## December 10, 2009

## Memorandum

To: Andrea Leslie, NCEEP
Through: Steve Kroeger, NCDWQ
From: Cathy Tyndall, NCDWQ

Subject: Fecal Coliform Bacteria Sample Results – Hunting Cr. Watershed, Catawba

River Basin; HUC 030501010608

This memorandum represents the completion of Task 3 of the Scope of Work Water Quality Monitoring for Support 319-Funded LWP in Hunting Creek Watershed. Catawba River Basin. HUC 030501010608

The NC Division of Water Quality (NCDWQ) was requested by the NC Ecosystem Enhancement Program (NCEEP) in 2009 to conduct 5x/30 sampling at six sites in the Hunting Creek watershed (Table 1.). Three sites were located on Hunting Creek and three were located on tributaries to Hunting Creek. The goal was to determine whether water quality standards are being met for fecal coliform bacteria. North Carolina Department of Environment and Natural Resources Administrative Code 15A NCAC 02B .0219 states that, "fecal coliforms are not to exceed geometric mean of 200/100 ml (MF count) based on at least five consecutive samples examined during any 30-day period and not to exceed 400/100 ml in more than 20 percent of the samples examined during such period."

Table 1. Fecal Coliform Bacteria Sample Site Locations.

Map					
No.	Waterbody	Class	Stream Index #	Latitude	Longitude
1	Hunting Creek at Poteat Road	C	11-36-(0.3)	35.694	81.687
2	Fiddlers Run at City Park	WS-IV	11-36-1-1	35.740	81.661
3	East Prong Hunting Cr. at City Park	WS-IV	11-36-1	35.740	81.660
4	Hunting Creek at Bethel Road	WS-IV	11-36-(0.7)	35.743	81.670
5	Pee Dee Branch at Kirksey Drive	WS-IV	11-36-2	35.763	81.664
6	Hunting Cr.at Causby Quarry Rd	WS-IV CA	11-36-(3)	35.768	81.662

<sup>&</sup>lt;sup>1</sup> All hyperlinks were accessed on December 10, 2009

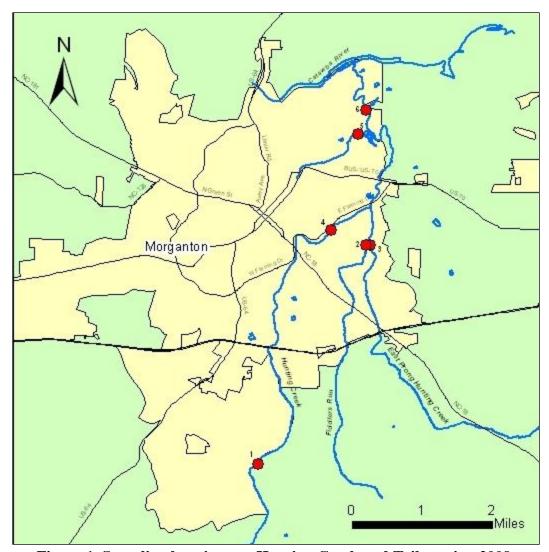


Figure 1. Sampling locations on Hunting Creek and Tributaries, 2009.

Five consecutive samples for fecal coliform bacteris were collected within a 30 day period between September 3, through September 29, 2009. A Quality Assurance Program Plan was not prepared for this project. Samples were collected in accordance with the standard operating procedures manual for physical and chemical monitoring (NCDWQ 2006) and with the quality assurance and quality control measures required by the NCDWQ Laboratory Section (<a href="http://h2o.enr.state.nc.us/lab/qa.htm">http://h2o.enr.state.nc.us/lab/qa.htm</a>). All samples met the NCDWQ's Laboratory Section's six-hour holding time and were collected at base flow conditions.

All six sites had geometric means greater than the water quality standard of 200 cfu/100ml (Table 2). Hunting Creek at Bethel Road had the highest geometric mean (2024 cfu/100 ml) followed by Hunting Creek at Causby Quarry Road (1054 cfu/100 ml). Hunting Creek at Bethel Road is in the middle portion of the watershed, within the City of Morganton and upstream of the confluence of East Prong Hunting Creek. Hunting Creek at Causby Quarry Road is the furthest accessible downstream location prior to Hunting Creek's confluence with the Catawba River.

This site captures the entire watershed. The most upstream site in the watershed, Hunting Creek at Poteat Road is located in the headwaters and there is agriculture in the catchment. It appears that the elevated fecal coliform bacteria in the Hunting Creek watershed may have a variety of sources which could include agriculture, wildlife, failing or improper use of septic systems and failures in the city sewer system.

**Table 2. Fecal coliform results from the 5 Samples in 30 days**. Samples were collected during September 2009.

		Concentration (cfu/100ml)						
Map Number	Waterbody	Sept. 3	Sept. 4	Sept. 14	Sept. 15	Sept 29	Proportion (% ) > 400)	Geometric Mean (cfu/100ml)
1	Hunting Creek at Poteat Road	1400	740	900	1000	740	100	928
2	Fiddlers Run at City Park	770	980	360	360	740	60	591
3	East Prong Hunting Creek at City Park	1000	840	830	870	1800 <sup>A</sup>	100	1018
4	Hunting Creek at Bethel Road	3600	3300	1300	1100	2000 <sup>A</sup>	100	2024
5	Pee Dee Branch at Kirksey Drive	470	980	1300	440	640	100	700
6	Hunting Creek at Causby Quarry Road	1100	2000 <sup>A</sup>	330	780	2300	80	1054

A Results were assigned the B4 data qualifier by the NCDWQ Laboratory Section. "Filters have counts of both >60 or 80 and <20. Reported value is a total of the counts from all countable filters reported per 100 ml."

See: http://h2o.enr.state.nc.us/lab/documents/QualifierCodes\_05052008.pdf

## **References:**

NCDWQ 2006. Intensive Survey Unit Standard Operating Procedures Manual: Physical and Chemical Monitoring. Version 1.3. December 2006.

See: http://h2o.enr.state.nc.us/esb/documents/PHYSICAL-CHEMICAL%20SOP.pdf

**Hyperlinks:** All hyperlinks were accessed on December 10, 2009.

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