

03040201-09
(*Jeffries Creek*)

General Description

Watershed 03040201-09 is located in Darlington and Florence Counties and consists primarily of *Jeffries Creek* and its tributaries. The watershed occupies 137,175 acres of the Upper and Lower Coastal Plain regions of South Carolina. Land use/land cover in the watershed includes: 28.3% forested wetland, 27.5% agricultural land, 23.9% forested land, 18.4% urban land, 1.4% nonforested wetland, 0.4% water, and 0.1% barren land.

Jeffries Creek accepts drainage from Beaverdam Creek, Gulley Branch, Pye Branch, Middle Swamp (Oakdale Lake, Forest Lake, Alligator Branch, Billy Branch), Eastman Branch, and Cane Branch. Polk Swamp Canal (Polk Swamp, Adams Branch, Twomile Creek, Canal Branch) enters the system downstream, followed by Middle Branch, Long Branch, Boggy Branch, More Branch, and Willow Creek (Little Willow Creek, Cypress Creek, Spring Branch, Claussen Branch). The Jeffries Creek Watershed drains into the Great Pee Dee River. There are a total of 229.5 stream miles and 353.2 acres of lake waters in this watershed. Jeffries Creek, Pye Branch, and Middle Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
PD-639	BIO	FW*	JEFFRIES CREEK AT COUNTY ROAD 13
PD-255	W	FW*	JEFFRIES CREEK AT SC 340 6.8 MI SSW OF DARLINGTON
PD-256	W	FW*	JEFFRIES CREEK AT S-21-112 4.8 MI W OF FLORENCE
PD-065	W	FW	GULLEY BRANCH AT S-21-13, TIMROD PARK
PD-230	W	FW*	MIDDLE SWAMP AT SC 51 3.5 MI SSE OF FLORENCE
RS-07205	RS07	FW	POLK SWAMP CANAL AT S-21-918, 5.75 MI ESE OF FLORENCE
PD-035	W	FW*	JEFFRIES CREEK AT SC 327 AT CLAUSSEN
PD-231	INT	FW*	JEFFRIES CREEK AT UNNUMBERED RD 3.3 MI ESE OF CLAUSSEN
PD-167	W	FW	WILLOW CREEK AT S-21-57

Jeffries Creek - There are five SCDHEC monitoring sites along Jeffries Creek. At the furthest upstream site (**PD-639**), aquatic life uses are partially supported based on macroinvertebrate community data. Further downstream (**PD-255**), aquatic life uses are partially supported due to dissolved oxygen excursions. Recreational uses are fully supported. At the next site downstream (**PD-256**), aquatic life uses are not supported due to dissolved oxygen excursions. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream (**PD-035**), aquatic life uses are fully supported. Recreational uses are not supported due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria. At the furthest downstream site (**PD-231**), aquatic life and recreational uses are fully supported; however, there are significant decreasing trends in dissolved oxygen concentration and increasing trends in five-day biological oxygen demand, turbidity, and fecal coliform bacteria.

Gulley Branch (PD-065) – 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.

Middle Swamp (PD-230) – Aquatic life uses are not supported due to dissolved oxygen excursions. Recreational uses are fully supported; however, there is a significant increasing trend in fecal coliform bacteria.

Polk Swamp Canal (RS-07205) – Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen conditions. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are not supported due to fecal coliform bacteria excursions.

Willow Creek (PD-167) – Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen conditions. Although dissolved oxygen and pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME</i>	<i>NPDES# TYPE</i>
JEFFRIES CREEK WILKIE DEVELOPMENT LLC/GILBERT DRIVE MINE	SCG730528 MINOR INDUSTRIAL
JEFFRIES CREEK GE HEALTHCARE	SCG250233 MINOR INDUSTRIAL
JEFFRIES CREEK TRIBUTARY FLORENCE COUNTY/FLORENCE COUNTY MINE	SCG731067 MINOR INDUSTRIAL
JEFFRIES CREEK TRIBUTARY JOHNSON CONTROLS/FLORENCE RECYCLING CENTER	SCG250284 MINOR INDUSTRIAL
PYE BRANCH KOPPERS INC.	SC0003018 MINOR INDUSTRIAL
TWOMILE CREEK KOPPERS INC.	SC0003018 MINOR INDUSTRIAL
GULLEY BRANCH L.DEAN WEAVER/POSTON PIT	SCG730459 MINOR INDUSTRIAL
LITTLE WILLOW CREEK COMMANDER NURSING CENTER	SC0034703 MINOR DOMESTIC
BEAVERDAM CREEK DILMAR OIL	SC0048399 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>	
JEFFRIES CREEK UNINCORPORATED AREAS DARLINGTON COUNTY DARLINGTON COUNTY	SCR033101 PHASE II SMALL MS4
JEFFRIES CREEK CITY OF FLORENCE CITY OF FLORENCE CITY OF FLORENCE	SCR034101 PHASE II SMALL MS4
JEFFRIES CREEK UNINCORPORATED AREAS FLORENCE COUNTY FLORENCE COUNTY	SCR034102 PHASE II SMALL MS4

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

<i>LANDFILL NAME</i>	<i>PERMIT #</i>
<i>FACILITY TYPE</i>	<i>STATUS</i>
CITY OF FLORENCE COMPOSTING FACILITY COMPOSTING	211004-3001 ACTIVE
FLORENCE COUNTY LANDFILL INDUSTRIAL	211001-1601 INACTIVE
CITY OF FLORENCE TRANSFER STA. MUNICIPAL	212498-6001 ACTIVE
CITY OF FLORENCE DUMP MUNICIPAL	----- CLOSED
FLORENCE COUNTY SUBTITLE D MUNICIPAL	----- INACTIVE
PEE DEE MSWLF MUNICIPAL	----- INACTIVE
FLORENCE COUNTY LANDFILL MUNICIPAL	211001-1101 INACTIVE

Land Application Sites

<i>LAND APPLICATION SYSTEM</i>	<i>ND#</i>
<i>FACILITY NAME</i>	<i>TYPE</i>
PERCOLATION BASIN BEULAH LLC/COUNTRY PINES APARTMENTS	ND0063801 DOMESTIC

Mining Activities

<i>MINING COMPANY MINE NAME</i>	<i>PERMIT # MINERAL</i>
POINT SOUTH DEVELOPERS LLC WILDBIRD RUN MINE	1560-41 SAND
L. DEAN WEAVER CONSTRUCTION CO. POSTON PIT	1294-41 SAND; SAND/CLAY
WILKIE DEVELOPMENT LLC GILBERT DRIVE MINE	1871-41 SAND/CLAY
FLORENCE COUNTY FLORENCE COUNTY MINE	1779-41 SAND; SAND/CLAY
PALMETTO PAVING CORPORATION HOFFMEYER MINE	1802-41 SAND; TOPSOIL
MAGNOLIA LAKE DEVELOPERS LLC MAGNOLIA LAKE MINE	1947-41 SAND; TOPSOIL

Groundwater Quantity

Portions of this watershed fall within the Pee Dee Capacity Use Area and large groundwater uses must be reported (see Capacity Use Program p.22).

Growth Potential

There is a high potential for growth in this watershed, which contains most of the City of Florence. The Florence urban area is the commercial center of the Pee Dee region and is expected to continue to grow, particularly in the I-20/I-95 vicinity on the western edge of Florence, and the major highways leading into the urban area. The watershed is served by U.S. Hwy 52, U.S. Hwy 76, I-20, and I-95 as well as the interchange between the interstates to the west of Florence. The construction of a southeastern bypass around the Florence urban area has encouraged growth. This watershed, including the Florence urban area, the Pee Dee River area, and the Hartsville area is expected to be an area of major industrial expansion over the next twenty years. There are several large public or private industrial parks, located along the western side of the Florence urban area, and should foster additional large-scale development. This watershed has extensive water system coverage, including service from the City of Hartsville, the Darlington County Water and Sewer Authority, the City of Florence, and Florence County. The City of Florence has completed construction of a surface water treatment facility on the Great Pee Dee River that could evolve into a regional water treatment plant. The City of Florence has also expanded its wastewater treatment plant and constructed an outfall to the Great Pee Dee River, which should increase the availability of sewer service in the watershed and increase the likelihood of additional growth and development. A 700-acre industrial park at I-95/SC327 has been built and should spur future growth. A penny sales tax in Florence County should spur growth by financing the proposed widening of S.C. Hwy 51 to U.S. Hwy 378 (slated to begin in 2015), U.S. 378 from U.S. 52 at Lake City to Kingsburg in Florence County, and the SW Bypass around Florence (Alligator Road), which is presently undergoing right-of-way acquisition.

Watershed Restoration and Protection

Total Maximum Daily Loads (TMDLs)

A TMDL was developed by SCDHEC and approved by EPA for Gully Branch water quality monitoring site **PD-065** to determine the maximum amount of fecal coliform bacteria it can receive and still meet water quality standards. The watershed contains no known cattle, and there are no AFOs or AFO land application areas. This watershed contains 43 OSWD systems with an average density of 4 per 100 acres, which could be significant. Fecal coliform sources associated with MS4s are expected and include human sources of fecal coliform (leaking sewers and SSOs). Domesticated pets could represent another source. The TMDL states that a 99% reduction in fecal coliform loading is necessary for the stream to meet the water quality standard.

Special Projects

Gully Branch Watershed Based Plan

In 2012, Sumter County with the cooperation of the City of Florence was awarded a 319 Grant to develop a comprehensive watershed based plan for the Gully Branch Watershed. Stakeholders were involved in producing the plan, which focuses on reducing fecal coliform loads in Gully Branch.

Lucas and Timrod Park Restoration Project

In 2014, the City of Florence was awarded a 319 Grant to implement a portion of the water quality improvement projects identified in the Watershed Based plan. The City plans to construct two major BMPs in Lucas Park and two in Timrod Park. Within Lucas Park, a treatment forebay will be constructed to address bacteria loading from storm water runoff within the park and bacteria loading from the storm drainage network upstream of the park. Within Timrod Park, infiltration trenches will address overland flow entering the park from adjacent areas and tree planter boxes will be installed at three catch basins within the park to filter direct runoff and provide aesthetic improvement. Installation of these BMPs is scheduled to begin in late 2015.

