	FW																	
S-024	SE	LAKE GREENWOOD	FW	16	0	0								16	2	13	9			
S-022	SE	LAKE GREENWOOD	FW	26	0	0		D	105	-0.225	D	73	-0.17	26	4	15	9.1	D	105	-0.1
S-131	P	LAKE GREENWOOD	FW	59	0	0		D	164	-0.05	D	173	-0.067	59	3	5	6.8	D	179	-0.067
S-804	BIO	CANE CK	FW																	
S-097	S	CANE CK	FW	30	0	0		D	78	-0.075	*	81		30	0	0		D	81	-0.045
S-303	SE	LAKE GREENWOOD	FW	16	0	0								14	0	0				
03050109090																				
S-289	S	BROAD MOUTH CK	FW	29	1	3	4.7	I	77	0.2	D	79	-0.23	29	0	0		*	77	
S-776	BIO	BROAD MOUTH CK TRIB	FW																	
S-010	S	BROAD MOUTH CK	FW	29	0	0		*	77		D	78	-0.05	29	0	0		*	77	
S-775	BIO	BROAD MOUTH CK	FW																	
S-304	SE	BROAD MOUTH CK	FW	14	0	0								14	0	0				
03050109100																				
S-073	P	REEDY RVR	FW	57	0	0		*	159		D	171	-0.05	57	2	4	5.8	*	169	
S-868	BIO	REEDY RVR	FW																	
S-264	S	LANGSTON CK	FW	26	0	0		*	77		*	81		28	0	0		*	80	
S-319	SE	REEDY RVR	FW	14	0	0								14	0	0				
S-013	P	REEDY RVR	FW	60	0	0		*	159		D	174	-0.064	60	0	0		D	169	-0.02
S-067	S	BRUSHY CK	FW	26	0	0		I	74	0.04	D	79	-0.1	28	1	4	5.8	D	76	-0.016
S-867	BIO	BRUSHY CREEK	FW																	
S-018	P	REEDY RVR	FW	60	0	0		I	168	0.1	D	172	-0.667	60	0	0		D	177	-0.033
S-091	S/BIO	ROCKY CK	FW	28	0	0		D	79	-0.033	D	81	-0.042	28	0	0		*	78	
S-072	P*	REEDY RVR	FW	37	0	0		I	85	0.177	D	90	-0.537	37	0	0		*	85	
03050109110																				
S-863	BIO	HUFF CK	FW																	
S-178	P*	HUFF CK	FW	37	0	0		*	84		D	86	-0.0763	67	1	3	5.9	*	83	

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109010																						
S-292	P	N SALUDA RESERVOIR	ORW	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-088	P	N SALUDA RVR	FW/ORW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-773	BIO	N SALUDA RVR	FW																			
S-004	P*	N SALUDA RVR	FW	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	0
03050109020																						
S-291	P	TABLE ROCK RESERVOIR	ORW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-320	P	S SALUDA RVR	FW	16	0	DL	0	16	0	DL	0	16	0	DL	0	16	0	DL	0	16	0	0
S-086	BIO	MATHEWS CREEK	TN																			
S-771	BIO	S SALUDA RVR	FW																			
S-087	S	S SALUDA RVR	FW																			
S-076	BIO	MIDDLE SALUDA RVR	FW																			
S-077	SE	MIDDLE SALUDA RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-317	BIO	OIL CAMP CREEK	ORW																			
S-252	S	MIDDLE SALUDA RVR	FW																			
S-299	SE	S SALUDA RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109030																						
S-798	SE	LAKE OOLENOY	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.295	0	2	0	0
S-103	SE/BIO	OOLENOY RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109040																						
S-866	BIO	SHOALS CK	FW																			
S-250	P	SALUDA RVR	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	0
S-314	SE	SALUDA LAKE	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.25	0	2	0	0
S-315	P	MILL CK	FW	21	0	DL	0	23	22	1200	96	21	0	DL	0	19	0	DL	0	23	0	0
S-007	P	SALUDA RVR	FW	19	0	DL	0	49	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-267	S	SALUDA RVR TRIB	FW																			
S-171	S	GROVE CK	FW																			
S-774	BIO	GROVE CK	FW																			
S-119	P*	SALUDA RVR	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	0
03050109050																						
S-005	S	GEORGES CK TRIB	FW																			
S-865	BIO	GEORGES CREEK	FW																			
S-300	SE	GEORGES CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
				TRENDS											
03050109060															
S-301	SE/BIO	BIG BRUSHY CK	FW												
03050109070															
S-302	SE/BIO	BIG CK	FW												
03050109080															
S-864	BIO	MOUNTAIN CREEK	FW												
S-125	P	SALUDA RVR	FW	D	171	-0.002	D	146	-0.015	I	169	0.714	*	149	
S-858	BIO	TURKEY CREEK	FW												
S-024	SE	LAKE GREENWOOD	FW												
S-022	SE	LAKE GREENWOOD	FW	D	99	-0.012	D	31	-0.154	*	71				
S-131	P	LAKE GREENWOOD	FW	D	172	-0.003	D	147	-0.02	I	172	0.184			
S-804	BIO	CANE CK	FW												
S-097	S	CANE CK	FW	*	80					*	79				
S-303	SE	LAKE GREENWOOD	FW												
03050109090															
S-289	S	BROAD MOUTH CK	FW	D	80	-0.06				*	77				
S-776	BIO	BROAD MOUTH CK TRIB	FW												
S-010	S	BROAD MOUTH CK	FW	D	79	-0.013				I	178	0.475			
S-775	BIO	BROAD MOUTH CK	FW												
S-304	SE	BROAD MOUTH CK	FW												
03050109100															
S-073	P	REEDY RVR	FW	D	171	0	D	122	-0.013	*	170		*	62	
S-868	BIO	REEDY RVR	FW												
S-264	S	LANGSTON CK	FW	D	81	-0.002				*	79				
S-319	SE	REEDY RVR	FW												
S-013	P	REEDY RVR	FW	D	169	-0.001	D	141	-0.02	*	171		I	60	0.404
S-067	S	BRUSHY CK	FW	D	79	-0.007				*	77				
S-867	BIO	BRUSHY CREEK	FW												
S-018	P	REEDY RVR	FW	D	170	-0.1	D	148	-0.374	*	167		*	159	
S-091	S/BIO	ROCKY CK	FW	D	81	-0.001				*	80				
S-072	P*	REEDY RVR	FW	D	88	-0.087				*	88				
03050109110															
S-863	BIO	HUFF CK	FW												
S-178	P*	HUFF CK	FW	D	86	-0.003				*	84				

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109060																			
S-301	SE/BIO	BIG BRUSHY CK	FW	241.06	14	2	14	860				14	0	4	0	0	4	1	25
03050109070																			
S-302	SE/BIO	BIG CK	FW	230.41	14	2	14	470				13	0	4	0	0	4	1	25
03050109080																			
S-864	BIO	MOUNTAIN CREEK	FW																
S-125	P	SALUDA RVR	FW	127.81	61	11	18	1132	I	173	2.5	56	0	20	0	0	20	1	5
S-858	BIO	TURKEY CREEK	FW																
S-024	SE	LAKE GREENWOOD	FW	7.27	8	0	0					8	0	2	0	0	2	0	0
S-022	SE	LAKE GREENWOOD	FW	8.69	20	0	0		*	70		7	0	2	0	0	2	0	0
S-131	P	LAKE GREENWOOD	FW	80.63	58	12	21	1568	I	170	1.88	54	0	21	1	5	21	2	10
S-804	BIO	CANE CK	FW																
S-097	S	CANE CK	FW	69.38	30	2	7	5950	*	79									
S-303	SE	LAKE GREENWOOD	FW	5.79	7	0	0					7	0	1	0	0	1	0	0
03050109090																			
S-289	S	BROAD MOUTH CK	FW	418.46	29	11	38	1392	I	77	16.7								
S-776	BIO	BROAD MOUTH CK TRIB	FW																
S-010	S	BROAD MOUTH CK	FW	903.02	29	26	90	1295	I	76	36.3	1	0						
S-775	BIO	BROAD MOUTH CK	FW																
S-304	SE	BROAD MOUTH CK	FW	394.83	14	4	29	1400				12	0	5	0	0	5	1	20
03050109100																			
S-073	P	REEDY RVR	FW	173.96	59	13	22	1559	I	171	5.39	56	0	18	0	0	18	1	6
S-868	BIO	REEDY RVR	FW																
S-264	S	LANGSTON CK	FW	1201.03	29	26	93	2209	I	80	57	1	0	7	0	0	7	0	0
S-319	SE	REEDY RVR	FW	431.23	14	7	50	420				14	0	4	0	0	4	2	50
S-013	P	REEDY RVR	FW	557.8	59	31	53	6820	*	173		56	0	19	2	11	19	1	5
S-067	S	BRUSHY CK	FW	4772.4	27	27	100	14328	*	78									
S-867	BIO	BRUSHY CREEK	FW																
S-018	P	REEDY RVR	FW	444.86	59	25	42	3070	I	174	14.3	58	0	19	2	11	19	3	16
S-091	S/BIO	ROCKY CK	FW	920.93	28	25	89	1476	*	80									
S-072	P*	REEDY RVR	FW	385.93	34	16	43	1793	*	90		15	0	5	0	0	5	1	20
03050109110																			
S-863	BIO	HUFF CK	FW																
S-178	P*	HUFF CK	FW	355.66	37	14	38	804	*	85		14	0	4	0	0	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109060																						
S-301	SE/BIO	BIG BRUSHY CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109070																						
S-302	SE/BIO	BIG CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109080																						
S-864	BIO	MOUNTAIN CREEK	FW																			
S-125	P	SALUDA RVR	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	19	0	DL	0	20	0	0
S-858	BIO	TURKEY CREEK	FW																			
S-024	SE	LAKE GREENWOOD	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.3	0	2	0	0
S-022	SE	LAKE GREENWOOD	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0
S-131	P	LAKE GREENWOOD	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	20	0	DL	0	21	0	0
S-804	BIO	CANE CK	FW																			
S-097	S	CANE CK	FW																			
S-303	SE	LAKE GREENWOOD	FW	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	0
03050109090																						
S-289	S	BROAD MOUTH CK	FW																			
S-776	BIO	BROAD MOUTH CK TRIB	FW																			
S-010	S	BROAD MOUTH CK	FW																			
S-775	BIO	BROAD MOUTH CK	FW																			
S-304	SE	BROAD MOUTH CK	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	0
03050109100																						
S-073	P	REEDY RVR	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	0
S-868	BIO	REEDY RVR	FW																			
S-264	S	LANGSTON CK	FW	7	0	DL	0	7	3	DL	43	7	0	DL	0	7	0	DL	0	7	0	0
S-319	SE	REEDY RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-013	P	REEDY RVR	FW	19	0	DL	0	19	2	DL	11	19	1	DL	5	19	0	DL	0	19	0	0
S-067	S	BRUSHY CK	FW																			
S-867	BIO	BRUSHY CREEK	FW																			
S-018	P	REEDY RVR	FW	19	0	DL	0	19	3	DL	16	19	0	DL	0	19	0	DL	0	19	0	0
S-091	S/BIO	ROCKY CK	FW																			
S-072	P*	REEDY RVR	FW	5	0	DL	0	5	1	DL	20	5	0	DL	0	5	0	DL	0	5	0	0
03050109110																						
S-863	BIO	HUFF CK	FW																			
S-178	P*	HUFF CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	1	DL	25	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109190																			
S-808	BIO	TRIB TO LAKE MURRAY	FW																
S-279	P	LAKE MURRAY	FW	6.14	58	5	9	844	I	171	0	54	0	19	2	11	19	0	0
S-211	S	LAKE MURRAY	FW	15.62	28	1	4	550	*	86									
S-212	S	LAKE MURRAY	FW	5.73	28	1	4	510	*	86									
S-290	P	CAMPING CK	FW	668.45	53	30	57	8540	*	175		49	0	18	2	11	18	2	11
S-850	BIO	CAMPING CK	FW																
S-213	S	LAKE MURRAY	FW	10.85	27	1	4	820	*	87									
S-280	P	LAKE MURRAY	FW	1.89	56	0	0		I	175	0	53	0	20	3	15	20	0	0
S-273	P	LAKE MURRAY	FW	2.44	60	0	0		I	172	0	56	0	19	2	11	19	0	0
S-274	P	LAKE MURRAY	FW	3.42	59	0	0		I	173	0	56	0	20	4	20	20	0	0
S-204	P	LAKE MURRAY	FW	2.75	59	0	0		I	172	0	56	0	20	2	10	20	0	0
03050109200																			
S-306	SE	HOLLOW CK	FW	441.13	12	6	50	755				12	0	4	0	0	4	0	0
03050109210																			
S-152	S	SALUDA RVR	TPGT*	1.14	25	0	0		D	85	0	1	0						
S-287	S/BIO	RAWLS CK	FW	507.85	27	14	52	3511	I	74	20								
S-150	S	LORICK BRANCH	FW	710.47	26	16	62	5139	*	87									
S-149	S	SALUDA RVR	TPGT*	50.05	27	3	11	713	*	85									
S-848	BIO	FOURTEEN MILE CK	FW																
S-052	BIO	TWELVE MILE CK	FW																
S-294	P	TWELVEMILE CK	FW	172.23	55	8	15	689	*	108		55	0	17	2	12	17	2	12
S-260	S/BIO	KINLEY CK	FW	2566.5	26	25	96	7577	*	137									
S-298	P	SALUDA RVR	TPGT*	89.9	54	7	13	2304	D	83	-10	54	0	17	2	12	17	3	18

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109060																						
S-301	SE/BIO	BIG BRUSHY CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109070																						
S-302	SE/BIO	BIG CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109080																						
S-864	BIO	MOUNTAIN CREEK	FW																			
S-125	P	SALUDA RVR	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	19	0	DL	0	20	0	0
S-858	BIO	TURKEY CREEK	FW																			
S-024	SE	LAKE GREENWOOD	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0.3	0	2	0	0
S-022	SE	LAKE GREENWOOD	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0
S-131	P	LAKE GREENWOOD	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	20	0	DL	0	21	0	0
S-804	BIO	CANE CK	FW																			
S-097	S	CANE CK	FW																			
S-303	SE	LAKE GREENWOOD	FW	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	0
03050109090																						
S-289	S	BROAD MOUTH CK	FW																			
S-776	BIO	BROAD MOUTH CK TRIB	FW																			
S-010	S	BROAD MOUTH CK	FW																			
S-775	BIO	BROAD MOUTH CK	FW																			
S-304	SE	BROAD MOUTH CK	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	0
03050109100																						
S-073	P	REEDY RVR	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	0
S-868	BIO	REEDY RVR	FW																			
S-264	S	LANGSTON CK	FW	7	0	DL	0	7	3	DL	43	7	0	DL	0	7	0	DL	0	7	0	0
S-319	SE	REEDY RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-013	P	REEDY RVR	FW	19	0	DL	0	19	2	DL	11	19	1	DL	5	19	0	DL	0	19	0	0
S-067	S	BRUSHY CK	FW																			
S-867	BIO	BRUSHY CREEK	FW																			
S-018	P	REEDY RVR	FW	19	0	DL	0	19	3	DL	16	19	0	DL	0	19	0	DL	0	19	0	0
S-091	S/BIO	ROCKY CK	FW																			
S-072	P*	REEDY RVR	FW	5	0	DL	0	5	1	DL	20	5	0	DL	0	5	0	DL	0	5	0	0
03050109110																						
S-863	BIO	HUFF CK	FW																			
S-178	P*	HUFF CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	1	DL	25	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	N	MAG	BOD	N	MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	N	MAG
03050109120																				
S-862	BIO	HORSE CK	FW																	
S-070	SE	REEDY RVR	FW	14	0	0								14	0	0				
S-311	S	BOYD MILL POND	FW	31	0	0		*	63		*	31		30	13	43	9	D	62	-0.05
S-861	BIO	WALNUT CK	FW																	
S-021	P	REEDY RVR	FW	60	0	0		*	160		D	174	-0.111	60	0	0		D	172	-0.03
S-308	P*	LAKE GREENWOOD	FW	39	2	5	4.8	*	39					38	4	11	8.8	*	38	
03050109130																				
S-859	BIO	MOUNTAIN CK	FW																	
S-321	SE	N. RABON CK	FW	14	0	0								14	1	7	5.6			
S-313	SE	LAKE RABON	FW	8	0	0								9	0	0				
S-860	BIO	S. RABON CK	FW																	
S-322	SE	S. RABON CK	FW	14	0	0								14	0	0				
S-312	SE	LAKE RABON	FW	9	0	0								10	0	0				
S-296	P	LAKE RABON	FW	71	1	1	3.8	*	93		D	76	-0.129	66	2	3	6	D	92	-0.083
S-096	P*/BIO	RABON CK	FW	38	0	0		D	86	-0.063	D	88	-0.064	38	0	0		D	89	-0.033
S-307	SE	LAKE GREENWOOD	FW	26	1	4	4.8							24	4	17	7.2			
03050109140																				
S-184	BIO	CORONACA CK	FW																	
S-092	S	CORONACA CK	FW	30	12	40	3.5	*	77		D	82	-0.05	30	0	0		D	83	-0.045
S-233	S	WILSON CK	FW	29	3	10	4.6	I	76	0.374	D	79	-0.495	29	0	0		D	83	-0.025
S-235	S/BIO	WILSON CK	FW	28	0	0		I	77	0.447	D	82	-0.388	28	0	0		*	84	
S-856	BIO	NINETY SIX CK	FW																	
S-093	P	NINETY SIX CK	FW	60	0	0		I	108	0.3	D	110	-0.294	60	0	0		D	115	-0.02

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TRENDS TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050109120															
S-862	BIO	HORSE CK	FW												
S-070	SE	REEDY RVR	FW												
S-311	S	BOYD MILL POND	FW	D	55	-0.02	D	45	-0.126	I	31	0.54			
S-861	BIO	WALNUT CK	FW												
S-021	P	REEDY RVR	FW	D	70	-0.034	D	150	-0.122	I	170	0.367			
S-308	P*	LAKE GREENWOOD	FW	*	28										
03050109130															
S-859	BIO	MOUNTAIN CK	FW												
S-321	SE	N. RABON CK	FW												
S-313	SE	LAKE RABON	FW												
S-860	BIO	S. RABON CK	FW												
S-322	SE	S. RABON CK	FW												
S-312	SE	LAKE RABON	FW												
S-296	P	LAKE RABON	FW	I	74	0	*	70		*	76				
S-096	P*/BIO	RABON CK	FW	D	88	-0.002				*	87				
S-307	SE	LAKE GREENWOOD	FW												
03050109140															
S-184	BIO	CORONACA CK	FW												
S-092	S	CORONACA CK	FW	D	88	-0.004				D	83	-0.667			
S-233	S	WILSON CK	FW	D	85	-0.19				D	83	-0.475			
S-235	S/BIO	WILSON CK	FW	D	86	-0.118				D	84	-0.373			
S-856	BIO	NINETY SIX CK	FW												
S-093	P	NINETY SIX CK	FW	D	111	-0.038	*	56		*	114				

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109120																			
S-862	BIO	HORSE CK	FW																
S-070	SE	REEDY RVR	FW	232.02	14	2	14	2010				14	0	4	0	0	4	1	25
S-311	S	BOYD MILL POND	FW	8.87	28	0	0		I	31	2	23	0	4	1	25	4	0	0
S-861	BIO	WALNUT CK	FW																
S-021	P	REEDY RVR	FW	104.96	60	9	15	1428	I	171	2.27	57	0	20	0	0	20	1	5
S-308	P*	LAKE GREENWOOD	FW	19.93	26	1	4	510				24	0	7	0	0	7	1	14
03050109130																			
S-859	BIO	MOUNTAIN CK	FW																
S-321	SE	N. RABON CK	FW	276.73	14	2	14	1275				14	0	4	0	0	4	0	0
S-313	SE	LAKE RABON	FW	8.89	7	0	0					6	0						
S-860	BIO	S. RABON CK	FW																
S-322	SE	S. RABON CK	FW	342.99	14	7	50	561				14	0	4	0	0	4	0	0
S-312	SE	LAKE RABON	FW	6.51	8	0	0					6	0						
S-296	P	LAKE RABON	FW	6.52	59	2	3	510	I	76	0.67	58	0	20	1	5	20	1	5
S-096	P*/BIO	RABON CK	FW	209.44	38	6	16	3113	*	87		13	0	5	0	0	5	0	0
S-307	SE	LAKE GREENWOOD	FW	28.23	14	2	14	1070				14	0	4	0	0	4	0	0
03050109140																			
S-184	BIO	CORONACA CK	FW																
S-092	S	CORONACA CK	FW	77.87	29	1	3	960	D	82	-6	1	0						
S-233	S	WILSON CK	FW	141.66	29	4	14	750	D	83	0	1	0						
S-235	S/BIO	WILSON CK	FW	197.59	27	3	11	800	D	83	-25								
S-856	BIO	NINETY SIX CK	FW																
S-093	P	NINETY SIX CK	FW	178.72	59	8	14	764	*	114		59	0	21	2	10	21	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109120																						
S-862	BIO	HORSE CK	FW																			
S-070	SE	REEDY RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-311	S	BOYD MILL POND	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-861	BIO	WALNUT CK	FW																			
S-021	P	REEDY RVR	FW	50	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-308	P*	LAKE GREENWOOD	FW	7	0	DL	0	7	0	DL	0	7	0	DL	0	7	0	DL	0	7	0	0
03050109130																						
S-859	BIO	MOUNTAIN CK	FW																			
S-321	SE	N. RABON CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-313	SE	LAKE RABON	FW																			
S-860	BIO	S. RABON CK	FW																			
S-322	SE	S. RABON CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-312	SE	LAKE RABON	FW																			
S-296	P	LAKE RABON	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	19	0	DL	0	20	0	0
S-096	P*/BIO	RABON CK	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	DL	0	5	0	0
S-307	SE	LAKE GREENWOOD	FW	4	0	DL	0	4	1	DL	25	4	0	DL	0	4	0	DL	0	4	0	0
03050109140																						
S-184	BIO	CORONACA CK	FW																			
S-092	S	CORONACA CK	FW																			
S-233	S	WILSON CK	FW																			
S-235	S/BIO	WILSON CK	FW																			
S-856	BIO	NINETY SIX CK	FW																			
S-093	P	NINETY SIX CK	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	20	0	DL	0	21	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	N	MAG	BOD	N	MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	N	MAG
03050109150																				
S-186	P	SALUDA RVR	FW	60	2	3	4.4	I	158	0.079	D	170	-0.1	60	2	3	7.4	D	173	-0.044
S-295	P	SALUDA RVR	FW	61	0	0		I	108	0.083	D	105	-0.05	61	2	3	6	*	108	
S-047	SE	SALUDA RVR	FW	11	0	0								11	2	18	5.8			
S-852	BIO	BEAVERDAM CK	FW																	
S-310	SE	LAKE MURRAY	FW	12	0	0								12	4	33	8.8			
S-042	P	BUSH RVR	FW	56	16	29	4.3	D	164	-0.19	D	173	-0.033	56	0	0		D	180	-0.02
S-046	S	BUSH RVR	FW	29	0	0		*	49		*	42		29	0	0		*	49	
S-044	S	SCOTT CK	FW	29	0	0		D	81	-0.08	*	85		29	0	0		*	87	
S-851	BIO	BUSH RVR	FW																	
S-102	SE	BUSH RVR	FW	23	0	0		I	82	0.089	D	79	-0.07	23	0	0		*	88	
S-309	S	LAKE MURRAY	FW	13	0	0								13	7	54	8.9			
S-223	P	LAKE MURRAY	FW	64	0	0		I	193	0.0555	*	168		64	8	13	8.7	*	194	
03050109160																				
S-034	P	LITTLE RVR	FW	59	0	0		*	158		D	173	-0.05	60	0	0		*	178	
S-297	S	LITTLE RVR	FW	30	0	0		I	40	0.2	D	41	-0.3	30	0	0		D	41	-0.05
S-135	S	NORTH CK	FW	29	0	0		I	77	0.208	D	179	-0.7	29	0	0		D	80	-0.107
S-038	SE	LITTLE RVR	FW	12	0	0								12	0	0				
S-100	BIO	LITTLE RVR	FW																	
03050109163																				
S-099	S	LITTLE RVR	FW	28	0	0		*	79		*	84		28	0	0		*	85	
S-305	SE	LITTLE RVR	FW	11	0	0								11	0	0				
03050109170																				
S-050	S	LITTLE SALUDA RVR	FW	30	11	37	3.5	I	82	0.182	D	87	-0.3	3	0	0		D	88	-0.036
S-123	P	LITTLE SALUDA RVR	FW	59	10	17	3.6	I	160	0.132	D	171	-0.114	59	2	3	5.6	D	175	-0.03
S-855	BIO	BIG CK	FW																	
S-222	SE	LAKE MURRAY	FW	13	0	0								13	3	23	8.7			
03050109180																				
S-111	BIO	CLOUD CK	FW																	
S-112	BIO	MOORES CK	FW																	
S-255	S	CLOUDS CK	FW	30	2	7	4.8	I	75	0.1	D	80	-0.056	30	0	0		D	81	-0.025
S-113	SE	CLOUDS CK	FW	12	0	0								12	0	0				

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TRENDS TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050109150															
S-186	P	SALUDA RVR	FW	D	168	-0.003	D	150	-0.03	*	171				
S-295	P	SALUDA RVR	FW	*	107		*	99		*	104				
S-047	SE	SALUDA RVR	FW												
S-852	BIO	BEAVERDAM CK	FW												
S-310	SE	LAKE MURRAY	FW												
S-042	P	BUSH RVR	FW	D	175	-0.045	*	151		D	173	-0.244	*	63	
S-046	S	BUSH RVR	FW	*	49					D	43	-1	*	32	
S-044	S	SCOTT CK	FW	D	85	-0.004				D	86	-0.229			
S-851	BIO	BUSH RVR	FW												
S-102	SE	BUSH RVR	FW	*	81					*	79				
S-309	S	LAKE MURRAY	FW												
S-223	P	LAKE MURRAY	FW	D	170	-0.001	D	158	-0.016	*	167				
03050109160															
S-034	P	LITTLE RVR	FW	D	178	-0.002	D	150	-0.02	I	172	0.309			
S-297	S	LITTLE RVR	FW	D	45	-0.025				*	41				
S-135	S	NORTH CK	FW	D	83	-0.01				D	79	-0.318			
S-038	SE	LITTLE RVR	FW												
S-100	BIO	LITTLE RVR	FW												
03050109163															
S-099	S	LITTLE RVR	FW	D	84	-0.003				*	85				
S-305	SE	LITTLE RVR	FW												
03050109170															
S-050	S	LITTLE SALUDA RVR	FW	D	85	-0.027				*	87				
S-123	P	LITTLE SALUDA RVR	FW	D	168	-0.008	D	146	-0.05	*	175				
S-855	BIO	BIG CK	FW												
S-222	SE	LAKE MURRAY	FW												
03050109180															
S-111	BIO	CLOUD CK	FW												
S-112	BIO	MOORES CK	FW												
S-255	S	CLOUDS CK	FW	*	79					*	79				
S-113	SE	CLOUDS CK	FW												

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109150																			
S-186	P	SALUDA RVR	FW	8.36	59	0	0		*	169		57	0	21	2	10	21	3	14
S-295	P	SALUDA RVR	FW	37.05	61	0	0		*	107		56	0	20	3	15	20	0	0
S-047	SE	SALUDA RVR	FW	71.53	11	0	0					11	0	4	0	0	4	0	0
S-852	BIO	BEAVERDAM CK	FW																
S-310	SE	LAKE MURRAY	FW	8.74	11	0	0					11	0	2	0	0	2	0	0
S-042	P	BUSH RVR	FW	135.32	55	6	11	1612	D	175	-31	52	0	19	1	5	19	1	5
S-046	S	BUSH RVR	FW	416.41	29	9	31	19378	D	43	-35								
S-044	S	SCOTT CK	FW	776.73	29	23	79	2637	D	89	-49								
S-851	BIO	BUSH RVR	FW																
S-102	SE	BUSH RVR	FW	674.42	20	7	35	27414	*	83		10	0	3	0	0	3	0	0
S-309	S	LAKE MURRAY	FW	24.32	10	1	10	160000				9	0	1	0	0	1	0	0
S-223	P	LAKE MURRAY	FW	16.74	58	6	10	29148	*	169		54	0	20	2	10	20	1	5
03050109160																			
S-034	P	LITTLE RVR	FW	851	60	42	70	3459	*	178		58	0	21	0	0	21	1	5
S-297	S	LITTLE RVR	FW	667.79	30	19	63	2410	*	41									
S-135	S	NORTH CK	FW	536.87	29	18	62	3620	I	77	35.7								
S-038	SE	LITTLE RVR	FW	245.24	12	2	17	595				12	0	4	0	0	4	0	0
S-100	BIO	LITTLE RVR	FW																
03050109163																			
S-099	S	LITTLE RVR	FW	287.19	27	7	26	951	I	87	7	1	0						
S-305	SE	LITTLE RVR	FW	284.25	10	3	30	537				10	0	3	0	0	3	0	0
03050109170																			
S-050	S	LITTLE SALUDA RVR	FW	257.87	29	8	28	850	D	88	-40	10	0						
S-123	P	LITTLE SALUDA RVR	FW	209.98	59	11	19	1298	I	172	5	59	0	18	1	6	18	0	0
S-855	BIO	BIG CK	FW																
S-222	SE	LAKE MURRAY	FW	11.62	11	1	9	500				11	0	4	0	0	4	0	0
03050109180																			
S-111	BIO	CLOUD CK	FW																
S-112	BIO	MOORES CK	FW																
S-255	S	CLOUDS CK	FW	155.29	30	1	3	600	*	81		2	0						
S-113	SE	CLOUDS CK	FW	46.73	12	0	0					11	0	4	0	0	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109150																						
S-186	P	SALUDA RVR	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	0
S-295	P	SALUDA RVR	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	19	0	DL	0	20	0	0
S-047	SE	SALUDA RVR	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
S-852	BIO	BEAVERDAM CK	FW																			
S-310	SE	LAKE MURRAY	FW	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	DL	0	2	0	0
S-042	P	BUSH RVR	FW	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-046	S	BUSH RVR	FW																			
S-044	S	SCOTT CK	FW																			
S-851	BIO	BUSH RVR	FW																			
S-102	SE	BUSH RVR	FW	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	0
S-309	S	LAKE MURRAY	FW	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	0
S-223	P	LAKE MURRAY	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
03050109160																						
S-034	P	LITTLE RVR	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	0
S-297	S	LITTLE RVR	FW																			
S-135	S	NORTH CK	FW																			
S-038	SE	LITTLE RVR	FW	4	0	DL	0	4	1	DL	25	4	0	DL	0	4	0	DL	0	4	0	0
S-100	BIO	LITTLE RVR	FW																			
03050109163																						
S-099	S	LITTLE RVR	FW																			
S-305	SE	LITTLE RVR	FW	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	DL	0	3	0	0
03050109170																						
S-050	S	LITTLE SALUDA RVR	FW																			
S-123	P	LITTLE SALUDA RVR	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	17	0	DL	0	18	0	0
S-855	BIO	BIG CK	FW																			
S-222	SE	LAKE MURRAY	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109180																						
S-111	BIO	CLOUD CK	FW																			
S-112	BIO	MOORES CK	FW																			
S-255	S	CLOUDS CK	FW																			
S-113	SE	CLOUDS CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION				DO	DO	DO	MEAN	TRENDS						pH	pH	pH	MEAN	TRENDS		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG	N	EXC.	%	EXC.	pH	N	MAG
03050109190																				
S-808	BIO	TRIB TO LAKE MURRAY	FW																	
S-279	P	LAKE MURRAY	FW	63	0	0		I	180	0.036	*	169		63	1	3	8.6	*	188	
S-211	S	LAKE MURRAY	FW	29	0	0		*	76		*	85		29	1	3	8.8	*	83	
S-212	S	LAKE MURRAY	FW	29	0	0		I	77	0.034	*	85		29	2	7	8.9	*	82	
S-290	P	CAMPING CK	FW	57	1	2	1.4	*	154		D	170	-0.045	57	0	0		*	167	
S-850	BIO	CAMPING CK	FW																	
S-213	S	LAKE MURRAY	FW	29	0	0		*	77		D	83	-0.05	29	0	0		*	82	
S-280	P	LAKE MURRAY	FW	65	0	0		*	182		*	169		65	2	3	7.5	*	189	
S-273	P	LAKE MURRAY	FW	64	0	0		I	187	0.02	*	166		64	1	2	9.1	*	195	
S-274	P	LAKE MURRAY	FW	65	0	0		I	181	0.027	*	169		65	1	2	8.8	*	190	
S-204	P	LAKE MURRAY	FW	66	1	2	4.5	*	187		*	169		64	2	3	8.9	*	205	
03050109200																				
S-306	SE	HOLLOW CK	FW	12	0	0								12	2	17	5.9			
03050109210																				
S-152	S	SALUDA RVR	TPGT*	27	11	41	2.6	D	80	-0.25	D	84	-0.033	26	3	12	5.7	*	89	
S-287	S/BIO	RAWLS CK	FW	28	0	0		I	76	0.05	D	71	-0.125	28	1	4	5.7	*	77	
S-150	S	LORICK BRANCH	FW	27	1	4	4.4	D	81	-0.05	D	82	-0.12	27	2	7	7.3	D	89	-0.02
S-149	S	SALUDA RVR	TPGT*	28	8	29	2.9	D	81	-0.2	*	84		27	1	4	5.9	*	89	
S-848	BIO	FOURTEEN MILE CK	FW																	
S-052	BIO	TWELVE MILE CK	FW																	
S-294	P	TWELVEMILE CK	FW	56	0	0		*	104		*	106		56	2	4	5.8	D	106	-0.038
S-260	S/BIO	KINLEY CK	FW	28	1	4	3.5	I	118	0.233	D	129	-0.3	28	0	0		*	132	
S-298	P	SALUDA RVR	TPGT*	57	2	4	4	I	81	0.2	*	82		55	3	5	5.9	*	83	

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION				TRENDS											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050109190															
S-808	BIO	TRIB TO LAKE MURRAY	FW												
S-279	P	LAKE MURRAY	FW	D	170	-0.001	*	159		I	168	0.1			
S-211	S	LAKE MURRAY	FW	D	83	-0.001				*	85				
S-212	S	LAKE MURRAY	FW	D	83	-0.001				I	85	0.088			
S-290	P	CAMPING CK	FW	D	167	-0.004	D	137	-0.01	*	167		*	59	
S-850	BIO	CAMPING CK	FW												
S-213	S	LAKE MURRAY	FW	D	79	-0.001				*	84				
S-280	P	LAKE MURRAY	FW	D	172	-0.001	*	153		*	170				
S-273	P	LAKE MURRAY	FW	D	166	0	D	151	-0.008	D	166	-0.033			
S-274	P	LAKE MURRAY	FW	D	170	0	D	154	-0.005	D	169	-0.033			
S-204	P	LAKE MURRAY	FW	D	170	0	D	154	-0.008	*	169				
03050109200															
S-306	SE	HOLLOW CK	FW												
03050109210															
S-152	S	SALUDA RVR	TPGT*	D	84	-0.001				*	82		I	32	0.344
S-287	S/BIO	RAWLS CK	FW	D	72	-0.005				*	70		I	32	2.155
S-150	S	LORICK BRANCH	FW	D	85	-0.062				*	81		*	32	
S-149	S	SALUDA RVR	TPGT*	D	83	-0.01				*	82		*	32	
S-848	BIO	FOURTEEN MILE CK	FW												
S-052	BIO	TWELVE MILE CK	FW												
S-294	P	TWELVEMILE CK	FW	D	107	-0.006	I	95	0.061	*	106		*	82	
S-260	S/BIO	KINLEY CK	FW	D	132	-0.056	D	72	-0.773	*	129		I	32	1.938
S-298	P	SALUDA RVR	TPGT*	*	83		*	71		*	83		I	58	0.4

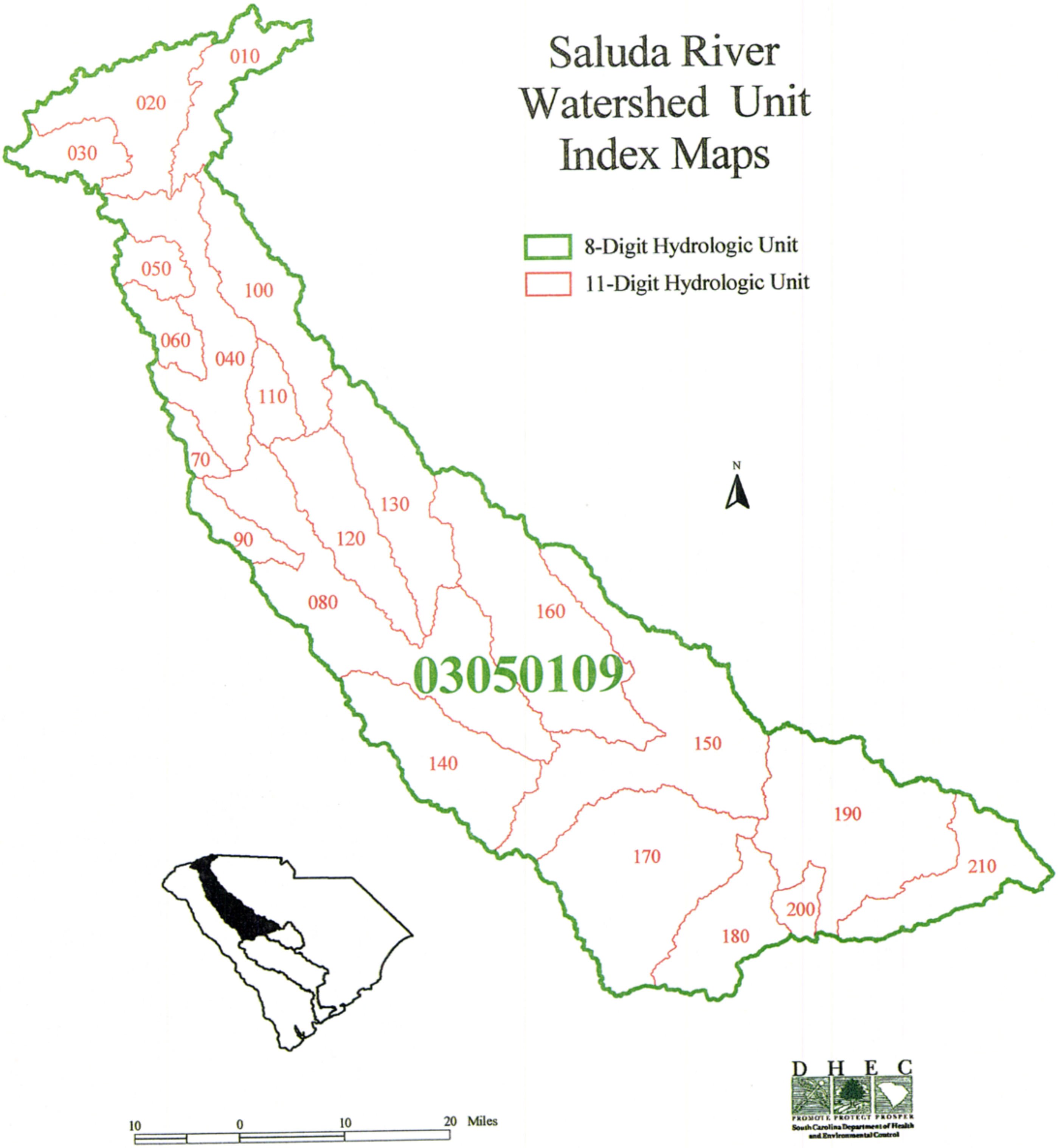
WATER QUALITY SUMMARY - SALUDA RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050109190																			
S-808	BIO	TRIB TO LAKE MURRAY	FW																
S-279	P	LAKE MURRAY	FW	6.14	58	5	9	844	I	171	0	54	0	19	2	11	19	0	0
S-211	S	LAKE MURRAY	FW	15.62	28	1	4	550	*	86									
S-212	S	LAKE MURRAY	FW	5.73	28	1	4	510	*	86									
S-290	P	CAMPING CK	FW	668.45	53	30	57	8540	*	175		49	0	18	2	11	18	2	11
S-850	BIO	CAMPING CK	FW																
S-213	S	LAKE MURRAY	FW	10.85	27	1	4	820	*	87									
S-280	P	LAKE MURRAY	FW	1.89	56	0	0		I	175	0	53	0	20	3	15	20	0	0
S-273	P	LAKE MURRAY	FW	2.44	60	0	0		I	172	0	56	0	19	2	11	19	0	0
S-274	P	LAKE MURRAY	FW	3.42	59	0	0		I	173	0	56	0	20	4	20	20	0	0
S-204	P	LAKE MURRAY	FW	2.75	59	0	0		I	172	0	56	0	20	2	10	20	0	0
03050109200																			
S-306	SE	HOLLOW CK	FW	441.13	12	6	50	755				12	0	4	0	0	4	0	0
03050109210																			
S-152	S	SALUDA RVR	TPGT*	1.14	25	0	0		D	85	0	1	0						
S-287	S/BIO	RAWLS CK	FW	507.85	27	14	52	3511	I	74	20								
S-150	S	LORICK BRANCH	FW	710.47	26	16	62	5139	*	87									
S-149	S	SALUDA RVR	TPGT*	50.05	27	3	11	713	*	85									
S-848	BIO	FOURTEEN MILE CK	FW																
S-052	BIO	TWELVE MILE CK	FW																
S-294	P	TWELVEMILE CK	FW	172.23	55	8	15	689	*	108		55	0	17	2	12	17	2	12
S-260	S/BIO	KINLEY CK	FW	2566.5	26	25	96	7577	*	137									
S-298	P	SALUDA RVR	TPGT*	89.9	54	7	13	2304	D	83	-10	54	0	17	2	12	17	3	18

WATER QUALITY SUMMARY - SALUDA RIVER BASIN

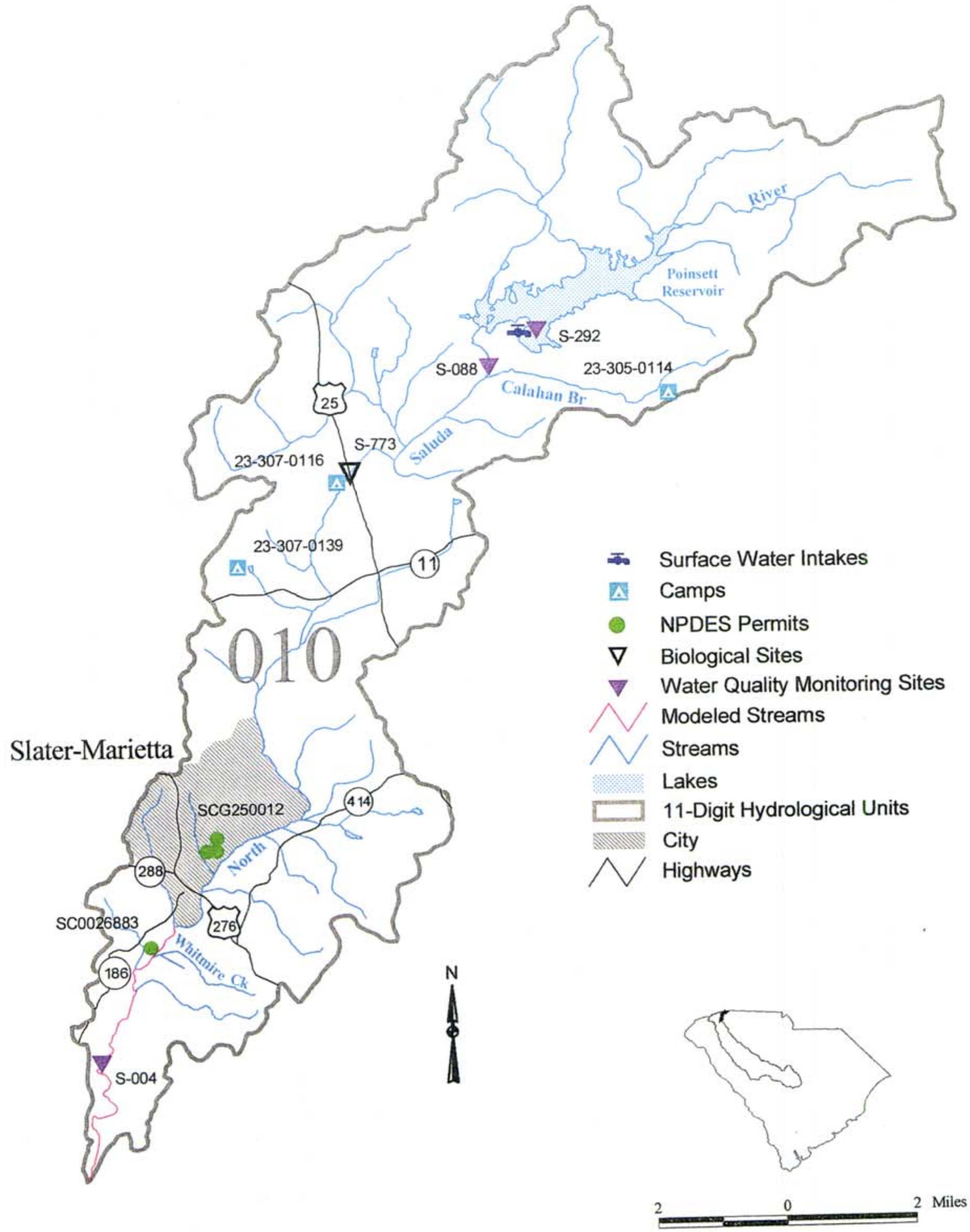
STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050109190																						
S-808	BIO	TRIB TO LAKE MURRAY	FW																			
S-279	P	LAKE MURRAY	FW	19	0	DL	0	19	1	DL	5	19	1	DL	5	19	0	DL	0	19	0	0
S-211	S	LAKE MURRAY	FW																			
S-212	S	LAKE MURRAY	FW																			
S-290	P	CAMPING CK	FW	18	0	DL	0	18	1	DL	6	18	1	DL	6	17	0	DL	0	18	0	0
S-850	BIO	CAMPING CK	FW																			
S-213	S	LAKE MURRAY	FW																			
S-280	P	LAKE MURRAY	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-273	P	LAKE MURRAY	FW	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	DL	0	19	0	0
S-274	P	LAKE MURRAY	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
S-204	P	LAKE MURRAY	FW	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	DL	0	20	0	0
03050109200																						
S-306	SE	HOLLOW CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050109210																						
S-152	S	SALUDA RVR	TPGT*																			
S-287	S/BIO	RAWLS CK	FW																			
S-150	S	LORICK BRANCH	FW																			
S-149	S	SALUDA RVR	TPGT*																			
S-848	BIO	FOURTEEN MILE CK	FW																			
S-052	BIO	TWELVE MILE CK	FW																			
S-294	P	TWELVEMILE CK	FW	17	0	DL	0	17	1	DL	6	17	0	DL	0	16	0	DL	0	17	0	0
S-260	S/BIO	KINLEY CK	FW																			
S-298	P	SALUDA RVR	TPGT*	18	0	DL	0	18	0	DL	0	18	0	DL	0	18	0	DL	0	17	0	0

Saluda River Watershed Unit Index Maps



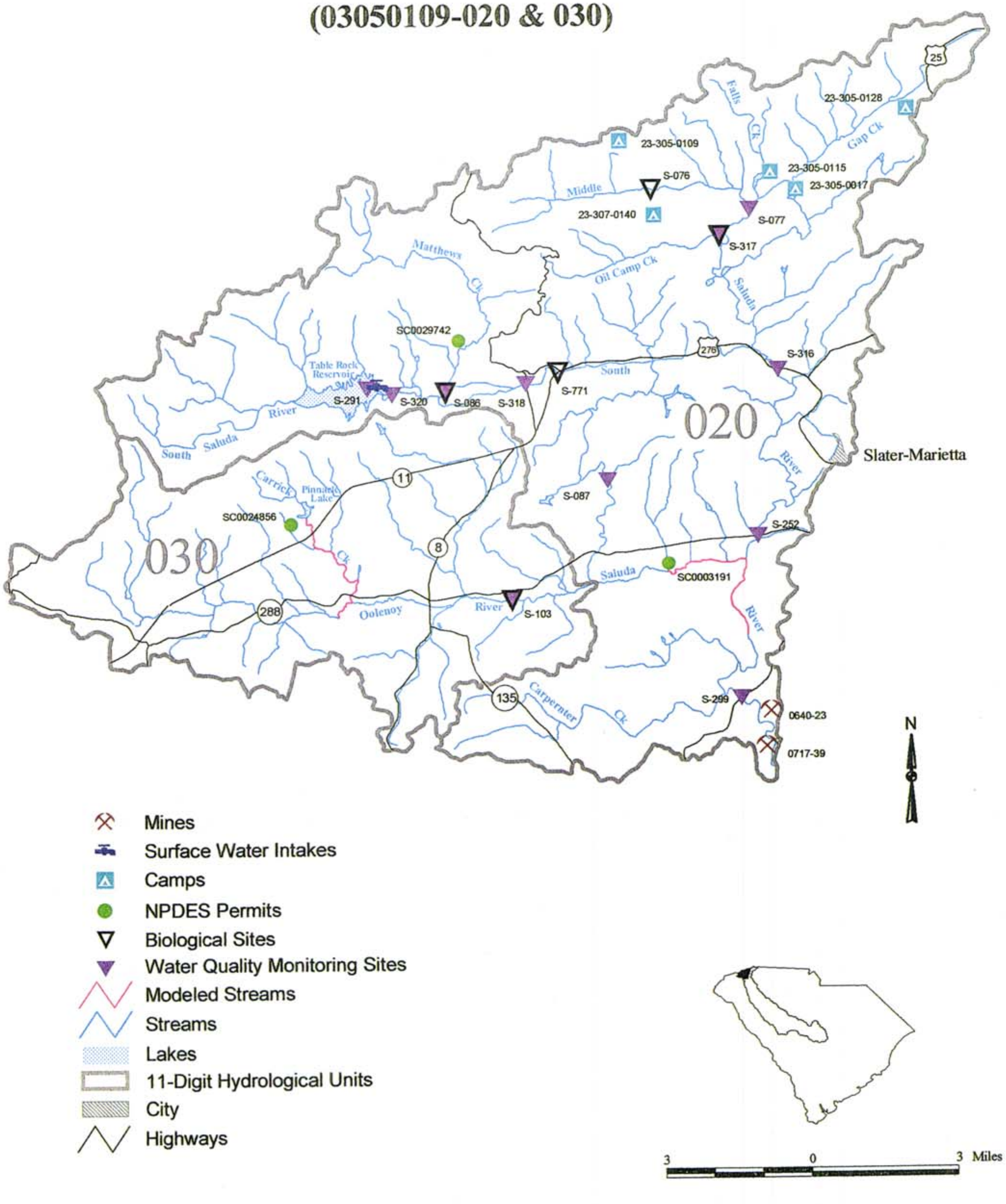
North Saluda Watershed

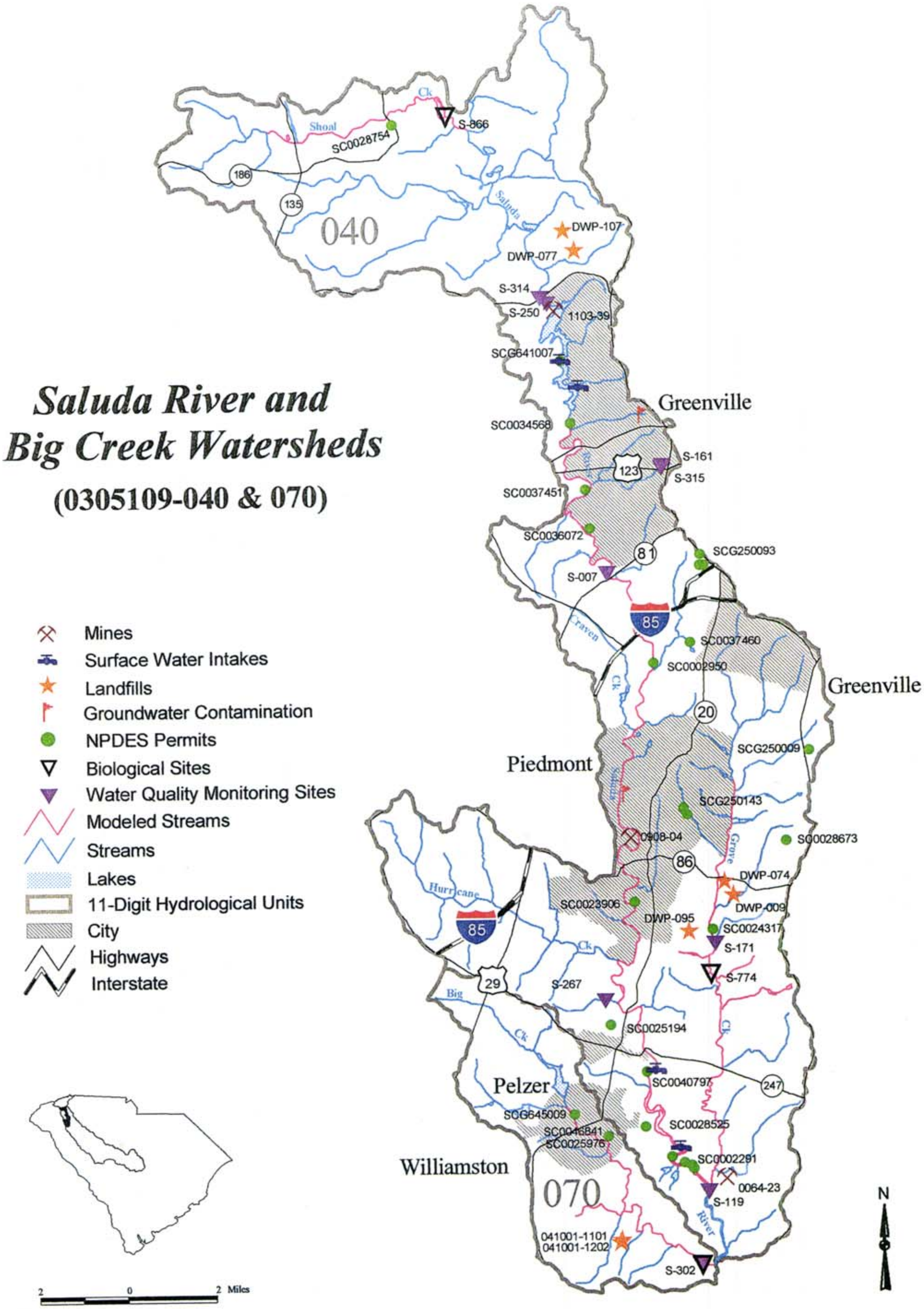
(03050109-010)



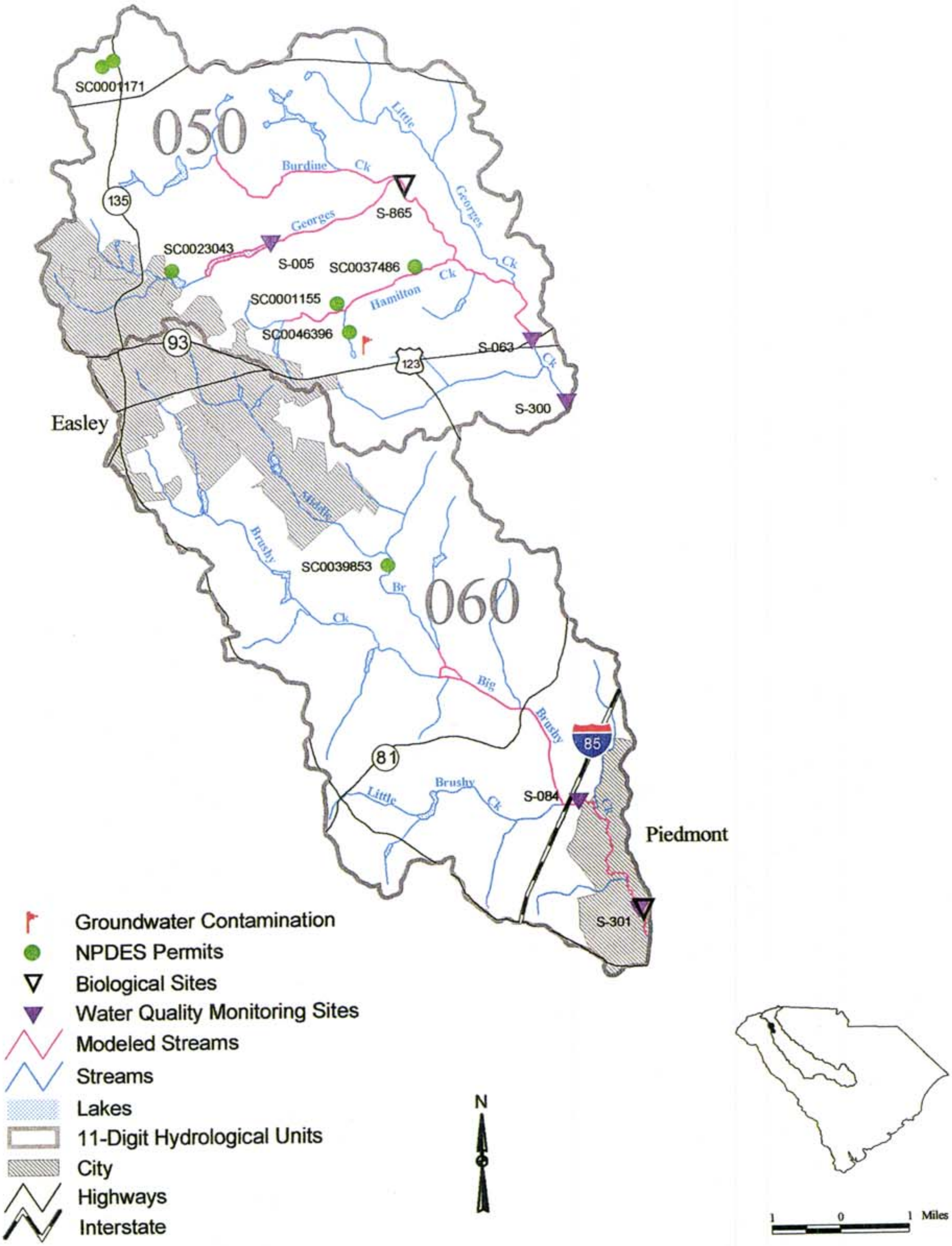
South Saluda River and Oolenoy River Watersheds

(03050109-020 & 030)

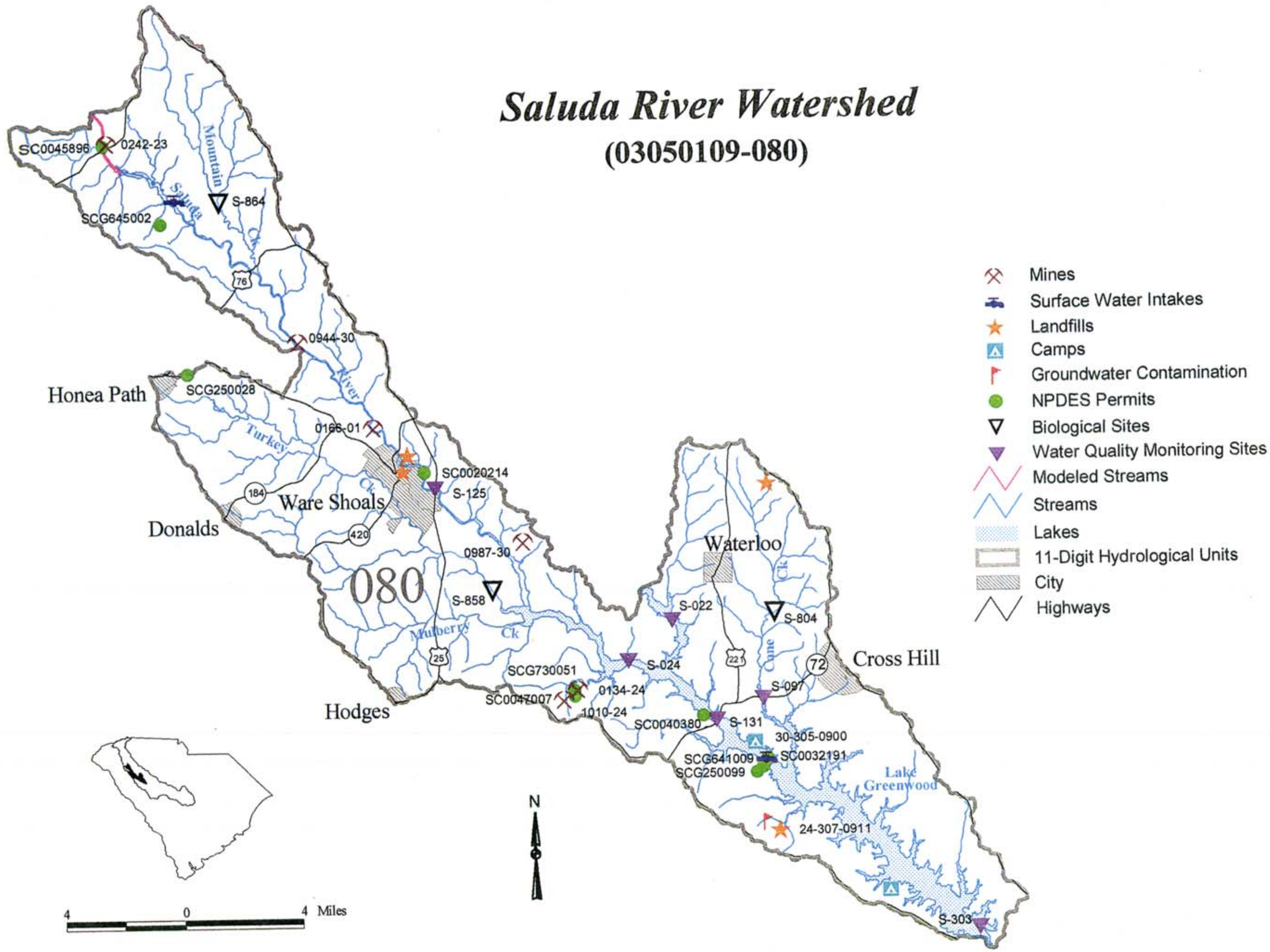



Saluda River and
Big Creek Watersheds
(0305109-040 & 070)
Mines
Surface Water Intakes
Landfills
Groundwater Contamination
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Modeled Streams
Streams
Lakes
11-Digit Hydrological Units
City
Highways
Interstate
040
070
Greenville
Greenville
Piedmont
Pelzer
Williamston
Shoal
Ck
Saluda
Craven
Ck
Grove
Ck
Hurricane
Ck
Big
Ck
River
SC0028754
S-866
DWP-107
DWP-077
S-314
S-250
1103-39
SCG641007
SC0034568
S-161
S-315
SC0037451
SC0036072
SCG250093
S-007
SC0037460
SC0002950
SCG250009
SCG250143
SC0028673
0908-04
DWP-074
DWP-009
SC0023906
DWP-095
SC0024317
S-171
S-774
S-267
SC0025194
SC0040797
SCG645009
SC0028525
SC0046841
SC0025976
SC0002291
0064-23
S-119
041001-1101
041001-1202
S-302
186
135
123
81
85
20
86
85
29
247
N
2
0
2 Miles

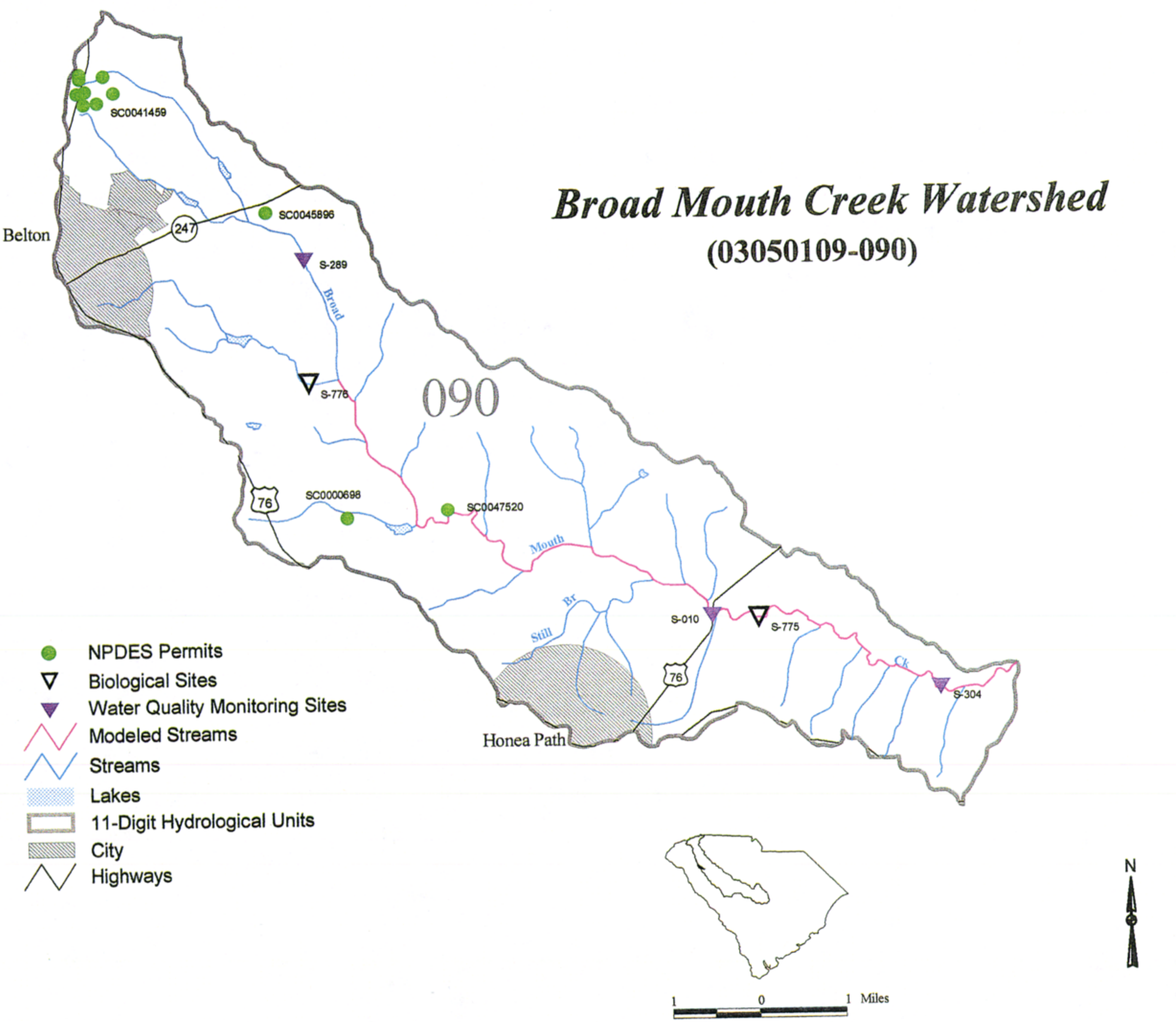
Georges Creek and Big Brushy Creek Watersheds
(03050109-050 & 060)



Saluda River Watershed
(03050109-080)

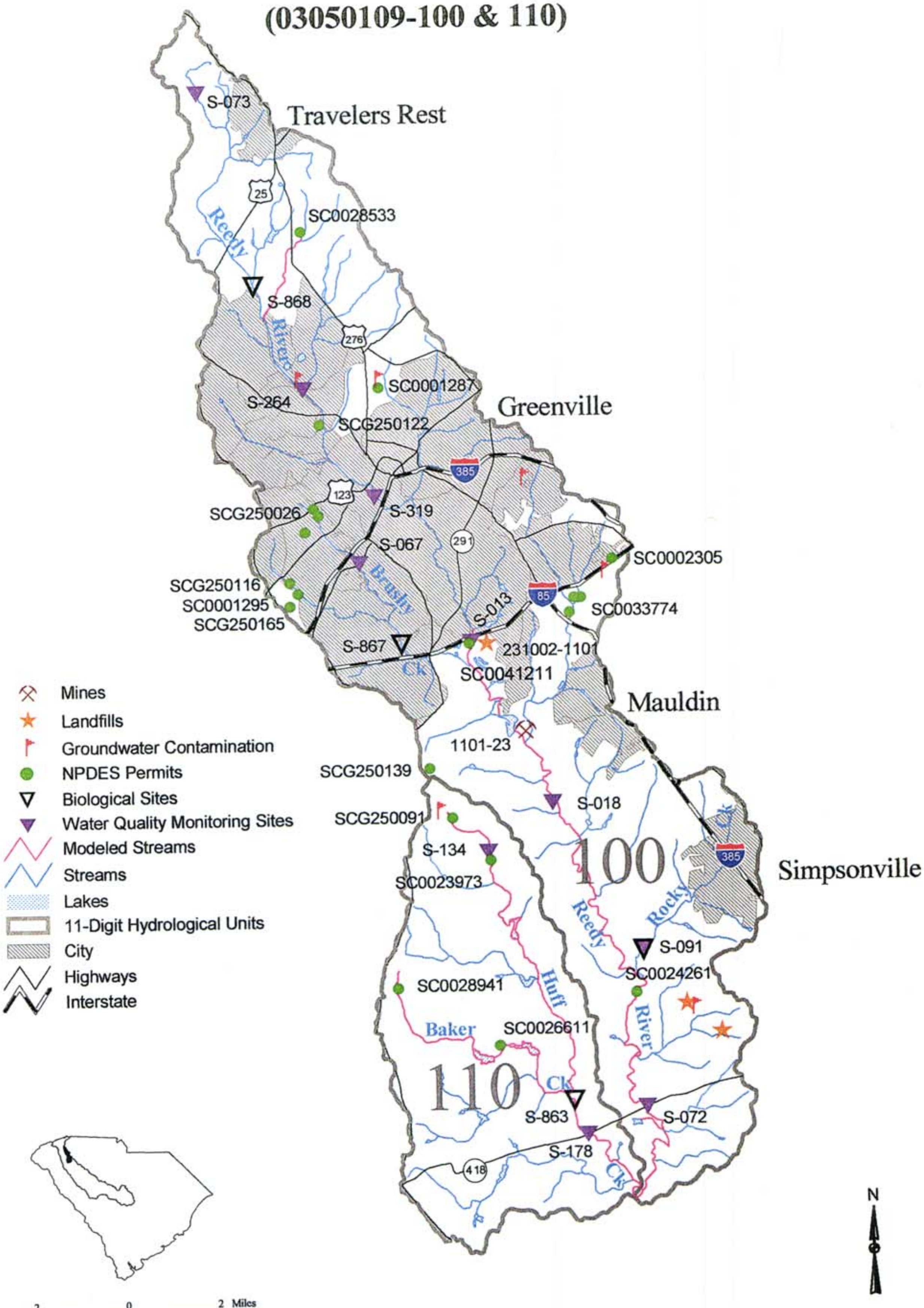


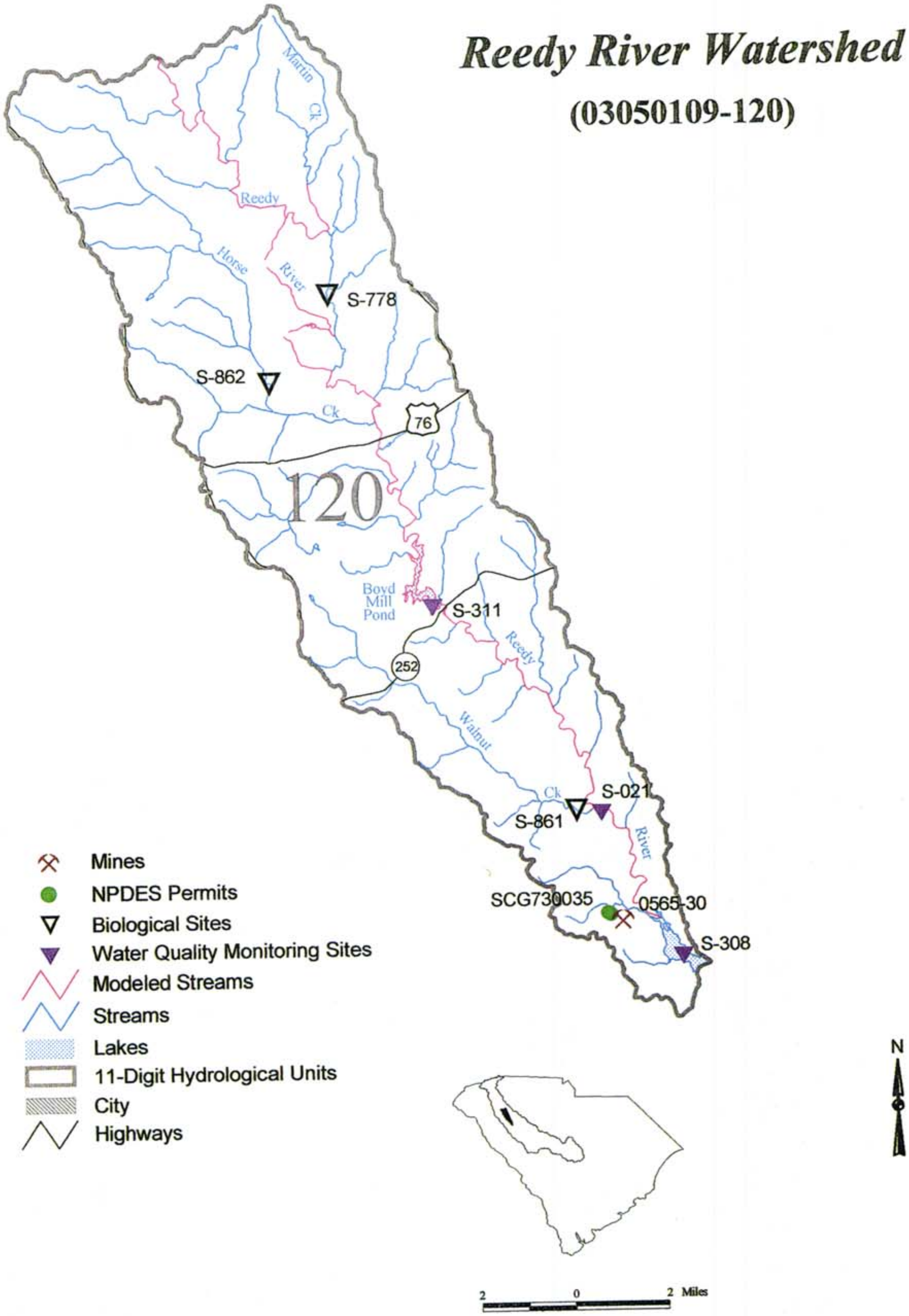
Broad Mouth Creek Watershed
(03050109-090)

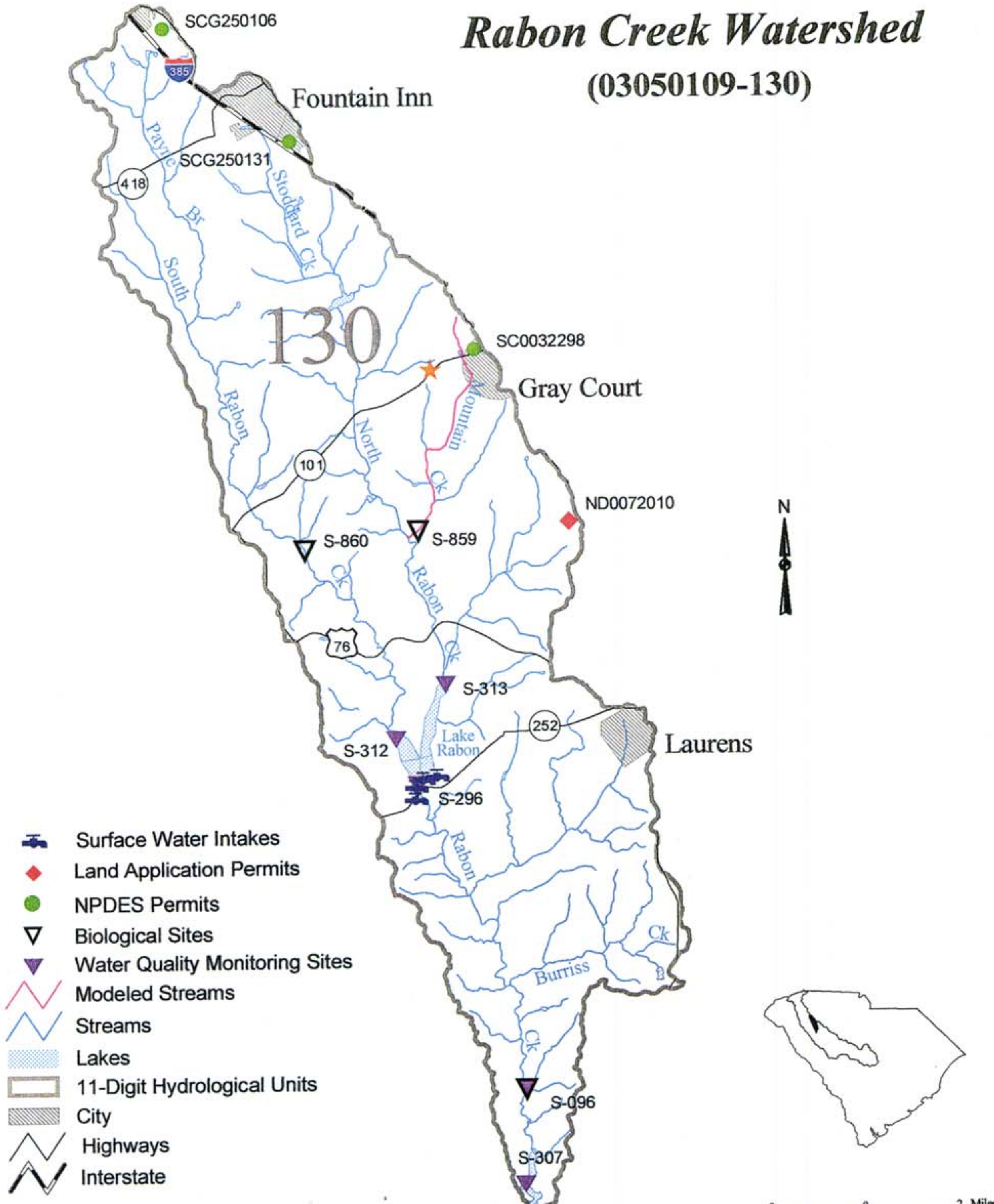


Reedy River and Huff Creek Watersheds

(03050109-100 & 110)

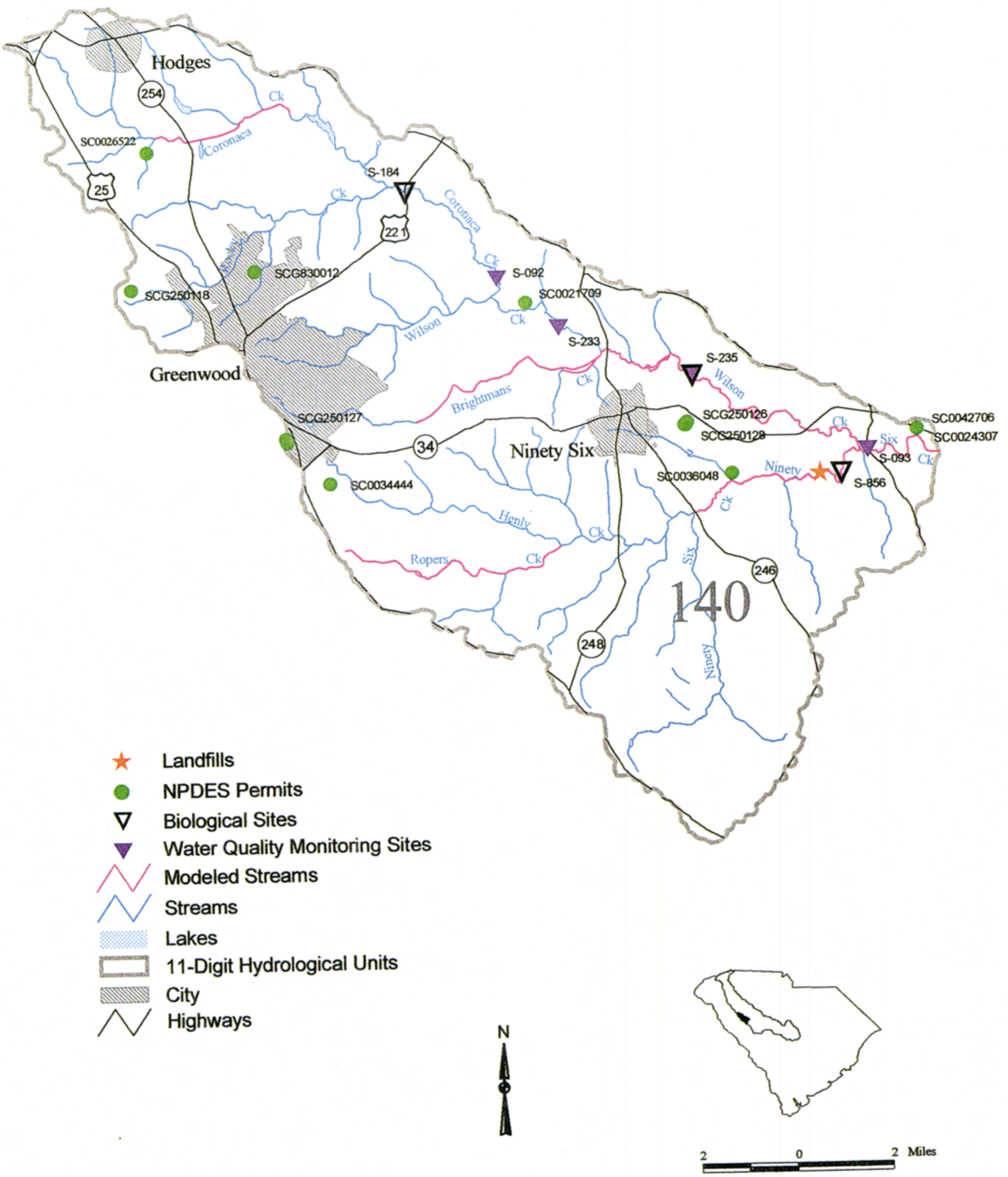



Reedy River Watershed
(03050109-120)
Martin
Ck
Reedy
River
Horse
Ck
S-778
S-862
76
120
Boyd
Mill
Pond
S-311
Reedy
252
Walnut
Ck
S-021
S-861
River
SCG730035
0565-30
S-308
Mines
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Modeled Streams
Streams
Lakes
11-Digit Hydrological Units
City
Highways
N
2
0
2 Miles


Rabon Creek Watershed
(03050109-130)
SCG250106
385
Fountain Inn
SCG250131
418
Payne Br
Stoddard Ck
South
130
SC0032298
Gray Court
Rabon
North
Mountain
Ck
101
ND0072010
N
S-860
S-859
Ck
Rabon
Ck
76
S-313
252
Laurens
Lake Rabon
S-312
S-296
Rabon
Surface Water Intakes
Land Application Permits
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Modeled Streams
Streams
Lakes
11-Digit Hydrological Units
City
Highways
Interstate
Ck
Burriss
Ck
S-096
S-307
2 0 2 Miles

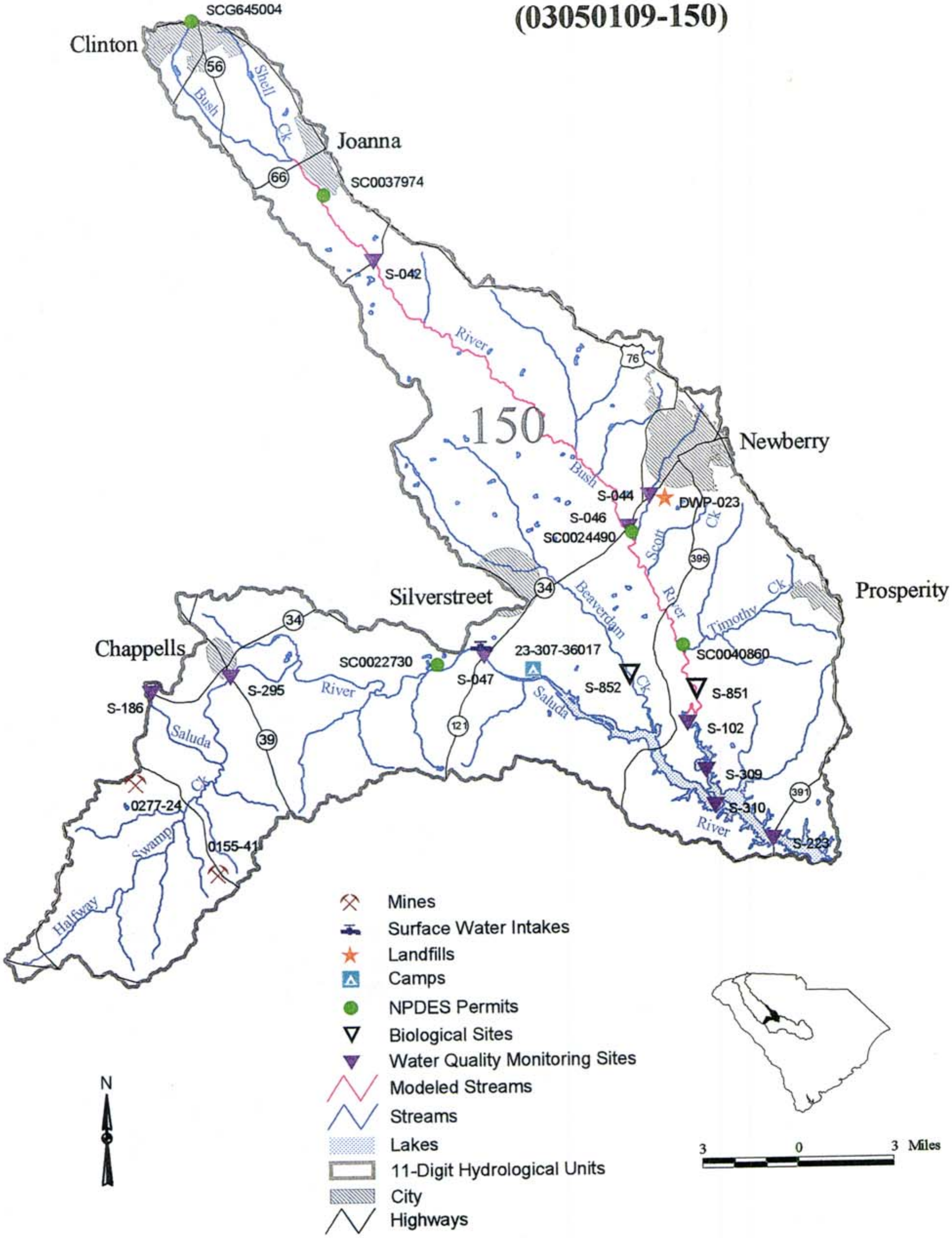
Ninety Six Creek Watershed

(03050109-140)



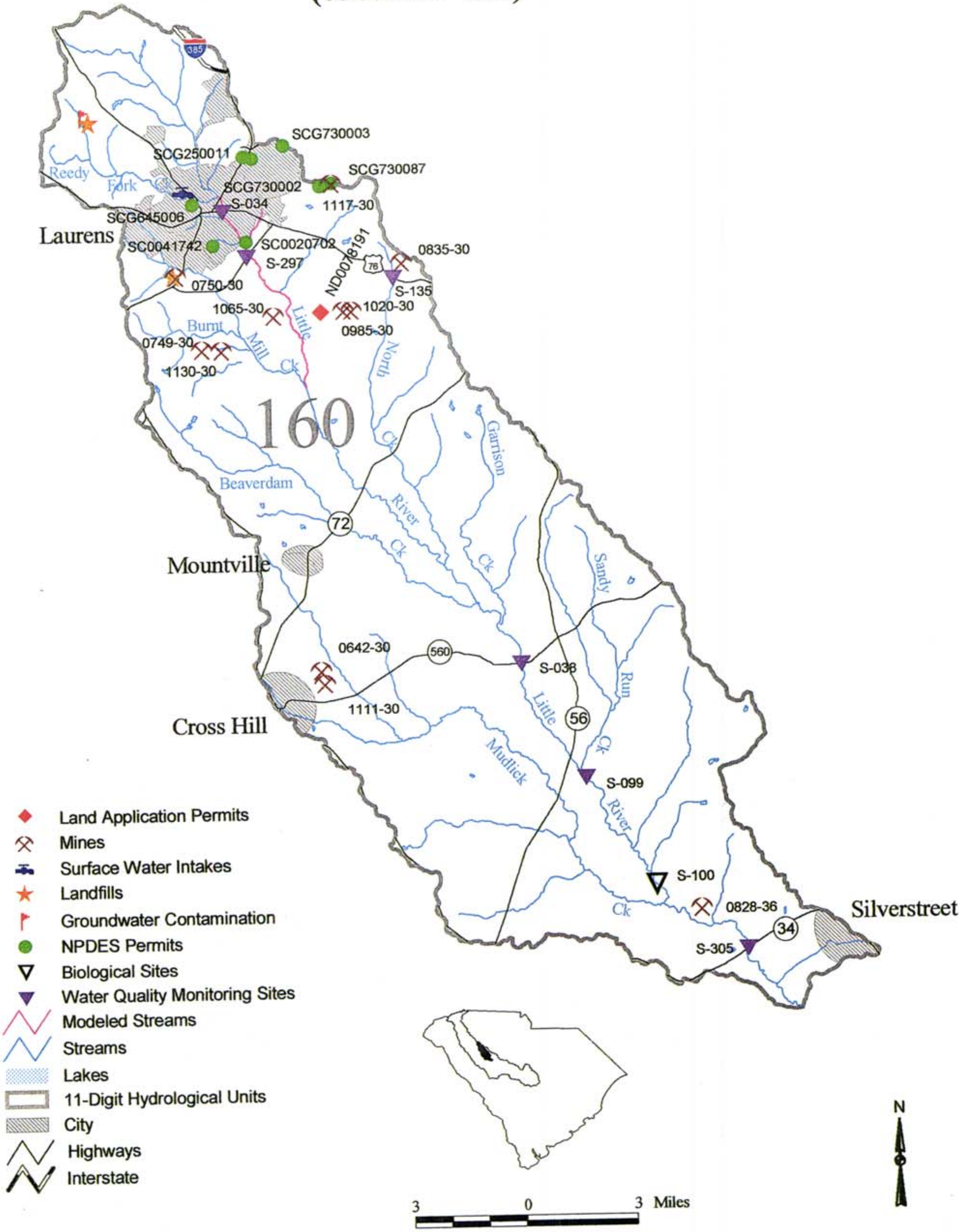
Saluda River Watershed

(03050109-150)



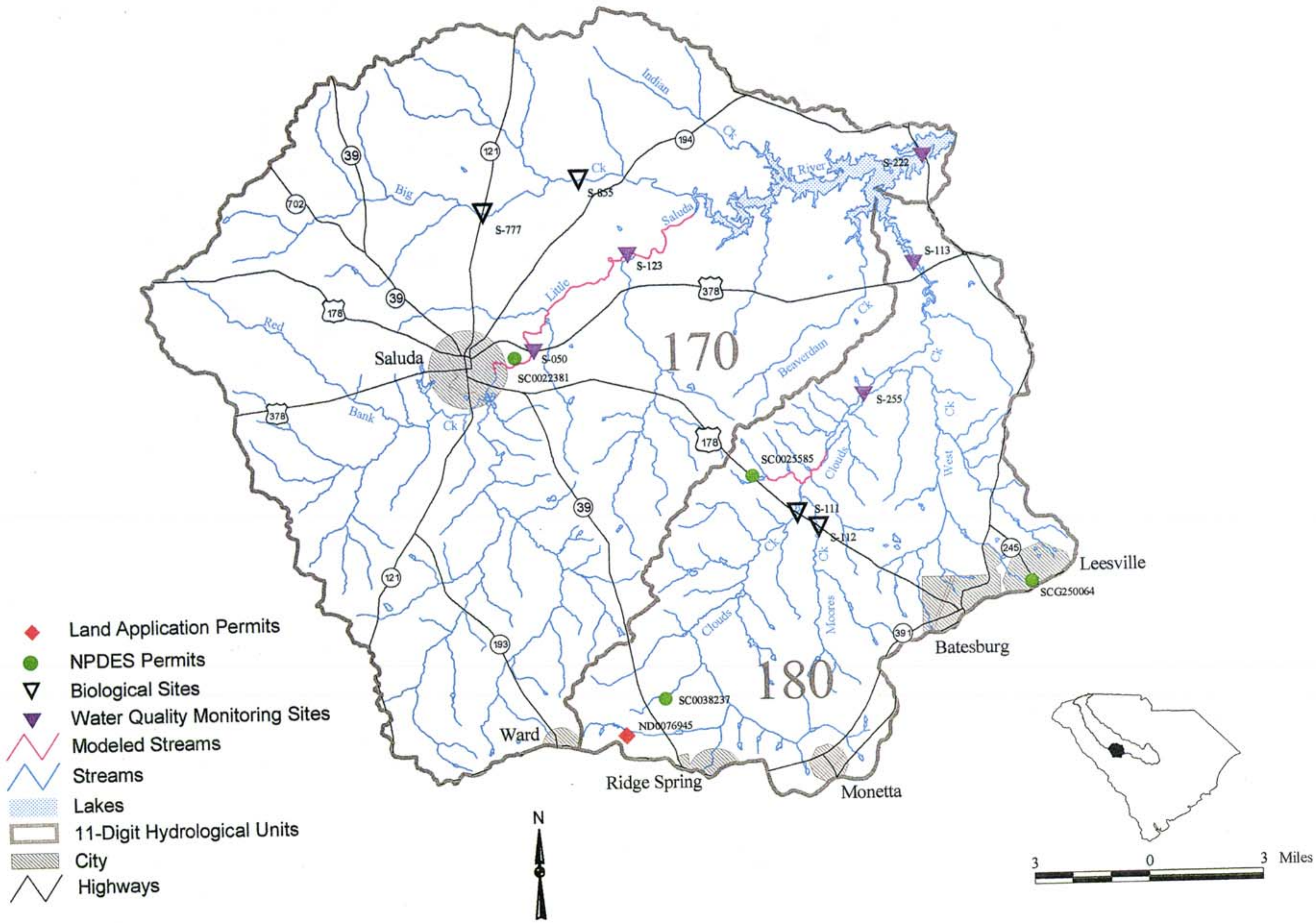
Brushy Creek Watershed

(03050109-160)



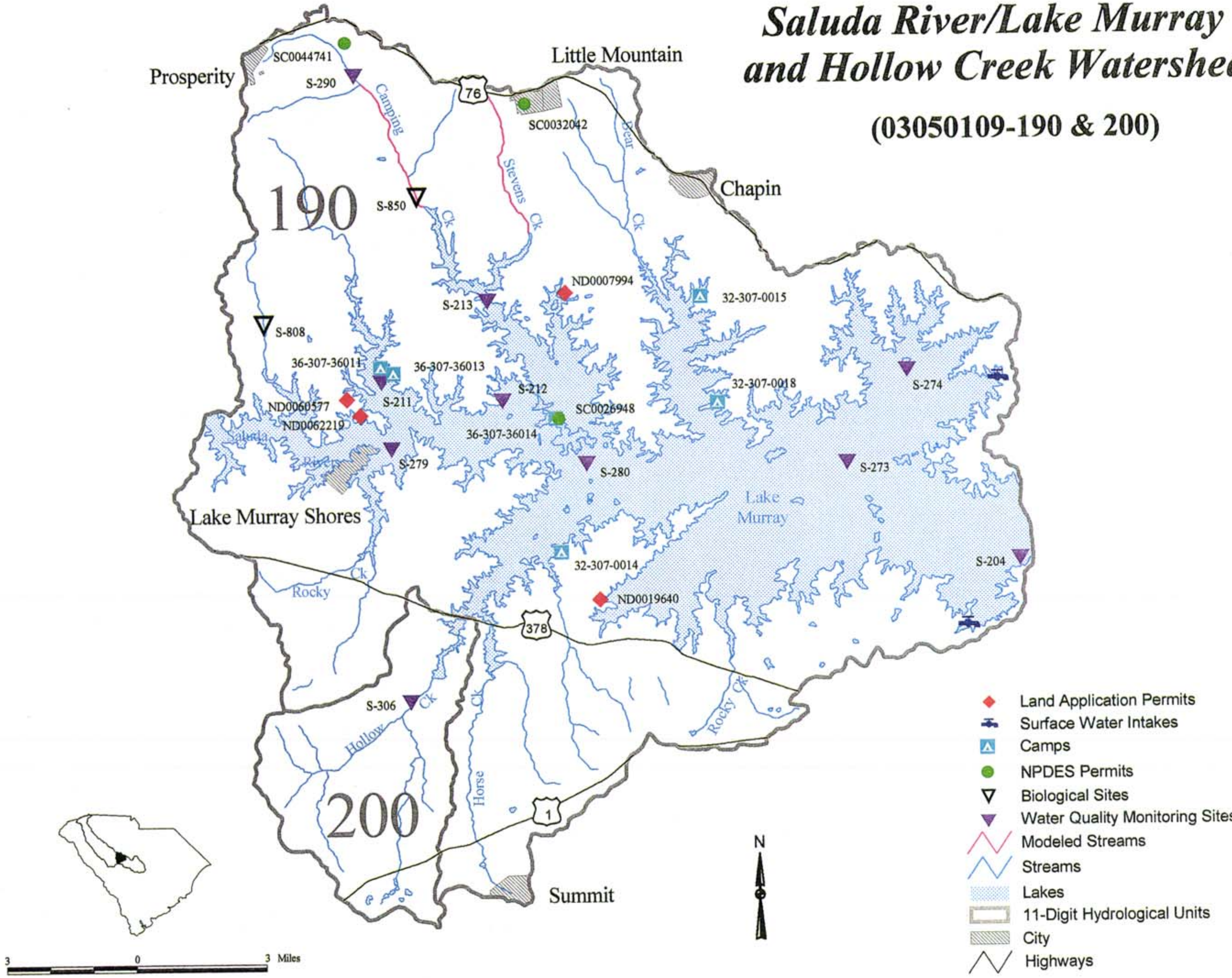
Little Saluda River and Clouds Creek Watersheds

(03050109-170 & 180)



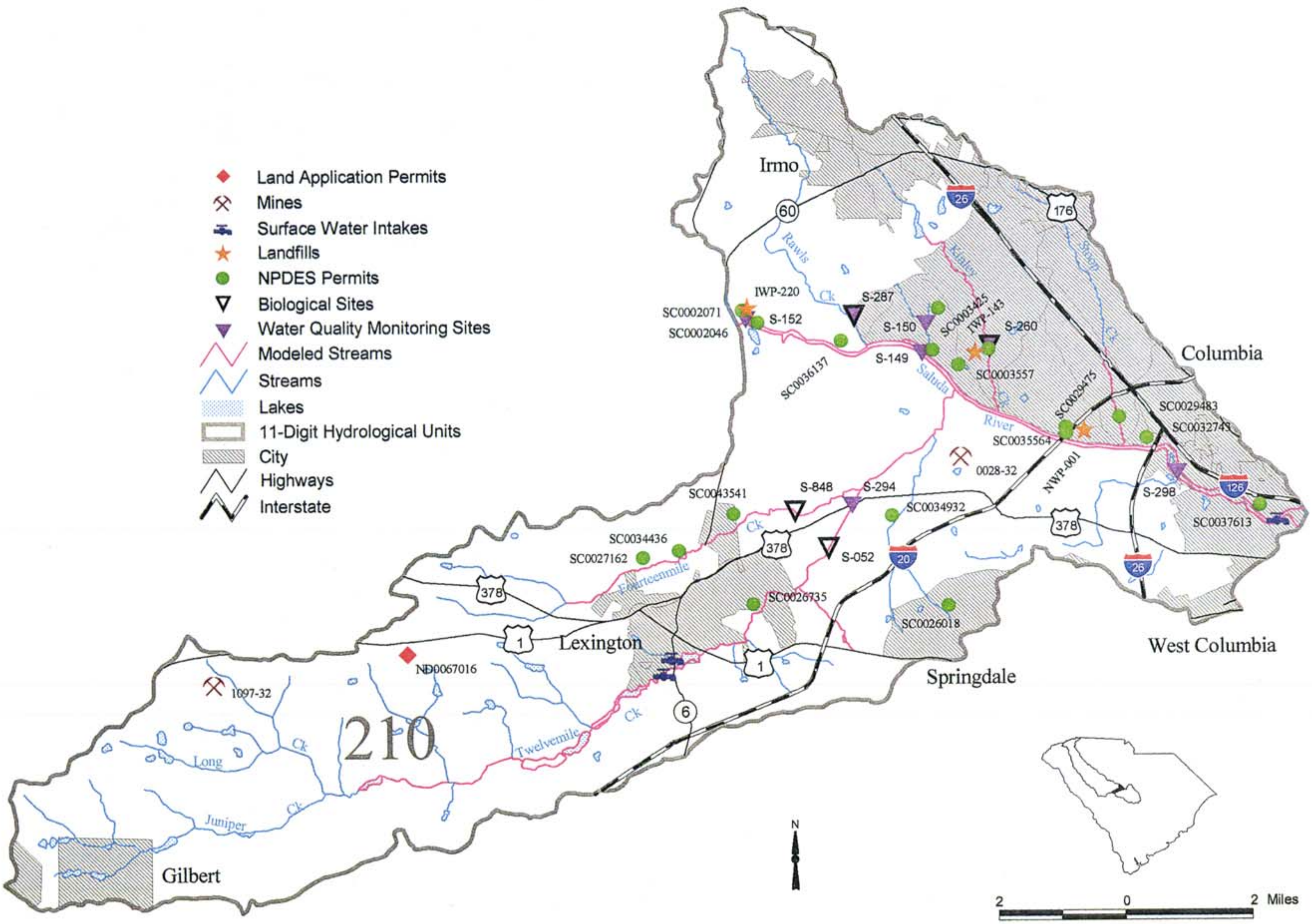
Saluda River/Lake Murray and Hollow Creek Watersheds

(03050109-190 & 200)



Lower Saluda River Watershed

(03050109-210)



APPENDIX C.
CONGAREE RIVER

Water Quality Trends and Status by Station

Spreadsheet Legend

Station Information:

STATION NUMBER	Station ID
TYPE	SCDHEC station type code P = Primary station, sampled monthly all year round S = Secondary station, sampled monthly May - October P* = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study W = Special watershed station added for the Saluda Basin study BIO = Indicates macroinvertebrate community data assessed
WATERBODY NAME	Stream or Lake Name
CLASS	Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)
pH	pH (SU)
TP	Total Phosphorus (mg/l)
TN	Total Nitrogen (mg/l)
TURB	Turbidity (NTU)
TSS	Total Suspended Solids (mg/l)
BACT	Fecal Coliform Bacteria (#/100 ml)
NH3	Ammonia (mg/l)
CD	Cadmium (ug/l)
CR	Chromium (ug/l)
CU	Copper (ug/l)
PB	Lead (ug/l)
HG	Mercury (ug/l)
NI	Nickel (ug/l)
ZN	Zinc (ug/l)

Statistical Abbreviations:

N	For standards compliance, number of surface samples collected between January, 1993 and December, 1997 For trends, number of surface samples collected between January, 1983 and December, 1997
EXC.	Number of samples contravening the appropriate standard
%	Percentage of samples contravening the appropriate standard
MEAN EXC.	Mean of samples which contravened the applied standard
MED	For heavy metals with a human health criterion, this is the median of all surface samples between January, 1993 and December, 1997. DL indicates that the median was the detection limit.
MAG	Magnitude of any statistically significant trend, average change per year, expressed in parameter measurement units
GEO MEAN	Geometric mean of fecal coliform bacteria samples collected between January, 1993 and December, 1997

Key to Trends:

D	Statistically significant decreasing trend in parameter concentration
I	Statistically significant increasing trend in parameter concentration
*	No statistically significant trend
Blank	Insufficient data to test for long term trends

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	N	MAG	BOD	N	MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	N	MAG
03050110010																				
CSB-001L	P	CONGAREE RVR	FW	54	0	0		D	152	-0.04	*	167		54	0	0		*	168	
CSB-001R	P	CONGAREE RVR	FW	55	0	0		D	152	-0.05	*	169		55	1	2	8.8	D	166	-0.014
C-021	S	MILL CK	FW	29	3	10	4.1	*	77		D	87	-0.0666	29	12	41	5.7	*	84	
C-022	S	MILL CK	FW	28	0	0		*	76		D	87	-0.0875	28	7	25	5.8	*	84	
C-074	P	CONGAREE RVR	FW	12	0	0								12	0	0				
C-010	BIO	BIG BEAVER CK	FW																	
C-577	BIO	BATES MILL CK	FW																	
03050110020																				
C-580	BIO	RED BANK CK	FW																	
C-066	S	RED BANK CK	FW	29	0	0		*	82		*	85		29	5	17	5.5	I	88	0.0167
C-067	S	RED BANK CK	FW	30	0	0		*	82		*	84		30	6	20	5.6	I	88	0.022
C-565	BIO	CONGAREE CK	FW																	
C-061	S/BIO	SAVANA BRANCH	FW	30	0	0		I	81	0.08	D	85	-0.05	30	7	23	5.7	I	87	0.041
C-008	P	CONGAREE CK	FW	59	0	0		*	161		*	167		59	19	32	5.6	I	173	0.046
C-025	S	LAKE CAROLINE	FW	31	0	0		I	84	0.038	D	85	-0.1	31	3	10	5.8	*	90	
C-005	S/BIO	SIXMILE CREEK	FW	29	3	10	4.5	*	80		*	83		29	6	21	5.8	*	85	
C-070	SE	CONGAREE CK	FW	12	0	0								12	4	33	5.7			
C-583	BIO	SECOND CREEK	FW																	
03050110030																				
C-048	S	WINDSOR LAKE	FW	29	0	0		*	80		D	87	-0.133	29	5	17	5.8	*	86	
C-068	P	FOREST LAKE	FW	55	1	2	4	*	158		*	161		56	7	13	5.8	*	163	
C-001	P	GILLS CK	FW	68	2	3	3.725	*	169		I	171	0.025	68	15	22	5.6	*	183	
C-017	P	GILLS CK	FW	68	2	3	4.8	I	168	0.058	*	172		68	14	21	5.7	*	184	
C-073	S	REEDER POINT BRANCH	FW	20	5	25	3.5							20	1	5	5.6			
03050110040																				
C-009	SE/BIO	SANDY RUN	FW	11	0	0								11	10	91	5.5			
03050110050																				
C-578	BIO	MYERS CREEK	FW																	
C-069	S/BIO	CEDAR CK	FW	27	0	0		*	71		*	74		27	19	70	6	*	72	
C-071	BIO	CEDAR CK	FW																	
C-075	P	CEDAR CK	FW	12	0	0								12	8	67	5.4			

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION				TRENDS											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050110010															
CSB-001L	P	CONGAREE RVR	FW	D	170	-0.002	D	141	-0.01	*	170		*	152	
CSB-001R	P	CONGAREE RVR	FW	D	171	-0.001	*	138		*	171				
C-021	S	MILL CK	FW	D	87	0				*	86				
C-022	S	MILL CK	FW	D	87	-0.003				*	86				
C-074	P	CONGAREE RVR	FW												
C-010	BIO	BIG BEAVER CK	FW												
C-577	BIO	BATES MILL CK	FW												
03050110020															
C-580	BIO	RED BANK CK	FW												
C-066	S	RED BANK CK	FW	D	83	-0.001				I	83	0.2			
C-067	S	RED BANK CK	FW	*	85					I	85	0.223			
C-565	BIO	CONGAREE CK	FW												
C-061	S/BIO	SAVANA BRANCH	FW	D	87	-0.003				I	87	0.314	*	30	
C-008	P	CONGAREE CK	FW	D	168	0	*	139		I	168	0.328	I	57	0.335
C-025	S	LAKE CAROLINE	FW	D	85	-0.015				I	86	0.133			
C-005	S/BIO	SIXMILE CREEK	FW	D	85	-0.005				I	83	0.125	*	31	
C-070	SE	CONGAREE CK	FW												
C-583	BIO	SECOND CREEK	FW												
03050110030															
C-048	S	WINDSOR LAKE	FW	D	87	-0.002				*	86				
C-068	P	FOREST LAKE	FW	D	162	-0.002	D	150	-0.009	I	160	0.4			
C-001	P	GILLS CK	FW	D	182	-0.002	D	162	-0.018	I	171	0.5	D	70	-1.143
C-017	P	GILLS CK	FW	D	182	-0.002	D	158	-0.023	I	169	0.6	*	70	
C-073	S	REEDER POINT BRANCH	FW												
03050110040															
C-009	SE/BIO	SANDY RUN	FW												
03050110050															
C-578	BIO	MYERS CREEK	FW												
C-069	S/BIO	CEDAR CK	FW	*	75					I	73	0.133			
C-071	BIO	CEDAR CK	FW												
C-075	P	CEDAR CK	FW												

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050110010																			
CSB-001L	P	CONGAREE RVR	FW	66.71	53	2	4	1970	D	171	-5	53	0	18	2	11	18	2	11
CSB-001R	P	CONGAREE RVR	FW	79.86	53	3	6	1493	D	170	-11	54	0	19	2	11	19	2	11
C-021	S	MILL CK	FW	161.39	28	6	21	675	*	87		1	0						
C-022	S	MILL CK	FW	37.51	26	0	0		*	87		1	0						
C-074	P	CONGAREE RVR	FW	61.59	11	0	0					12	0	5	0	0	5	0	0
C-010	BIO	BIG BEAVER CK	FW																
C-577	BIO	BATES MILL CK	FW																
03050110020																			
C-580	BIO	RED BANK CK	FW																
C-066	S	RED BANK CK	FW	31.24	29	3	10	683	I	86	1								
C-067	S	RED BANK CK	FW	125.5	29	6	21	1783	I	86	4								
C-565	BIO	CONGAREE CK	FW																
C-061	S/BIO	SAVANA BRANCH	FW	134.76	30	3	10	540	I	87	4.63			1	0	0	1	0	0
C-008	P	CONGAREE CK	FW	111.62	58	9	16	1080	I	171	3.43	56	0	18	2	11	18	0	0
C-025	S	LAKE CAROLINE	FW	538.91	28	15	54	2133	*	87									
C-005	S/BIO	SIXMILE CREEK	FW	171.813	29	4	14	648	*	85		0	0	0	0	0	0	0	0
C-070	SE	CONGAREE CK	FW	116.47	11	1	9	1000				12	0	4	0	0	4	1	25
C-583	BIO	SECOND CREEK	FW																
03050110030																			
C-048	S	WINDSOR LAKE	FW	12.77	27	1	4	610	*	86									
C-068	P	FOREST LAKE	FW	24.5	53	0	0		*	161		54	0	20	0	0	20	1	5
C-001	P	GILLS CK	FW	321.485	60	20	33	2728	*	176		66	0	22	0	0	22	1	5
C-017	P	GILLS CK	FW	313.78	62	22	35	3086	*	181		67	0	21	1	5	21	3	14
C-073	S	REEDER POINT BRANCH	FW	854.33	20	14	70	4832				1	0						
03050110040																			
C-009	SE/BIO	SANDY RUN	FW	109.8	11	1	9	900				11	0	4	0	0	4	0	0
03050110050																			
C-578	BIO	MYERS CREEK	FW																
C-069	S/BIO	CEDAR CK	FW	172.64	26	2	8	615	*	74		1	0						
C-071	BIO	CEDAR CK	FW																
C-075	P	CEDAR CK	FW	74.44	12	1	8	920				12	0	6	0	0	6	0	0

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050110010																						
CSB-001L	P	CONGAREE RVR	FW	18	1	DL	6	18	1	DL	6	18	0	DL	0	18	0	DL	0	18	0	0
CSB-001R	P	CONGAREE RVR	FW	19	0	DL	0	19	0	DL	0	19	0	DL	0	9	0	DL	0	19	0	0
C-021	S	MILL CK	FW																			
C-022	S	MILL CK	FW																			
C-074	P	CONGAREE RVR	FW	5	0	DL	0	5	1	DL	20	5	0	DL	0	5	0	DL	0	5	0	0
C-010	BIO	BIG BEAVER CK	FW																			
C-577	BIO	BATES MILL CK	FW																			
03050110020																						
C-580	BIO	RED BANK CK	FW																			
C-066	S	RED BANK CK	FW																			
C-067	S	RED BANK CK	FW																			
C-565	BIO	CONGAREE CK	FW																			
C-061	S/BIO	SAVANA BRANCH	FW	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	DL	0	1	0	0
C-008	P	CONGAREE CK	FW	18	0	DL	0	18	0	DL	0	18	0	DL	0	16	0	DL	0	18	0	0
C-025	S	LAKE CAROLINE	FW																			
C-005	S/BIO	SIXMILE CREEK	FW	0	0	DL	0	0	0	DL	0	0	0	DL	0	0	0	DL	0	0	0	0
C-070	SE	CONGAREE CK	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
C-583	BIO	SECOND CREEK	FW																			
03050110030																						
C-048	S	WINDSOR LAKE	FW																			
C-068	P	FOREST LAKE	FW	20	1	DL	5	20	1	DL	5	20	0	DL	0	20	0	DL	0	20	0	0
C-001	P	GILLS CK	FW	22	0	DL	0	22	0	DL	0	22	0	DL	0	22	0	DL	0	22	0	0
C-017	P	GILLS CK	FW	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	DL	0	21	0	0
C-073	S	REEDER POINT BRANCH	FW																			
03050110040																						
C-009	SE/BIO	SANDY RUN	FW	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	DL	0	4	0	0
03050110050																						
C-578	BIO	MYERS CREEK	FW																			
C-069	S/BIO	CEDAR CK	FW																			
C-071	BIO	CEDAR CK	FW																			
C-075	P	CEDAR CK	FW	6	0	DL	0	6	0	DL	0	6	0	DL	0	6	0	DL	0	6	0	0

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS DO	N	MAG	BOD	N	MAG	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS pH	N	MAG
03050110060																				
C-579	BIO	TOMS CK	FW																	
C-072	P	TOMS CK	FW	12	0	0								12	8	67	5.3			
03050110070																				
C-007	P	CONGAREE RVR	FW	54	0	0		*	160		D	168	-0.025	54	1	2	5.6	*	180	

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION				TRENDS											
NUMBER	TYPE	WATERBODY NAME	CLASS	TP	N	MAG	TN	N	MAG	TURB	N	MAG	TSS	N	MAG
03050110060															
C-579	BIO	TOMS CK	FW												
C-072	P	TOMS CK	FW												
03050110070															
C-007	P	CONGAREE RVR	FW	D	171	-0.002	*	136		I	169	0.333	*	159	

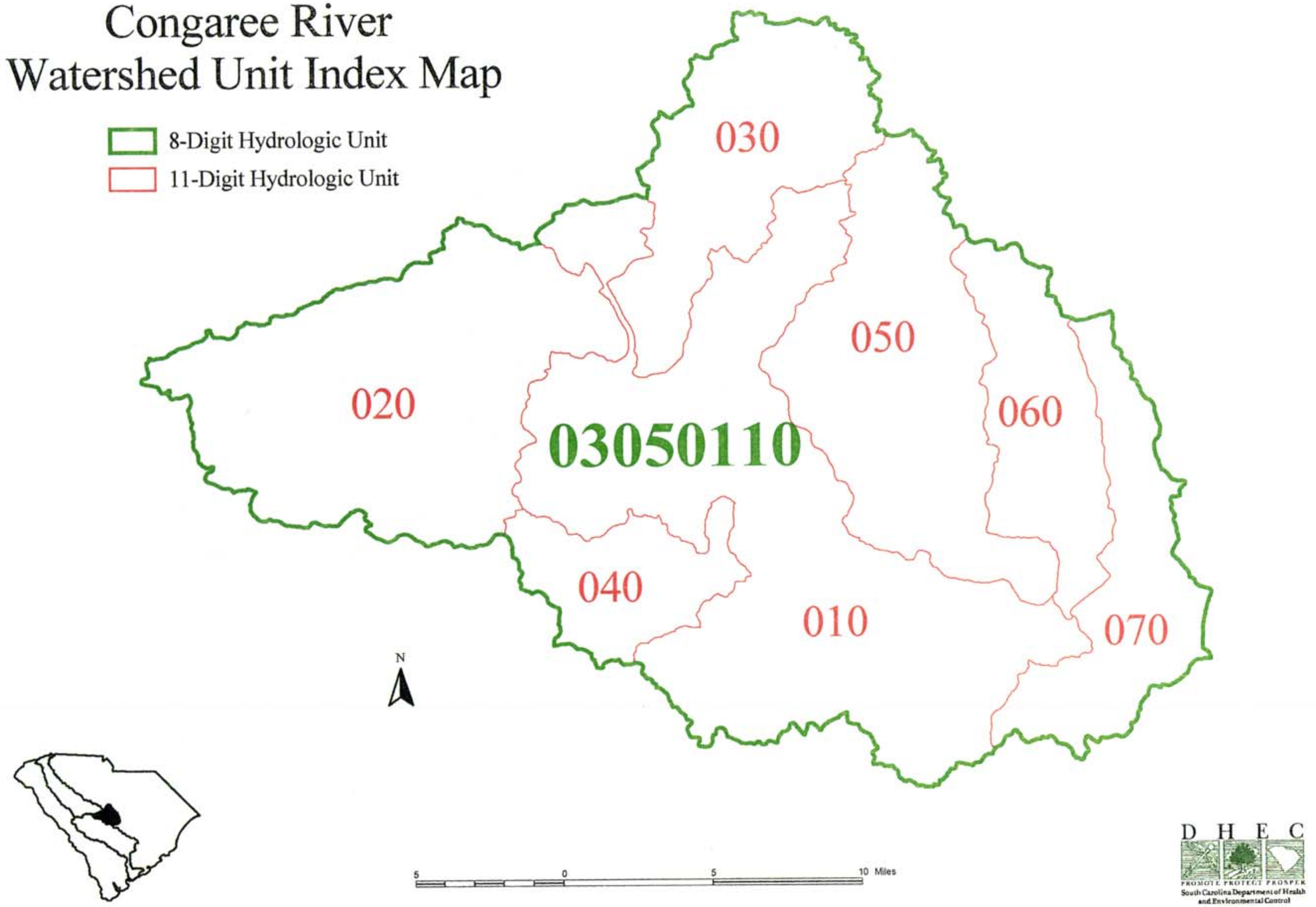
WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS BACT	TRENDS N	TRENDS MAG	NH3 N	NH3 EXC.	CU N	CU EXC.	CU %	ZN N	ZN EXC.	ZN %
03050110060																			
C-579	BIO	TOMS CK	FW																
C-072	P	TOMS CK	FW	193.55	11	3	27	1087				11	0	5	0	0	5	0	0
03050110070																			
C-007	P	CONGAREE RVR	FW	65.92	50	3	6	3400	D	171	-2.8	49	0	15	1	7	15	0	0

WATER QUALITY SUMMARY - CONGAREE RIVER BASIN

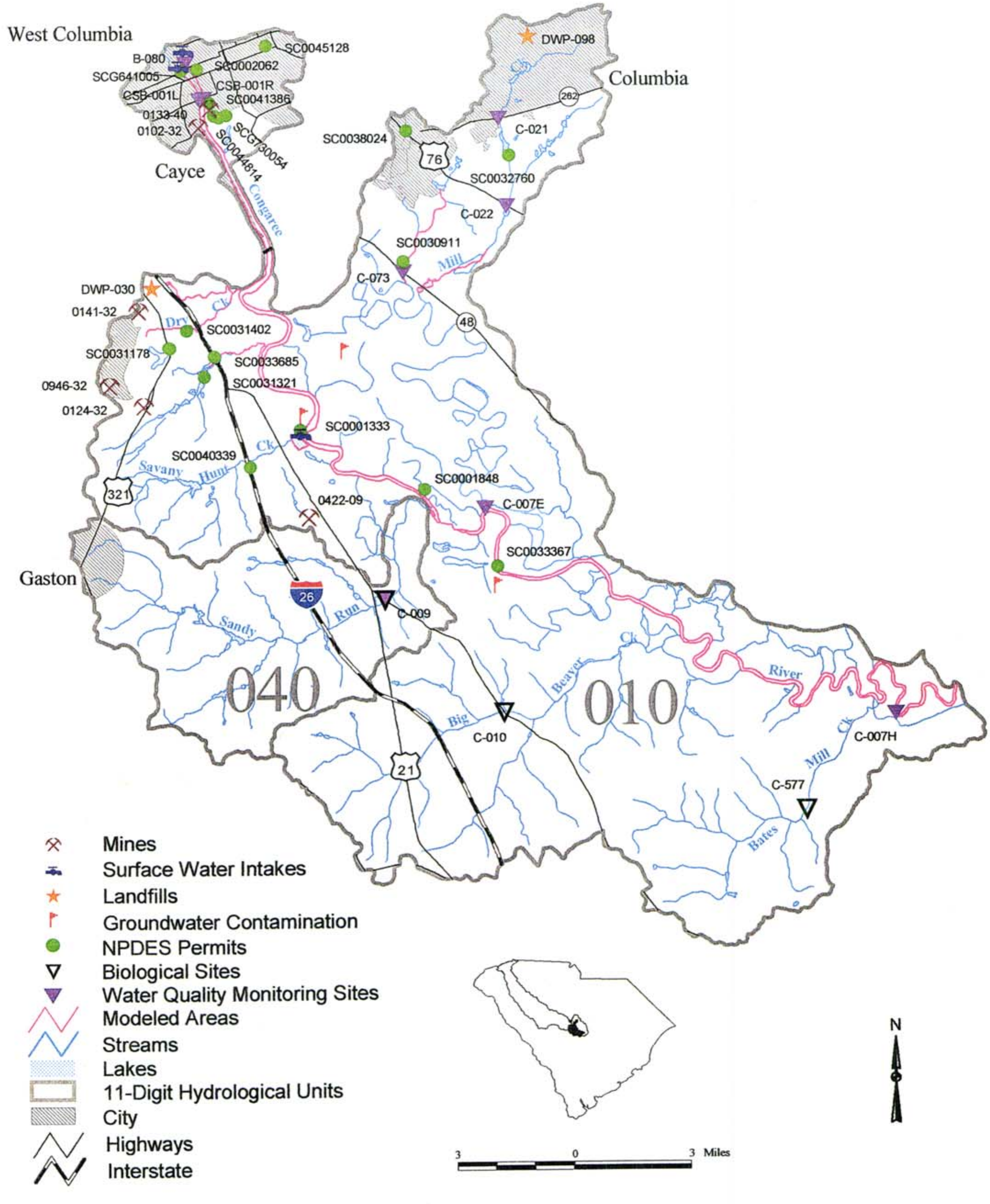
STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CD N	CD EXC.	CD MED.	CD %	CR N	CR EXC.	CR MED.	CR %	PB N	PB EXC.	PB MED.	PB %	HG N	HG EXC.	HG MED.	HG %	NI N	NI EXC.	NI %
03050110060																						
C-579	BIO	TOMS CK	FW																			
C-072	P	TOMS CK	FW	5	0	DL	0	5	0	DL	0	5	0	DL	0	4	0	DL	0	5	0	0
03050110070																						
C-007	P	CONGAREE RVR	FW	15	0	DL	0	15	1	DL	7	15	0	DL	0	15	0	DL	0	15	0	0

Congaree River Watershed Unit Index Map

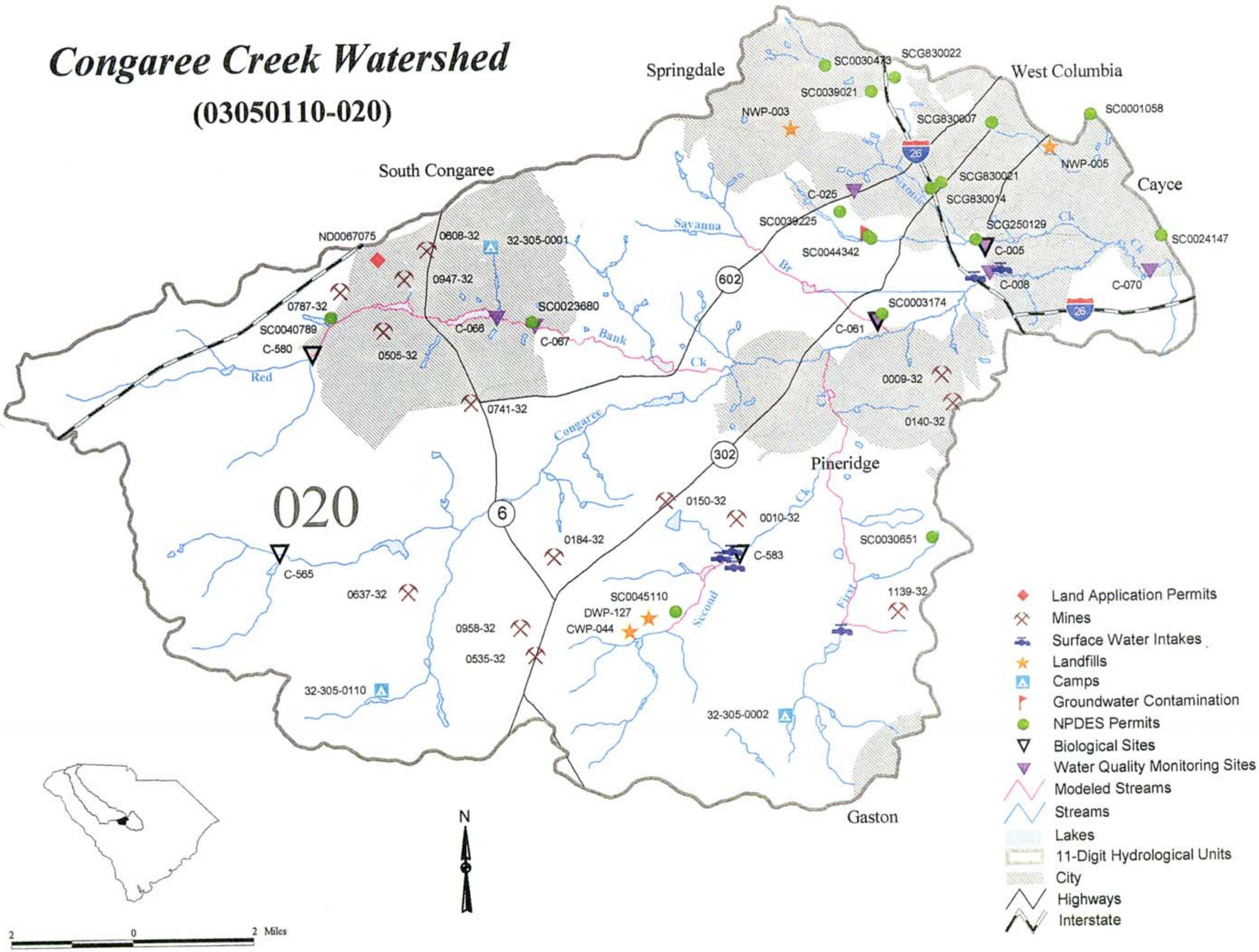


Congaree River and Sandy Run Watersheds

(03050110-010 & 040)

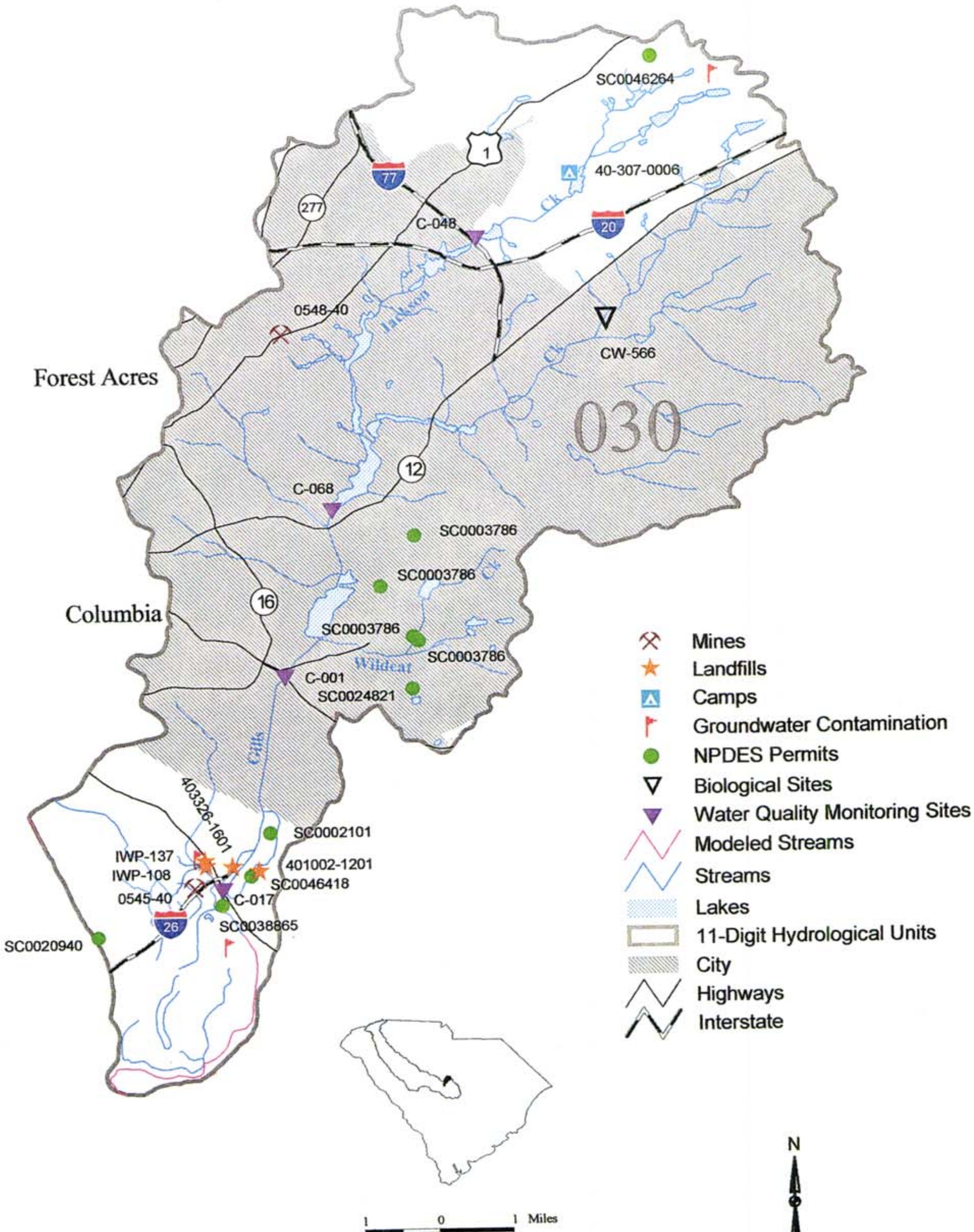


Congaree Creek Watershed
(03050110-020)



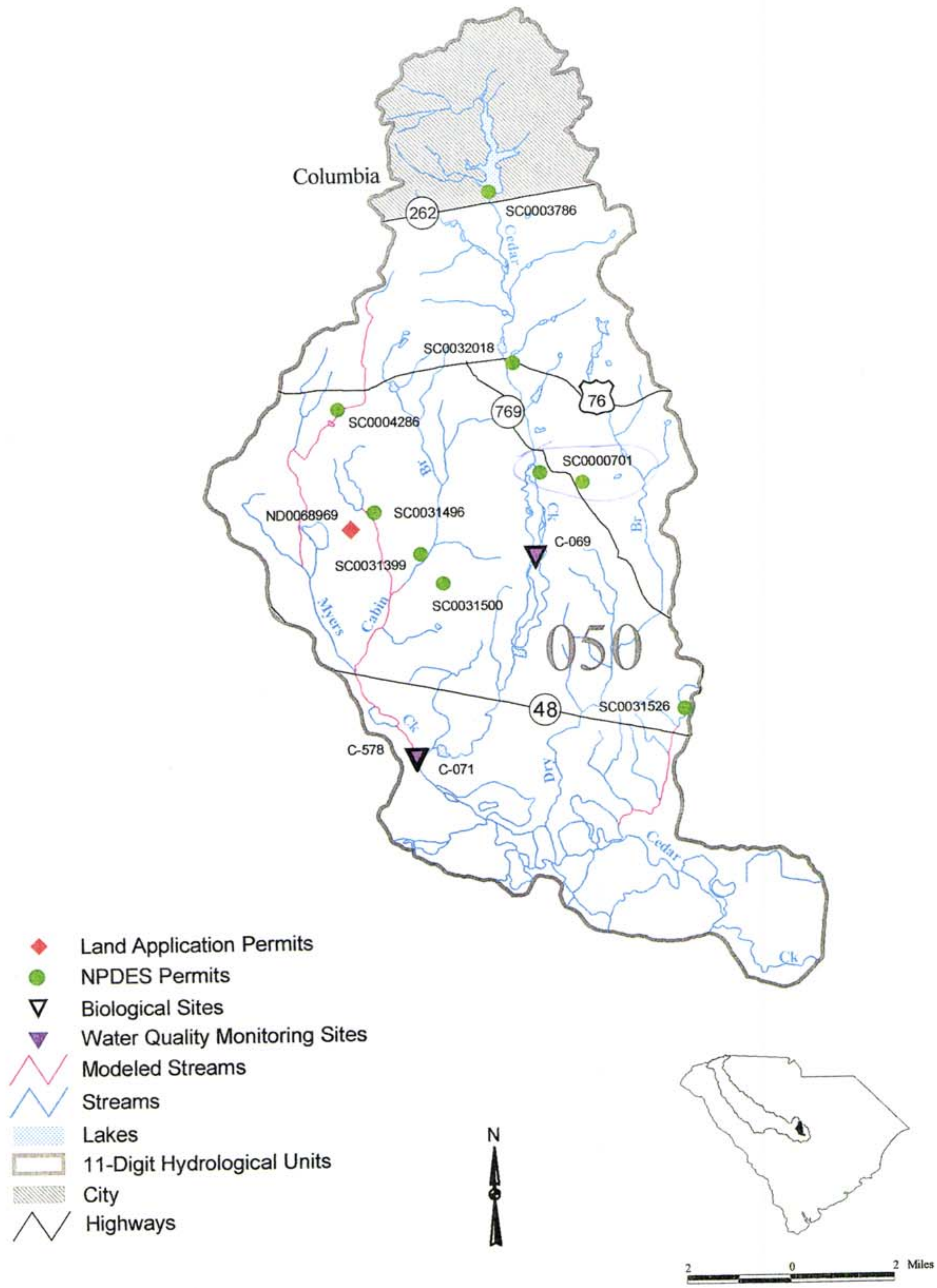
Gills Creek Watershed

(03050110-030)



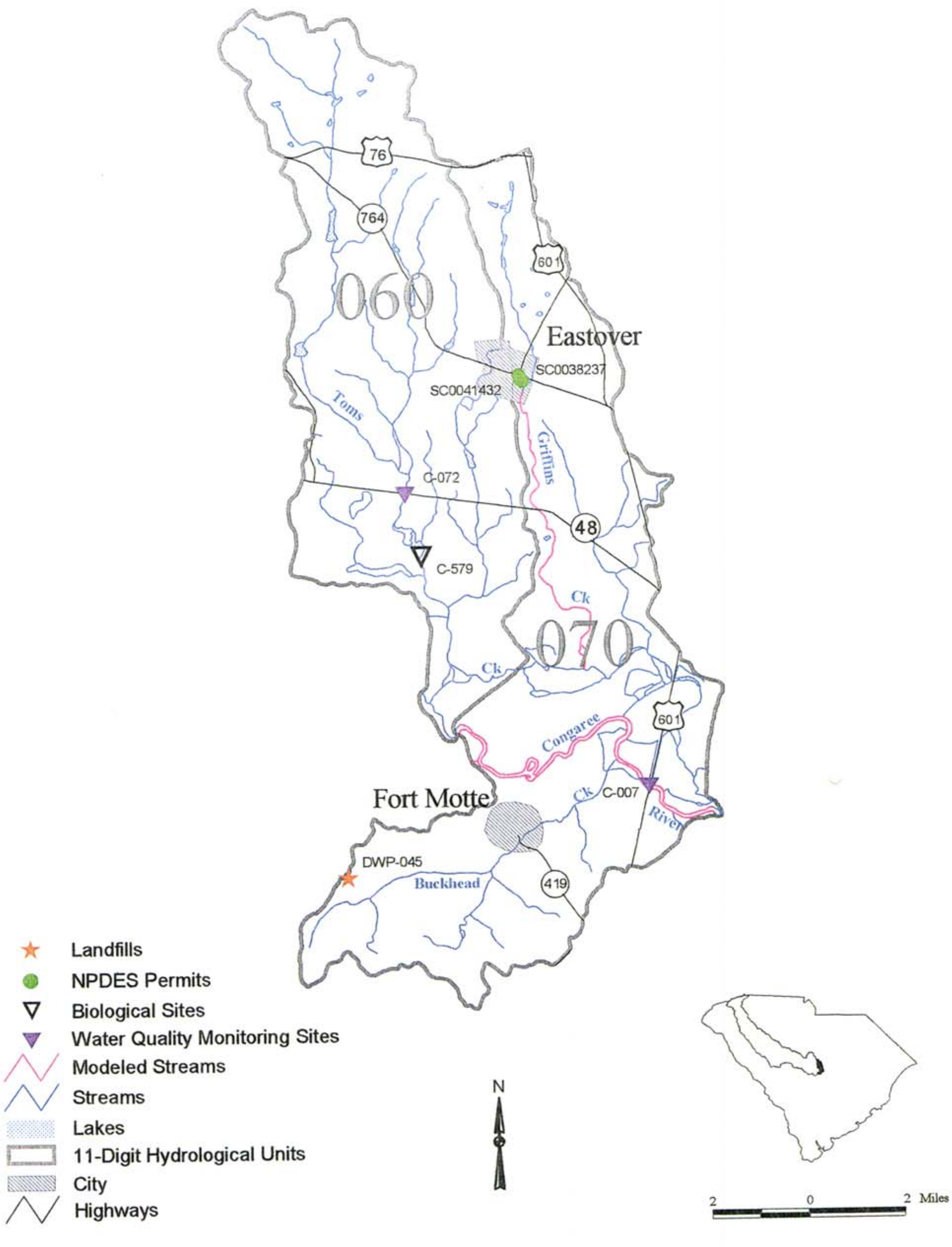
Cedar Creek Watershed

(03050110-050)



Toms Creek and Congaree River Watersheds

(03050110-060 & 070)



Waterbody Index

Facility Index

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