

## 03060101-04

### (Twelvemile Creek/Lake Hartwell)

#### General Description

Watershed 03060101-04 (formerly 03060101-060, -070) is located in Pickens County and consists primarily of *Twelvemile Creek* and its tributaries to its confluence with the Keowee River forming an arm of *Lake Hartwell*. The watershed occupies 98,964 acres of the Blue Ridge and Piedmont regions of South Carolina. Land use/land cover in the watershed includes: 55.6% forested land, 29.7% agricultural land, 12.4% urban land, 1.2% water, 0.7% barren land, and 0.4% forested wetland (swamp). A map depicting this watershed is found in Appendix A, page A-35.

Middle Fork Twelvemile Creek (Cove Creek, Big Rock Lake, Youngs Branch, Blacks Branch, Mill Shoals Creek, California Branch, Adams Creek) and North Fork (Findleys Lake, Hagood Branch) join to form Twelvemile Creek. Downstream from the confluence, Twelvemile Creek accepts drainage from Town Creek, Cannon Creek (Gregory Creek, West Fork, Hayes and Collins Lake), Wolf Creek (Raven Branch), Praters Creek, and Rices Creek (Country Club Lake). Golden Creek (Murphey Branch) enters the stream next, followed by Shoal Creek, Camp Creek, Huggins Creek, Todd Creek, and Pike Creek before forming an arm of Lake Hartwell. There are a total of 371.3 stream miles and 1,193.2 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>
SV-206	SEDM/BIO	FW	NORTH FORK AT US 178, 2.9 MI N OF PICKENS
SV-740	BIO	FW	RICES CREEK AT S-39-158
SV-362	INT	FW	TWELVEMILE CREEK AT S-39-137
SV-239	W	FW	GOLDEN CREEK AT S-39-222, 1.2 MI NW OF LIBERTY
SV-738	BIO	FW	GOLDEN CREEK AT GOLDEN CREEK ROAD
SV-137	INT	FW	TWELVEMILE CREEK AT S-39-337
SV-136	W	FW	1ST CREEK AFTER LEAVING CENTRAL AT CLVT ON MAW BRIDGE RD

*North Fork (SV-206)* – Aquatic life uses are partially supported based on macroinvertebrate community data. There is also a significant increasing trend in five-day biochemical oxygen demand. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter.

*Rices Creek (SV-740)* – Aquatic life uses are partially supported based on macroinvertebrate community data.

*Twelvemile Creek* – There are two SCDHEC monitoring stations along Twelvemile Creek. At the upstream site (*SV-362*), aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions. At the downstream site (*SV-137*), aquatic life uses are fully supported; however, there is a significant increasing trend in five-day

biochemical oxygen demand. There is a significant decreasing trend in pH. Recreational uses are partially supported due to fecal coliform bacteria excursions.

**Golden Creek** - There are two SCDHEC monitoring stations along Golden Creek. At the upstream site (*SV-239*), aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions. At the downstream site (*SV-738*), aquatic life uses are partially supported based on macroinvertebrate community data.

**Twelvemile Creek Tributary (SV-136)** - Aquatic life uses are fully supported; however, there were significant increasing trends in five-day biochemical 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 due to fecal coliform bacteria excursions.

*A fish consumption advisory has been issued by the Department for PCBs (Polychlorinated biphenols) and includes Twelvemile Creek and the impounded area (Lake Hartwell) of Twelvemile Creek within this watershed (see advisory p. 38).*

## **NPDES Program**

### **Active NPDES Facilities**

<b>RECEIVING STREAM FACILITY NAME</b>	<b>NPDES# TYPE</b>
PRATERS CREEK SPANGLERS GROCERY	SC0000434 MINOR INDUSTRIAL
RICES CREEK ALICE MFG/FOSTER & ELLJEAN PLT	SC0000370 MINOR INDUSTRIAL
TOWN CREEK OWT INDUSTRY, INC.	SC0026492 MINOR INDUSTRIAL
TOWN CREEK SCHLUMBERGER TECH. CORP.	SC0046612 MINOR INDUSTRIAL
TOWN CREEK TRIBUTARY KENT MANUFACTURING COMPANY	SCG250154 MINOR INDUSTRIAL
TWELVEMILE CREEK CITY OF PICKENS/12MILE & WOLF CK REG TRT FAC.	SC0047716 MINOR DOMESTIC
TWELVEMILE CREEK PICKENS COUNTY STOCKADE WWTF	SC0047899 MINOR DOMESTIC
TWELVEMILE CREEK TRIBUTARY PICKENS COUNTY/PRISON CAMP MINE	SCG731102 MINOR INDUSTRIAL

MIDDLE FORK TWELVEMILE CREEK CITY OF PICKENS/WTP	SCG643004 MINOR INDUSTRIAL
WOLF CREEK SCHLUMBERGER TECH./SANGAMO/BREAZEALE NPL SITE	SC0047198 MINOR INDUSTRIAL
LAKE HARTWELL/TWELVEMILE CREEK ARM CITY OF CLEMSON/COCHRAN RD WWTP	SC0020010 MAJOR DOMESTIC
LAKE HARTWELL/TWELVEMILE CREEK ARM RC EDWARDS JR HIGH SCHOOL	SC0028762 MINOR DOMESTIC
LAKE HARTWELL TRIBUTARY CHRISTOFF CONSTRUCTION CO./ISAQUEENA VILLAGE	SC0023141 MINOR DOMESTIC
HUGGINS CREEK SHAW INDUSTRIES GROUP/CLEMSON	SC0000302 MAJOR INDUSTRIAL
TWELVEMILE CREEK SHAW INDUSTRIES GROUP/CLEMSON	SC0000302 MAJOR INDUSTRIAL
TWELVEMILE CREEK CATEECHEE VILLAGE INC. WWTP	SC0022012 MINOR DOMESTIC
TWELVEMILE CREEK TRIBUTARY PICKENS COUNTY PSC/CENTRAL/NORTH PLT	SC0024996 MINOR DOMESTIC
GOLDEN CREEK PICKENS COUNTY-LIBERTY/ROPER LAGOON	SC0026191 MINOR DOMESTIC
GOLDEN CREEK EASLEY COMBINED UTIL./EASLEY-GOLDEN CREEK LAGOON	SC0023035 MINOR DOMESTIC
GOLDEN CREEK VULCAN CONSTRUCTION MATERIALS/LIBERTY	SCG730065 MINOR INDUSTRIAL
PIKE CREEK AMERICAN HOUSE SPINNING	SC0000132 MINOR INDUSTRIAL
TOWN CREEK SAM COX INVESTMENTS/MINE	SCG731023 MINOR INDUSTRIAL
TOWN CREEK TRIBUTARY JIM PATTEN/PAT'S MINE	SCG731062 MINOR INDUSTRIAL
GOLDEN CREEK TRIBUTARY IMPERIAL DIE CASTING CORP.	SCG250169 MINOR INDUSTRIAL
GOLDEN CREEK TRIBUTARY PICKENS COUNTY/TRAINING FACIL MINE	SCG731111 MINOR INDUSTRIAL

***Municipal Separate Storm Sewer Systems (MS4)***

<b><i>RECEIVING STREAM</i></b>	<b><i>NPDES#</i></b>
<b><i>MUNICIPALITY</i></b>	<b><i>MS4 PHASE</i></b>
<b><i>RESPONSIBLE PARTY</i></b>	<b><i>MS4 SIZE</i></b>
<b><i>IMPLEMENTING PARTY</i></b>	
TWELVEMILE CREEK CITY OF CLEMSON CITY OF CLEMSON CITY OF CLEMSON	----- PHASE II SMALL MS4
TWELVEMILE CREEK CITY OF EASLEY CITY OF EASLEY CITY OF EASLEY	SCR037701 PHASE II SMALL MS4
TWELVEMILE CREEK CITY OF LIBERTY CITY OF LIBERTY CITY OF LIBERTY	SCR037702 PHASE II SMALL MS4
TWELVEMILE CREEK CITY OF PICKENS CITY OF PICKENS PICKENS COUNTY	SCR037703 PHASE II SMALL MS4
TWELVEMILE CREEK UNINCORPORATED AREAS PICKENS COUNTY PICKENS COUNTY	SCR037704 PHASE II SMALL MS4

**Nonpoint Source Management Program**

***Land Disposal Activities***

**Landfill Facilities**

<b><i>LANDFILL NAME</i></b>	<b><i>PERMIT #</i></b>
<b><i>FACILITY TYPE</i></b>	<b><i>STATUS</i></b>
SANGAMO/ERNEST NIX PROPERTY INDUSTRIAL	----- INACTIVE
PICKENS HIGH SCHOOL SHORT TERM LANDFILL	392900-1302 INACTIVE
EASLEY C&D & LCD LANDFILL DOMESTIC	391001-1201 INACTIVE
PICKENS COUNTY COMP. SITE COMPOSTING	391001-3001 INACTIVE
PICKENS COUNTY SANITARY LANDFILL DOMESTIC	----- INACTIVE
PICKENS COUNTY AIR CURT. DESTR. INCENERATOR	391001-4001 ACTIVE

PICKENS COUNTY TRANSFER STATION TRANSFER STATION	391001-6001 ACTIVE
EASLEY MUNICIPAL SW LANDFILL DOMESTIC	391001-1101 ACTIVE
CITY OF CLEMSON BRUSH RECYCLING CTR COMPOSTING	391002-3001 ACTIVE
RANDY THOMAS LAND CLEARING DEBRIS LANDFILL C&D	392762-1701 ACTIVE
SOUTHERN GRADING I SITE COMPOSTING	232701-3001 ACTIVE
CITY OF EASLEY C&D	391003-1701 ACTIVE

### Land Application Sites

*LAND APPLICATION SYSTEM  
FACILITY NAME*

*ND#  
TYPE*

PERCOLATION POND MONTE VISTA SD	ND0067407 DOMESTIC
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### Mining Activities

*MINING COMPANY  
MINE NAME*

*PERMIT #  
MINERAL*

VULCAN CONSTRUCTION CO. LIBERTY QUARRY	0060-77 GRANITE
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### Water Quantity

*WATER USER  
STREAM*

*TOTAL PUMP. CAP (MGD)  
RATED PUMP CAP (MGD)*

TOWN OF PICKENS CITY RESERVOIR/NORTH FORK	10.6 5.3
TOWN OF PICKENS TWELVEMILE CREEK	4.0 2.0
CITY OF EASLEY CENTRAL WD TWELVEMILE CREEK	6.0 3.0

### Growth Potential

There is a moderate potential for growth in this watershed, which contains portions of the Towns of Six Mile, Central, Norris, Liberty, and Pickens and the Cities of Clemson and Easley. This growth will occur, provided there is sufficient infrastructure to accommodate it. Commercial growth is predicted between Pickens and Easley along SC 8. The residential growth trend is eastward from Clemson to Central, Liberty, and Easley along SC 93 and US 123. Easley has the greatest potential for commercial growth due to its proximity to SC 93, SC 153, and SC 8, and US 123. Industrial growth in this watershed is due, in part, to the established infrastructure

and transportation system, and the proximity of I-85. The topography of Easley is most conducive to industrial development and gives it the highest potential for growth in this area. The Town of Liberty also has a high potential for industrial growth due to the large tracts in the Liberty vicinity that are projected to develop, pending the construction of new or expanded sewage disposal plants in the area. Construction of these will encourage growth along the US 123 corridor as well.

## **Watershed Protection and Restoration Strategies**

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

TMDLs were developed for SCDHEC and approved by EPA for the water quality monitoring sites at **Twelvemile Creek** (SV-015, SV-362, and SV-137), unnamed **Twelvemile Creek Tributary** (SV-136), **North Fork** (SV-206), and **Golden Creek** (SV-239). The TMDLs determine the maximum amount of fecal coliform bacteria the stream can receive and still meet water quality standards. There were several permitted wastewater treatment facilities located on Twelvemile Creek and its tributaries. The Twelvemile Creek watershed has four designated small MS4s. Probable sources of fecal coliform bacteria that were identified in the watershed are grazing livestock, especially cattle with access to creeks, failing septic systems, and urban runoff. The TMDLs state that reductions of 39% to 64% in fecal coliform loading are necessary for these streams to meet the recreational use standard.

The nonpoint source component of the above TMDLs has been implemented using §319 grant funds. Implementation was completed in June 2008. For more information on §319 grants, visit <http://www.scdhec.gov/water> and click on Nonpoint Source Program.

