

## 03050107-04

(Fairforest Creek)

### General Description

Watershed 03050107-04 (formerly 03050107-060 minus Tinker Creek) is located in Spartanburg and Union Counties and consists primarily of *Fairforest Creek* and its tributaries. The watershed occupies 139,664 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 54.5% forested land, 22.0% agricultural land, 17.0% urban land, 4.0% forested wetland, 1.3% barren land, 0.6% water, and 0.6% scrub/shrub land.

Fairforest Creek originates near the City of Spartanburg and accepts drainage from Goat Pond Creek, Holston Creek, Beaverdam Creek (Reedy Creek), Foster Creek (Underwood Branch), Reedy Branch, Buffalo Creek (Zimmerman Pond), Fleming Branch, Goose Branch, Stillhouse Branch (Smith Branch), and Lancaster Branch (James Branch, Pauline Creek, Dugan Creek). Kelsey Creek flows through Lake Craig (Lake Johnson, Thompson Creek) before entering Fairforest Creek. Black Branch (Whitestone Spring Branch) flows into Fairforest Creek next followed by McElwain Creek (Story Branch, Mineral Spring Branch, Sulphur Spring Branch), Kennedy Creek (Iscons Creek, Cunningham Creek), McClure Creek, Sugar Creek (another Beaverdam Creek, Whitlock Lakes, White Pine Lake), Swink Creek (Bishop Branch), and Rocky Creek. Swink Creek is also known as Mitchell Creek and Bishop Branch is also known as Mill Creek. Further downstream, Fairforest Creek accepts drainage from Mitchell Creek, another Sugar Creek (West Springs Branch), another Buffalo Creek, Dining Creek, Shoal Creek (Toschs Creek), Sand Creek, and Morris Branch. There are a total of 250.7 streams miles and 417.6 acres of lake waters in this watershed, all classified FW.

### Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
B-321	P/W	FW	TRIBUTARY TO FAIRFOREST CREEK, 200 FEET BELOW S-42-65
B-020	S/W	FW	FAIRFOREST CREEK AT US 221, S OF SPARTANBURG
B-164	S/W	FW	FAIRFOREST CREEK AT S-42-651, 3.5 MI SSE OF SPARTANBURG
B-021	P/BIO/W	FW	FAIRFOREST CREEK AT SC 56
B-235	S/W	FW	KELSEY CREEK AT S-42-321
CL-035	W	FW	LAKE JOHNSON AT SPILLWAY AT S-42-359
RL-01005	RL01	FW	LAKE CRAIG, CROFT STATE PARK, 7.5 MI SE OF SPARTANBURG
RL-01035	RL01	FW	LAKE CRAIG, CROFT STATE PARK, 7.95 MI SE OF SPARTANBURG
CL-033	W	FW	LAKE CRAIG, 45 METERS NW OF DAM
BF-007	S/SPRP	FW	FAIRFOREST CREEK ON COUNTY ROAD 12, SW OF JONESVILLE
B-199	S/W	FW	MITCHELL CREEK AT COUNTY ROAD 233, 2.3 MI SSW OF JONESVILLE
B-781	BIO	FW	MITCHELL CK AT SR 19, 1 <sup>ST</sup> REPLICATE OF 2 STA., DSTRM OF BRIDGE
B-067A	S/W	FW	TOSCHS CREEK AT US 176, 2 MI SW OF UNION
B-067B	S/W	FW	TOSCHS CK AT RD TO TREATMENT PLANT OFF S-44-92, SW OF UNION
BF-008	S/BIO/INT	FW	FAIRFOREST CREEK AT S-44-16, SW OF UNION

*Fairforest Creek Tributary (B-321)* - Aquatic life uses are not supported due to macroinvertebrate community data, pH excursions, and occurrences of nickel in excess of the aquatic life chronic criterion. There is a significant decreasing trend in pH. Significant decreasing trends in turbidity, total phosphorus concentration, and fecal coliform bacteria concentration

suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

**Fairforest Creek** – There are five SCDHEC monitoring stations along Fairforest Creek. Aquatic life uses are fully supported at the furthest upstream site (**B-020**), and a significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. At the next site downstream (**B-164**), aquatic life uses are fully supported; however, there are significant increasing trends in five-day biological oxygen demand and total phosphorus concentration. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

Further downstream (**B-021**), aquatic life uses are partially supported due to macroinvertebrate community data. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are fully supported at monitoring site **BF-007**; however, there are significant increasing trends in five-day biological oxygen demand and turbidity. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. At the furthest downstream site (**BF-008**), aquatic life uses are fully supported based on macroinvertebrate community data; however, there are significant increasing trends in five-day biological oxygen demand and decreasing trends in dissolved oxygen concentration. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

**Kelsey Creek (B-235)** – Aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

**Lake Johnson (CL-035)** – Aquatic life uses are not supported due to dissolved oxygen, pH, total phosphorus, and chlorophyll-*a* excursions. Recreational uses are fully supported.

**Lake Craig** – There are three SCDHEC monitoring stations along Lake Craig (**RL-01005**, **RL-01035**, **CL-033**), and aquatic life and recreational uses are fully supported at all sites.

**Mitchell Creek (Swink Creek)** – There are two SCDHEC monitoring stations along Mitchell Creek. At the upstream site (**B-199**), aquatic life uses are fully supported. Recreational uses are not supported at this site due to fecal coliform bacteria excursions, which are compounded by a significant increasing trend in fecal coliform bacteria concentration. At the downstream site (**B-781**), aquatic life uses are partially supported based on macroinvertebrate community data.

**Toschs Creek** - There are two SCDHEC monitoring stations along Toschs Creek. There is a significant decreasing trend in pH at both sites. At the upstream site (**B-067A**), aquatic life uses

are fully supported. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. At the downstream site (**B-067B**), aquatic life uses are fully supported; however, there is a significant increasing trend in five-day biochemical oxygen demand. Recreational uses are not supported at either site due to fecal coliform bacteria excursions.

## Groundwater Quality

<u>Well #</u>	<u>Class</u>	<u>Aquifer</u>	<u>Location</u>
AMB-109	GB	PIEDMONT BEDROCK	SPARTANBURG
AMB-073	GB	SAPROLITE	UNION-SHALLOW
AMB-083	GB	PIEDMONT BEDROCK	UNION-DEEP

## NPDES Program

### Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)</i>	<i>NPDES# TYPE COMMENT</i>
FAIRFOREST CREEK SSSD/FAIRFOREST PLANT PIPE #: 001 (Conversion to Regional WWTF) PHASE II: Upgrade SSSD/Fairforest to 20mgd; Construct new outfall to Pacolet River PHASE III: Eliminate SSSD/Lawson Fork & Upgrade SSSD/Fairforest to 30mgd	SC0020435 MAJOR DOMESTIC
FAIRFOREST CREEK FAIRWOODS SD/UNITED UTILITIES PIPE #: 001 FLOW: 0.065	SC0035041 MINOR DOMESTIC
FAIRFOREST CREEK SSSD/CAROLINA COUNTRY CLUB PIPE #: 001 FLOW: 0.1	SC0039560 MINOR DOMESTIC
FAIRFOREST CREEK CITY OF UNION/TOSCHS CREEK WWTP PIPE #: 001 FLOW: 6.0	SC0047244 MAJOR DOMESTIC
FAIRFOREST CREEK FAIRFOREST SAND CO./FAIRFOREST CK SAND MINE PIPE #: 001 FLOW: M/R	SCG730202 MINOR INDUSTRIAL
FAIRFOREST CREEK DITCH ADO CORPORATION PIPE #: 001 FLOW: M/R	SCG250071 MINOR INDUSTRIAL
GOAT POND CREEK CONOCO PHILLIPS PIPE #: 001 FLOW: 0.043	SC0047805 MINOR INDUSTRIAL
KELSEY CREEK CITCO PETROLEUM CORP. PIPE #: 001 FLOW: M/R	SCG340008 MINOR INDUSTRIAL
MILL CREEK TOWN OF JONESVILLE PIPE #: 001 FLOW: 0.25	SC0024988 MINOR DOMESTIC

MINERAL SPRING BRANCH GLENN SPRINGS ACADEMY PIPE #: 001 FLOW: 0.0035	SC0024449 MINOR DOMESTIC
ISCONS CREEK TRIBUTARY MILLIKEN & CO./WHITESTONE PKG PIPE #: 001 FLOW: 0.432	SC0023370 MINOR INDUSTRIAL
FAIRFOREST CREEK TRIBUTARY I-85 DISTRIBUTION CENTER SITE PIPE #: 001 FLOW: 0.129	SC0048178 MINOR INDUSTRIAL
FAIRFOREST CREEK TRIBUTARY TINDALL CORP./SC DIV PIPE #: 001 FLOW: M/R	SCG250195 MINOR INDUSTRIAL
FAIRFOREST CREEK TRIBUTARY STERIS CORP./ISOMEDIX SERVICES PIPE #: 001 FLOW: M/R	SCG250214 MINOR INDUSTRIAL
KELSEY CREEK TRIBUTARY COLONIAL PIPELINE/SPARTANBURG PIPE #: 001 FLOW: M/R	SCG340017 MINOR INDUSTRIAL
SHOAL CREEK TRIBUTARY THE TIMKEN CORPORATION PIPE #: 001 FLOW: M/R	SCG250210 MINOR INDUSTRIAL

## Nonpoint Source Management Program

### *Land Disposal Activities*

#### **Landfill Facilities**

<i>LANDFILL NAME</i> <i>FACILITY TYPE</i>	<i>PERMIT #</i> <i>STATUS</i>
RED HILL LANDFILL INDUSTRIAL	422429-1601 INACTIVE
RED HILL COMPOSTING FACILITY COMPOST	422429-3001 INACTIVE
RED HILL SOLID WASTE LANDFILL INDUSTRIAL	422444-1601 INACTIVE
CAMP CROFT LANDFILL DOMESTIC	421001-1102 CLOSED
CITY OF SPARTANBURG TRANSFER STATION DOMESTIC	421005-6001 ACTIVE
CITY OF UNION – BRISON ST C&D CONSTRUCTION	441003-1301 INACTIVE
PHILIPPI CHURCH RD ST LANDFILL CONSTRUCTION	442604-1701, 442604-1301 INACTIVE
BROADCAST DR C&D TRANSFER STATION C&D	422692-6001 ACTIVE
MAXIE COPELAND LANDFILL LONGTERM C&D LANDFILL	442329-1201 ACTIVE

FAIRFOREST WOOD RECYCLING CENTER RECYCLING	422749-3001 ACTIVE
SPARTANBURG W. HENRY ST. COMPOSTING	421005-3002 INACTIVE
CITY OF SPARTANBURG HWY 295 COMP. FAC. COMPOSTING	421005-3001 ACTIVE
JEFF THOMAS-STRICKLAND DR. LCD & YT LANDFILL C&D	422459-1701 ACTIVE
TAYLOR ENTERPRISES INC. -----	422665-7101 ACTIVE
T. GLEN EASLER GRADING & LANDSCAPING C&D	422607-1701 ACTIVE
WOOD GRADING LCD&YT C&D	422461-1701 INACTIVE
CITY OF UNION SW TRANSFER FACILITY MUNICIPAL	441003-6001 ACTIVE

### ***Mining Activities***

<b><i>MINING COMPANY MINE NAME</i></b>	<b><i>PERMIT # MINERAL</i></b>
FAIRFOREST SAND CO. FAIRFOREST CREEK SAND MINE	1059-83 SAND
RAY LEMONS BULLDOZING LEMONS MINE	1241-83 SAND; SAND/CLAY

### **Growth Potential**

There is a high potential for growth in this watershed, which contains portions of the Cities of Spartanburg and Union, the Towns of Pacolet and Jonesville, and the Buffalo Mill Village. Industrial growth in particular is expected along the I-85 corridor and major roads with I-85 interchanges. There are also industrial developmental pressures along I-26, U.S. Hwy. 29, and U.S. Hwy. 221. Urban development is evident in the City of Union and in the unincorporated Buffalo Mill Village in the form of residential, commercial, and industrial uses. Growth is most evident along the U.S. Hwy. 176 Bypass. U.S. Hwy. 176 north from Union to Spartanburg has been widened to four lanes and has generated the development of an industrial park. The lower portion of the watershed is effectively excluded from development by the Sumter National Forest. Union County is currently looking at the idea of damming the creek to form a multi use lake (Patriot Lake).

## **Watershed Protection and Restoration Strategies**

### ***Total Maximum Daily Loads (TMDLs)***

TMDLs were developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Fairforest Creek** and a tributary at water quality monitoring sites **B-321** (tributary), **B-020**, **B-164**, **B-021**, **BF-007**, and **BF-008**. Three currently active facilities that have fecal coliform limits in their NPDES permits discharge into tributaries of the creek; four facilities currently discharge directly into Fairforest Creek; two of these are classified as major facilities. The upper part of the watershed (B-321, B-020, B-164, and B-021) is within two Municipal Separate Storm Sewer System (MS4) designated areas: Spartanburg County and City of Spartanburg. Possible sources of fecal coliform bacteria in Fairforest Creek upstream of B-021 include MS4 runoff, leaking sewers, failing onsite wastewater disposal systems, urban residential runoff, pets, and wildlife. Possible sources in lower Fairforest Creek (BF-007 and B-008) include upstream sources, failing onsite wastewater disposal systems, cattle in creek, pets, and wildlife. The TMDL specifies reductions in the load of fecal coliform bacteria into Fairforest Creek of 73% (B-321), 73% (B-020), 83% (B-164), 73% (B-021), 53% (BF-007), and 58% (BF-008) in order for the creek to meet the recreational use standard.

A TMDL was developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Kelsey Creek** at water quality monitoring site **B-235**. No currently active facilities that have fecal coliform limits in their NPDES permits discharge into the creek. The watershed is within a MS4 designated area: Spartanburg County. Possible sources of fecal coliform bacteria in Kelsey Creek include failing sewers, MS4 runoff, failing onsite wastewater disposal systems, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Kelsey Creek of 64% in order for the creek to meet the recreational use standard.

A TMDL was developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Mitchell (Swink) Creek** at water quality monitoring site **B-199**. Currently the Town of Jonesville (SC0024988) operates a WWTP on a tributary – Mill Creek. The watershed is not within a MS4 designated area. Possible sources of fecal coliform bacteria in Mitchell Creek include failing onsite wastewater disposal systems, urban residential runoff, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Mitchell Creek of 46% in order for the creek to meet the recreational use standard.

TMDLs were developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Toschs Creek** at water quality monitoring sites **B-067A** and **B-067B**. No currently active facilities that have fecal coliform limits in their NPDES permits discharge into the creek. The watershed is not within a MS4 designated area. Possible sources of fecal coliform bacteria into Toschs Creek include leaking sewers, urban residential runoff, failing onsite wastewater disposal systems, pets, and wildlife. The TMDL specifies reductions in the load of fecal coliform bacteria into Toschs Creek of 78% (B-067A) and of 74% (B-067B) in order for the creek to meet the recreational use standard.

Funding for TMDL implementation activities is currently available. For more information, see the Bureau of Water web page [www.scdhec.gov/water](http://www.scdhec.gov/water) or call the Watershed Program at (803) 898-4300.

## *Special Projects*

### **Tyger River Basin Fecal Coliform TMDL Implementation Project**

The Tyger River Basin has been included in the South Carolina's Section 303(d) List for impaired waterbodies for violation of the fecal coliform water quality standard. A TMDL for fecal coliform bacteria was developed for the 25 sampling sites within the watershed. Eleven of these fall within the Municipal Separate Storm Sewer System (MS4) areas. TMDLs for the remaining 15 sites call for reductions ranging from 16% to 82%. The TMDL document indicates that nonpoint sources are the main contributors of fecal coliform bacteria contamination for these sites. Four upstate counties, Soil and Water Conservation Districts, the SJWD Water District, USC Upstate have partnered with Clemson University and several other cooperators to implement the TMDL. Their project addresses several strategies for TMDL implementation through the development and promotion of measures focused at reducing fecal coliform contamination. The goal of the project is to reduce the fecal coliform bacteria load to the Tyger River Basin through agricultural practices, rural residential septic system repairs and urban storm water reductions. This will be done by offering cost share assistance to recruit livestock farmers to develop farm plans and implement BMPs to reduce animal waste from entering the watershed and to recruit homeowners to repair failing septic systems. The project will also educate the public about the potential sources of Fecal Coliform and means of reducing fecal coliform pollution of the watershed.

# Fairforest Creek Watershed

## (03050107-04)

