

Upper Cape Fear River Basin Association (UCFRBA)  
[www.cfra-nc.org/ucfrba.htm](http://www.cfra-nc.org/ucfrba.htm)

# UCFRBA 2009 Annual Report

*Prepared for NC Division of Water Quality  
Submitted: April 2010*

*Submitted by:  
Cy Stober, Water Resources Manager  
Piedmont Triad Council of Governments  
2216 W. Meadowview Road, Suite 201  
Greensboro, NC  
27407*



# UCRBA 2009 Annual Report

## Table of Contents

<i>Background</i> .....	1
<i>Organizational Structure</i> .....	2
Board of Directors.....	3
Officers .....	3
Technical Advisory Committee.....	4
QA/QC Subcommittee .....	4
Information Management Subcommittee.....	4
<i>Summary of Monitoring Program</i> .....	5
Certified Laboratories & Quality Assurance/Quality Control Issues .....	8
<i>2008 UCFRBA Issues</i> .....	8
NC DWQ/Meritech Field Visit.....	8
<i>Summaries by Station</i> .....	8
<i>APPENDIX A</i> .....	54
<i>APPENDIX B</i> .....	59
UCFRBA Technical Advisory Committee .....	59
<i>APPENDIX C</i> .....	61
<i>APPENDIX D</i> .....	64
<i>APPENDIX E</i> .....	65
<i>APPENDIX F</i> .....	67

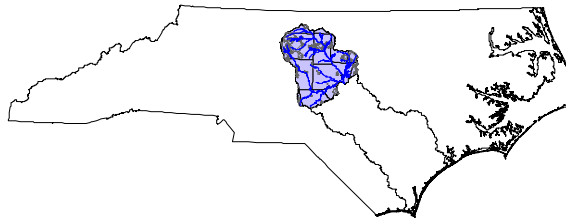
The Association's website is <http://www.cfra-nc.org/ucfrba.htm>.



## Background

The Upper Cape Fear River Basin Association (UCFRBA) was created as a non-profit organization in February of 2000. It was the last basin association to be formed in the Cape Fear River Basin. The Upper Cape Fear River Basin includes more than 10 counties and 30 municipalities, and nearly 150 permitted wastewater discharge facilities. The permitted wastewater discharges total more than 140 million gallons per day. Long-term water resources planning, management and protection in this rapidly growing 3,100 square mile area are challenging and complex tasks. To meet these increasing challenges, 20 parties comprising local governments (with planning and zoning jurisdiction and wastewater treatment plants) and private companies joined together to establish the UCFRBA.

The UCFRBA provides an ongoing forum for interested parties to work together on water resources planning, management and protection issues of mutual concern in the Jordan Lake Watershed (including the Haw River and New Hope Creek subwatersheds), the Deep River Watershed and the Rocky River Watershed in the uppermost part of the Cape Fear River Basin. Geographically, the headwaters of the Haw River and Deep River start west of Greensboro in Forsyth County and come together below Jordan Lake to form the Cape Fear River (Figure 1).



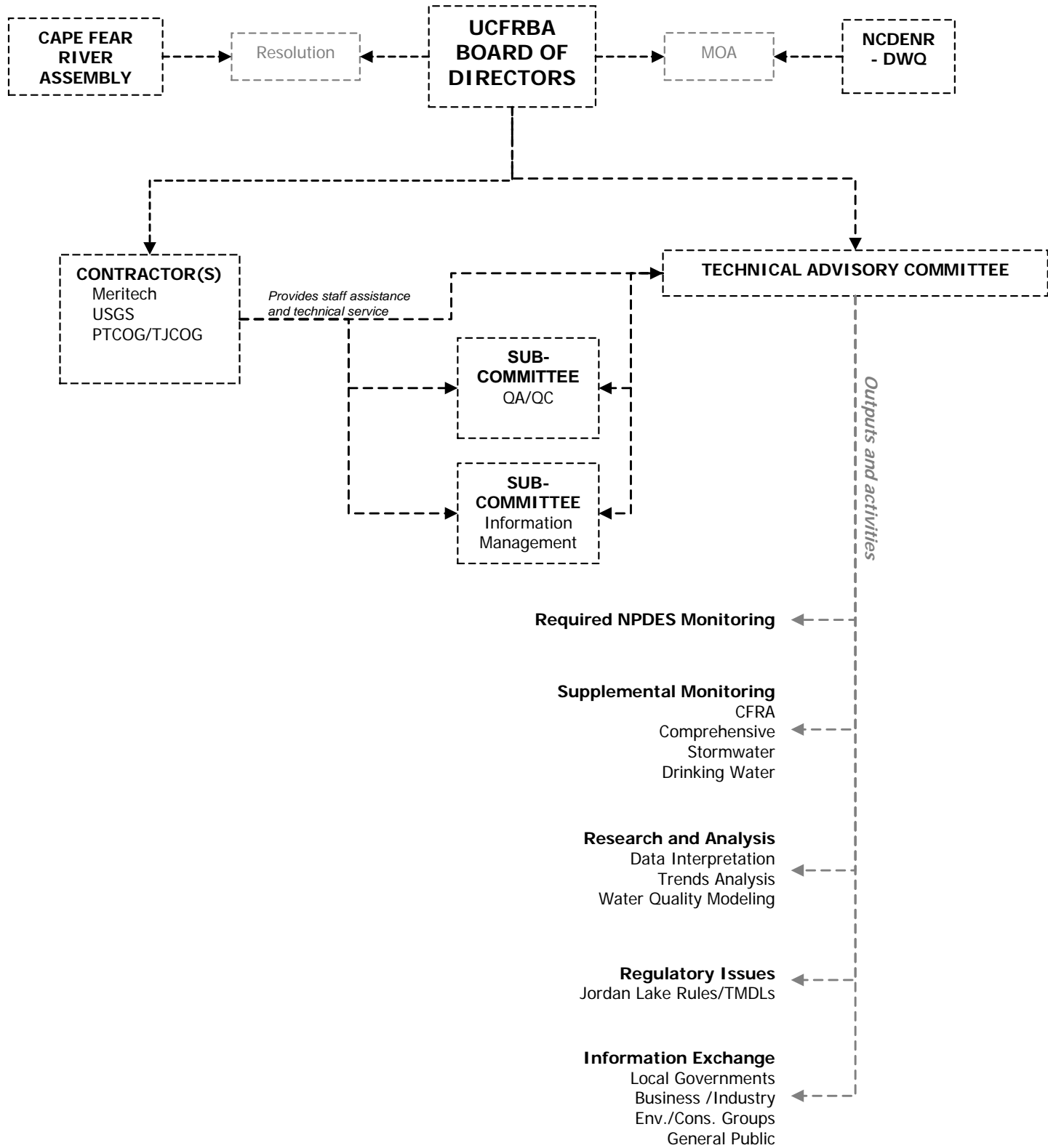
**Figure 1: Upper Cape Fear River Basin**

In concert with the Middle and Lower Basin Programs, the Upper Basin has implemented a comprehensive water quality monitoring program in exchange for a waiver of the ambient monitoring requirements in the Association members' individual **National Pollutant Discharge Elimination System (NPDES)** permits. The Association signed a Memorandum of Agreement (MOA) with the North Carolina Division of Water Quality (NCDWQ) binding its members to participate in the monitoring program. The monitoring program started in April 2000.

Laboratory services are currently supplied by Meritech Inc., located in Reidsville, NC. SimaLabs, Inc., was the Association's laboratory for conducting the stream monitoring and analyses until August 2004.

The Triangle J Council of Governments (TJCOG) and Piedmont Triad Council of Governments (PTCOG) provide administrative staff support for the UCFRBA.

## Organizational Structure



## Board of Directors

The UCFRBA is governed by its corporate members as a Board of Directors. The Corporate membership is comprised of 20 local governments and industries using the UCFRB for water supply or treating and discharging wastewater within the UCFRB. Each corporate member has the authority to appoint one Director and one Alternate Director to the Board of Directors.

Listed below are the Board of Directors member organizations, their designated representative, and their NPDES permit numbers. The full board list with addresses and contact information can be found in Appendix A.

<u>Corporate Members</u>	<u>Discharger</u>	<u>Public Water System</u>	<u>Representative</u>	<u>NPDES Permit Number(s)</u>
Asheboro	Yes	Yes	Michael Rhoney	NC0026123
Burlington	Yes	Yes	Bob Patterson	NC0023868, NC0023876
Cary	No	Yes	Stephen J. Brown	None
City of Durham	Yes	Yes	Vicki Westbrook	NC0047597
Durham County	Yes	No	Glen Whisler	NC0026051
Golden Kist Poultry	Yes	No	Bruce Morgan	NC0072575, NC0083852
Graham	Yes	Yes	Victor Quick	NC0021211
Greensboro	Yes	Yes	Allan E. Williams	NC0024325, NC0047384
High Point	Yes	Yes	Terry Houk	NC0024210
Performance Fibers	Yes	No	Bill Boyer	NC0001899
Mebane	Yes	Yes	Robert Wilson	NC0021474
Dynea	Yes	No	James Frick	NC0000892
OWASA	Yes	Yes	Ed Kerwin	NC0025241
Pittsboro	Yes	Yes	William Terry	NC0020354
Ramseur	Yes	Yes	Jim McIntosh	NC0026565
Randleman	Yes	Yes	Tony Sears	NC0025445
Reidsville	Yes	Yes	Charlie Hamilton (interim)	NC0024881
Sanford	Yes	Yes	T. Jay Grainger	NC0024147
Siler City	Yes	Yes	Joel J. Brower	NC0026441
Star	Yes	Yes	Wesley Brown	NC0058548

## Officers

The Officers of the Board of Directors consists of a Chair, a Vice Chair, and a Secretary/Treasurer. Officers are elected biannually by the Board of Directors and each officer serves a term of two (2) years. The next election will occur in 2010.

### Officers of the Board of Directors

Chairman: *Terry Houk, City of High Point*

Vice-Chairman: *Kevin Eason, City of Reidsville*

Secretary/Treasure: *Robert Dodson, City of Durham*

### **Technical Advisory Committee**

The Technical Advisory Committee (TAC) is responsible for providing the Board of Directors with assistance and recommendations concerning the development of proposed annual work programs, specific project plans, and alternative funding sources and strategies. The TAC meets quarterly, usually on the fourth Tuesday of the month from 9:30-11:00 at the Mebane Arts and Community Center. TAC committee members are listed in Appendix B.

*Technical Advisory Committee (TAC) Chair: Dennis Hodge, City of Mebane*

### **QA/QC Subcommittee**

The Quality Assurance/Quality Control Subcommittee reviews monthly data and ensures the data are accurate and reliable. The following are members of the QA/QC Subcommittee:

<i>Scott Pickard, QAQC Chair</i>	<i>City of Graham</i>
<i>Michele Andrews</i>	<i>City of High Point</i>
<i>Martie Groome</i>	<i>City of Greensboro</i>
<i>Chad Ham</i>	<i>City of Fayetteville</i>
<i>Glen McGirt</i>	<i>City of Burlington</i>
<i>Kris Pawlak</i>	<i>Meritech, Inc.</i>
<i>Cy Stober, Staff Support</i>	<i>PTCOG</i>
<i>Dawn Wilson</i>	<i>City of High Point</i>

### **Information Management Subcommittee**

The Information Management Subcommittee (IMS) determines project and research focus, and reviews the Association's programs. The following are members of the IMS:

<i>Leila Goodwin, IMS Co-Chair</i>	<i>Town of Cary</i>
<i>Michelle Woolfok, IMS Co-Chair</i>	<i>City of Durham</i>
<i>Sandra Bradshaw</i>	<i>OWASA</i>
<i>Mary Giorgino</i>	<i>US Geological Survey</i>
<i>Dennis Hodge</i>	<i>City of Mebane</i>
<i>Janet MacFall</i>	<i>Elon University</i>
<i>Mike Schlegel, Staff Support</i>	<i>TJCOG</i>

## **Summary of Monitoring Program**

In May 2009, the Association entered into its 5<sup>th</sup> year of its current 5-year MOA with NCDWQ. The MOA mandates that samples are taken once a month, with field parameters taken twice a month during the summer (May – September), at selected stations. A total of 44 sites are sampled. Tables 1 & 2 on the following pages provide detailed information on each station. Refer to Appendix A 2009 station data summaries.

Up through 2007, metals were collected quarterly using Clean Hands/Dirty Hands methodology (a modified version of EPA Method 1669, see Appendix C). Low-level mercury was analyzed using EPA Method 1631 at 7 sites. In April 2007, NC DWQ released a memo suspending the metals monitoring requirement in the Memorandums of Agreement with the NPDES discharger monitoring coalitions while DWQ re-evaluates new approaches regarding metals data and the use of water quality standards and criteria for metals (Appendix E). This memo was drafted again and issued to the CFRBAs in April 2008. The UCFRBA endorsed this position in April 2008. June 2007 was the last month metals testing – including mercury – was conducted by the UCFRBA within the Upper Cape Fear River basin. Please see Appendix E for the NCDWQ memos regarding the suspension of metals monitoring, and the acknowledgement of the Association's permission to not monitor until this state-level suspension ends.

The UCFRBA needs to renew its Memorandum of Agreement and contract with NC DWQ in 2010 to continue serving its members. A new MOA that will establish the relationship between the Association and NCDWQ was negotiated over 2009, and will be finalized and agreed to in 2010. Included within this process was a review of the current monitoring regime and network, discussion of the hiatus on metals monitoring, and a continued effort to use the most effective methods to analyze water quality in the Upper Cape Fear River Basin. Any new details and requirements that are included within the finalized 2010 – 2015 MOA will be detailed in the 2010 UCFRBA Annual Report.

**Table 1: Monitoring Site Descriptions**

AGENCY	DWQ Station Number	UCF STATION	LOCATION	Station Information	LATITUDE (dd.ddd)	LONGITUDE (dd.ddd)	COUNTY	STREAM CLASS	SUB-BASIN
UCFRBA	B0070010	1	Troublesome Crk at US 29 Bus nr Reidsville	major trib, nonpoint input	36.2768	-79.6499	ROCKINGHAM	C, NSW	03-06-01
UCFRBA	B0050000	2	Haw Riv at US 29 Business nr Benaja	Ups Reidsville WWTP	36.2652	-79.6523	ROCKINGHAM	C, NSW	03-06-01
UCFRBA	B0170000	3	Haw Riv at SR 2620/2614 High Rock Rd nr Williamsburg	Dns Reidsville WWTP	36.2514	-79.5647	ROCKINGHAM	C, NSW	03-06-01
UCFRBA	B0400000	4	Reedy Fork at SR 2719 High Rock Rd nr Monticello	Model verification data	36.1778	-79.6177	GUILFORD	C, NSW	03-06-02
UCFRBA	B0480050	5	N Buffalo Crk at N Buffalo Crk WWTP Influent Conduit Pier at Greensboro	Ups N. Buffalo WWTP	36.1074	-79.7502	GUILFORD	C, NSW	03-06-02
UCFRBA	B0540050	6	N Buffalo Crk at sr 2770 Huffine Mill Rd nr McLeansville	Dns N. Buffalo WWTP	36.1299	-79.6626	GUILFORD	C, NSW	03-06-02
UCFRBA	B0670000	7	S Buffalo Crk at SR 3000 McConnell Rd nr Greensboro	Ups TZ Osborne WWTP; USGS gage	36.0598	-79.7256	GUILFORD	C, NSW	03-06-02
UCFRBA	B0750000	8	S Buffalo Crk at SR 2821 Harvest Rd at McLeansville	Dns TZ Osborne WWTP	36.1128	-79.6718	GUILFORD	C, NSW	03-06-02
UCFRBA	B0850000	9	Haw Riv at SR 1530 Geringer Mill Rd nr Ossipee	above Burlington, below Reedy Fk	36.1531	-79.4894	ALAMANCE	C, NSW	03-06-02
UCFRBA	B1350000	10	Moadams Crk at Corrigdor Rd ups of Discharge nr Mebane	Ups Mebane WWTP	36.0885	-79.2844	ALAMANCE	C, NSW	03-06-02
UCFRBA	B1380000	11	Moadams Crk at SR 1940 Gibson Rd nr Florence Town	Dns Mebane WWTP	36.0891	-79.3074	ALAMANCE	C, NSW	03-06-02
UCFRBA	B1440000	12	Haw Riv at SR 2158 Swepsonville Rd nr Swepsonville	Dns Graham WWTP	36.0256	-79.3682	ALAMANCE	C, NSW	03-06-02
UCFRBA	B1200000	13	Haw Riv at NC 54 nr Graham	Between Burlington East & Graham	36.0481	-79.3667	ALAMANCE	C, NSW	03-06-02
UCFRBA	B1940000	14	Big Alamance Crk at NC 87 nr Swepsonville	Ups Burlington S. WWTP	36.0242	-79.3943	ALAMANCE	C, NSW	03-06-02
UCFRBA	B2000000	16	Haw Riv at SR 1005 Greensboro-Chapel Hill Rd nr Saxpawah	Rural area; dns Cane Creek	35.8953	-79.2585	ALAMANCE	C, NSW	03-06-04
UCFRBA	B2100000	17	Haw River at SR1713 NR Bynum	USGS gage; ups Jordan Lake	35.7716	-79.1449	CHATHAM	WS-IV, NSW	03-06-04
UCFRBA	B2450000	18	Robeson Crk at SR 1943 Gum Springs Rd nr Hanks Chapel	Dns Pittsboro WWTP	35.7029	-79.1003	CHATHAM	WS-IV, B, NSW, CA	03-06-04
UCFRBA	B3020000	19	New Hope Creek at NC54 nr Durham	Ups S. Durham WRF	35.9167	-78.9704	DURHAM	WS-IV, NSW	03-06-05
UCFRBA	B3040000	20	New Hope Crk at SR 1107 Stagecoach Rd nr Blands	Jordan Lake TMDL site	35.8847	-78.9656	DURHAM	WS-IV, NSW	03-06-05
UCFRBA	B3300000	21	Northeast Crk at SR 1102 Sedwick Road nr RTP	Ups Durham Co/RTP WWTP	35.8870	-78.8994	DURHAM	WS-IV, NSW	03-06-05
UCFRBA	B3670000	22	Northeast Crk at SR 1731 O Kelly Church Road nr Durham	Dns Durham Co/RTP WWTP	35.8555	-78.9397	CHATHAM	WS-IV, NSW	03-06-05
UCFRBA	B3025000	23	Third Fork Crk at NC 54 nr Durham	Drains Durham	35.9187	-78.9548	DURHAM	WS-IV, NSW	03-06-05
UCFRBA	B3899180	24	Morgan Crk at Mason Farm WWTP Entrance at Chapel Hill	Ups OWASA	35.8987	-79.0263	ORANGE	WS-IV, NSW	03-06-06
UCFRBA	B3900000	25	Morgan Crk at SR 1726 Old Farrington Rd nr Farrington	Dns OWASA, DO sag	35.8612	-79.0100	CHATHAM	WS-IV, NSW	03-06-06
UCFRBA	B4080000	26	Haw Riv at SR 1011 Old US 1 nr Haywood	Dns Performance Fibers, ups Neste Resins, gage	35.6164	-79.0569	CHATHAM	WS-IV	03-06-04
UCFRBA	B6040300	27	Deep Riv at SR 1011 Old US 1 nr Moncure	Ups confluence with Haw River	35.6176	-79.0912	CHATHAM	WS-IV	03-06-11
UCFRBA	B4380000	28	Richland Crk at SR 1154 Kersey Valley Rd nr Highpoint	Ups High Point Eastside WWTP, Fecal Coliform TMDL	35.9410	-79.9322	GUILFORD	WS-IV, CA*	03-06-08
UCFRBA	B4350000	29	Deep Riv at SR 1113 Kivett Dr nr Hayworth Spring	Ups of confluence with Richland Creek	35.9594	-79.9061	GUILFORD	WS-IV, CA*	03-06-08
UCFRBA	B4614500	30	Randleman Lake at Coltrain Mill Rd. bridge	Dns Eastside WWTP	35.9062	-79.8560	GUILFORD	WS-IV, CA*	03-06-08
UCFRBA	B4625000	31	Muddy Crk at SR 1922 Muddy Creek Rd nr Glenola	Fecal Coliform TMDL	35.8836	-79.8950	RANDOLPH	WS-IV, *	03-06-08
UCFRBA	B4870000	32	Hasketts Crk at Asheboro WWTP Bridge nr Asheboro	ups Asheboro WWTP	35.7649	-79.7864	RANDOLPH	C	03-06-09
UCFRBA	B4770500	33	Deep Riv at Bus 220 Main St at Randleman	Us Randleman WWTP, us Hasketts Creek	35.8233	-79.8033	RANDOLPH	C	03-06-08
UCFRBA	B4800000	34	Deep Riv at SR 2122/2128 Worthville Rd at Worthville	dns Randleman WWTP & Worthville impoundments, above Asheboro	35.8007	-79.7762	RANDOLPH	C	03-06-09
UCFRBA	B4920000	35	Deep Riv at SR 2261 Old Liberty Rd nr Central Falls	Dns Asheboro WWTP, below conf. Hasketts Creek	35.7642	-79.7734	RANDOLPH	C	03-06-09
UCFRBA	B5070000	36	Deep Riv at SR 2615 Brooklyn Ave at Ramseur	Ups Ramseur WWTP	35.7302	-79.6558	RANDOLPH	C	03-06-09
UCFRBA	B5100000	37	Deep Riv at SR 2628 Hinshaw Town Rd nr Parks Crossroads	Dns Ramseur WWTP	35.6724	-79.6274	RANDOLPH	C	03-06-09
UCFRBA	B5520000	38	Deep Riv at NC 22 at High Falls	Dns Robbins WWTP	35.4777	-79.5195	MOORE	C, HW	03-06-10
UCFRBA	B5390800	39	Cotton Crk at SR 1372 Auman Rd culvert	Dns Star WWTP	35.3782	-79.7551	MONTGOMERY	WS-III	03-06-10
UCFRBA	B5685000	41	Deep Riv at Deep River Park Bridge nr Cumnock	Ups Golden Poultry	35.5704	-79.2411	CHATHAM	C	03-06-11
UCFRBA	B5820000	42	Deep Riv at US 15 And 501 nr Sanford	Dns Sanford WWTP	35.5782	-79.1942	LEE	C	03-06-11
UCFRBA	B5950000	43	Rocky Riv at US 64 nr Siler City	dns reservoir, ups Loves Cr, ups Siler City	35.7351	-79.4233	CHATHAM	C	03-06-12
UCFRBA	B5980000	44	Rocky Riv at SR 2170 Rives Chapel Rd nr Siler City	Dns Loves Cr	35.6985	-79.3756	CHATHAM	C	03-06-12
UCFRBA	B5890000	45	Loves Creek at Waste Treatment Plant Rd in Siler City	us Siler City WWTP	35.7298	-79.4289	CHATHAM	C	03-06-12
UCFRBA	B5920000	46	Loves Creek at Progress Blvd at Siler City	ds Siler City WWTP	35.7322	-79.4246	CHATHAM	C	03-06-12

AGENCY	DWQ Station Number	UCF Stn	LOCATION	Individual Parameter Information					
				Field Par. #/year	Nutrients #/year	Fecal #/year	Turbidity #/year	TSS #/year	Metals #/year (Jan-Aug)
UCFRBA	B0070010	1	Troublesome Crk at US 29 Bus nr Reidsville	M	M	M	M	M	
UCFRBA	B0050000	2	Haw Riv at US 29 Business nr Benaja	M + 2SM	M	M	M	M	Q
UCFRBA	B0170000	3	Haw Riv at SR 2620/2614 High Rock Rd nr Williamsburg	M + 2SM	M	M	M	M	Q
UCFRBA	B0400000	4	Reedy Fork at SR 2719 High Rock Rd nr Monticello	M	M	M	M	M	
UCFRBA	B0480050	5	N Buffalo Crk at N Buffalo Crk WWTP Influent Conduit Pier at Greensboro	M + 2SM	M	M	M	M	Q
UCFRBA	B0540050	6	N Buffalo Crk at sr 2770 Huffine Mill Rd nr McLeansville	M + 2SM	M	M	M	M	Q
UCFRBA	B0670000	7	S Buffalo Crk at SR 3000 McConnell Rd nr Greensboro	M + 2SM	M	M	M	M	Q
UCFRBA	B0750000	8	S Buffalo Crk at SR 2821 Harvest Rd at McLeansville	M + 2SM	M	M	M	M	Q
UCFRBA	B0850000	9	Haw Riv at SR 1530 Gerringer Mill Rd nr Ossipee	M + 2SM	M	M	M	M	Q + Hg
UCFRBA	B1350000	10	Moadams Crk at Corrigdor Rd ups of Discharge nr Mebane	M + 2SM		M	M	M	Q
UCFRBA	B1380000	11	Moadams Crk at SR 1940 Gibson Rd nr Florence Town	M + 2SM	M	M	M	M	Q
UCFRBA	B1440000	12	Haw Riv at SR 2158 Swepsonville Rd nr Swepsonville	M + 2SM	M	M	M	M	Q
UCFRBA	B1200000	13	Haw Riv at NC 54 nr Graham	M + 2SM	M	M	M	M	Q
UCFRBA	B1940000	14	Big Alamance Crk at NC 87 nr Swepsonville	M + 2SM	M	M	M	M	Q
UCFRBA	B2000000	16	Haw Riv at SR 1005 Greensboro-Chapel Hill Rd nr Saxpawah	M	M	M	M	M	
UCFRBA	B2100000	17	Haw River at SR1713 NR Bynum	M	M	M	M	M	Q + Hg
UCFRBA	B2450000	18	Roberson Crk at Boat Access Off SR 1943 nr Hanks Chapel	M + 2SM	M	M	M	M	
UCFRBA	B3020000	19	New Hope Creek at NC54 nr Durham	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B3040000	20	New Hope Crk at SR 1107 Stagecoach Rd nr Blands	M + 2SM	M	M	M	M	Q+Mn+Hg
UCFRBA	B3300000	21	Northeast Crk at SR 1102 Sedwick Road nr RTP	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B3670000	22	Northeast Crk at SR 1731 O Kelly Church Road nr Durham	M + 2SM	M	M	M	M	Q+Mn+Hg
UCFRBA	B3025000	23	Third Fork Crk at NC 54 nr Durham	M	M	M	M	M	Q + Mn
UCFRBA	B3899180	24	Morgan Crk at Mason Farm WWTP Entrance at Chapel Hill	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B3900000	25	Morgan Crk at SR 1726 Old Farrington Rd nr Farrington	M + 2SM	M	M	M	M	Q+Mn+Hg
UCFRBA	B4080000	26	Haw Riv at SR 1011 Old US 1 nr Haywood	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B6040300	27	Deep Riv at SR 1011 Old US 1 nr Moncure	M	M	M	M	M	Q+Mn+Hg
UCFRBA	B4380000	28	Richland Crk at SR 1154 Kersey Valley Rd nr Highpoint	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B4350000	29	Deep Riv at SR 1113 Kivett Dr nr Hayworth Spring	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B4614500	30	Randleman Lake at Coltrain Mill Rd. bridge	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B4625000	31	Muddy Crk at SR 1922 Muddy Creek Rd nr Glenola	M	M	M	M	M	
UCFRBA	B4870000	32	Hasketts Crk at Asheboro WWTP Bridge nr Asheboro	M	M	M	M	M	Q
UCFRBA	B4770500	33	Deep Riv at Bus 220 Main St at Randleman	M + 2SM	M	M	M	M	
UCFRBA	B4800000	34	Deep Riv at SR 2122/2128 Worthville Rd at Worthville	M + 2SM	M	M	M	M	Q
UCFRBA	B4920000	35	Deep Riv at SR 2261 Old Liberty Rd nr Central Falls	M + 2SM	M	M	M	M	Q + Hg
UCFRBA	B5070000	36	Deep Riv at SR 2615 Brooklyn Ave at Ramseur	M + 2SM	M	M	M	M	Q
UCFRBA	B5100000	37	Deep Riv at SR 2628 Hinshaw Town Rd nr Parks Crossroads	M + 2SM	M	M	M	M	Q
UCFRBA	B5520000	38	Deep Riv at NC 22 at High Falls	M	M	M	M	M	
UCFRBA	B5390800	39	Cotton Crk at SR 1372 Auman Rd culvert	M + 2SM	M	M	M	M	Q + Mn
UCFRBA	B5685000	41	Deep Riv at Deep River Park Bridge nr Cumnock	M + 2SM	M	M	M	M	
UCFRBA	B5820000	42	Deep Riv at US 15 And 501 nr Sanford	M + 2SM	M	M	M	M	Q
UCFRBA	B5950000	43	Rocky Riv at US 64 nr Siler City	M + 2SM	M	M	M	M	
UCFRBA	B5980000	44	Rocky Riv at SR 2170 Rives Chapel Rd nr Siler City	M + 2SM	M	M	M	M	Q
UCFRBA	B5890000	45	Loves Creek at Waste Treatment Plant Rd in Siler City	M + 2SM	M	M	M		
UCFRBA	B5920000	46	Loves Creek at Progress Blvd at Siler City	M + 2SM	M	M	M		

1 Field Measurements include: Dissolved Oxygen, Temperature, Conductivity and pH

2 Nutrients include Ammonia as N, Nitrate/Nitrite as N, Total Kjeldahl Nitrogen as N, and Total Phosphorus as P

3 Low Level Metals sampling and analysis will be conducted as specified in the MOA document "Attachment 1: Sampling Plan for Low Level Metals" that is included as an attachment to this MOA. Metals analysis will include the following metals: Aluminum (Al), Arsenic (As), Cadmium (Cd), Chromium (Cr)(total), Copper (Cu), Iron (Fe), Lead (Pb), Manganese (Mn), Mercury (Hg), Nickel (Ni), and Zinc (Zn)

Frequency: M=Monthly

Q=Quarterly

SM= Summer Months: May, June, July, August, September

M+2SM=Once a Month in January, February, March, April, October, November, and December and Twice a Month in May, June, July, August, and September

ups=upstream dns=downstream stn=station

## Sampling Methods

The following are the sampling methods used by Meritech for UCFRBA analysis:

pH-----	SM 4500 HB
Temperature-----	SM 2550 B
Conductivity-----	EPA 120.1
DO-----	SM 4500 O G
Fecal Coliform -----	SM 9222D
TSS-----	SM 2540 D
Turbidity-----	EPA 180.1
Ammonia -----	EPA 350.1
TKN -----	SM 4500 NH3B
NO2/NO3-----	EPA 353.2
Ptot-----	EPA 200.7
Metals (except Hg)-----	EPA 200.7 (discontinued 08/2007)
Mercury-----	EPA 1631 (discontinued 08/2007)

## Certified Laboratories & Quality Assurance/Quality Control Issues

- Meritech performs Winkler titrations as a mid-point DO check and as a confirmation of unusually high or low DO values. These Winkler titration results were not included in the comment section of the monthly submittals. The Winkler results are useful for confirming DO readings, and per DWQ request are now reported in the comment column.
- The QAQC Subcommittee determined that there were no significant data collection and analysis concerns. There were several mathematical and transcription errors within the data, but they were noted by the QAQC Subcommittee and fixed by Meritech. NCDWQ has all correct data from 2009.

## 2009 UCFRBA Issues

The following are topics that occupied significant UCFRBA staff and members' time in FY2009-2010. No special studies were conducted for FY2009 – 2010.

### NC DWQ/Meritech Field Visit

On October 30, 2009, NC DWQ employees Andrea Thomas and Carrie Ruhlman accompanied Meritech personnel on their field sampling to ensure compliance with the MOA signed by the UCFRBA with NC DWQ. Though DWQ had recommendations on some Meritech procedures, DWQ had "no major concerns," and all data collection procedures were within compliance of the MOA (see Appendix F).

## Summaries by Station

The following tables provide a summary of the water quality data for each station. All statistics are calculated based on absolute values (as reported

to DWQ) except for any data with remark codes U, Y, P, K or <... These minima are reported as justified values (1/2 the reported value or average) and other statistics are calculated based on the justified values.

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B0070010/UCFRBA_01	Troublesome Crk at US 29 Bus nr Reidsville	<b>Stream Class</b> C NSW	<b>Sub Basin</b> CPF01
<b>County</b> Rockingham	<b>Latitude</b> 36.2768	<b>Longitude</b> -79.6499	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	5	24.7	16.17	14.75	7.02
pH(su)	12	0	6~9	1	5.83	7.06	6.46	6.37	0.44
Diss. Oxy.(mg/L)	12	0	4	4	2.5	12.5	7.27	8.45	3.29
Conductivity(umhos/cm)	12	0	NA	0	62	147	92.92	68	38.07
Fecal Coliform(col/100ml)	12	0	400	0	1	260	29.49*	47.5	91.44
Lab Turbidity(NTU)	12	0	50	0	5	19.6	8.02	6.95	3.86
TSS(mg/L)	12	0	NA	0	1	12	5.25	4.5	3.44
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	2	NA	0	0.01	0.17	0.07	0.06	0.06
TKN-N(mg/L)	12	4	NA	0	0.1	0.69	0.33	0.38	0.19
NO2-NO3(mg/L)	12	1	NA	0	0.01	0.2	0.11	0.08	0.06
T. Phos.(mg/L)	12	3	NA	0	0.01	0.39	0.13	0.03	0.16
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

<b>Station Id:</b> B0050000/UCFRBA_02	Haw Riv at US 29 Bus nr Benaja	<b>Stream Class</b> C NSW	<b>Sub Basin</b> CPF01
<b>County</b> Rockingham	<b>Latitude</b> 36.2652	<b>Longitude</b> -79.6523	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.8	26.3	18.22	20.7	7.05
pH(su)	17	0	6~9	1	5.46	7.8	6.65	6.69	0.53
Diss. Oxy.(mg/L)	17	0	4	0	4.7	13	7.66	7.3	1.87
Conductivity(umhos/cm)	17	0	NA	0	52	132	94	95	22.46
Fecal Coliform(col/100ml)	12	0	400	3	19	5600	167.21*	166.5	1636.7
Lab Turbidity(NTU)	12	0	50	1	5.9	59.7	16.67	9.65	15.57
TSS(mg/L)	12	0	NA	0	1	21	6.42	4	5.73
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	9	NA	0	0.01	0.05	0.02	0.01	0.01
TKN-N(mg/L)	12	5	NA	0	0.1	0.59	0.29	0.27	0.19
NO2-NO3(mg/L)	12	0	NA	0	0.03	0.21	0.12	0.13	0.07
T. Phos.(mg/L)	12	0	NA	0	0.02	0.47	0.14	0.04	0.18
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B0170000/UCFRBA\_03

Haw Riv at SR 2620 High Rock Rd nr Williamsburg

**Stream Class** C NSW

**Sub Basin** CPF01

**County** Rockingham

**Latitude** 36.2514

**Longitude** -79.5647

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.2	26.5	18.24	20.8	6.95
pH(su)	17	0	6~9	2	5.48	7.6	6.78	6.91	0.51
Diss. Oxy.(mg/L)	17	0	4	0	4.3	13.7	7.58	7.2	2.27
Conductivity(umhos/cm)	17	0	NA	0	64	680	265.18	147	196.57
Fecal Coliform(col/100ml)	12	0	400	3	23	12000	155.61*	76	3551.48
Lab Turbidity(NTU)	12	0	50	3	4.2	180	30.95	8.2	52.15
TSS(mg/L)	12	1	NA	0	0.5	242	29.79	4	67.98
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	5	NA	0	0.01	0.21	0.04	0.03	0.06
TKN-N(mg/L)	12	4	NA	0	0.1	1.64	0.49	0.41	0.45
NO2-NO3(mg/L)	12	0	NA	0	0.07	0.75	0.3	0.26	0.2
T. Phos.(mg/L)	12	0	NA	0	0.04	0.73	0.27	0.23	0.24
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B0400000/UCFRBA\_04

Reedy Fork at SR 2719 High Rock Rd nr Monticello

**Stream Class** C NSW

**Sub Basin** CPF02

**County** Guilford

**Latitude** 36.1778 **Longitude** -79.6177

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.4	25.9	15.23	15.35	8.01
pH(su)	12	0	6~9	0	6.21	7.45	6.67	6.53	0.44
Diss. Oxy.(mg/L)	12	0	4	0	6	13	8.97	8.75	2.62
Conductivity(umhos/cm)	12	0	NA	0	70	124	98.75	101.5	16.51
Fecal Coliform(col/100ml)	12	0	400	0	3	220	38.70*	37	93.08
Lab Turbidity(NTU)	12	0	50	0	3.2	27.8	9.47	8.65	6.44
TSS(mg/L)	12	1	NA	0	0.5	18	5.96	4.5	5.3
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	1.1	0.11	0.01	0.31
TKN-N(mg/L)	12	3	NA	0	0.1	0.7	0.34	0.34	0.19
NO2-NO3(mg/L)	12	0	NA	0	0.05	0.53	0.19	0.14	0.16
T. Phos.(mg/L)	12	4	NA	0	0.01	0.61	0.14	0.02	0.22
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B0480050/UCFRBA_05	N Buffalo Crk at N Buffalo Crk WWTP Influent Conduit Pier at Greensboro	<b>Stream Class</b> C NSW	<b>Sub Basin</b> CPF02
<b>County</b> Guilford	<b>Latitude</b> 36.1074	<b>Longitude</b> -79.7502	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4	26.7	18.23	21.4	7.64
pH(su)	17	0	6~9	0	6.4	7.75	6.95	6.88	0.34
Diss. Oxy.(mg/L)	17	0	4	0	5.5	13.9	8.32	7.4	2.7
Conductivity(umhos/cm)	17	0	NA	0	114	419	211.59	225	77.29
Fecal Coliform(col/100ml)	12	0	400	5	26	4600	288.18*	275	1317.72
Lab Turbidity(NTU)	12	0	50	0	2.5	17.2	6.04	5.1	3.96
TSS(mg/L)	12	4	NA	0	0.5	13	3.17	1.25	3.75
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.29	0.07	0.03	0.09
TKN-N(mg/L)	12	4	NA	0	0.1	0.84	0.35	0.34	0.24
NO2-NO3(mg/L)	12	0	NA	0	0.15	0.89	0.49	0.52	0.21
T. Phos.(mg/L)	12	0	NA	0	0.02	0.49	0.13	0.07	0.16
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B0540050/UCFRBA_06	N Buffalo Crk at SR 2770 Huffine Mill Rd nr McLeansville	<b>Stream Class</b> C NSW	<b>Sub Basin</b> CPF02
<b>County</b> Guilford	<b>Latitude</b> 36.1299	<b>Longitude</b> -79.6626	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.7	27.1	18.22	21.8	7.29
pH(su)	17	0	6~9	0	6.26	7.72	6.99	6.91	0.38
Diss. Oxy.(mg/L)	17	0	4	0	6.7	13.9	8.94	8.1	2.26
Conductivity(umhos/cm)	17	0	NA	0	115	405	269.65	274	85.89
Fecal Coliform(col/100ml)	12	0	400	3	19	1800	177.29*	200	609.25
Lab Turbidity(NTU)	12	0	50	0	1.9	23.6	6.76	4.25	6.03
TSS(mg/L)	12	1	NA	0	0.5	34	6.12	3	9.4
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.15	0.07	0.08	0.05
TKN-N(mg/L)	12	4	NA	0	0.01	0.82	0.37	0.32	0.28
NO2-NO3(mg/L)	12	0	NA	0	1.57	9.68	5.51	5.33	2.7
T. Phos.(mg/L)	12	0	NA	0	0.05	0.94	0.29	0.24	0.24
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B0670000/UCFRBA\_07

S Buffalo Crk at SR 3000 McConnell Rd nr Greensboro

**Stream Class** C NSW

**Sub Basin** CPF02

**County** Guilford

**Latitude** 36.0598 **Longitude** -79.7256

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.9	29.1	18.6	20.7	7.97
pH(su)	17	0	6~9	0	6.39	7.74	7.03	6.95	0.41
Diss. Oxy.(mg/L)	17	0	4	0	6	13.4	8.74	8.3	2.32
Conductivity(umhos/cm)	17	0	NA	0	118	360	213.65	238	69.67
Fecal Coliform(col/100ml)	12	0	400	4	30	2800	251.35*	275	799.53
Lab Turbidity(NTU)	12	0	50	2	2.2	59.5	18.49	9.2	21.15
TSS(mg/L)	12	2	NA	0	0.5	67	16.17	4	23.64
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	7	NA	0	0.01	0.13	0.03	0.01	0.04
TKN-N(mg/L)	12	3	NA	0	0.1	1.02	0.47	0.46	0.32
NO2-NO3(mg/L)	12	0	NA	0	0.1	1.2	0.47	0.41	0.31
T. Phos.(mg/L)	12	2	NA	0	0.01	0.65	0.16	0.05	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B0750000/UCFRBA\_08

S Buffalo Crk at SR 2821 Harvest Rd at McLeansville

**Stream Class** C NSW

**Sub Basin** CPF02

**County** Guilford

**Latitude** 36.1128 **Longitude** -79.6718

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	9.2	30	21.19	23.7	6.31
pH(su)	17	0	6-9	0	6.27	7.56	7.13	7.09	0.34
Diss. Oxy.(mg/L)	17	0	4	0	6.1	11.3	7.74	6.9	1.75
Conductivity(umhos/cm)	17	0	NA	0	156	874	583.12	622	182.34
Fecal Coliform(col/100ml)	12	0	400	6	19	5400	375.93*	680	1986.66
Lab Turbidity(NTU)	12	0	50	0	2.3	38.3	8.45	4.8	10.06
TSS(mg/L)	12	0	NA	0	1	57	10.92	5	16.21
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	1	NA	0	0.01	0.12	0.07	0.08	0.03
TKN-N(mg/L)	12	3	NA	0	0.1	1.56	0.83	0.94	0.56
NO2-NO3(mg/L)	12	0	NA	0	1.85	11.3	5.69	5.67	2.55
T. Phos.(mg/L)	12	0	NA	0	0.28	1.51	0.67	0.66	0.36
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

**Station Id:**  
B0850000/UCFRBA\_09  
**County**

Haw Riv at SR 1530 Gerringer Mill Rd nr Ossipee

**Stream Class** C NSW

**Sub Basin** CPF02

Alamance

**Latitude** 36.1531 **Longitude** -79.4894

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.4	27.6	18.02	20.6	7.8
pH(su)	17	0	6~9	0	6.03	8.31	7.12	7.13	0.59
Diss. Oxy.(mg/L)	17	0	4	0	6.8	13.9	9.2	8.1	2.16
Conductivity(umhos/cm)	17	0	NA	0	70	655	275.76	239	185.42
Fecal Coliform(col/100ml)	12	0	400	2	38	2200	161.51*	190.5	598.54
Lab Turbidity(NTU)	12	0	50	0	2.6	34.9	12.96	7.65	10.75
TSS(mg/L)	12	1	NA	0	0.5	24	7.71	5	6.82
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	7	NA	0	0.01	0.16	0.04	0.01	0.05
TKN-N(mg/L)	12	2	NA	0	0.1	1.45	0.6	0.61	0.37
NO2-NO3(mg/L)	12	0	NA	0	0.26	6.41	1.94	1.25	1.92
T. Phos.(mg/L)	12	0	NA	0	0.09	0.7	0.27	0.18	0.21
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B1350000/UCFRBA_10	Moadams Crk at Corrigdor Rd ups of Discharge nr Mebane	<b>Stream Class</b> C NSW	<b>Sub Basin</b> CPF02
<b>County</b> Alamance	<b>Latitude</b> 36.0885	<b>Longitude</b> -79.2844	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.9	24.4	16.11	19.4	6.73
pH(su)	17	0	6~9	1	5.89	7.13	6.51	6.47	0.32
Diss. Oxy.(mg/L)	17	0	4	0	4.7	11.6	7.5	6.9	2.12
Conductivity(umhos/cm)	17	0	NA	0	112	162	145.47	149	16.23
Fecal Coliform(col/100ml)	12	0	400	3	43	3800	212.41*	161.5	1059.09
Lab Turbidity(NTU)	12	0	50	0	2	26.4	12.41	11.5	6.22
TSS(mg/L)	12	0	NA	0	2	15	7.33	6.5	4.14
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	0								
TKN-N(mg/L)	0								
NO2-NO3(mg/L)	0								
T. Phos.(mg/L)	0								
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B1380000/UCFRBA\_11

Moadams Crk at SR 1940 Gibson Rd nr Florence Town

**Stream Class** C NSW

**Sub Basin** CPF02

**County** Alamance

**Latitude** 36.0891

**Longitude** -79.3074

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.4	27	17.35	21.3	7.69
pH(su)	17	0	6~9	0	6.65	7.56	7.04	7.01	0.25
Diss. Oxy.(mg/L)	17	0	4	0	6.2	13.4	8.9	8	2.43
Conductivity(umhos/cm)	17	0	NA	0	132	613	354.12	326	125.21
Fecal Coliform(col/100ml)	12	0	400	0	32	250	78.96*	81	72.82
Lab Turbidity(NTU)	12	0	50	0	4.4	30.2	9.35	7.5	7.28
TSS(mg/L)	12	1	NA	0	0.5	8	4.29	5	2.3
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.38	0.07	0.04	0.1
TKN-N(mg/L)	12	1	NA	0	0.1	0.88	0.58	0.62	0.24
NO2-NO3(mg/L)	12	0	NA	0	1.46	13.4	4.06	2.86	3.39
T. Phos.(mg/L)	12	0	NA	0	0.29	1.44	0.63	0.5	0.34
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B1440000/UCFRBA\_12

Haw Riv at SR 2158 Swepsonville Rd nr Swepsonville

**Stream Class** C NSW

**Sub Basin** CPF02

**County** Alamance

**Latitude** 36.0256

**Longitude** -79.3682

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.4	29	18.74	20.9	8.4
pH(su)	17	0	6~9	0	6.25	8.59	7.4	7.37	0.7
Diss. Oxy.(mg/L)	17	0	4	0	6.9	13.2	9.52	9.3	2.04
Conductivity(umhos/cm)	17	0	NA	0	81	490	249.82	254	133.34
Fecal Coliform(col/100ml)	12	0	400	1	17	580	123.44*	200	159.59
Lab Turbidity(NTU)	12	0	50	0	2.6	35	12.86	7.7	11.16
TSS(mg/L)	12	0	NA	0	2	27	7.5	5.5	7.31
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	7	NA	0	0.01	0.05	0.02	0.01	0.02
TKN-N(mg/L)	12	2	NA	0	0.1	0.9	0.58	0.67	0.27
NO2-NO3(mg/L)	12	0	NA	0	0.28	3.64	1.55	1.22	1.09
T. Phos.(mg/L)	12	0	NA	0	0.08	0.68	0.27	0.19	0.22
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B1200000/UCFRBA\_13

Haw Riv at NC 54 nr Graham

**Stream Class**

C NSW

**Sub Basin** CPF02

**County**

Alamance

**Latitude** 36.0481

**Longitude** -79.3667

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.4	28.6	18.6	20.8	8.44
pH(su)	17	0	6~9	0	6.28	8	7.26	7.18	0.56
Diss. Oxy.(mg/L)	17	0	4	0	6.6	12.3	9.05	9.1	1.97
Conductivity(umhos/cm)	17	0	NA	0	81	516	256.82	244	145.17
Fecal Coliform(col/100ml)	12	0	400	1	8	450	78.41*	85.5	147.34
Lab Turbidity(NTU)	12	0	50	0	2.6	38.5	13.18	7.6	12.45
TSS(mg/L)	12	0	NA	0	1	32	8.83	4	9.85
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	9	NA	0	0.01	0.05	0.02	0.01	0.01
TKN-N(mg/L)	12	2	NA	0	0.1	0.76	0.55	0.65	0.24
NO2-NO3(mg/L)	12	0	NA	0	0.29	3.94	1.65	1.17	1.22
T. Phos.(mg/L)	12	0	NA	0	0.08	0.57	0.26	0.15	0.21
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B1940000/UCFRBA_14	Big Alamance Crk at NC 87 nr Swepsonville	<b>Stream Class</b>	C NSW	<b>Sub Basin</b>	CPF02
<b>County</b>	Alamance	<b>Latitude</b>	36.0242	<b>Longitude</b>	-79.3943
				<b>HUC</b>	3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.2	27.4	18.03	22.2	7.99
pH(su)	17	0	6~9	0	6.31	7.28	6.77	6.69	0.31
Diss. Oxy.(mg/L)	17	0	4	0	4.9	12.4	7.75	6.9	2.57
Conductivity(umhos/cm)	17	0	NA	0	93	181	129.59	131	23.59
Fecal Coliform(col/100ml)	12	0	400	1	31	440	104.05*	142.5	120.35
Lab Turbidity(NTU)	12	0	50	0	4.1	22.4	10.21	8.25	6.35
TSS(mg/L)	12	0	NA	0	1	25	6.67	5.5	6.43
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	9	NA	0	0.01	0.04	0.01	0.01	0.01
TKN-N(mg/L)	12	3	NA	0	0.1	0.81	0.41	0.41	0.24
NO2-NO3(mg/L)	12	0	NA	0	0.03	0.38	0.19	0.19	0.1
T. Phos.(mg/L)	12	2	NA	0	0.01	0.59	0.15	0.04	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B2000000/UCFRBA_16	Haw Riv at SR 1005 nr Saxpahaw	<b>Stream Class</b>	C NSW	<b>Sub Basin</b>	CPF04
<b>County</b>	Alamance	<b>Latitude</b>	35.8953	<b>Longitude</b>	-79.2585
				<b>HUC</b>	3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.9	29.1	16.67	15.55	8.9
pH(su)	12	0	6~9	0	6.66	8.5	7.23	7.18	0.46
Diss. Oxy.(mg/L)	12	0	4	0	6.2	14.7	9.51	9.35	2.77
Conductivity(umhos/cm)	12	0	NA	0	80	536	231.92	172.5	140.97
Fecal Coliform(col/100ml)	12	0	400	1	8	410	94.88*	147.5	134.17
Lab Turbidity(NTU)	12	0	50	0	2.3	32.2	11.32	9.45	8.67
TSS(mg/L)	12	0	NA	0	1	17	7.92	6.5	5.04
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	7	NA	0	0.01	0.11	0.03	0.01	0.03
TKN-N(mg/L)	12	2	NA	0	0.1	0.97	0.61	0.64	0.29
NO2-NO3(mg/L)	12	0	NA	0	0.42	3.66	1.23	0.78	0.98
T. Phos.(mg/L)	12	1	NA	0	0.01	0.57	0.26	0.23	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

**Station Id:**  
B2100000/UCFRBA\_17

Haw Riv at SR 1713 nr Bynum

**County**

Chatham

**Stream Class**

WS-IV NSW

**Latitude** 35.7716

**Longitude** -79.1449

**Sub Basin** CPF04

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.3	30.8	16.71	15.4	9.53
pH(su)	12	0	6~9	0	6.64	8.62	7.73	7.63	0.69
Diss. Oxy.(mg/L)	12	0	4	0	8.4	14.7	10.51	9.8	2.19
Conductivity(umhos/cm)	12	0	NA	0	80	538	252.67	175	167.55
Fecal Coliform(col/100ml)	12	0	400	0	14	190	38.34*	38.5	51.52
Lab Turbidity(NTU)	12	0	50	0	1.5	35.5	10.72	8.45	9.99
TSS(mg/L)	12	1	NA	0	0.5	18	6.38	4	5.82
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	11	NA	0	0.01	0.03	0.01	0.01	0.01
TKN-N(mg/L)	12	3	NA	0	0.1	0.89	0.51	0.59	0.27
NO2-NO3(mg/L)	12	0	10	0	0.43	3.05	1.16	0.73	0.86
T. Phos.(mg/L)	12	1	NA	0	0.01	0.48	0.23	0.17	0.17
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <.

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B2450000/UCFRBA_18	Robeson Crk at Boat Access Off SR 1943 nr Hanks Chapel	<b>Stream Class</b> WS-IV B NSW CA	<b>Sub Basin</b> CPF04
<b>County</b> Chatham	<b>Latitude</b> 35.70315	<b>Longitude</b> -79.10027	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	2.8	31.8	20.62	24.4	9.56
pH(su)	17	0	6-9	1	6.4	9.15	7.47	7.32	0.8
Diss. Oxy.(mg/L)	17	0	4	0	4.6	13.8	9.47	9.3	2.38
Conductivity(umhos/cm)	17	0	NA	0	83	421	200.29	177	94.24
Fecal Coliform(col/100ml)	12	0	400	0	1	390	23.79*	19.5	149.56
Lab Turbidity(NTU)	12	0	50	0	2.2	39.6	14.16	12.05	9.7
TSS(mg/L)	12	0	NA	0	2	30	11.42	8.5	8.11
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	9	NA	0	0.01	0.15	0.03	0.01	0.05
TKN-N(mg/L)	12	2	NA	0	0.1	1.1	0.63	0.7	0.38
NO2-NO3(mg/L)	12	0	10	0	0.04	1.49	0.49	0.45	0.39
T. Phos.(mg/L)	12	2	NA	0	0.01	0.65	0.25	0.13	0.24
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B3020000/UCFRBA_19	New Hope Creek at NC 54 nr Durham	<b>Stream Class</b>	WS-IV NSW	<b>Sub Basin</b>	CPF05
<b>County</b>	Durham	<b>Latitude</b>	35.9167	<b>Longitude</b>	-78.9704
				<b>HUC</b>	3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.2	25.7	17.22	21.2	7.52
pH(su)	17	0	6-9	1	5.89	7.04	6.49	6.52	0.36
Diss. Oxy.(mg/L)	17	0	4	4	2.2	11.2	5.91	5.5	2.7
Conductivity(umhos/cm)	17	0	NA	0	77	210	131	123	35.91
Fecal Coliform(col/100ml)	12	0	400	2	24	9600	129.70*	85.5	2789.86
Lab Turbidity(NTU)	12	0	50	0	8.6	48.1	20.12	16.2	10.75
TSS(mg/L)	12	0	NA	0	3	45	13.42	11.5	11.4
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.21	0.04	0.02	0.06
TKN-N(mg/L)	12	3	NA	0	0.1	0.79	0.44	0.47	0.24
NO2-NO3(mg/L)	12	0	10	0	0.04	0.3	0.13	0.11	0.08
T. Phos.(mg/L)	12	2	NA	0	0.01	0.59	0.18	0.11	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

**Station Id:**  
B3040000/UCFRBA\_20

New Hope Crk at SR 1107 Stagecoach Rd nr Blands

**Stream Class** WS-IV NSW

**Sub Basin** CPF05

**County**

Durham

**Latitude** 35.8847

**Longitude** -78.9656

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	5.6	25.6	18.48	22.3	6.93
pH(su)	17	0	6~9	1	5.92	7.09	6.67	6.7	0.32
Diss. Oxy.(mg/L)	17	0	4	0	4.8	12.4	7.61	7.2	1.79
Conductivity(umhos/cm)	17	0	NA	0	98	544	314.18	295	148.35
Fecal Coliform(col/100ml)	12	0	400	2	12	8200	162.35*	123.5	2403.86
Lab Turbidity(NTU)	12	0	50	1	3.9	71	19.41	12.8	18.06
TSS(mg/L)	12	0	NA	0	2	60	16.83	14.5	15.85
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.56	0.11	0.04	0.17
TKN-N(mg/L)	12	4	NA	0	0.1	1.12	0.6	0.73	0.39
NO2-NO3(mg/L)	12	0	10	1	0.43	10.2	3.42	2.81	2.68
T. Phos.(mg/L)	12	0	NA	0	0.11	0.65	0.33	0.27	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B3300000/UCFRBA_21	Northeast Crk at SR 1102 Sedwick Road nr RTP	<b>Stream Class</b> WS-IV NSW	<b>Sub Basin</b> CPF05
<b>County</b> Durham	<b>Latitude</b> 35.88702	<b>Longitude</b> -78.89943	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.2	24.9	17.19	20.9	7.81
pH(su)	17	0	6~9	1	5.9	7.44	6.69	6.65	0.44
Diss. Oxy.(mg/L)	17	0	4	6	0.94	12.2	5.78	4.8	3.43
Conductivity(umhos/cm)	17	0	NA	0	120	650	216.88	188	123.78
Fecal Coliform(col/100ml)	12	0	400	1	41	1400	146.24*	138	375.19
Lab Turbidity(NTU)	12	0	50	2	13.6	62.5	31.43	27.35	14.68
TSS(mg/L)	12	0	NA	0	1	34	18.33	20	9.98
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	5	NA	0	0.01	0.23	0.05	0.04	0.07
TKN-N(mg/L)	12	3	NA	0	0.1	1.11	0.58	0.58	0.34
NO2-NO3(mg/L)	12	1	10	0	0.01	0.12	0.06	0.06	0.04
T. Phos.(mg/L)	12	2	NA	0	0.01	0.65	0.23	0.11	0.23
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B3670000/UCFRBA\_22

Northeast Crk at SR 1731 O Kelly Church Road nr Durham

**Stream Class** WS-IV NSW

**Sub Basin** CPF05

**County** Chatham

**Latitude** 35.8555

**Longitude** -78.9397

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	5.7	25.1	18.09	22.3	7.19
pH(su)	17	0	6-9	0	6.31	7.88	7.1	7.12	0.43
Diss. Oxy.(mg/L)	17	0	4	1	3.7	12.3	7.99	7.5	2.14
Conductivity(umhos/cm)	17	0	NA	0	182	662	401.18	368	163.1
Fecal Coliform(col/100ml)	12	0	400	2	17	5200	133.81*	108	1463.08
Lab Turbidity(NTU)	12	0	50	1	6.1	92.4	24.1	16.25	22.94
TSS(mg/L)	12	0	NA	0	1	56	17.08	14.5	15.14
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.05	0.02	0.01	0.01
TKN-N(mg/L)	12	3	NA	0	0.1	1.25	0.66	0.77	0.38
NO2-NO3(mg/L)	12	0	10	0	0.41	4.44	1.94	1.35	1.37
T. Phos.(mg/L)	12	0	NA	0	0.06	1.2	0.36	0.33	0.32
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B3025000/UCFRBA_23	Third Fork Crk at NC 54 nr Durham	<b>Stream Class</b>	WS-IV NSW	<b>Sub Basin</b>	CPF05
<b>County</b>	Durham	<b>Latitude</b>	35.9187	<b>Longitude</b>	-78.9548
				<b>HUC</b>	3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	2.2	27.1	14.43	12.5	8.57
pH(su)	12	0	6~9	0	6.12	7.22	6.64	6.61	0.4
Diss. Oxy.(mg/L)	12	0	4	3	1.2	12.6	6.64	5.4	3.86
Conductivity(umhos/cm)	12	0	NA	0	104	297	202.58	225	61.04
Fecal Coliform(col/100ml)	12	0	400	2	42	10200	208.14*	141	2962.66
Lab Turbidity(NTU)	12	0	50	0	9.2	39	18.48	15.45	9.18
TSS(mg/L)	12	0	NA	0	1	29	11.25	9.5	7.96
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	5	NA	0	0.01	0.18	0.05	0.03	0.06
TKN-N(mg/L)	12	3	NA	0	0.1	1.17	0.57	0.52	0.4
NO2-NO3(mg/L)	12	0	10	0	0.03	0.25	0.14	0.14	0.08
T. Phos.(mg/L)	12	1	NA	0	0.01	0.5	0.23	0.2	0.16
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B3899180/UCFRBA_24	Morgan Crk at Mason Farm WWTP Entrance at Chapel Hill	<b>Stream Class</b> WS-IV NSW	<b>Sub Basin</b> CPF06
<b>County</b> Orange	<b>Latitude</b> 35.8987	<b>Longitude</b> -79.0263	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.2	24.9	16.83	20.5	7.3
pH(su)	17	0	6~9	0	6.17	7.4	6.89	6.89	0.33
Diss. Oxy.(mg/L)	17	0	4	0	5.7	14	8.35	7.5	2.52
Conductivity(umhos/cm)	17	0	NA	0	97	301	190.65	177	71.16
Fecal Coliform(col/100ml)	12	0	400	2	4	5600	137.29*	123.5	1922.9
Lab Turbidity(NTU)	12	0	50	0	4	12.1	7.09	5.45	3.24
TSS(mg/L)	12	0	NA	0	1	16	6.17	4.5	4.57
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	9	NA	0	0.01	0.05	0.02	0.01	0.01
TKN-N(mg/L)	12	4	NA	0	0.1	0.66	0.33	0.34	0.2
NO2-NO3(mg/L)	12	0	10	0	0.18	1.4	0.48	0.38	0.35
T. Phos.(mg/L)	12	2	NA	0	0.01	0.52	0.11	0.05	0.15
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B3900000/UCFRBA_25	Morgan Crk at SR 1726 Old Farrington Rd nr Farrington	<b>Stream Class</b> WS-IV NSW	<b>Sub Basin</b> CPF06
<b>County</b> Chatham	<b>Latitude</b> 35.8612	<b>Longitude</b> -79.01	<b>HUC</b> 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.8	25	17.94	21.9	7.18
pH(su)	17	0	6~9	0	6.6	7.59	7.08	7.06	0.29
Diss. Oxy.(mg/L)	17	0	4	0	6.4	13.5	8.13	7.7	1.98
Conductivity(umhos/cm)	17	0	NA	0	157	651	463.24	484	157.96
Fecal Coliform(col/100ml)	12	0	400	2	10	800	121.00*	157	233.24
Lab Turbidity(NTU)	12	0	50	0	4.1	20.9	8.96	8	4.9
TSS(mg/L)	12	0	NA	0	2	25	9.25	7.5	7.66
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	4	NA	0	0.01	0.06	0.03	0.02	0.02
TKN-N(mg/L)	12	5	NA	0	0.1	0.91	0.31	0.22	0.26
NO2-NO3(mg/L)	12	0	10	2	0.59	12.6	6.09	5.36	3.71
T. Phos.(mg/L)	12	0	NA	0	0.03	0.78	0.27	0.14	0.26
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B4080000/UCFRBA_26	Haw Riv at SR 1011 Old US 1 nr Haywood	<b>Stream Class</b>	WS-IV	<b>Sub Basin</b>	CPF04
<b>County</b>	Chatham	<b>Latitude</b>	35.6164	<b>Longitude</b>	-79.0569
				<b>HUC</b>	3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	6.5	28.7	19.56	20.8	7.89
pH(su)	17	0	6~9	0	6.24	7.18	6.75	6.82	0.29
Diss. Oxy.(mg/L)	17	0	4	0	4.9	13.1	8.21	7.5	2.73
Conductivity(umhos/cm)	17	0	NA	0	92	268	164.59	162	46.6
Fecal Coliform(col/100ml)	12	0	400	1	3	4200	36.63*	28.5	1199.2
Lab Turbidity(NTU)	12	0	50	1	4.4	68.5	15.8	7.9	17.93
TSS(mg/L)	12	0	NA	0	4	30	11.58	9.5	7
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	2	NA	0	0.01	0.12	0.05	0.03	0.04
TKN-N(mg/L)	12	3	NA	0	0.1	0.99	0.62	0.74	0.34
NO2-NO3(mg/L)	12	0	10	0	0.06	0.67	0.37	0.42	0.2
T. Phos.(mg/L)	12	1	NA	0	0.01	0.55	0.23	0.13	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B6040300/UCFRBA_27	Deep Riv at SR 1011 Old US 1 nr Moncure	<b>Stream Class</b>	WS-IV	<b>Sub Basin</b>	CPF11
<b>County</b>	Chatham	<b>Latitude</b>	35.6176	<b>Longitude</b>	-79.0912
		<b>HUC</b>			3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.9	28.9	16.76	15.45	8.89
pH(su)	12	0	6-9	0	6.24	7.55	6.98	6.97	0.34
Diss. Oxy.(mg/L)	12	0	4	0	6.1	13.3	9.25	9.4	2.29
Conductivity(umhos/cm)	12	0	NA	0	91	284	156.5	142	61.01
Fecal Coliform(col/100ml)	12	0	400	2	21	1000	82.84*	61	292.43
Lab Turbidity(NTU)	12	0	50	0	2.9	48.2	12.79	9.55	12.28
TSS(mg/L)	12	0	NA	0	2	21	8.17	6	5.73
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	10	NA	0	0.01	0.03	0.01	0.01	0.01
TKN-N(mg/L)	12	3	NA	0	0.1	0.91	0.53	0.55	0.29
NO2-NO3(mg/L)	12	0	10	0	0.31	1.7	0.83	0.75	0.35
T. Phos.(mg/L)	12	1	NA	0	0.01	1.22	0.36	0.25	0.35
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <".

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4380000/UCFRBA\_28

Richland Crk at SR 1154 Kersey Valley Rd nr High point

**Stream Class** WS-IV CA\*

**Sub Basin** CPF08

**County**

Guilford

**Latitude** 35.941

**Longitude** -79.9322

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	5.1	26.4	18.04	20.9	6.74
pH(su)	17	0	6-9	0	6.25	7.42	6.84	6.86	0.32
Diss. Oxy.(mg/L)	17	0	4	0	6.7	12.9	8.71	7.9	1.78
Conductivity(umhos/cm)	17	0	NA	0	56	242	150.47	169	50.07
Fecal Coliform(col/100ml)	12	0	400	5	5	12000	581.69*	280	5031.14
Lab Turbidity(NTU)	12	0	50	1	2.7	108	22.13	7.3	30.31
TSS(mg/L)	12	1	NA	0	0.5	136	16.38	4	37.92
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	0	NA	0	0.03	0.24	0.11	0.11	0.05
TKN-N(mg/L)	12	4	NA	0	0.1	1.74	0.49	0.47	0.45
NO2-NO3(mg/L)	12	0	10	0	0.21	0.69	0.45	0.46	0.16
T. Phos.(mg/L)	12	5	NA	0	0.01	0.54	0.15	0.03	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4350000/UCFRBA\_29

Deep Riv at SR 1113 Kivett Dr nr Hayworth Spring

**Stream Class** WS-IV CA

**Sub Basin** CPF08

**County** Guilford

**Latitude** 35.9594 **Longitude** -79.9061

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4	27.7	19.38	22.4	7.63
pH(su)	17	0	6~9	0	6.27	8.5	6.99	6.91	0.52
Diss. Oxy.(mg/L)	17	0	4	1	3.6	11	8.33	9.4	2.19
Conductivity(umhos/cm)	17	0	NA	0	84	251	150.12	139	43.31
Fecal Coliform(col/100ml)	12	0	400	3	8	5400	59.89*	26	1539.32
Lab Turbidity(NTU)	12	0	50	0	4.6	36.7	17.22	10.15	11.39
TSS(mg/L)	12	0	NA	0	1	37	13.58	10.5	10.27
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.1	0.04	0.02	0.03
TKN-N(mg/L)	12	3	NA	0	0.1	1.16	0.48	0.48	0.34
NO2-NO3(mg/L)	12	1	10	0	0.01	0.32	0.15	0.13	0.09
T. Phos.(mg/L)	12	1	NA	0	0.01	0.53	0.2	0.07	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4614500/UCFRBA\_30

Randleman Lake at Coltrain Mill Rd. bridge

**Stream Class**

WS-IV CA\*

**Sub Basin** CPF08

**County**

Guiford

**Latitude** 35.90618

**Longitude** -79.85648

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	5.4	29.8	21.03	24.8	8.38
pH(su)	17	0	6~9	0	6.07	8.7	7.55	7.18	0.96
Diss. Oxy.(mg/L)	17	0	4	0	4.6	12.3	8.54	8.8	2.19
Conductivity(umhos/cm)	17	0	NA	0	77	232	171.12	175	36.97
Fecal Coliform(col/100ml)	12	0	400	1	1	510	11.31*	6	143.69
Lab Turbidity(NTU)	12	0	50	1	4.6	61	12.98	7.5	15.76
TSS(mg/L)	12	0	NA	0	4	32	10.17	8.5	7.43
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.14	0.04	0.02	0.04
TKN-N(mg/L)	12	4	NA	0	0.1	1.67	0.6	0.66	0.5
NO2-NO3(mg/L)	12	4	10	0	0.01	0.43	0.16	0.12	0.16
T. Phos.(mg/L)	12	0	NA	0	0.03	0.54	0.2	0.11	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

Station Id: B4625000/UCFRBA\_31 Muddy Crk at SR 1922 Muddy Creek Rd nr Glenola  
 Stream Class WS-IV Sub Basin CPF08  
 County Randolph Latitude 35.8836 Longitude -79.8560 HUC 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.7	25.9	15.36	12.4	7.14
pH(su)	12	0	6-9	1	5.98	7.08	6.59	6.6	0.32
Diss. Oxy.(mg/L)	12	0	4	0	4.3	11.7	7.65	8.05	2.29
Conductivity(umhos/cm)	12	0	NA	0	84	177	121.33	117	33.18
Fecal Coliform(col/100ml)	12	0	400	6	21	12000	485.70*	320	4686.92
Lab Turbidity(NTU)	12	0	50	4	5.8	120	35.48	14.85	36.79
TSS(mg/L)	12	0	NA	0	1	94	21	9	30.25
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.09	0.03	0.01	0.02
TKN-N(mg/L)	12	5	NA	0	0.1	1.16	0.51	0.53	0.41
NO2-NO3(mg/L)	12	0	10	0	0.04	0.63	0.3	0.31	0.17
T. Phos.(mg/L)	12	1	NA	0	0.01	0.51	0.24	0.19	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4870000/UCFRBA\_32

Haskett Crk at Asheboro WWTP Bridge nr Asheboro

**Stream Class** C

**Sub Basin** CPF09

**County** Randolph

**Latitude** 35.7647 **Longitude** -79.7862

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	2	28.2	15.27	14.8	7.29
pH(su)	12	0	6~9	0	6.25	7.33	6.62	6.66	0.32
Diss. Oxy.(mg/L)	12	0	4	0	5.9	14.9	8.47	7.9	2.33
Conductivity(umhos/cm)	12	0	NA	0	54	151	98.83	98	28.08
Fecal Coliform(col/100ml)	12	0	400	5	26	12000	470.81*	360	3995.74
Lab Turbidity(NTU)	12	0	50	1	3.9	135	29.68	20.1	35.24
TSS(mg/L)	12	0	NA	0	1	106	17.5	5	29.29
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.08	0.03	0.01	0.03
TKN-N(mg/L)	12	2	NA	0	0.1	1.49	0.61	0.57	0.38
NO2-NO3(mg/L)	12	0	NA	0	0.05	0.36	0.19	0.18	0.09
T. Phos.(mg/L)	12	1	NA	0	0.01	0.6	0.15	0.05	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

Station Id: Deep Riv at Bus 220 Main St at Randleman  
 B4770500/UCFRBA\_33  
 County: Randolph Stream Class: C Sub Basin: CPF08  
 Latitude: 35.8233 Longitude: -79.8033 HUC: 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	5.6	23.4	15.38	17.4	4.63
pH(su)	17	0	6-9	1	6.34	9.09	6.98	6.85	0.62
Diss. Oxy.(mg/L)	17	0	4	0	6.8	12.1	8.91	8.6	1.55
Conductivity(umhos/cm)	17	0	NA	0	163	193	176	175	8.23
Fecal Coliform(col/100ml)	12	0	400	0	4	310	49.25*	40.5	100.89
Lab Turbidity(NTU)	12	0	50	0	2.4	10.5	5.27	4.8	2.38
TSS(mg/L)	12	0	NA	0	3	15	5.75	4	3.65
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.53	0.19	0.15	0.19
TKN-N(mg/L)	12	3	NA	0	0.1	0.97	0.59	0.73	0.33
NO2-NO3(mg/L)	12	0	NA	0	0.03	0.64	0.33	0.35	0.21
T. Phos.(mg/L)	12	1	NA	0	0.01	0.47	0.16	0.05	0.17
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <".

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4800000/UCFRBA\_34

Deep Riv at SR 2122/2128 Worthville Rd at Worthville

**Stream Class** C

**Sub Basin** CPF09

**County** Randolph

**Latitude** 35.8007 **Longitude** -79.77623

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.2	23.4	16.82	19.2	5.81
pH(su)	17	0	6~9	0	6.55	7.58	7.09	7.03	0.27
Diss. Oxy.(mg/L)	17	0	4	0	7.3	13.7	9.39	8.8	1.78
Conductivity(umhos/cm)	17	0	NA	0	121	204	174.06	173	21.78
Fecal Coliform(col/100ml)	12	0	400	4	44	7800	387.83*	280	2860.92
Lab Turbidity(NTU)	12	0	50	1	3.5	74.6	15.62	6.4	21.21
TSS(mg/L)	12	0	NA	0	1	99	15	8	27.24
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	2	NA	0	0.01	0.28	0.13	0.11	0.1
TKN-N(mg/L)	12	1	NA	0	0.1	1.36	0.7	0.74	0.3
NO2-NO3(mg/L)	12	0	NA	0	0.12	0.55	0.32	0.33	0.13
T. Phos.(mg/L)	12	1	NA	0	0.01	0.49	0.2	0.09	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B4920000/UCFRBA\_35

Deep Riv at SR 2261 Old Liberty Rd nr Central Falls

**Stream Class** C

**Sub Basin** CPF09

**County** Randolph

**Latitude** 35.7642 **Longitude** -79.7734

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	4.5	27.9	18.66	22.3	7.33
pH(su)	17	0	6~9	0	6.65	8.77	7.17	7.05	0.54
Diss. Oxy.(mg/L)	17	0	4	0	6.4	13	8.78	8.5	1.64
Conductivity(umhos/cm)	17	0	NA	0	113	480	245.47	208	105.5
Fecal Coliform(col/100ml)	12	0	400	2	17	12000	224.46*	225	4173.59
Lab Turbidity(NTU)	12	0	50	2	4.4	74.5	19	8.25	24.07
TSS(mg/L)	12	0	NA	0	3	65	15.33	8.5	19.07
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	2	NA	0	0.01	0.26	0.1	0.08	0.08
TKN-N(mg/L)	12	1	NA	0	0.1	1.51	0.75	0.63	0.39
NO2-NO3(mg/L)	12	0	NA	0	0.34	5.13	1.32	0.77	1.41
T. Phos.(mg/L)	12	1	NA	0	0.01	0.78	0.26	0.15	0.23
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B5070000/UCFRBA\_36

Deep Riv at SR 2615 Brooklyn Ave at Ramseyer

**Stream Class** C

**Sub Basin** CPF09

**County** Randolph

**Latitude** 35.7302 **Longitude** -79.6558

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.8	28.2	18.89	22.5	7.96
pH(su)	17	0	6~9	0	6.28	7.52	7.03	7.07	0.32
Diss. Oxy.(mg/L)	17	0	4	0	6.5	13.7	8.51	7.5	2.18
Conductivity(umhos/cm)	17	0	NA	0	124	279	199.06	196	52.49
Fecal Coliform(col/100ml)	12	0	400	4	19	4800	263.99*	235	1680.08
Lab Turbidity(NTU)	12	0	50	1	2.7	55.3	15.95	9.55	16.95
TSS(mg/L)	12	1	NA	0	0.5	36	10.38	7	10.52
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	4	NA	0	0.01	0.15	0.05	0.04	0.05
TKN-N(mg/L)	12	1	NA	0	0.1	1.4	0.63	0.65	0.32
NO2-NO3(mg/L)	12	0	NA	0	0.39	1.96	0.98	0.81	0.55
T. Phos.(mg/L)	12	0	NA	0	0.03	0.53	0.18	0.12	0.16
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B5100000/UCFRBA\_37

Deep Riv at SR 2628 Hinshaw Town Rd nr Parks Crossroads

**Stream Class** C

**Sub Basin** CPF09

**County**

Randolph

**Latitude** 35.6724

**Longitude** -79.6274

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.2	28.1	18.86	22.7	7.81
pH(su)	17	0	6~9	0	6.09	7.54	6.92	6.95	0.37
Diss. Oxy.(mg/L)	17	0	4	0	5.8	13.3	8.32	7.3	2.22
Conductivity(umhos/cm)	17	0	NA	0	117	278	195.65	183	54.8
Fecal Coliform(col/100ml)	12	0	400	3	31	12000	360.90*	260	3612.93
Lab Turbidity(NTU)	12	0	50	1	1.9	65.8	16.28	7.45	20.54
TSS(mg/L)	12	0	NA	0	1	41	11.75	5	13.54
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.14	0.05	0.03	0.05
TKN-N(mg/L)	12	1	NA	0	0.1	1.2	0.62	0.64	0.29
NO2-NO3(mg/L)	12	0	NA	0	0.41	1.69	1.02	0.92	0.47
T. Phos.(mg/L)	12	1	NA	0	0.01	0.58	0.21	0.11	0.2
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B5520000/UCFRBA_38	Deep Riv at NC 22 at High Falls	<b>Stream Class</b>	C HQW	<b>Sub Basin</b>	CPF10
<b>County</b>	Moore	<b>Latitude</b>	35.4777	<b>Longitude</b>	-79.5195
		<b>HUC</b>			3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	12	0	32	0	3.4	28.8	16.95	15.4	8.48
pH(su)	12	0	6~9	0	6.38	7.99	7.14	7.04	0.58
Diss. Oxy.(mg/L)	12	0	4	0	7.1	13.5	9.54	9.2	1.79
Conductivity(umhos/cm)	12	0	NA	0	81	264	148.25	130	57.25
Fecal Coliform(col/100ml)	12	0	400	5	19	12000	232.13*	100	4210.48
Lab Turbidity(NTU)	12	0	50	2	1.1	67.1	18.21	8.7	23.13
TSS(mg/L)	12	1	NA	0	0.5	57	12.96	3.5	18.21
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	3	NA	0	0.01	0.08	0.03	0.03	0.02
TKN-N(mg/L)	12	2	NA	0	0.1	1.52	0.65	0.6	0.42
NO2-NO3(mg/L)	12	0	NA	0	0.36	1.41	0.64	0.58	0.27
T. Phos.(mg/L)	12	1	NA	0	0.01	0.5	0.24	0.18	0.19
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:** Cotton Crk at SR 1372 Auman Rd nr Star  
**B5390800/UCFRBA\_39**  
**County** Montgomery **Stream Class** WS-III **Sub Basin** CPF10  
**Latitude** 35.3782 **Longitude** -79.7551 **HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	0.6	23.9	16.39	18.1	6.48
pH(su)	17	0	6~9	2	5.83	7.54	6.62	6.54	0.46
Diss. Oxy.(mg/L)	17	0	4	0	4.7	13.6	7.19	6.2	2.48
Conductivity(umhos/cm)	17	0	NA	0	87	362	238.06	267	100.11
Fecal Coliform(col/100ml)	12	0	400	9	58	12000	1989.25*	2600	5501.42
Lab Turbidity(NTU)	12	0	50	2	1.03	112	27.43	12.2	37.09
TSS(mg/L)	12	1	NA	0	0.5	73	15.21	6	21.43
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	6	NA	0	0.01	0.2	0.04	0.02	0.05
TKN-N(mg/L)	12	1	NA	0	0.1	2.7	1.02	0.82	0.72
NO2-NO3(mg/L)	12	0	10	0	0.38	4.44	2.18	1.91	1.36
T. Phos.(mg/L)	12	0	NA	0	0.26	2.11	1.05	1	0.57
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

**Station Id:**  
B5685000/UCFRBA\_41

Deep Riv at Deep River Park Bridge nr Cumnock

**Stream Class** C

**Sub Basin** CPF11

**County**

Chatham

**Latitude** 35.5704

**Longitude** -79.2411

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	2.6	29.6	19.16	23.6	9.09
pH(su)	17	0	6~9	0	6.1	7	6.72	6.79	0.27
Diss. Oxy.(mg/L)	17	0	4	0	5.2	12.9	7.47	6.6	2.36
Conductivity(umhos/cm)	17	0	NA	0	94	242	147	140	41.06
Fecal Coliform(col/100ml)	12	0	400	2	22	12000	113.51*	54.5	3463.31
Lab Turbidity(NTU)	12	0	50	0	2.8	43.4	11.62	9.1	10.96
TSS(mg/L)	12	1	NA	0	0.5	35	9.88	6	10.94
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	0								
TKN-N(mg/L)	0								
NO2-NO3(mg/L)	0								
T. Phos.(mg/L)	0								
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B5820000/UCFRBA\_42

Deep Riv at US 15 And 501 nr Sanford

**Stream Class**

C

**Sub Basin** CPF11

**County**

Lee

**Latitude** 35.5782

**Longitude** -79.1942

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	2.6	29.1	19.12	23.4	8.92
pH(su)	17	0	6~9	1	5.98	6.96	6.63	6.68	0.29
Diss. Oxy.(mg/L)	17	0	4	2	3.9	13.2	6.87	5.8	2.84
Conductivity(umhos/cm)	17	0	NA	0	93	296	170.18	153	61.7
Fecal Coliform(col/100ml)	12	0	400	1	18	5400	109.14*	63.5	1530.33
Lab Turbidity(NTU)	12	0	50	0	4	43.7	12.48	9.9	10.81
TSS(mg/L)	12	0	NA	0	1	28	8.17	4.5	7.87
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	8	NA	0	0.01	0.03	0.02	0.01	0.01
TKN-N(mg/L)	12	3	NA	0	0.1	0.85	0.53	0.64	0.3
NO2-NO3(mg/L)	12	0	NA	0	0.51	1.88	0.99	0.91	0.44
T. Phos.(mg/L)	12	0	NA	0	0.08	0.88	0.37	0.3	0.28
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

<b>Station Id:</b> B5950000/UCFRBA_43	Rocky Riv at US 64 nr Siler City	<b>Stream Class</b>	C	<b>Sub Basin</b>	CPF11
<b>County</b>	Chatham	<b>Latitude</b>	35.7351	<b>Longitude</b>	-79.4233
		<b>HUC</b>			3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.9	29.1	18.16	21.6	8.42
pH(su)	17	0	6~9	1	5.88	6.93	6.46	6.44	0.28
Diss. Oxy.(mg/L)	17	0	4	3	2.7	12.4	6.77	5.2	3.3
Conductivity(umhos/cm)	17	0	NA	0	75	136	101.12	101	16.74
Fecal Coliform(col/100ml)	12	0	400	1	8	12000	98.81*	126.5	3433.69
Lab Turbidity(NTU)	12	0	50	0	1.3	49.1	13.02	8.55	13.42
TSS(mg/L)	12	1	NA	0	0.5	32	7.29	5	8.35
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	7	NA	0	0.01	0.11	0.03	0.01	0.03
TKN-N(mg/L)	12	3	NA	0	0.1	1.2	0.66	0.75	0.38
NO2-NO3(mg/L)	12	0	NA	0	0.07	0.56	0.3	0.21	0.17
T. Phos.(mg/L)	12	0	NA	0	0.02	0.59	0.27	0.18	0.22
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

**Station Id:**  
B5980000/UCFRBA\_44

Rocky Riv at SR 2170 Rives Chapel Rd nr Siler City

**Stream Class** C

**Sub Basin** CPF11

**County**

Chatham

**Latitude** 35.6985

**Longitude** -79.3756

**HUC** 3030003

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	17	0	32	0	3.6	27.6	17.62	21.6	8.3
pH(su)	17	0	6~9	0	6.03	7.36	6.84	6.82	0.33
Diss. Oxy.(mg/L)	17	0	4	0	4.5	12.1	7.72	7	2.26
Conductivity(umhos/cm)	17	0	NA	0	95	881	414.71	420	271.45
Fecal Coliform(col/100ml)	12	0	400	2	38	2200	171.01*	147.5	734.67
Lab Turbidity(NTU)	12	0	50	0	1.5	20.3	10.61	9.25	6.58
TSS(mg/L)	12	0	NA	0	2	16	6.25	4.5	5.03
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	12	4	NA	0	0.01	0.08	0.03	0.03	0.02
TKN-N(mg/L)	12	5	NA	0	0.1	1.14	0.54	0.65	0.42
NO2-NO3(mg/L)	12	0	NA	0	0.88	25	7.58	3.49	8.21
T. Phos.(mg/L)	12	0	NA	0	0.07	0.79	0.29	0.14	0.27
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B5890000/UCFRBA\_45

Loves Creek at Waste Management Plant Rd in Siler City

**Stream Class** C

**Sub Basin** CPF12

**County**

Chatham

**Latitude** 35.7289

**Longitude** -79.4289

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	14	0	32	0	6	28	18.09	20.6	6.63
pH(su)	14	0	6~9	0	6.16	7.14	6.71	6.71	0.3
Diss. Oxy.(mg/L)	14	0	4	0	4.4	10.6	7.01	6.7	1.98
Conductivity(umhos/cm)	14	0	NA	0	104	1056	241.71	180	237.49
Fecal Coliform(col/100ml)	9	0	400	1	21	12000	149.79*	171	3959.11
Lab Turbidity(NTU)	9	0	50	1	3	236	32.57	5.6	76.48
TSS(mg/L)	9	1	NA	0	0.5	233	28.5	3	76.72
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	9	7	NA	0	0.01	0.74	0.1	0.01	0.24
TKN-N(mg/L)	9	2	NA	0	0.1	1.71	0.5	0.42	0.48
NO2-NO3(mg/L)	9	0	NA	0	0.14	5.27	0.96	0.55	1.62
T. Phos.(mg/L)	9	0	NA	0	0.03	0.55	0.19	0.07	0.22
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

01/01/2009-12/31/2009 Summary Report

**Station Id:**  
B5920000/UCFRBA\_46

Loves Creek at Progress Blvd at Siler City

**Stream Class**

C

**Sub Basin** CPF12

**County**

Chatham

**Latitude** 35.7322

**Longitude** -79.4246

**HUC** 3030002

Parameter	Count	< DT	WQS	#Exceed	MIN	MAX	AVG	Median	Std Dev***
Temperature(C)	14	0	32	0	8.7	28.3	21.81	23.4	5.78
pH(su)	14	0	6~9	0	6.49	7.56	7.23	7.34	0.35
Diss. Oxy.(mg/L)	14	0	4	0	5.6	11.3	7.79	7.35	1.39
Conductivity(umhos/cm)	14	0	NA	0	214	1106	736.07	826.5	289.91
Fecal Coliform(col/100ml)	9	0	400	2	28	12000	238.28*	162	3961.85
Lab Turbidity(NTU)	9	0	50	1	0.74	245	30.99	3.9	80.32
TSS(mg/L)	9	1	NA	0	0.5	213	26.17	2	70.09
Chlorophyll-a(ug/L)	0								
NH3-N(mg/L)	9	6	NA	0	0.01	0.58	0.08	0.01	0.19
TKN-N(mg/L)	9	5	NA	0	0.1	9.66	1.38	0.1	3.13
NO2-NO3(mg/L)	9	0	NA	0	0.79	36.4	19.06	19.9	14.8
T. Phos.(mg/L)	9	0	NA	0	0.07	3.1	0.83	0.27	1.21
Cadmium(ug/L)	0								
Chromium(ug/L)	0								
Copper(ug/L)	0								
Nickel(ug/L)	0								
Lead(ug/L)	0								
Zinc(ug/L)	0								
Iron(ug/L)	0								
Manganese(ug/L)	0								
Arsenic(ug/L)	0								
Mercury(ug/L)	0								
Aluminum(ug/L)	0								
Arsenic(ug/L)	0								

(\* Fecal Coliform Geomean)

(\*\* The Aluminum standard comes from the EPA's 2006 recommended water quality criteria. )

(\*\* Copper and Zinc and Iron are considered Action Levels and not NC state water quality standards.)

(\*\*\* Standard Deviation range of values is also affected by climate and storm events and etc.)

"<DT" means the number of measurements that are lower than the detection limit. It refers to those values that have the remark code of "P, U, Y, K, <."

## APPENDIX A

### UPPER CAPE FEAR RIVER BASIN ASSOCIATION

#### DIRECTORS AND ALTERNATE DIRECTORS

Michael Rhoney  
Director of Water Resources  
**City of Asheboro**  
PO Box 1106  
Asheboro, NC 27204-1106  
Phone: 336-626-1234, ext. 2210  
Fax: 336-626-0430  
Email: mrhoney@ci.asheboro.nc.us

John Ogburn III  
City Manager  
**City of Asheboro**  
PO Box 1106  
Asheboro, NC 27204-1106  
Phone: 336-626-1201  
Fax: 336-626-1218  
Email: jogburn@ci.asheboro.nc.us

Bob Patterson  
Director of Utilities  
**City of Burlington**  
PO Box 1358  
Burlington, NC 27216-1358  
Phone: 336-222-5130  
Fax: 336-222-5019  
Email: bpatterson@ci.burlington.nc.us

Clarence Sell  
Chief Operator  
**City of Burlington**  
PO Box 1358  
Burlington, NC 27216-1358  
Phone: 336-578-0515  
Fax: 336-578-0516  
Email: csell@ci.burlington.nc.us

Steve Brown  
Director of Public Works and Utilities  
**Town of Cary**  
PO Box 8005  
Cary, NC 27512-8005  
Phone: 919-469-4092  
Fax: 919-469-4304  
Email: steve.brown@townofcary.org

Leila Goodwin  
Water Resources Manager  
**Town of Cary**  
PO Box 8005  
Cary, NC 27512-8005  
Phone: 919-462-3846  
Fax: 919-380-6422  
Email: leila.goodwin@townofcary.org

Glen Whisler  
County Engineer  
**Durham County**  
120 E. Parrish Street  
Law Building, 1st Floor  
Durham, NC 27701  
Phone: 919-560-0738  
Fax: 919-560-0740  
Email: gwhisler@co.durham.nc.us

Joseph Pearce  
POTW Director/Utility Division Manager  
**Durham County**  
5926 NC Hwy 55 East  
Durham, NC 27713  
Phone: 919-544-8832  
Fax: 919-544-8590  
Email: jpearce@co.durham.nc.us

Vicki Westbrook  
Deputy Director of Water Management  
**City of Durham**  
101 City Hall Plaza  
Durham, NC 27701-3328  
Phone: 919-560-4381  
Fax: 919-560-4479  
Email: vicki.westbrook@durhamnc.gov

Robert Dodson  
South Durham WRF  
**City of Durham**  
101 City Hall Plaza  
Durham, NC 27701  
Phone: 919-560-4336  
Fax: 919-560-4418  
Email: robert.dodson@durhamnc.gov

Bruce Morgan  
**Gold Kist Inc.**  
428 Zimmerman Road  
Sanford, NC 27330  
Phone: 919-774-7333, ext. 2105  
Fax: 919-774-1535  
Email: bruce.morgan@goldkist.com

(VACANT)  
**Gold Kist Inc.**  
428 Zimmerman Road  
Sanford, NC 27330  
Phone:  
Fax:  
Email:

Victor Quick  
Utilities Director  
**City of Graham**  
PO Drawer 357  
Graham, NC 27253  
Phone: 336-570-6721  
Fax: 336-513-5502  
Email: vquick@cityofgraham.com

David Lawson  
WWTP Supervisor  
**City of Graham**  
PO Drawer 357  
Graham, NC 27253  
Phone: 336-570-6721  
Fax: 336-513-5502  
Email: dlawson@cityofgraham.com

Allan E. Williams  
Water Resources Director  
**City of Greensboro**  
PO Box 3136  
Greensboro, NC 27455  
Phone: 336-373-2050  
Fax: 336-412-6305  
Email: allan.williams@ci.greensboro.nc.us

Martie Groome  
Laboratory and Ind. Waste Section Supervisor  
**City of Greensboro**  
PO Box 3136  
Greensboro, NC 27402-3136  
Phone: 336-433-7229  
Fax: 336-621-3523  
Email: martie.groome@ci.greensboro.nc.us

Terry Houk  
Assistant Director of Public Services  
**City of High Point**  
PO Box 230  
High Point, NC 27261  
Phone: 336-883-3279  
Fax: 336-883-1675  
Email: terry.houk@highpointnc.gov

John Hodges  
Wastewater Plants Manager, Eastside WWTP  
**City of High Point**  
PO Box 230  
High Point, NC 27261  
Phone: 336-822-4730  
Fax:  
Email: john.hodges@highpointnc.gov

Charles E. Powell, Jr.  
**Performance Fibers, Inc**  
338 Pea Ridge Road  
New Hill, NC 27562  
Phone: 919-545-3154  
Fax: 919-542-6324  
Email: bill.boyer@honeywell.com

Donald Peterson  
**Plant Manager**  
338 Pea Ridge Road  
New Hill, NC 27562  
Phone: 919-542-2200 ext. 211  
Fax: 919-542-6324  
Email:  
donald.peterson@performancefibers.com

Dennis J. Hodge  
Wastewater Director  
**City of Mebane**  
106 E. Washington Street  
Mebane, NC 27302  
Phone: 919-304-9215  
Fax: 919-563-1007  
Email: dhodge@cityofmebane.com

Robert Wilson  
City Manager  
**City of Mebane**  
106 E. Washington Street  
Mebane, NC 27302  
Phone: 919-563-5901  
Fax: 919-563-1007  
Email: rwilson@cityofmebane.com

Brad Crawford  
HSE Engineer  
**Arclin** (was Dynea)  
790 Corinth Road  
Moncure, NC 27759  
Phone: 919-542-2526 x3075  
Fax: 919-542-2718  
Email: brad.crawford@arclin.com

(VACANT)  
**Dynea**  
790 Corinth Road  
Moncure, NC 27759  
Phone:  
Fax:  
Email:

Ed Kerwin  
Executive Director  
**Orange Water and Sewer Authority**  
400 Jones Ferry Road  
Carrboro, NC 27510  
Phone: 919-537-4211  
Fax: 919-968-4464  
Email: ekerwin@owasa.org

John Greene  
General Manager of Operations  
**Orange Water and Sewer Authority**  
400 Jones Ferry Road  
Carrboro, NC 27510  
Phone: 919-537-4218  
Fax: 919-968-4464  
Email: jgreene@owasa.org

Randolph Voller  
Mayor  
**Town of Pittsboro**  
PO Box 759  
Pittsboro, NC 27312  
Phone: 919-542-4621  
Fax: 919-542-7109  
Email: N/A

William Terry  
Town Manager  
**Town of Pittsboro**  
PO Box 759  
Pittsboro, NC 27312  
Phone: 919-542-4621, ext. 22  
Fax: 919-542-7109  
Email: pittsboromanager@nc.rr.com

Jim McIntosh  
Public Works Director  
**Town of Ramseur**  
PO Box 545  
Ramseur, NC 27316  
Phone: 336-824-4111 and 824-6888  
Fax: 336-824-6624  
Email: N/A

Hampton L. Spivey  
Mayor  
**Town of Ramseur**  
PO 545  
Ramseur, NC 27316  
Phone: 336-824-4111  
Fax: 336-824-6624  
Email: N/A

Tony Sears  
City Manager  
**City of Randleman**  
101 Hillary Street  
Randleman, NC 27317  
Phone: 336-495-7500  
Fax: 336-495-7503  
Email: tsears@randleman.org

Frank Brewer  
Wastewater Treatment Plant Superintendent  
**City of Randleman**  
101 Hillary Street  
Randleman, NC 27317  
Phone: 336-498-2254  
Fax: 336-498-7503  
Email: jwall@northstate.net

Kevin Eason  
Public Works Director  
**City of Reidsville**  
1100 Vance Street  
Reidsville, NC 27320  
Phone: 336-349-1042  
Fax: 336-634-1738  
Email: keason@ci.reidsville.nc.us

D. Kelly Almond  
City Manager  
**City of Reidsville**  
230 W. Morehead Street  
Reidsville, NC 27320  
Phone: 336-349-1030  
Fax: 336-342-3649  
Email: kalmond@ci.reidsville.nc.us

T. Jay Grainger  
Superintendent – Big Buffalo WWTP  
**City of Sanford**  
PO Box 3729  
Sanford, NC 27331-3729  
Phone: 919-775-8305  
Fax: 919-776-5037  
Email: Jay.Grainger@sanfordnc.net

Victor Czar  
City Engineer  
**City of Sanford**  
PO Box 3729  
Sanford, NC 27330  
Phone: 919-775-8231  
Fax: 919-774-8179  
Email: victor.czar@sanfordnc.net

Joel J. Brower  
Town Manager  
**Town of Siler City**  
PO Box 769  
Siler City, NC 27344-0769  
Phone: 919-742-4731  
Fax: 919-663-3874  
Email: jj.brower@embarqmail.com

Terry Green  
Director of Public Works and Utilities  
**Town of Siler City**  
PO Box 769  
Siler City, NC 27344-0769  
Phone: 919-742-4732  
Fax: 919-663-3874  
Email: atgreen@embarqmail.com

Wesley Brown  
Sewage Treatment Plant Superintendent  
**Town of Star**  
PO Box 97  
Star, NC 27356  
Phone: 910-428-4623  
Fax: 910-428-1170  
Email: star@ac.net

(VACANT)  
**Town of Star**  
PO Box 97  
Star, NC 27356  
Phone:  
Fax:  
Email:

## APPENDIX B

### UCFRBA Technical Advisory Committee

Organization	First Name	Last Name	Title	Stakeholder Type
Arclin (formerly Dynea)	Brad	Crawford	HSE Engineer	Corporate
Asheboro	John	Ogburn III	City Manager	Corporate
Asheboro	Michael	Rhoney	Director of Water Resources	Corporate
Burlington	Clarence	Sell	Chief Operator	Corporate
Burlington	Steve	Shoaf	Director of Utilities	Corporate
Cary	Leila	Goodwin	Water Resources Manager	Corporate
CH2M HILL	Ruth	Swanek		Non-Corporate
Chatham County	Roy	Lowder	Utilities Director	Non-Corporate
Durham	John	Cox	Engineer, Stormwater Quality	Corporate
Durham	Robert	Dodson	Superintendent South Durham WRF	Corporate
Durham	Vicki	Westbrook	Deputy Director of Water Management	Corporate
Durham County	Joseph	Pearce	Utility Division Manager	Corporate
Durham County	Glen	Whisler	County Engineer	Corporate
DWQ - Ecosystems Unit	Jennie	Atkins		Non-Corporate
DWQ - Ecosystems Unit	Carrie	Ruhlman	Monitoring Coalition Coordinator	Non-Corporate
DWQ - Ecosystems Unit	Jay	Sauber		Non-Corporate
DWQ – Environmental Sciences Section	Jimmie	Overton	Section Chief	Non-Corporate
DWQ - Nonpoint Source Unit	Rich	Gannon		Non-Corporate
Elon University	Janet	MacFall		Non-Corporate
Gold Kist, Inc.	Bruce	Morgan		Corporate
Graham	David	Lawson	WWTP Supervisor	Corporate
Graham	Scott	Pickard	Pretreatment Program	Corporate
Graham	Victor	Quick	Utilities Director	Corporate
Greensboro	Martie	Groome	Lab/Industrial Waste Supervisor	Corporate
Greensboro	Kenney	McDowell	Stormwater Division Manager	Corporate
Greensboro	David	Phlegar	Monitoring Coordinator - Stormwater	Corporate
Greensboro	Allan	Williams	Water Resources Director	Corporate
Haw River Assembly	Elaine	Chiosso	Executive Director	Non-Corporate
Haw River Assembly	Cynthia	Crossen		Non-Corporate
High Point	Bill	Frazier	Lab Supervisor, Public Services	Corporate
High Point	John	Hodges	Wastewater Plants Manager, Eastside WWTP	Corporate
High Point	Terry	Houk	Assistant Director of Public Services	Corporate
Mebane	Dennis	Hodge	Wastewater Director	Corporate
Mebane	Robert	Wilson	City Manager	Corporate
Meritech, Inc.	David	Merritt		Non-Corporate
Meritech, Inc.	Kris	Pawlak	Lab Manager	Non-Corporate
NC A&T	Godfrey	Uzochukwu	Director Management Institute	Non-Corporate
New Hope Audubon Society	John	Kent		Non-Corporate
Orange Water and Sewer Authority	Sandra	Bradshaw	Laboratory Manager	Corporate
Orange Water and Sewer Authority	Damon	Forney	Wastewater Treatment & Biosolids Recycling Manager	Corporate
Orange Water and Sewer Authority	John	Greene	General Manager of Operations	Corporate

Organization	First Name	Last Name	Title	Stakeholder Type
Orange Water and Sewer Authority	Ed	Holland	Planning Director	Corporate
Orange Water and Sewer Authority	Ed	Kerwin	Executive Director	Corporate
Performance Fibers, Inc. (Honeywell International)	Charles	Powell, Jr.		Corporate
Piedmont Triad Council of Governments	Ginger	Booker	Assistant Director	Staff
Piedmont Triad Council of Governments	Cy	Stober	Water Resources Manager	Staff
Pittsboro	William	Terry	Town Manager	Corporate
Ramseur	Jim	MacIntosh	Public Works Director	Corporate
Randleman	Frank	Brewer	WWTP Superintendent	Corporate
Randleman	Tony	Sears	City Manager	Corporate
Reidsville	Kelly	Almond	City Manager	Corporate
Reidsville	VACANT	VACANT	Public Works Director	Corporate
Sanford	Victor	Czar	City Engineer	Corporate
Sanford	T. Jay	Grainger	Superintendent – Big Buffalo WWTP	Corporate
Siler City	Joel	Brower	Town Manager	Corporate
Siler City	Terry	Green	Director of Public Works & Utilities	Corporate
Spirogyra Diversified	Linda	Ehrlich		Non-Corporate
Star	Wesley	Brown	Sewage Treatment Plant Superintendent	Corporate
T.G. Pearson Audubon Society	Tom	Duckwall	Coordinator Deep River Project	Non-Corporate
Triangle J Council of Governments	Sydney	Miller	Water Resources Program Manager	Staff
Triangle J Council of Governments	Michael	Schlegel	Water Resources Planner	Staff
UNC-CH: School of Public Health	Phil	Singer	Professor	Non-Corporate
UNC-CH:Dept. Environ. Science & Eng.	Steve	Whalen	Associate Professor	Non-Corporate
UNC-Greensboro: Dept. Biology	Anne	Hershey	Distinguished Professor	Non-Corporate
UNC-Greensboro: Dept. Biology	Parke	Ruble	Professor	Non-Corporate
USGS	Jerad	Bales	Hydrologist	Non-Corporate
USGS	Mary	Giorgino	Water Quality Specialist	Non-Corporate
USGS	Philip	Jen	UCFRBA Project Chief	Non-Corporate
USGS	Ryan	Rasmussen	Triangle Area Water Supply Monitoring	Non-Corporate

## APPENDIX C

### 1669 Sampling Procedures

#### A. Supplies

1. Cooler (Hg Only) – Contains the following
  - a. Gloves (2x): Large bag with one pair, inside of which is a small bag with two pairs. Lone pair is a backup set.
  - b. Sample Bottles (2x): Large bag with bottle lot #, sampling site and date, inside of which is a small bag, also contains same information. The sampling bottle is in the small bag.
  - c. Sampling Tubing (1x): Double bagged with the lot # written on the bag. Single use tubing.
  - d. Backup Cooler: Items a. through d. will be kept in a separate cooler which will be used as a spare in the event that a problem is encountered with the original kit. Should this kit not be used; it may be used for a subsequent sampling event at the same site.
2. Sampling Supplies – Contains the following
  1. DI Carboy – Wrapped in plastic bag sealed with rubber band.
  - b. Peristaltic pump (portable) – Battery operated pump for sampling.
  - c. Waste Carboy – Collects waste during the sampling process
  - d. Polypropylene Support and Clamp – Used to position the sample tubing for hands free operation.
  - e. Sampling Wand – PVC pipe 1" diameter x 10' with T glued to end for better handling. Pipe is notched to accept sample tubing.
  - f. Plastic Sheeting – Single use to cover the sampling table. Clamped to the bottom of table.
  - g. Garbage Bag – Standard white kitchen garbage bag to collect refuse from sampling event
  - h. Sampling Table – 2' x 4' used to setup sampling supplies.
  - i. COC (Chain of Custody) – Records sampling information i.e. Client, Date/Time, Lot #'s, Sampling Team, Sampling Conditions, etc.
  - j. Two Person Sampling Team (CH/DH) – Clean Hands and Dirty Hands Sampling Team; predetermined to help expedite sampling process.

#### B. Initial Arrival Set-up.

1. Do not park in close proximity to the sampling site, and whenever possible approach site from downwind.
2. Note sampling site conditions with regards to wind and wind direction; also noting potential sources of contamination from the surrounding area.
3. Setup table close to the sampling site according to the orientation required for sampling the effluent
  - a. Clamp down a fresh sheet of plastic on the sampling table.
  - b. Put on set of gloves – non-bagged.
  - c. Place the DI Water Carboy, Peristaltic Pump, and Tubing Support Stand on the table.
  - d. Open the access area to the pump head so that the tubing may be quickly connected to the pump when the samplers are ready.
  - e. Place sampling wand on table
  - f. Place waste carboy on ground in proximity to the sampling tables.
  - g. Tie the garbage bag to the sampling table
  - h. Fill out paper work including the sampling conditions and lot #'s of sampling equipment and preservatives.
4. Make final check that the sampling area is accessible and logistically feasible from the table set-up area.

5. Remove any impedance from the sampling area.

**C. Sampling – Clean Hands(CH)/Dirty Hands(DH).**

1. Assign clean hands and dirty hands technicians.

2. Both CH and DH will now wait ten minutes for the sampling site to equilibrate from any destabilization resulting from the initial set-up.

**D. Sampling Wand Collection**

1. Field Blank

a. DH will open the cooler containing the sampling accessories (gloves, tubing, and bottles).

b. DH opens glove bag for CH to put on two sets of gloves.

c. DH opens 2<sup>nd</sup> glove bag and puts on two sets of gloves.

d. DH opens the bag for the DI carboy.

e. DH removes the bag containing the sampling tubing, and opens the bag.

f. CH removes the inner bag containing the tubing, and removes the tubing, but does not allow the ends to come in contact with anything. The ends of the tubing are facing down to avoid contamination.

g. DH installs the tubing while CH maintains the tubing ends facing down.

h. DH removes the cap from the carboy.

i. CH places one end of the tubing into the carboy so that it remains in the carboy, and the other end is placed into the clamp on the support stand.

j. DH positions the waste carboy under the exit tubing and starts the pump. Rinse tubing with 1L of DI water. DH stops the pump.

k. DH removes the waste carboy

l. DH removes the double bagged sample bottle (Field Blank) from the cooler and opens the outer bag. CH removes the bagged bottle, and removes the cap. All baggies should remain in the sampling cooler until the sample bottle is returned.

m. CH position the bottle under the exit tubing.

n. DH starts the pump; CH signals to turn off the pump once the bottle is full.

o. CH replaces the cap, and puts the bottle back to the small bag.

p. DH opens large bag and CH places bagged bottle into large bag.

q. DH seals the baggie and puts the sample back into the cooler.

2. Sample – Sampling Wand

a. DH removes the double bagged sample bottle (Sample) from the cooler and CH removes the single bagged bottle from the large bag placing it on the sampling table.

b. DH positions the waste carboy with the sampling tubing in the support stand.

c. DH secures the sampling wand across the sampling table, while CH removes the sampling tubing from the DI carboy.

d. CH positions the sampling tubing in the sampling wand while DH holds the wand firm.

e. DH starts the pump while holding the wand against the table.

f. DH places the sampling wand in the sampling area positioning the end of the wand downstream from the tip of the sampling tubing.

g. Once approximately 1L of sample is passed through the tubing (2 – 5 minutes) and collected in the waste carboy, CH removes the sample bottle from the small bag, removes the cap, and fills the bottle by placing the bottle above the waste carboy.

h. Once full, CH replaces the cap, and places the bottle back into the baggie.

i. DH removes the wand from the sampling area and turns off the pump.

j. DH puts down the sampling wand on the table, and opens the large baggie for CH to place the sample bottle into.

a. DH seals the large baggie and places the sample into the sample cooler.

k. DH and CH may now freely cleanup the sampling area disposing of the sampling

tubing and gloves into a garbage bag attached to the sampling table.  
l. CH will finish paper work noting times that the samples were taken and any potential problems with the sampling.

### **E. Sample – Direct Collection**

#### **1. Field Blank**

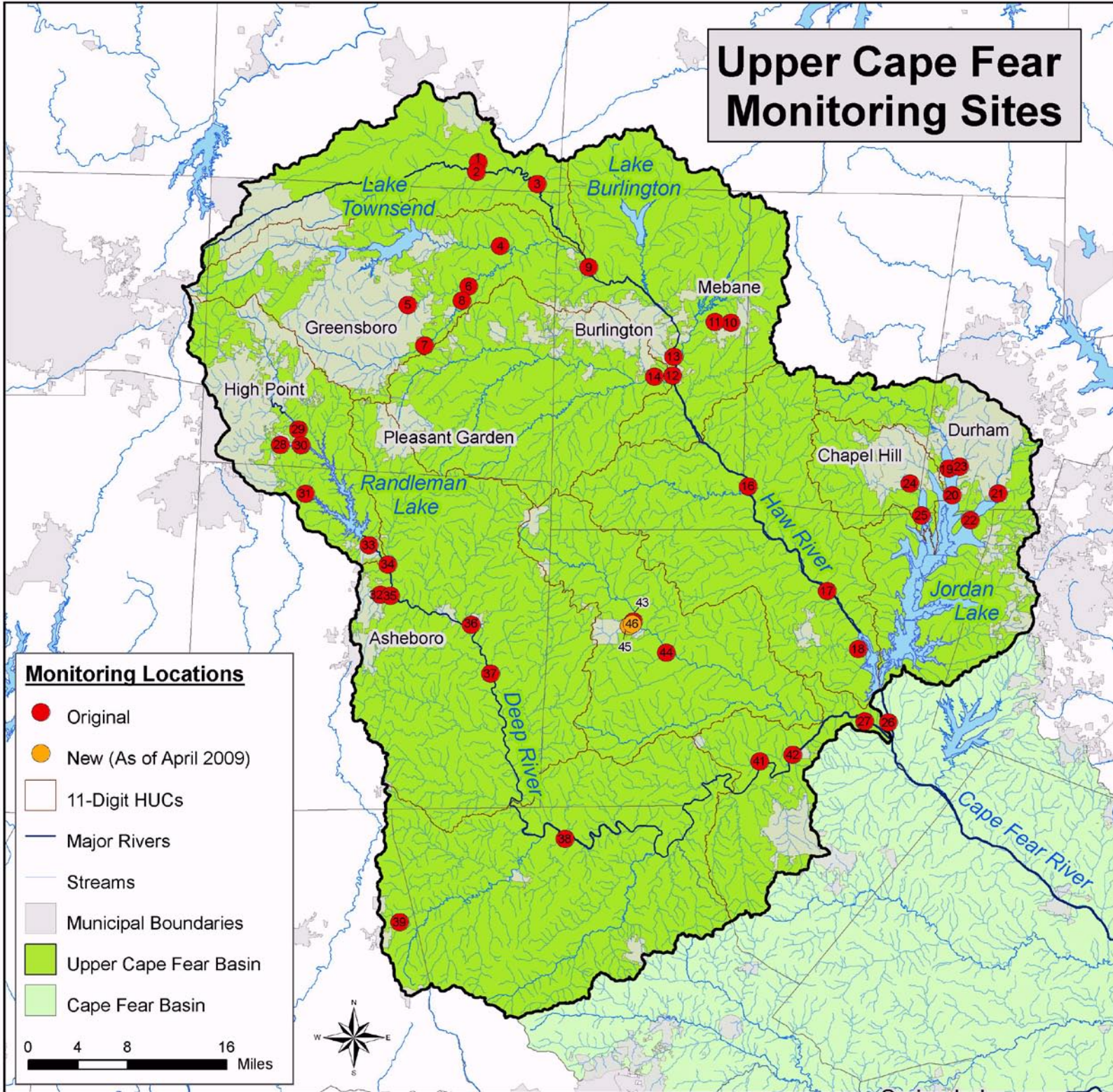
- a. DH will open the cooler containing the sampling accessories (gloves, and bottles).
- b. DH opens glove bag for CH to put on two sets of gloves.
- c. DH opens 2<sup>nd</sup> glove bag and puts on two sets of gloves.
- d. DH gets double bagged field blank bottle from cooler, opens outer bag and CH removes inner bag setting it on the sampling table.
- e. DH gets double bagged sample bottle, which is full of DI water from the lab, and opens the outer bag.
- f. CH removes the inner bag and removes the bottle and takes off the cap.
- g. CH then removes the field blank bottle from the inner baggie and transfers the DI water from the sample bottle to the field blank bottle.
- h. CH caps the field blank bottle places it back into the baggie, which is placed back into the outer baggie being held open by DH.
- i. DH then seals the baggie and places the bottle into the cooler.

#### **2. Sample**

- a. CH takes the emptied sample bottle and fills it with the waste stream from the sampling site.
- b. CH replaces the cap and places the bottle back in the inner baggie.
- c. DH opens the outer baggie and CH places the bagged sample into the outer baggie.
- d. DH seals the outer baggie and places the bottle into the cooler.
- e. CH and DH can now clean the sampling site and complete all necessary paperwork prior to leaving the site.

# APPENDIX D

## Upper Cape Fear Monitoring Sites



## APPENDIX E



North Carolina Department of Environment and Natural Resources  
Division of Water Quality

Beverly Eaves Perdue  
Governor

Coleen H. Sullins  
Director

Dee Freeman  
Secretary

April 6, 2009

Terry Houk  
Chairman  
Upper Cape Fear River Basin Association  
PO Box 230  
High Point, NC 27261

RE: Continued Suspension of Metals Monitoring for NPDES Discharge Monitoring Coalition Program

Dear Mr. Houk:

The attached Memorandum details the continued suspension of routine ambient data collection for total recoverable metals. Please note that this suspension only applies to surface water monitoring performed by the Upper Cape Fear River Basin Association (UCFRBA) as outlined in the Memorandum of Agreement (MOA), and does not affect individual NPDES permits. As with the previous suspensions, the UCFRBA retains the option to continue monitoring for total recoverable metals, but should be aware that all data submitted to the Division of Water Quality (DWQ) will be used in the evaluation of waters for the 303d/305b integrated report.

DWQ appreciates the UCFRBA's support as it continues to review North Carolina's metal monitoring practices and standards. DWQ is committed to ensuring that its water quality monitoring programs provide data that is accurate and effective for evaluation of the state's waters.

If you have any questions or concerns regarding the metals monitoring suspension or any other coalition matter, please feel free to contact me at (919)743-8411 or via email at [carrie.ruhlman@ncdenr.gov](mailto:carrie.ruhlman@ncdenr.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Carrie A. Ruhlman".

Carrie A. Ruhlman  
Coalition Coordinator

Attachment

cc: Steve Routh, City of Reidsville – Vice Chairman  
Bob Dodson, City of Durham – Secretary/Treasurer  
Dennis Hodge, City of Mebane – TAC Chairman  
Mike Schlegel, TJCOG  
Cy Stober, PTCOG

Environmental Sciences Section  
1621 Mail Service Center, Raleigh, North Carolina 27699-1621  
Location: 4401 Reedy Creek Road, Raleigh, North Carolina 27607  
Phone: 919-743-8400 \ FAX: 919-743-8517 \ Customer Service: 1-877-623-6748  
Internet: <http://h2o.enr.state.nc.us/esek/>

One  
North Carolina  
Naturally



North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue  
Governor


Division of Water Quality  
Coleen H. Sullins  
Director

Dee Freeman  
Secretary

March 30, 2009

MEMORANDUM

To: Regional Surface Water Quality Supervisors  
Jimmie Overton  
Kent Wiggins

From: Coleen H. Sullins 

Subject: Continued Suspension of Routine Ambient Data Collections for Metals

On April 3, 2007, DWQ Division Director Alan W. Klimek temporarily suspended the collection of routine total recoverable metals as part of the DWQ Ambient Monitoring System. This suspension also included a suspension of required total recoverable metals samples collected by MOA agreement with the NC NPDES Discharger Monitoring Coalitions.

DWQ has made significant progress in conducting a review of our metals water quality assessment techniques, evaluation criteria, and relevant standards. DWQ recognizes the potential significance of modernizing our water quality standards for metals on environmental assessments and the NPDES regulated community. By this Memorandum, I am continuing the April 3, 2007 suspension for routine ambient data collections for metals as we consider appropriate modifications of our water quality standards.

Questions regarding special circumstances or special studies requiring continued monitoring of ambient surface waters should be directed to Jay Sauber (919-743-8416). Questions on water quality standards for metals should be directed to Connie Brower (919-807-6416).

Cc: Chuck Wakild  
Alan Clark  
Ted Bush  
Jay Sauber  
Jeff Poupart  
Kathy Stecker  
Connie Brower

1617 Mail Service Center, Raleigh, North Carolina 27699-1617  
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604  
Phone: 919-807-6300 \ FAX: 919-807-8494 \ Customer Service: 1-877-623-6748  
Internet: [www.ncwaterquality.org](http://www.ncwaterquality.org)

An Equal Opportunity \ Affirmative Action Employer

One  
North Carolina  
*Naturally*

## APPENDIX F



North Carolina Department of Environment and Natural Resources  
Division of Water Quality

Beverly Eaves Perdue  
Governor

Coleen H. Sullins  
Director

Dee Freeman  
Secretary

October 30, 2009

Terry Houk  
Chairman, Upper Cape Fear River Basin Association  
PO Box 230  
High Point, NC 27261

RE: 2009 UCFRBA Field Visit

Dear Mr. Houk:

On September 17, 2009, Andrea Thomas, DWQ Ambient Monitoring Coordinator, and I accompanied Wesley Yance as he monitored the following 11 stations in the Upper Cape Fear River Basin: B2000000 (Haw River dns Cane Ck); B2100000 (Haw River nr Bynum); B2450000 (Robeson Ck dns Pittsboro WWTP); B4080000 (Haw River dns Honeywell); B5685000 (Deep River ups Golden Poultry); B5820000 (Deep River dns Sanford WWTP); B5950000 (Rock River ups Loves Ck); B5890000 (Loves Ck ups Siler City WWTP); B5920000 (Loves Ck dns Siler City WWTP); B5980000 (Rock River dns Loves Ck); B6040300 (Deep River ups confluence with Haw River).

Overall, monitoring was conducted in an efficient and reliable manner. Several suggestions and recommendations are made below, but no major concerns were noted.

Mr. Yance uses a Hanna H19828 multiparameter meter to measure field parameters (DO, pH, temperature and conductivity). He also has a back-up meter (YSI) available if needed. The meter was calibrated at the first station prior to sampling.

Mr. Yance has an adequate supply of standards and buffers, in preferred values, with him on his sampling runs. He conducted a 3-point pH calibration with 4.00, 7.00 and 10.00 buffers. pH was checked in the 7.00 buffer after calibration and at the middle and the end of the sampling day. Conductivity was calibrated using a 1392  $\mu\text{S}/\text{cm}$  standard and checked with 710  $\mu\text{S}/\text{cm}$  and 46.7  $\mu\text{S}/\text{cm}$  standards. DO was calibrated in water saturated air and checked at each site to ensure the values were within range. A Winkler titration was also performed at station B5820000 to check a low DO reading from the meter (3.85 mg/L).

According to Mr. Yance, routine meter maintenance is performed every other month. Maintenance logs are kept at the laboratory. Field notes concerning the meters are transferred to the maintenance logs. Mr. Yance mentioned that sometimes he has problems with the new meter stabilizing. It was noted that during calibration he does not always add enough buffer or standard to ensure that the temperature probe is submerged. This was mentioned to Mr. Yance, and he said that he would look-into calibration requirements and begin filling the cup with enough standard to cover the temperature probe during calibration.

Environmental Sciences Section  
1621 Mail Service Center, Raleigh, North Carolina 27699-1621  
Location: 4401 Reedy Creek Road, Raleigh, North Carolina 27607  
Phone: 919-743-8400 | FAX: 919-743-8517 | Customer Service: 1-877-623-6748  
Internet: <http://h2o.enr.state.nc.us/esk/>

One  
North Carolina  
Naturally

All field parameters were measured in-situ, in flowing channels of the waterbodies sampled. Mr. Yance seemed very knowledgeable of the sites and was able to indicate whether or not the field measurements were consistent with what he has historically seen at the stations. He completed detailed field sheets at each station and checked GPS coordinates. All locations sampled match those indicated in the MOA.

All stations had flow on the day of the visit, and Mr. Yance was able to sample on the upstream side of most of the bridges. Station B5920000 was very shallow and the probe was left on the bottom. Mr. Yance was reminded to make every attempt to keep the probe off the bottom when taking field measurements. Additionally, station B5820000 had an extremely large pile of trees creating a dam on the upstream side of the bridge. There was also a lot of debris and garbage throughout that site both in the water and on the bank. Mr. Yance indicated that this was typical of the site and he samples on the downstream side of the bridge from the bank.

Sampling containers come pre-packaged in a ziploc bag from the lab. Bottles are labeled and grouped to avoid confusion during sampling. Nutrient and fecal bottles are pre-preserved. Mr. Yance either direct grabs samples or uses a bridge sampler and transfers samples to the appropriate bottles. Lids were kept on the sampling bottles until they were ready to be filled, thus reducing the risk of contamination. After sampling, bottles were immediately placed back into the ziploc bags and put on ice. A temperature blank was present in each cooler used for transportation.

The first fecal sample was collected at approximately 9:30 am. Samples were returned to the lab at approximately 3:20 pm, within holding time, and processing began immediately. Samples were relinquished under chain-of-custody procedures.

For the most part, Mr. Yance followed proper safety precautions throughout the day. However, we recommend that he park completely off the road at each site, use his hazard lights and a flashing beacon, and wear a safety vest when appropriate.

Overall, monitoring was conducted in an acceptable manner. We appreciate Mr. Yance's cooperation and patience on the day of the field visit and look forward to working with Meritech on the continued success of the UCFRBA sampling program. If you have any questions or comments, please feel free to contact me at (919)743-8411 or via email at [carrie.ruhlman@ncdenr.gov](mailto:carrie.ruhlman@ncdenr.gov).

Sincerely,



Carrie A. Ruhlman  
Monitoring Coalition Coordinator

cc: Dennis Hodge, TAC Chairman ([dhodge@cityofmebane.com](mailto:dhodge@cityofmebane.com))  
Scott Pickard, QA/QC Committee Chairman ([spickard@cityofgraham.com](mailto:spickard@cityofgraham.com))  
Mike Schlegel, TJCOG ([mschlegel@tjcog.org](mailto:mschlegel@tjcog.org))  
Cy Stober, PTCOG ([cstober@ptcog.org](mailto:cstober@ptcog.org))  
Kris Pawlak, Meritech ([kpmrtech@bellsouth.net](mailto:kpmrtech@bellsouth.net))  
Jay Sauber, DWQ EU Supervisor ([jay.sauber@ncdenr.gov](mailto:jay.sauber@ncdenr.gov))