

03050105-16

(*Broad River*)

General Description

The South Carolina portion of 03050105-16 (formerly 03050105-090, -110) is located in Cherokee and York Counties and consists primarily of the **Broad River** and its tributaries from the North Carolina border to the Pacolet River. The watershed occupies 105,590 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 51.2% forested land, 33.5% agricultural land, 10.5% urban land, 2.2% scrub/shrub land, 2.0% water, 0.5% forested wetland, 0.1% barren land.

After the Broad River crosses the state line, it accepts drainage from Goforth Creek, Ross Creek (Sarratt Creek), Mikes Creek, Morgan Creek, the Bowen River (Wylies Creek), and the Buffalo Creek Watershed. Further downstream, Cherokee Creek (Lake Whelchel, Allison Creek, Providence Creek) and Peoples Creek (Furnace Creek, Toms Branch) drain into the river near the City of Gaffney. Doolittle Creek enters the river next, near the Town of Blacksburg, followed by London Creek (Lake Cherokee, Little London Creek), Bear Creek, McKowns Creek, Dry Branch, the Kings Creek Watershed, and Quinton Branch. Mud Creek enters the river next, downstream of Mud Island, followed by Guyonmoore Creek, Mountain Branch, Abingdon Creek (Wolf Branch, Service Branch, Jenkins Branch), the Thicketty Creek Watershed, Beaverdam Creek (McDaniel Branch), the Bullock Creek Watershed, and Dry Creek (Nelson Creek). There are a total of 164.0 stream miles and 465.5 acres of lake waters in this watershed, all classified FW.

A fifteen mile segment of the Broad River, extending from Ninety Nine Islands Dam to the river's confluence with the Pacolet River is designated as a South Carolina State Scenic River in recognition of it's outstanding natural resources.

Surface Water Quality

| <u>Station #</u> | <u>Type</u> | <u>Class</u> | <u>Description</u> |
|------------------|-------------|--------------|---|
| RS-03352 | RS03 | FW | ROSS CREEK AT S-11-63 (ELLIS FERRY RD), 6 MI N OF GAFFNEY |
| B-789 | BIO | FW | ROSS CREEK AT SR 577 |
| B-788 | BIO | FW | BOWEN RIVER AT SR 83 |
| B-042 | P/INT | FW | BROAD RIVER AT SC 18, 4 MI NE GAFFNEY |
| B-088 | S/W | FW | CANOE CREEK AT S-11-245, 2 MI W OF BLACKSBURG |
| RL-01029 | RL01 | FW | LAKE WHELCHER, 2.7 MI N OF GAFFNEY |
| RL-03341 | RL03 | FW | L. WHELCHER, 2.7 MI NE OF GAFFNEY, FROM GAFFNEY PUB WORKS LANDING |
| B-056 | INT | FW | CHEROKEE CREEK AT US 29, 3 MI E OF GAFFNEY |
| B-679 | BIO | FW | CHEROKEE CREEK AT SC 329 |
| B-211 | S/W | FW | PEOPLES CREEK AT UNIMPROVED ROAD, 2.3 MI E OF GAFFNEY |
| B-100 | S/W | FW | FURNACE CREEK AT S-11-50, 6 MI E OF GAFFNEY |
| B-323 | S/W | FW | DOOLITTLE CREEK AT S-11-100, 1.25 MI SE OF BLACKSBURG |
| B-343 | W | FW | LAKE CHEROKEE IN FOREBAY NEAR DAM |
| B-330 | S/W | FW | GUYONMOORE CREEK AT S-46-233 |
| RS-02482 | RS02 | FW | GUYONMOORE CREEK GOOSE HOLLOW RD FROM S-46-816 WOODEN BRIDGE |
| B-044 | P/INT | FW | BROAD RIVER AT SC 211, 12 MI SE OF GAFFNEY |

Ross Creek - There are two SCDHEC monitoring stations along Ross Creek. At the upstream site (**RS-03352**), aquatic life and recreational uses are fully supported. At the downstream site (**B-789**), aquatic life uses are fully supported based on macroinvertebrate community data.

Bowen River (B-788) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Broad River – There are two SCDHEC monitoring stations along this section of the Broad River. At the upstream site (**B-042**), aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life chronic criterion. There are also significant increasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration. At the downstream site (**B-044**), aquatic life uses are fully supported; however, there are significant decreasing trends in dissolved oxygen concentration and increasing trends in five-day biochemical oxygen demand and total nitrogen concentration. Recreational uses are partially supported at both sites due to fecal coliform bacteria excursions; however, significant decreasing trends in fecal coliform bacteria concentration suggest improving conditions for this parameter at both sites. *Fish tissue samples from the Broad River indicate no advisories are needed at this time.*

Canoe Creek (B-088) – Aquatic life uses are fully supported, and there is a significant increasing trend in dissolved oxygen concentration. Recreational uses are not supported due to fecal coliform bacteria excursions, which are compounded by a significant increasing trend in fecal coliform bacteria concentration.

Lake Whelchel – There are two SCDHEC monitoring stations along Lake Whelchel. At the uplake site (**RL-01029**), aquatic life uses are not supported due to chlorophyll-a excursions. A very high concentration of cadmium was measured in the 2001 sediment sample. At the downlake site (**RL-03341**), aquatic life uses are partially supported due to pH excursions. The 2003 sediment sample revealed very high concentrations of cadmium and chromium, and a high concentration of nickel. DDD, DDE (metabolites of DDT), and DDT were detected in the sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are fully supported at both sites.

Cherokee Creek - There are two SCDHEC monitoring stations along Cherokee Creek. At the upstream site (**B-056**), aquatic life and recreational uses are fully supported. Significant decreasing trends in total phosphorus concentration, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters. At the downstream site (**B-679**), aquatic life uses are partially supported based on macroinvertebrate community data.

Peoples Creek – There are two SCDHEC monitoring stations along Peoples Creek. There is a significant decreasing trend in pH at both sites. At the upstream site (**B-211**), aquatic life uses are fully supported. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. At the downstream site (**B-100**), aquatic life uses are fully supported; however, there is an increasing trend in five-day biochemical oxygen demand. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. DDT was

detected in the 2004 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Doolittle Creek (B-323) – Aquatic life uses are fully supported; however, there is an increasing trend in five-day biochemical oxygen demand and a decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Lake Cherokee (B-343) – Aquatic life and recreational uses are fully supported.

Guyonmoore Creek – There are two SCDHEC monitoring stations along Guyonmoore Creek. At the upstream site (***B-330***), aquatic life and recreational uses are fully supported; however, there is an increasing trend in five-day biochemical oxygen demand and a decreasing trend in dissolved oxygen concentration. A very high concentration of cadmium was measured in the 2004 sediment sample. Aquatic life and recreational uses are fully supported at the downstream site (***RS-02482***).

NPDES Program

Active NPDES Facilities

| <i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)</i> | <i>NPDES# TYPE COMMENT</i> |
|--|---|
| BROAD RIVER SC DISTRIBUTORS INC. PIPE #: 001 FLOW: 0.04 | SC0002755 MINOR DOMESTIC |
| BROAD RIVER MILLIKEN & CO./MAGNOLIA PLT PIPE #: 001 FLOW: 3.89 | SC0003182 MAJOR INDUSTRIAL |
| BROAD RIVER COKER INTERNATIONAL LLC PIPE #: 001 FLOW: 0.0005 | SC0035947 MAJOR INDUSTRIAL |
| BROAD RIVER CITY OF GAFFNEY/PEOPLES CREEK PLT PIPE #: 001 FLOW: 4.0 | SC0047091 MAJOR DOMESTIC |
| BROAD RIVER TOWN OF BLACKSBURG/CANOE CREEK PLT PIPE #: 001 FLOW: 0.68 | SC0047457 MINOR DOMESTIC |
| BROAD RIVER RAY BROWN/BROWN #3 SAND MINE PIPE #: 001 FLOW: M/R | SCG730542 MINOR INDUSTRIAL |
| BROAD RIVER THOMAS SAND/BLACKSBURG PIPE #: 001 FLOW: M/R | SCG730627 MINOR INDUSTRIAL |

| | |
|--|-------------------------------|
| CHEROKEE CREEK CORE MOLDING TECHNOLOGIES PIPE #: 001 FLOW: M/R | SCG250199 MINOR INDUSTRIAL |
| CHEROKEE CREEK HANSON BRICKEAST/HIGGINS RED CLAY PIT PIPE #: 001 FLOW: M/R | SCG730504 MINOR INDUSTRIAL |
| CHEROKEE CREEK HANSON BRICK EAST/BROAD RIVER SHALE MINE PIPE #: 001, 002 FLOW: M/R | SCG730507 MINOR INDUSTRIAL |
| PEOPLES CREEK HAMRICK MILLS INC. PIPE #: 001 FLOW: M/R | SCG250167 MINOR INDUSTRIAL |
| PROVIDENCE BRANCH BPW/VICTOR GAFFNEY WTP PIPE #: 001 FLOW: 1.02 | SCG645045 MINOR DOMESTIC |

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

| <i>LANDFILL NAME</i> <i>FACILITY TYPE</i> | <i>PERMIT #</i> <i>STATUS</i> |
|---|----------------------------------|
| CITY OF GAFFNEY LANDFILL DOMESTIC | DWP-918; DWP-908 CLOSED |
| CITY OF GAFFNEY C/C LANDFILL DOMESTIC | 111002-1201 ACTIVE |
| CHEROKEE COUNTY SW TRANSFER FAC. DOMESTIC | 111001-6001 CLOSED |
| BLACKSBURG DUMP-METROMONT DOMESTIC | ----- CLOSED |
| CHEROKEE COUNTY COMPOSTING SITE COMPOSTING | 111001-3001 ACTIVE |
| CHEROKEE COUNTY RECYCLING CENTER RECYCLING | 111001-5001 ACTIVE |
| CHEROKEE COUNTY SHORT TERM C&D C&D | 111001-1301 INACTIVE |
| DUKE POWER BURIAL SITE INDUSTRIAL | IWP-142 INACTIVE |
| CHEROKEE COUNTY LANDFILL DOMESTIC | 111001-1101 CLOSED |

Land Application Sites

| <i>LAND APPLICATION SYSTEM</i> <i>FACILITY NAME</i> | <i>ND#</i> <i>TYPE</i> |
|--|---------------------------|
| SPRAYFIELD PEELER RUG COMPANY | ND0070980 INDUSTRIAL |

Mining Activities

| <i>MINING COMPANY MINE NAME</i> | <i>PERMIT # MINERAL</i> |
|---|------------------------------------|
| RANDOLPH BROAD RIVER PLANT BROAD RIVER PLANT | 0042-21 SAND |
| THOMAS SAND COMPANY BLACKSBURG PLANT | 0869-21 SAND |
| RAY BROWN ENTERPRIZES BROWN #3 SAND MINE | 1070-21 SAND |
| HANSON BRICK EAST LLC HIGGINS RED CLAY PIT | 0113-21 CLAY |
| HANSON BRICK EAST LLC SHALE PIT | 0114-21 SHALE |

Water Quantity

| <i>WATER USER STREAM</i> | <i>REGULATED CAP. (MGD) PUMPING CAP. (MGD)</i> |
|--------------------------------------|---|
| CITY OF GAFFNEY BPW BROAD RIVER | 12.0 18.0 |
| CITY OF GAFFNEY BPW LAKE WHELCHER | ---- 18.0 |

Growth Potential

There is a moderate potential for growth in this watershed, which contains portions of the Town of Blacksburg and the City of Gaffney. The City of Gaffney is planning for new subdivision growth by considering new regional treatment facilities near the Cherokee Creek-Broad River area. Major growth is expected along the I-85 corridor, particularly in the area north of Gaffney. Commercial growth is also associated with the I-85 corridor near the S.C. Hwy. 11 interchange north of Gaffney and at the S.C. Hwy. 105 interchange with the new outlet center. The potential for industrial growth exists along S.C. Hwy. 329 east of Gaffney due to an existing industrial park. Duke Power built a natural gas-fired power plant, Mill Creek Combustion Turbine Station in watershed 03040105-09 in 2003, and it is expected to bring some growth to the area. Duke Power will buy water from the nearby Town of Blacksburg.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

TMDLs were developed for SCDHEC and approved by EPA for fecal coliform bacteria in the **Broad River** at water quality monitoring sites **B-042** and **B-044**. Currently there are several active facilities that have fecal coliform limits in their NPDES permits to discharge into the river. Though Peoples and Cherokee Creeks are partly within a Municipal Separate Storm Sewer System (MS4) designated area, none of the direct Broad River drainage is in a MS4. Possible sources of fecal coliform bacteria into the Broad River include failing onsite wastewater

disposal systems, cattle in creeks, urban residential runoff, pets, and wildlife. The TMDL specifies reductions in the load of fecal coliform bacteria into the Broad River of 68% (B-042) and 53% (B-044) in order for the river to meet the recreational use standard.

TMDLs were developed for SCDHEC and approved by EPA for fecal coliform bacteria in **Peoples Creek** at water quality monitoring sites **B-211** and **B-100**. No currently active facilities that have fecal coliform limits in their NPDES permits discharge into the creek. A small part of the watershed is within a MS4 designated area for the City of Gaffney. Possible sources of fecal coliform bacteria in Peoples Creek include leaking sewers, failing onsite wastewater disposal systems, urban residential runoff, pets, and wildlife. The TMDL specifies reductions in the load of fecal coliform bacteria into Peoples Creek of 81% (B-211) and 68% (B-100) 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 **Cherokee Creek** at water quality monitoring site B-056. Currently there is one active facility that has fecal coliform limits in its NPDES permit to discharge into the creek. A small area of the watershed is within a MS4 designated area for the City of Gaffney. Possible sources of fecal coliform bacteria in Cherokee Creek include failing onsite wastewater disposal systems, urban residential runoff, leaking sewers, MS4 runoff, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Cherokee Creek of 76% 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 **Canoe Creek** at water quality monitoring site **B-088**. Currently there is no active facility that has fecal coliform limits in its NPDES permit to discharge into the creek. None of the watershed is within a MS4 designated area. Possible sources of fecal coliform bacteria in Canoe Creek include failing onsite wastewater disposal systems, urban residential runoff, leaking sewers, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Canoe Creek of 75% 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 **Doolittle Creek** at water quality monitoring site **B-323**. Currently there is no active facility that has fecal coliform limits in its NPDES permit to discharge into the creek. None of the watershed is within a MS4 designated area. Possible sources of fecal coliform bacteria in Doolittle 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 Doolittle Creek of 70% 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 **Guyonmoore Creek** at water quality monitoring site **B-330**. Currently there is no active facility that has fecal coliform limits in its NPDES permit to discharge into the creek. None of the watershed is within a MS4 designated area. Possible sources of fecal coliform bacteria in Guyonmoore Creek include failing onsite wastewater disposal systems, cattle in the creeks, pets, and wildlife. The TMDL specifies a reduction in the load of fecal coliform bacteria into Guyonmoore Creek of 65% in order for the creek to meet the recreational use standard.

Broad River/Kings Creek/ Buffalo Creek Watersheds (03050105-05, -08, -09, -16)

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|--|-----------------------------------|--|---------------------------|
| | Macroinvertebrate Stations | | Railroad Lines |
| | Water Quality Monitoring Stations | | Highways |
| | Approved TMDL | | County Lines |
| | Groundwater Monitoring Stations | | Modeled Stream |
| | Mines | | Stream |
| | Landfills | | Lake |
| | NPDES Permits | | Wetland |
| | Land Application Permits | | 10-Digit Hydrologic Units |
| | Natural Swimming Areas | | Cities/Towns |
| | Interstates | | Public Lands |

