

03050109-08

(*Saluda River/Lake Greenwood*)

General Description

Watershed 03050109-08 (formerly 03050109-080, 090 minus Reedy River arm of Lake Greenwood) is located in 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 182,629 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 55.6% forested land, 27.8% agricultural land, 8.0% urban land, 5.7% water, 1.7% forested wetland (swamp), and 1.2% barren land.

This section of the Saluda River accepts drainage from Toney Creek, Mountain Creek, Little Creek, and Broad Mouth Creek (Chinquola Mill Creek, Still Branch) before forming Lake Greenwood. Turkey Creek accepts drainage from Goose Creek, Gibson Creek (Gypsy Creek), Dunns Creek, and Little Turkey Creek before forming an arm of Lake Greenwood. Mulberry Creek (Dudley Creek), Camp Branch, Reedy River Watershed, Quarter Creek, and Cane Creek drain into Lake Greenwood forming arms of the lake. 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 594.3 stream miles and 9,594.5 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> |
|------------------|-------------|--------------|--|
| RS-06030 | RS06 | FW | SALUDA RIVER TRIB. AT RIVER RD. BRIDGE, 7.1 MI SE OF WILLIAMSTON |
| S-990 | BIO | FW | MOUNTAIN CREEK TRIBUTARY AT OAK HILL DR, W. OF US 25 |
| S-864 | BIO | FW | MOUNTAIN CREEK AT SR 51 |
| S-289 | W | FW | BROAD MOUTH CREEK AT S-04-267 |
| RS-04364 | RS04/BIO | FW | BROAD MOUTH CK AT BRIDGE ON S-04-265, 3.5MI NNW OF HONOEIA PATH |
| S-010 | W | FW | BROAD MOUTH CREEK AT US 76 |
| S-775 | BIO | FW | BROAD MOUTH CREEK AT S-04-81 |
| S-304 | INT | FW | BROAD MOUTH CREEK AT S-01-111 |
| S-125 | INT | FW | SALUDA RIVER AT US 25 BYPASS, 1.5 MILES ESE OF WARE SHOALS |
| S-989 | BIO | FW | GIBSON CREEK AT BOLT ROAD |
| S-858 | BIO | FW | TURKEY CREEK AT SR 96 |
| S-024 | INT | FW | LAKE GREENWOOD HEADWATERS, JUST UPSTREAM OF S-30-33 |
| RL-02311 | RL02 | FW | LAKE GREENWOOD, 1.0 MI NW OF SEABOARD RR CROSSING |
| S-131 | W | FW | LAKE GREENWOOD AT US 221, 7.6 MILES NNW OF NINETY SIX |
| S-097 | W | FW | L. GREENWOOD, CANE CK ARM AT SC 72, 3.1 MILES SW OF CROSS HILL |
| RL-04387 | RL04 | FW | LAKE GREENWOOD, 2.2 MI NW OF LAKE GREENWOOD STATE PARK |
| S-303 | INT | FW | LAKE GREENWOOD 200 FEET UPSTREAM OF DAM |

Saluda River Tributary (RS-06030) – Aquatic life uses are fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

Mountain Creek Tributary – Aquatic life uses are partially supported based on macroinvertebrate community data.

Mountain Creek – Aquatic life uses are fully supported based on macroinvertebrate community data.

Broad Mouth Creek – There are five SCDHEC monitoring stations along Broadmouth Creek. At the furthest upstream site (*S-289*), aquatic life uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration, and increasing trends in dissolved oxygen concentration suggest improving conditions for these parameters. 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. Moving downstream (*RS-04364*), aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream (*S-010*), aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in total phosphorus concentration and increasing trends in dissolved oxygen concentration 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-775*), aquatic life uses are fully supported based on macroinvertebrate community data. At the furthest downstream site (*S-304*), 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 this site due to fecal coliform bacteria excursions.

Saluda River (*S-125*) - Aquatic life and recreational uses are fully supported; however, there are significant increasing trends in five-day biochemical oxygen demand and total nitrogen concentration and decreasing trends in dissolved oxygen concentration. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter.

Gibson Creek (*S-989*) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Turkey Creek (*S-858*) – Aquatic life uses are partially 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 68.9 feet and an average depth of approximately 23.0 feet. The lake's watershed comprises 779.8 square miles. There are five SCDHEC monitoring stations along Lake Greenwood and recreational uses are fully supported at all sites. At the furthest uplake site (*S-024*), aquatic life uses are partially supported due to pH excursions. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. Moving downlake (*RL-02311*), aquatic life uses are again partially supported due to pH excursions. At the midlake site (*S-131*), aquatic life uses are fully supported; however, there are significant increasing trends in five-day biochemical oxygen demand and decreasing trends in dissolved oxygen concentration. A significant decreasing trend in fecal coliform bacteria concentration at this site suggests

improving conditions for this parameter. Further downlake (**RL-04387**), aquatic life uses are fully supported. At the furthest downlake site (**S-303**), aquatic life uses are partially supported due to occurrences of copper in excess of the aquatic life chronic criterion. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter at this site. *Fish tissue analyses on species caught from Lake Greenwood indicate no advisories or restrictions on consumption of fish from these waters.*

Cane Creek Arm of Lake Greenwood (S-097) – Aquatic life and recreational uses are fully supported; however, there are significant increasing trends in total phosphorus concentration and decreasing trends in dissolved oxygen concentration. *Fish tissue analyses on species caught from Lake Greenwood indicate no advisories or restrictions on consumption of fish from these waters.*

Natural Swimming Areas

| <i>FACILITY NAME</i> | <i>PERMIT #</i> |
|--|------------------|
| <i>RECEIVING STREAM</i> | <i>STATUS</i> |
| LAURENS BAPTIST CHURCH LAKE GREENWOOD | 30-N03 ACTIVE |
| CAMP FELLOWSHIP LAKE GREENWOOD | 30-N04 ACTIVE |

Groundwater Quality

| <u>Well #</u> | <u>Class</u> | <u>Aquifer</u> | <u>Location</u> |
|---------------|--------------|------------------|-----------------|
| AMB-068 | GB | PIEDMONT BEDROCK | CHAPPELS |

All water samples collected from ambient monitoring well **AMB-068** met standards for Class GB groundwater.

NPDES Permitted Activities

Active NPDES Facilities

| <i>RECEIVING STREAM</i> | <i>FACILITY NAME</i> | <i>NPDES#</i> | <i>TYPE</i> |
|-------------------------|---|---------------|------------------|
| SALUDA RIVER | TOWN OF WARE SHOALS/DAIRY STREET | SC0020214 | MAJOR DOMESTIC |
| SALUDA RIVER | CITY OF BELTON/DUCWORTH | SC0045896 | MAJOR DOMESTIC |
| SALUDA RIVER | TOWN OF WILLIAMSTON/BIG CREEK EAST WWTP | SC0046841 | MAJOR DOMESTIC |
| SALUDA RIVER | COOPER SAND & GRAVEL/SALUDA R. UPPER PL | SCG730157 | MINOR INDUSTRIAL |
| SALUDA RIVER TRIBUTARY | WR GRACE & CO./EZELL MINE | SCG730109 | MINOR INDUSTRIAL |
| SALUDA RIVER TRIBUTARY | BELTON HONEA PATH WATER AUTHORITY | SC0040827 | MINOR DOMESTIC |

| | |
|--|-------------------------------|
| LAKE GREENWOOD WR WISE WTP | SCG641009 MINOR INDUSTRIAL |
| CAMP BRANCH VULCAN CONSTR. MAT. CO./GREENWOOD QUARRY | SCG730051 MINOR INDUSTRIAL |
| CAMP BRANCH VULCAN CONSTR. MAT. CO./STONE PIT | SCG730252 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK TRANSMONTAIGNE/BELTON/PIEDMONT | SCG340019 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK BP PRODUCTS IN AMERICA/BELTON TERM. | SCG340013 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK MARATHON PETROLEUM/BELTON | SCG340014 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK COLONIAL PIPELINE/BELTON | SCG340020 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK INGERSOLL-RAND CO. | SC0047520 MINOR INDUSTRIAL |
| BROAD MOUTH CREEK BELTON INDUSTRIES INC. | SC0000698 MINOR INDUSTRIAL |
| LITTLE TURKEY CREEK CLEDENIN LUMBER CO. | SC0048356 MINOR INDUSTRIAL |

Municipal Separate Storm Sewer Systems (MS4)

| <i>RECEIVING STREAM</i> | <i>NPDES#</i> |
|--|------------------------------------|
| <i>MUNICIPALITY</i> | <i>MS4 PHASE</i> |
| <i>RESPONSIBLE PARTY</i> | <i>MS4 SIZE</i> |
| <i>IMPLEMENTING PARTY</i> | <i>COUNTY</i> |
| LAKE GREENWOOD ----- GREENVILLE COUNTY GREENVILLE COUNTY | SCS230001 PHASE I MEDIUM MS4 |
| LAKE GREENWOOD CITY OF BELTON CITY OF BELTON ANDERSON COUNTY | SCR030703 PHASE II SMALL MS4 |
| LAKE GREENWOOD UNINCORPORATED AREAS ANDERSON COUNTY ANDERSON COUNTY | SCR030702 PHASE II SMALL MS4 |

Nonpoint Source Permitted Activities

Land Disposal Activities

Landfill Facilities

| <i>LANDFILL NAME</i> | <i>PERMIT #</i> |
|-----------------------------|------------------------|
| <i>FACILITY TYPE</i> | <i>STATUS</i> |
| MONSANTO CO. INDUSTRIAL | ----- INACTIVE |

| | |
|---|-------------------------|
| RIEGEL TEXTILE CORP. INDUSTRIAL | ----- INACTIVE |
| BHC TRUCKING LCD LANDFILL C&D | 242783-1701 ACTIVE |
| BELTON INDUSTRIES, INC. C&D LANDFILL C&D | 042477-1301 INACTIVE |
| CITY OF BELTON LCD & YT LANDFILL C&D | 041005-1701 ACTIVE |
| THOMAS BUZHARDT PROPERTY INDUSTRIAL | ----- INACTIVE |
| RIDGE ROAD DUMP DOMESTIC | ----- INACTIVE |
| MICHELIN AMERICA INDUSTRIAL | 303311-1601 ACTIVE |
| WARE SHOALS DYEING & PRINTING INDUSTRIAL | ----- INACTIVE |
| HONEA PATH CITY DUMP MUNICIPAL | ----- INACTIVE |
| HONEA PATH YT&D COMPOSTING COMPOSTING | 041002-3001 ACTIVE |

Mining Activities

| <i>MINING COMPANY</i> <i>MINE NAME</i> | <i>PERMIT #</i> <i>MINERAL</i> |
|---|---|
| COOPER SAND & GRAVEL COMPANY, INC. SALUDA RIVER MINE | 0242-07 SAND |
| THOMASON CONSTRUCTION TAYLOR MINE | 0944-01 SAND |
| WR GRACE & CO. EZELL MINE | 0987-59 VERMICULITE |
| WILSON BROTHERS SAND COMPANY, INC. BOLING MINE | 0166-47 SAND |
| HANSON AGGREGATES SE, INC. WILSON QUARRY | 1010-47 GRANITE |
| TARMAC MID-ATLANTIC, INC. GREENWOOD QUARRY | 0134-47 GRANITE |

Water Quantity

| <i>WATER USER</i> <i>STREAM</i> | <i>REG. CAPACITY (MGD)</i> <i>PUMPING CAPACITY (MGD)</i> |
|--|---|
| GREENWOOD CPW | 30.0 |
| LAKE GREENWOOD | 39.0 |

Growth Potential

There is a moderate potential for growth in this watershed, which contains the Town of Ware Shoals and portions of the Towns of Honea Path, Donalds, Hodges, Waterloo, and Cross Hill, the City of Belton, and the Coronaca community. 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. The major sewer interceptor connects Honea Path with Ware Shoals. The corridor that runs along US 76 from Honea Path to Belton and on to Williamston will continue to be a growth area.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

TMDLs were developed by SCDHEC and approved by EPA for **Broad Mouth Creek** at water quality monitoring sites S-010, S-289, and S-304. The TMDLs determine the maximum amount of fecal coliform bacteria these streams can receive and still meet water quality standards. There was one permitted wastewater treatment facility located on Broad Mouth Creek. Part of the watershed has been designated as a small MS4. Probable sources of fecal coliform bacteria that were identified in the watershed are failing septic systems, leaking sewers, sanitary sewer overflows, agricultural runoff, cattle-in-streams, and urban runoff. The TMDLs require reductions of 49% to 75% in fecal coliform loading for this stream to meet the recreational use standard.

Protection Strategies

Although SCDHEC's long-term monitoring has not indicated that the Saluda River arm of Lake Greenwood is violating the phosphorus standard, SCDHEC took a proactive approach to avoid potential for nutrient-related problems, such as algal blooms, do not occur. In May 2011, SCDHEC reissued the 12 domestic NPDES permits in the Saluda River watershed with new requirements for phosphorus limits. As part of the permitting process, the utilities entered into a trading agreement to collectively determine how much phosphorous each utility would discharge. Each permit is linked to that agreement and signed by DHEC and the utilities.

Saluda River Watershed (03050109-08)

