



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUL 08 2016

Ms. Pam Behm
Modeling and Assessment Branch Chief
Division of Water Resources
North Carolina Department of Environment Quality
1617 Mail Service Center
Raleigh, North Carolina 27699-1611

Dear Ms. Behm:

The United States Environmental Protection Agency has completed a review of the 2016 Turbidity Total Maximum Daily Load (TMDL) addendum for the Yadkin Basin / Muddy Creek [Waterbody ID 12-94-(0.5)b2b] in Davidson, Stokes and Forsyth Counties, North Carolina, that was submitted to the EPA on May 24, 2016. Based upon our review, we have determined that the statutory requirements of the Clean Water Act, Section 303(d) have been met and hereby approve this TMDL addendum.

The enclosed Decision Document summarizes the elements of the review which were found to support the EPA's approval of the TMDL. If you have any questions or comments, please feel free to contact Mrs. Alya Singh-White of my staff at (404) 562-9339.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Giattina".

James D. Giattina
Director
Water Protection Division

Enclosure

Revision of the North Carolina Addendum to the Yadkin Basin / Muddy Creek Turbidity Total Maximum Daily Load (TMDL)

Stokes, Forsyth, and Davidson Counties, North Carolina

July 2016

A. TMDL Background

In 2011, the North Carolina Division of Water Resources (DWR) developed a Total Maximum Daily Load (TMDL) to address turbidity in the Yadkin Basin. The TMDL (TMDL ID 41211) was approved by EPA Region 4 on September 28, 2011. On November 17, 2011, the EPA approved a TMDL (TMDL ID 41431) submitted by NC DWR as an addendum to the Yadkin Basin TMDL for three waterbodies (Muddy Creek and two segments of the Yadkin River) impaired due to elevated turbidity.

The current addendum, submitted to EPA on May 24, 2016, includes one additional turbidity impairment on Muddy Creek, located within the Yadkin watershed. The DWR identified the additional impairment for Muddy Creek from Silas Creek to State Road 2995 on the 2014 303(d) list. The newly identified impaired section is located directly above the original impairment addressed in the previously approved Yadkin Basin TMDL addendum. The impaired waterbody and additional information is listed in the table below.

Waterbody Name : Assessment Unit	Description	Water Classification
Muddy Creek : 12-94-(0.5)b2b	From Silas Creek to SR 2995	C

Turbidity, the measure of cloudiness of water, can be increased due to silt and clay from watershed stream erosion, wastewater, organic detritus from stream bank vegetation and phytoplankton growth. The TMDL source assessment lists both point and nonpoint sources. Sources of turbidity (suspended solids / sediment) from nonpoint sources include forests, agricultural lands, land disturbance, urban runoff and stream channel erosion. The National Land Cover Dataset (NLCD) of the Muddy Creek watershed indicates the watershed is predominantly covered by developed lands (52%), forested lands (30%) and pastures and grasslands (17%). Surface runoff is the main carrier of sediments from forests and agricultural lands. Urbanization also greatly increases the amount of sediment transported to receiving waters. Impervious cover in developed areas leads to rainwater remaining above the surface which gathers sediments and solid materials and runs off in large amounts. Point sources are all Municipal Separate Storm Sewer System (MS4) permittees that were named in the original TMDL document along with wasteload allocations (WLA) and percent reductions required.

B. Purpose for Proposed Revision

The one additional impairment in this addendum was identified through the NC Ambient Monitoring System station Q2600000 for the 2014 303(d) assessment. As per the assessment numeric criteria for NC streams, greater than 10% of the measured turbidity exceeded the evaluation level

(50 Nephelometric Turbidity Units) with greater than or equal to 90% confidence. Consequently, Muddy Creek is identified as impaired for turbidity from Silas Creek to SR 2995.

C. Justification for Revision

The required watershed reductions specified in the EPA approved TMDL for turbidity for Muddy Creek and the Yadkin River on November 17, 2011, are expected to achieve water quality standards in the addendum-impaired section of the creek. Regular monitoring at the ambient station, Q2600000, will continue to provide a measure of progress towards meeting TMDL goals. As a result of the original TMDL, the city of Winston-Salem has prepared and is implementing a water quality recovery program in accordance with its NPDES stormwater permit. This recovery program includes the watershed in which the addendum assessment unit is located.

D. Revised TMDL Allocations

The pollutant loads and reductions from the original TMDL apply to the addendum waterbody; which calls for a 58% reduction from NPDES stormwater and nonpoint sources.

E. Public Participation

Public review of the draft TMDL addendum occurred from April 19 through May 23, 2016. No comments were received.