



**Memorandum of Agreement
Between
The State of North Carolina's Division of Water Quality
And
The Lower Cape Fear River Program (LCFRP) Permittees**



**Effective:
July 1, 2011 through June 30, 2016**

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MEMORANDUM OF AGREEMENT

This AGREEMENT (“Agreement”) is made by and between the DIVISION OF WATER QUALITY, NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, or its successor agency or department (“DWQ”), and the NPDES Dischargers who have voluntarily approved this Agreement, known and referenced collectively as the “PERMITTEES”. The Agreement includes all the attached tables and appendices.

The purpose of this Agreement is to establish a formal agreement between DWQ and the PERMITTEES whose responsibilities include surface water monitoring and reporting within the Lower Cape Fear River Basin below Lock and Dam #1 to monitor strategically located surface water sites and parameters to obtain information on water quality in the basin. PERMITTEES shall subcontract with one organization to collect instream monitoring data normally collected by the individual permittees. Monitoring sites and parameters have been established by the PERMITTEES and DWQ such that the instream monitoring is more efficient, effective, flexible, and basin-oriented.

The PERMITTEES who are participating in this Agreement, listed in Table 1, are exempted from any instream monitoring as specified in their individual NPDES permits beginning on the effective date of this Agreement and continuing for the duration of each permittee's participation in this agreement. This Agreement does not affect any influent or effluent monitoring requirement or any other of the NPDES permit requirements of individual permit holders with the one exception of performing upstream and downstream water quality monitoring. Subsequent to the execution of this Agreement, the DWQ will issue a letter to each permittee notifying the permittee that the instream monitoring requirements of its permit are not effective for as long as this Agreement is in place and the permittee remains a party to this Agreement.

The PERMITTEES will contract for the performance of the monitoring activities described herein with a DWQ-certified contract lab, organization, or agency, who shall subcontract, as necessary, with a laboratory appropriately certified by DWQ for the required analysis. Sample collection and field measurements will be made by the PERMITTEES, the contractee or a sub-contractee who will act as agent(s) of the PERMITTEES. Each permittee has the right to review and comment on work, data or reports prepared by any contractee on behalf of the PERMITTEES prior to its submission to DWQ and to notify DWQ of any objection or disagreement with any portion of the work, data, or reports. Unless such notice is made within thirty (30) days of submission to DWQ, it shall be deemed to be waived and the work, data and reports submitted shall be deemed to be approved by the PERMITTEES. It will be the responsibility of the PERMITTEES or their contractee to coordinate the collection and analyses of the water quality monitoring data at the locations, parameters, and frequencies specified in Appendix A. Sample collection and field measurement methods shall follow procedures outlined in Appendix B. The PERMITTEES or their contractor shall submit the water quality data to DWQ using the format described in Appendix C, preferably Microsoft Excel 2000 or a subsequent version, or the equivalent. The Permittees or their contractor shall submit the water quality data to DWQ within 90 days of the end of the month in which the sampling was performed. All data sheets shall be archived by the PERMITTEES or their

contractee for a period of 5 years.

PERMITTEES, or their contractee shall submit an annual written report of its compliance or non-compliance with the monitoring requirements as specified within this Agreement no later than April 30th each year that this Agreement is in effect. The report shall include the NPDES permit number of each actively participating permittee, the cause of any non-compliance with stipulations of the Agreement, any remedial action taken and the probability of meeting the next schedule requirements. Additional requirements for the reports are outlined in Appendix C. Two signed copies of these and any other reports required herein, shall be submitted to the DWQ Coalition Coordinator(s) at 1621 Mail Service Center Raleigh NC 27699-1621.

Failure by PERMITTEES or their contractee to collect the water quality data as described in this Agreement or to provide the data to DWQ in the required format may result in the revocation of this Agreement by DWQ and the return to individual upstream and downstream monitoring requirements, as specified in individual NPDES permits of the PERMITTEES.

Stream sampling may be discontinued at such times as flow conditions in the receiving waters or extreme weather conditions will result in a substantial risk of injury or death to persons collecting samples. Sampling may also be discontinued when environmental conditions, such as a dry stream, prevent sample collection. In such cases, for each day that sampling is discontinued, DWQ Coalition Coordinator(s) shall be notified within one week of the discontinuance and written justification for the discontinuance shall be submitted with the monthly data submittal. This provision shall be strictly construed and may not be utilized to avoid the requirements of this Agreement when performance of these requirements is attainable. When there is a discontinuance pursuant to this provision, sampling shall be resumed at the first opportunity after the risk period has ceased.

This Agreement may be modified by written consent of both parties. DWQ or the PERMITTEES may determine that it is necessary to request changes in monitoring frequency, parameters or sites to be sampled. Any such changes can only be made by a written amendment to this Agreement agreed to by DWQ and a majority of the PERMITTEES then parties to the Agreement. The amendment shall be signed by PERMITTEES' primary contact and by DWQ. Such amendments may be entered into at any time.

The parties may also desire to allow Dischargers 1) who, subsequent to the date of this Agreement, receive NPDES permits within the Lower Cape Fear River Basin or 2) who have NPDES permits within the Lower Cape Fear River Basin but are not parties to this Agreement to enter into this Agreement subsequent to the effective date hereof. Any such changes can only be made by a written amendment to this Agreement agreed to by DWQ and a majority of the PERMITTEES then party to the Agreement. The amendment shall be signed by PERMITTEES' primary contact and by DWQ and, if appropriate, by an authorized officer of any such Discharger who wishes to enter into the Agreement subsequent to the effective date hereof. DWQ will consider modification of existing monitoring requirements for any such discharger similar to those in effect for the existing PERMITTEES. Such amendments may be made at any time that this Amendment is in effect.

This Agreement shall be effective until June 30, 2016 unless extended by the consent of both parties. Upon 60 days written notice, DWQ or a majority of the PERMITTEES then party to the Agreement may terminate this Agreement for any reason. Upon termination of this Agreement, the monitoring requirements contained in the individual NPDES permits of the PERMITTEES shall become effective immediately.

An individual permittee may terminate and cancel its participation in this Agreement by providing 60 days written notice to the PERMITTEES, the DWQ Coalition Coordinator(s), the appropriate DWQ Regional Office, and the DWQ NPDES Unit. The monitoring requirements contained in the individual NPDES permit shall become effective immediately upon such cancellation or termination. In the event a permit holder terminates or cancels its participation in this Agreement, the PERMITTEES may request that DWQ review the monitoring plan described in this Agreement for a possible reduction in sampling effort or requirements.

IN WITNESS WHEREOF, the parties have caused the execution of this instrument by authority duly given, to be effective as of the date executed by the DWQ.

DIVISION OF WATER QUALITY

LOWER CAPE FEAR RIVER PROGRAM

By: signed June 30, 2011
Coleen Sullins
Director
Division of Water Quality

By: signed June 17, 2011
Chris May
Chairman
Lower Cape Fear River
Program

Date: _____

Date: _____

LCFRP PERMITTEE SIGNATURES

Permittee	NPDES Number	Signature
DAK Americas, LLC	NC0000663	<u>received May 2, 2011</u> Penny Mahoney Operating Director
Invista S.áR.L.	NC0001112	<u>received June 16, 2011</u> Bill King Site Manager
Global Nuclear Fuels Americas	NC0001228	<u>received June 9, 2011</u> Shawn O'Connor Environmental Specialist
Carolina Power and Light (CP&L) d/b/a Progress Energy Carolinas, Inc . Sutton Steam Electric Plant	NC0001422	<u>received May 19, 2011</u> Mark Frederick Plant Manager
International Paper Company Riegelwood Mill	NC0003298	<u>received May 4, 2011</u> Edward Kreul Manager - Environment, Health, Safety, and Sustainability

Momentive Specialty Chemicals	NC0003395	<u>received May 19, 2011</u> Ronald Bazinet Site Leader
Elementis Chromium LP	NC0003875	<u>received May 16, 2011</u> Joel Barnhart Vice President, Technical
Town of Mount Olive Mt. Olive WWTP	NC0020575	<u>received April 27, 2011</u> Charles Brown Town Manager
Town of Burgaw Burgaw WWTP	NC0021113	<u>received July 7, 2011</u> Kenneth T. Cowan Mayor
Town of Warsaw Warsaw WWTP	NC0021903	<u>received May 4, 2011</u> J. R. Steigerwald Town Manager
Town of Carolina Beach Carolina Beach WWTP	NC0023256	<u>received May 26, 2011</u> Tim Owens Town Manager
Cape Fear Public Utility Authority Northside WWTP	NC0023965	<u>received April 29, 2011</u> Matthew W. Jordan General Manager

Cape Fear Public Utility Authority
Southside WWTP

NC0023973

received April 29, 2011
Matthew W. Jordan
General Manager

Town of Beulaville
Beulaville WWTP

NC0026018

received May 10, 2011
Kenneth Smith
Mayor

Cape Fear Public Utility Authority
Walnut Hills Subdiv. WWTP

NC0039527

received April 29, 2011
Matthew W. Jordan
General Manager

Brunswick Regional Water
& Sewer H2GO
Belville WWTP

NC0075540

received June 9, 2011
Carl Antos
Chairman

Brunswick County
NE Brunswick Regional WWTP

NC0086819

received May 20, 2011
Marty Lawing
County Manager

Table 1. LCFRP Permittees

NPDES Permit Number	LCFRP Permittees Ownership and Facility	Authorized Representative and Title	County	Region	Sub Basin	8 Digit HUC
NC0000663	DAK Americas, LLC	Penny Mahoney Operating Director	Brunswick	Wilmington	030617	03030005
NC0001112	Invista S.á R.L.	Rick Bayless Environmental Health and Safety Manager	New Hanover	Wilmington	030617	03030005
NC0001228	Global Nuclear Fuels – Americas	Shawn O’Connor Environmental Specialist	New Hanover	Wilmington	030617	03030007
NC0001422	Carolina Power and Light (CP&L) d/b/a Progress Energy Carolinas, Inc . Sutton Steam Electric Plant	Mark Frederick Plant Manager	New Hanover	Wilmington	030617	03030005
NC0003298	International Paper Company Riegelwood Mill	Edward Kreul Manager – Environment, Health, Safety, and Sustainability	Columbus	Wilmington	030617	03030005
NC0003395	Momentive Specialty Chemicals	April Hanson Environmental Engineer	Columbus	Wilmington	030617	03030005
NC0003875	Elementis Chromium LP	Joel Barnhart Vice President, Technical	New Hanover	Wilmington	030623	03030007
NC0020575	Town of Mount Olive Mt. Olive WWTP	Charles Brown Town Manager	Wayne	Washington	030621	03030007
NC0021113	Town of Burgaw Burgaw WWTP	Kenneth Cowan Mayor	Pender	Wilmington	030623	03030007
NC0021903	Town of Warsaw Warsaw WWTP	J. R. Steigerwald Town Manager	Duplin	Wilmington	030619	03030006
NC0023256	Town of Carolina Beach Carolina Beach WWTP	Tim Owens Town Manager	New Hanover	Wilmington	030617	03030005
NC0023965	Cape Fear Public Utility Authority Northside WWTP	Matthew W. Jordan General Manager	New Hanover	Wilmington	030617	03030005
NC0023973	Cape Fear Public Utility Authority Southside WWTP	Matthew W. Jordan General Manager	New Hanover	Wilmington	030617	03030005
NC0026018	Town of Beulaville Beulaville WWTP	Kenneth Smith Mayor	Duplin	Wilmington	030622	03030007
NC0039527	Cape Fear Public Utility Authority Walnut Hills Subdivision WWTP	Matthew W. Jordan General Manager	New Hanover	Wilmington	030617	03030007
NC0075540	Brunswick Regional Water & Sewer H2GO Belville WWTP	Carl Antos Chairman	Brunswick	Wilmington	030617	03030005
NC0086819	Brunswick County NE Brunswick Regional WWTP	Marty Lawing County Manager	Brunswick	Wilmington	030617	03030005

APPENDIX A – LCFRP MONITORING PLAN

Table A-1 LCFRP Sampling Stations, Parameters and Sampling Frequency

Station Number	LCFRP Station ID	Location Description	Station Comments	Latitude (dd.ddd)	Longitude (dd.ddd)	County	Region	Index	8 Digit HUC	Stream Class	¹ Field Measurements	² Nutrients	³ Metals	Lab Turbidity	TSS	Chlorophyll <i>a</i>	Enterococci	Fecal Coliform
B8340050	BRN	Browns Creek at NC87 nr Elizabethtown	hog farm area	34.6136	-78.5848	Bladen	FRO	18-45	03030005	C	M	M		M				M
B8340200	HAM	Hammond Creek at SR 1704 nr Mt. Olive	hog farm area	34.5685	-78.5515	Bladen	FRO	18-50	03030005	C	M	M		M				M
B8360000	NC11	Cape Fear River at NC 11 nr East Arcadia	just dns of Lock and Dam #1	34.3969	-78.2675	Bladen	WIRO	18-(59)	03030005	WS-IV Sw	M+2SM	M	EOM	M	M	M		M
B8441000	LVC2	Livingston Creek at Wright Corp. Walkway nr Acme	DWQ ambient stn, dns Wright Corp.	34.3353	-78.2011	Columbus	WIRO	18-64	03030005	C Sw	M	M	EOM		M			M
B8450000	AC	Cape Fear River at Neils Eddy Landing nr Acme	1 mile below IP, DWQ ambient stn	34.3555	-78.1794	Columbus	WIRO	18-(63)	03030005	C Sw	M+2SM	M			M			M
B8465000	DP	Cape Fear River at Intake nr Hooper Hill	At DAK intake, just ups of Black River	34.3358	-78.0534	Brunswick	WIRO	18-(63)	03030005	C Sw	M+2SM	M	EOM		M			M
B8470000	SR	South River at US 13 nr Cooper	dns Dunn runoff	35.1560	-78.6401	Sampson	FRO	18-68-12-(0.5)	03030006	C Sw	M	M		M				M
B8604000	GCO	Great Coharie Creek at SR 1214 nr Butler Crossroads	8 miles dns Clinton WWTP, nonpoint impacts	34.9186	-78.3887	Sampson	FRO	18-68-1	03030006	C Sw	M	M	EOM		M			M
B8610001	LCO	Little Coharie Creek at SR 1207 nr Ingold	Just ups Great Coharie Ck, hog ops in watershed	34.8347	-78.3709	Sampson	FRO	18-68-1-17	03030006	C Sw	M	M		M				M
B8740000	6RC	Six Runs Creek at SR 1003 nr Ingold	Just ups Black River, hog operations in watershed	34.7933	-78.3113	Sampson	FRO	18-68-2-(11.5)	03030006	C Sw ORW+	M	M	EOM	M				M
B8981000	COL	Colly Creek at NC 53 at Colly	Hog operations in watershed	34.4641	-78.2569	Bladen	FRO	18-68-17	03030006	C Sw	M	M	EOM	M				M
B9000000	B210	Black River at NC 210 at Still Bluff	1 st bridge ups of Cape Fear River	34.4312	-78.1441	Pender	WIRO	18-68	03030006	C Sw ORW+	M	M			M			M
B9030000	IC	Cape Fear River ups Indian Creek nr Phoenix	Dns DAK, BASF, and Fortron	34.3021	-78.0137	Brunswick	WIRO	18-(63)	03030005	C Sw	M+2SM	M			M			M
B9050025	NAV	Cape Fear River at Navassa dns of RR bridge	dns Progress Energy and Leland Ind. Pk	34.2594	-77.9877	Brunswick	WIRO	18-(71)	03030005	SC	M+2SM	M	EOM	M	M			M
B9050100	HB	Cape Fear River at S. end of Horseshoe Bend nr Wilmington	Ups NE Cape Fear River	34.2437	-77.9698	Brunswick	WIRO	18-(71)	03030005	SC	M+2SM	M			M			M
B9090000	NC403	NE Cape Fear River at NC 403 nr Williams	Dns Mt. Olive WWTP, DWQ ambient stn	35.1784	-77.9807	Duplin	WIRO	18-74-(1)	03030007	C Sw	M	M			M			M
B9130000	PB	Panther Branch (Creek) nr Faison	Sample from Bay Valley access Rd, dns Bay Valley wwtpp	35.1345	-78.1363	Duplin	WIRO	18-74-19-3	03030007	C Sw	M	M			M			M
B9191000	GS	Goshen Swamp at NC 11 and NC 903 nr Kornegay	Major trib to NE CFR, Ag. and Hog ops in watershed	35.0281	-77.8516	Duplin	WIRO	18-74-19	03030007	C Sw	M	M		M				M

¹ Field Measurements include: Temperature, Dissolved Oxygen, pH, and Conductivity. M=Monthly, M+2SM=Monthly with twice monthly summer sampling. Summer includes the months of May, June, July, August, and September. Twice monthly samples are to be collected at least ten days apart except when extenuating conditions arise.

² Nutrient Sampling includes: Ammonia as N (NH₃), Nitrate/Nitrite as N (NO₂/NO₃), Total Kjeldahl Nitrogen (TKN), and Total Phosphorus as P (TP)

³ Metals Sampling: EOM=Every Other Month sample collection (February, April, June, August, October, and December) for the following metals: Aluminum (Al), Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe), Lead (Pb), Mercury (Hg), Nickel (Ni), and Zinc (Zn). All analyses will be for total metals. Metals monitoring was suspended per DWQ's April 2010 memorandum at the agreement of DWQ and the LCFRP.

Table A-1 Continued - LCFRP Sampling Stations, Parameters and Sampling Frequency

Station Number	LCFRP Station ID	Location Description	Station Comments	Latitude (dd.ddd)	Longitude (dd.ddd)	County	Region	Index	8 Digit HUC	Stream Class	¹ Field Measurements	² Nutrients	³ Metals	Lab Turbidity	TSS	Chlorophyll <i>a</i>	Enterococci	Fecal Coliform
B9191500	SAR	NE Cape Fear River SR 1700 nr Sarecta	Dns Guilford Mills and Cogentrix WWTPs	34.9801	-77.8622	Duplin	WIRO	18-74-1	03030007	C Sw	M	M	EOM		M			M
B9430000	ROC	Rockfish Creek at US 117 nr Wallace	Ups Wallace WWTP2	34.7168	-77.9795	Duplin	WIRO	18-74-29	03030007	C Sw	M	M			M			M
B9460000	LRC	Little Rockfish Creek at NC 11 nr Wallace	Ups Wallace WWTP1, benthic stn	34.7224	-77.9814	Duplin	WIRO	18-74-29-6	03030007	C Sw	M	M	EOM	M	M			M
B9490000	ANC	Angola Creek at NC 53 nr Maple Hill	benthic stn	34.6562	-77.7351	Pender	WIRO	18-74-33-3	03030007	C Sw	M	M		M				M
B9500000	BCRR	Burgaw Canal (Creek) at SR 1345 Wright St. at Burgaw	Ups Burgaw WWTP	34.5633	-77.9348	Pender	WIRO	18-74-39	03030007	C Sw	M	M		M	M	M		M
B9520000	BC117	Burgaw Creek at US 117 at Burgaw	DWQ ambient stn, dns Burgaw WWTP	34.5637	-77.9220	Pender	WIRO	18-74-39	03030007	C Sw	M	M	EOM	M	M	M		M
B9580000	NCF117	NE Cape Fear River at US 117 at Castle Hayne	DWQ ambient stn, dns Elementis Chromium wwtp	34.3637	-77.8965	New Hanover	WIRO	18-74-(47.5)	03030007	B Sw	M	M	EOM		M			M
B9670000	NCF6	NE Cape Fear River Nr Wrightsboro	Below GNF and Arteva WWTPs	34.3171	-77.9538	New Hanover	WIRO	18-74-(52.5)	03030007	C Sw	M+2SM	M			M			M
B9720000	SC-CH	Smith Creek at US 117 and NC 133 at Wilmington	Dns Smith Ck WWTP, urban runoff	34.2586	-77.9391	New Hanover	WIRO	18-74-63	03030007	C Sw	M							M
B9790000	BRR	Brunswick River dns NC 17 at park nr Belville	Park access from SR 133, dns Belville WWTP	34.2214	-77.9787	Brunswick	WIRO	18-77	03030005	SC	M	M			M		M	
B9795000	M54	Cape Fear River at Channel Marker 54	Dns Wilmington Southside WWTP	34.1393	-77.9460	New Hanover	WIRO	18-(71)	03030005	SC	M+2SM	M	EOM		M		M	
B9800000	M61	Cape Fear River at Channel Marker 61 at Wilmington	Dns Wilmington Northside WWTP, DWQ ambient stn	34.1938	-77.9573	New Hanover	WIRO	18-(71)	03030005	SC	M+2SM	M		M	M	M	M	
B9850100	M35	Cape Fear River at Channel Marker 35	Ups Carolina Beach WWTP	34.0335	-77.9370	Brunswick	WIRO	18-(71)	03030005	SC	M+2SM	M	EOM		M		M	
B9910000	M23	Cape Fear River at Channel Marker 23	Dns Carolina Beach WWTP	33.9456	-77.9696	Brunswick	WIRO	18-(87.5)	03030005	SA HQW	M+2SM	M	EOM		M		M	
B9921000	M18	Cape Fear River at Channel Marker 18	Nr Mouth of Cape Fear River	33.9130	-78.0170	Brunswick	WIRO	18-88-3.5	03030005	SC	M+2SM	M	EOM	M	M	M	M	

¹ Field Measurements include: Temperature, Dissolved Oxygen, pH, and Conductivity. M=Monthly, M+2SM=Monthly with twice monthly summer sampling. Summer includes the months of May, June, July, August, and September. Twice monthly samples are to be collected at least ten days apart except when extenuating conditions arise.

² Nutrient Sampling includes: Ammonia as N (NH3), Nitrate/Nitrite as N (NO2/NO3), Total Kjeldahl Nitrogen (TKN), and Total Phosphorus as P (TP)

³ Metals Sampling: EOM=Every Other Month sample collection (February, April, June, August, October, and December) for the following metals: Aluminum (Al), Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe), Lead (Pb), Mercury (Hg), Nickel (Ni), and Zinc (Zn). All analyses will be for total metals. Metals monitoring was suspended per DWQ's April 2010 memorandum at the agreement of DWQ and the LCFRP.

APPENDIX B - SAMPLE COLLECTION AND ANALYSIS

Sample Collection Procedures

Sample collection shall be performed by trained personnel with NC DWQ certified laboratories in accordance with the DWQ NPDES Discharge Monitoring Coalition Program Field Monitoring Guidance Document (May 2008) and subsequent documents. Alternate collection procedures may be considered if reported to and approved by the DWQ Coalition Coordinator(s) prior to use. Any approved alternate sampling procedures will be documented in writing by the LCFRP.

Laboratory Analysis

All laboratory analyses shall be performed at a DWQ certified laboratory using approved methods as prescribed by 40 CFR, part 136 or other methods certified by the DWQ Laboratory Certification Branch (<http://portal.ncdenr.org/web/wq/lab/cert>), or the Director of DWQ. Section 40 of the Code of Federal Regulations part 136 (40CFR136) can be accessed on the web at the following address: <http://portal.ncdenr.org/web/wq/lab/cert/nonfield/rules>.

Reporting levels will be at least as stringent as the target reporting levels used by the DWQ Laboratory. For guidance purposes, Table B-1 lists target reporting levels for each parameter based on the reporting levels of the DWQ Laboratory. The lowest possible analytical limits for all the parameters should be pursued.

Table B-1 DWQ Laboratory Reporting Limits

Parameters	Target Reporting Level	Comments
Temperature		Resolution to 0.1 degree Celsius
Dissolved Oxygen		Report results to the nearest 0.1 mg/l.
pH		Meters should be calibrated to measure a pH range of at least 4.01 to 9.18. Report results to the nearest 0.1 pH units.
Specific Conductivity		Report results to the nearest whole $\mu\text{S}/\text{cm}$ at 25 °C.

Table B-1 Continued - DWQ Laboratory Reporting Limits and Methods

Parameters	Target Reporting Level	Comments
Turbidity	1.0 NTU	
TSS	6.2 mg/L	
Enterococci		
Fecal Coliform	1 colony/100 mL	At least 3 dilutions should be used to achieve optimum colony counts per membrane filter of 20-60 colonies.
Chlorophyll <i>a</i>	1 µg/L	Report Chlorophyll <i>a</i> values free from pheophytin and other chlorophyll pigments. (Not listed in 40 CFR 136) Analysis by HPLC is not approved by DWQ.
Ammonia (NH ₃ as N)	0.02 mg/L	Address distillation requirement. See 40CFR136 Table II footnote.
Nitrate+Nitrite as N	0.02 mg/L	
Total Kjeldahl Nitrogen as N	0.20 mg/L	
Total Phosphorus as P	0.02 mg/L	
Al	50 µg/L	
As	2 µg/L	A reporting level of 5 µg/L is acceptable
Cu	2 µg/L	
Cd	1 µg/L	
Cr	10 µg/L	
Fe	50 µg/L	
Pb	10 µg/L	
Hg	0.2 µg/L	
Ni	10 µg/L	
Zn	10 µg/L	

SM=Standard Methods for the Examination of Water and Wastewater, 18th, 19th, and 20th ed.

EPA=EPA Method see 40 CFR 136 (<http://www.gpoaccess.gov/cfr/index.html>)

APHA=American Public Health Association

Data Qualification Codes

When reporting data, the DWQ’s data qualifier codes must be used to provide additional information regarding data quality and interpretation. The current set (codes are subject to change) of qualifier codes to be used is provided in Table B-2. Review the data qualifier codes at least once a year and utilize the most current set being utilized by the DWQ laboratory. Use the following website to check for changes in the qualifier codes: <http://portal.ncdenr.org/web/wq/lab/qualityassurance>.

Table B-2 Data Qualification Codes For Use With Coalition Data (current as of April 20, 2011)

Data Remark Code	Code Definition
A	Value reported is the mean (average) of two or more determinations. This code is to be used if the results of two or more discrete and separate samples are averaged. These samples shall have been processed and analyzed independently (e.g. field duplicates, different dilutions of the same sample). This code is not required for BOD or coliform reporting since averaging multiple dilutions for these parameters is fundamental to those methods.
B	<p>Results based upon colony counts outside the acceptable range and should be used with caution. This code applies to microbiological tests and specifically to membrane filter (MF) colony counts. It is to be used if less than 100% sample was analyzed and the colony count is generated from a plate in which the number of colonies exceeds the ideal ranges indicated by the method. These ideal ranges are defined in the method as:</p> <p><i>Fecal coliform or Enterococcus bacteria: 20-60 colonies</i> <i>Total coliform bacteria: 20-80 colonies</i></p> <p>B1. Countable membranes with less than 20 colonies. Reported value is estimated or is a total of the counts on all filters reported per 100 ml.</p> <p>B2. Counts from all filters were zero. The value reported is based on the number of colonies per 100 ml that would have been reported if there had been one colony on the filter representing the largest filtration volume (reported as a less than "<" value).</p> <p>B3. Countable membranes with more than 60 or 80 colonies. The value reported is calculated using the count from the smallest volume filtered and reported as a greater than ">" value.</p> <p>B4. Filters have counts of both >60 or 80 and <20. Reported value is estimated or is a total of the counts on all filters reported per 100 ml.</p> <p>B5. Too many colonies were present; too numerous to count (TNTC). TNTC is generally defined as >150 colonies. The numeric value represents the maximum number of counts typically accepted on a filter membrane (60 for fecal or enterococcus and 80 for total), multiplied by 100 and then divided by the smallest filtration volume analyzed. This number is reported as a greater than value.</p> <p>B6. Estimated Value. Blank contamination evident.</p> <p>B7. Many non-coliform or non-enterococcus colonies or interfering non-coliform or non-enterococcus growth present. In this competitive situation, the reported value may under-represent actual density.</p> <p><u>Note:</u> A "B" value shall be accompanied by justification for its use denoted by the numbers listed above (e.g., B1, B2, etc.).</p> <p><u>Note:</u> A “J2” should be used for spiking failures.</p>
BB	<p>This code applies to most probable number (MPN) microbiological tests.</p> <p>1. No wells or tubes gave a positive reaction. Value based upon the appropriate MPN Index and</p>

Data Remark Code	Code Definition
	<p>reported as a less than “<” value.</p> <p>2. All wells or tubes gave positive reactions. Value based upon the MPN Index and reported as a greater than “>” value.</p> <p><u>Note:</u> A "BB" value shall be accompanied by justification for its use denoted by the numbers listed above (e.g., BB1, BB2, etc.).</p>
C	Total residual chlorine was present in sample upon receipt in the laboratory; value is estimated . Generally applies to cyanide, phenol, NH ₃ , TKN, coliform, and organics
G	<p>A <u>single</u> quality control failure occurred during biochemical oxygen demand (BOD) analysis. The sample results should be used with caution.</p> <p>G1. The dissolved oxygen (DO) depletion of the dilution water blank exceeded 0.2 mg/L.</p> <p>G2. The bacterial seed controls did not meet the requirement of a DO depletion of at least 2.0 mg/L and/or a DO residual of at least 1.0 mg/L.</p> <p>G3. No sample dilution met the requirement of a DO depletion of at least 2.0 mg/L and/or a DO residual of at least 1.0 mg/L.</p> <p>G4. Evidence of toxicity was present. This is generally characterized by a significant increase in the BOD value as the sample concentration decreases. The reported value is calculated from the highest dilution representing the maximum loading potential and should be considered an estimated value.</p> <p>G5. The glucose/glutamic acid standard exceeded the range of 198± 30.5 mg/L.</p> <p>G6. The calculated seed correction exceeded the range of 0.6 to 1.0 mg/L.</p> <p>G7. Less than 1 mg/L DO remained for all dilutions set. The reported value is an estimated greater than value and is calculated for the dilution using the least amount of sample.</p> <p>G8. Oxygen usage is less than 2 mg/L for all dilutions set. The reported value is an estimated less than value and is calculated for the dilution using the most amount of sample.</p> <p>G9. The DO depletion of the dilution water blank produced a negative value.</p>
J	<p>Estimated value; value may not be accurate. This code is to be used in the following instances:</p> <p>J1. Surrogate recovery limits have been exceeded;</p> <p>J2. The reported value failed to meet the established quality control criteria for either precision or accuracy;</p> <p>J3. The sample matrix interfered with the ability to make any accurate determination;</p> <p>J4. The data is questionable because of improper laboratory or field protocols (e.g. composite sample was collected instead of grab, plastic instead of glass container)</p> <p>J5. Temperature limits exceeded (samples frozen or >6° C) during transport or not verifiable (e.g., no temperature blank provided);, non-reportable for NPDES compliance monitoring.</p> <p>J6. The laboratory analysis was from an unpreserved or improperly chemically preserved sample. The data may not be accurate.</p> <p>J7. This qualifier is used to identify analyte concentration exceeding the upper calibration range of the analytical instrument/method. The reported value should be considered estimated.</p> <p>J8. Temperature limits exceeds (samples frozen or >6°C during storage. The data may not be accurate.</p> <p>J9. The reported value is determined by a one-point estimation rather than against a regression equation. The estimated concentration is less than the laboratory practical quantitation limit and greater than the laboratory method detection limit.</p> <p>J10. Unidentified peak; estimated value.</p> <p>J11. The reported value is determined by a one-point estimation rather than against a regression equation. The estimated concentration is less than the laboratory practical quantitation limit and greater than the laboratory method detection limit. <i>This code is used when an MDL has not been established for the analyte in question.</i></p> <p>J12. The calibration verification did not meet the calibration acceptance criterion for field</p>

Data Remark Code	Code Definition
	<p>parameters. Note: A "J" value shall not be used if another code applies (ex. N, V, M).</p>
M	Sample and duplicate results are "out of control." The sample is non-homogenous (e.g. VOA soil). The reported value is the <u>lower</u> value of duplicate analyses of a sample.
N	Presumptive evidence of presence of material; estimated value. This code is to be used if: <ul style="list-style-type: none"> N1. The component has been tentatively identified based on mass spectral library search; N2. There is an indication that the analyte is present, but quality control requirements for confirmation were not met (i.e., presence of analyte was not confirmed by alternate procedures). N3. This code shall be used if the level is too low to permit accurate quantification, but the estimated concentration is less than the laboratory practical quantitation limit and greater than the laboratory method detection limit. <i>This code is not routinely used for most analyses.</i> N4. This code shall be used if the level is too low to permit accurate quantification, but the estimated concentration is less than the laboratory practical quantitation limit and greater than the instrument noise level. <i>This code is used when an MDL has not been established for the analyte in question.</i> N5. The component has been tentatively identified based on a retention time standard.
P	Elevated practical quantitation limit (PQL)* due to matrix interference and/or sample dilution.
Q	Holding time exceeded. These codes shall be used if the value is derived from a sample that was received, prepared and/or analyzed after the approved holding time restrictions for sample preparation and analysis. The value does not meet NPDES requirements. <ul style="list-style-type: none"> Q1. Holding time exceeded prior to receipt by lab Q2. Holding time exceeded following receipt by lab
S	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or duplicate (MSD).
U	Indicates that the analyte was analyzed for but not detected above the reported practical quantitation limit (PQL)*. The number value reported with the "U" qualifier is equal to the laboratory's PQL*.
V	Indicates the analyte was detected in both the sample and the associated method blank. Note: The value in the blank shall not be subtracted from the associated samples.
X	Sample not analyzed for this constituent. This code is to be used if: <ul style="list-style-type: none"> X1. Sample not screened for this compound. X2. Sampled, but analysis lost or not performed-field error X3. Sampled, but analysis lost or not performed-lab error
Y	Elevated PQL* due to insufficient sample size
Z	The presence or absence of the analyte cannot be verified. The sample analysis/results are not reported due to: <ul style="list-style-type: none"> Z1. Inability to analyze the sample. Z2. Questions concerning data reliability.

*PQL The Practical Quantitation Limit (PQL) is defined as the lowest level achievable among laboratories within specified limits during routine laboratory operation. The Practical Quantitation Limit (PQL) is "about three to five times the method detection limit (MDL) and represents a practical and routinely achievable detection level with a relatively good certainty that any reported value is reliable." (APHA, AWWA, WEF. 1992. Standard Methods for the Examination of Water and Wastewater, 18th ed.)

APPENDIX C - DATA FORMAT AND REPORTING REQUIREMENTS

Data Format for Monthly submittals

Table C-1 provides the required data submittal spreadsheet format. Do not use commas, tabs, pipes or

other common file delimiters anywhere in the table. The first row should contain the column headings only. Column headings must include appropriate information on measurement units (mg/l, µg/l, cfu/100ml, etc.). The second row must contain the method code. It is very important that the format of the headings and the number and order of columns is consistent among all monthly submissions. The DWQ station number must be provided (e.g. B6140000). An additional column containing the location description is acceptable as long as it is consistently included. Include a comment column for describing pertinent information related to the sampling event or specific samples. Ensure that there are no missing values for station, date, time, and depth. Place all remark codes in a separate column as demonstrated in Table C-1. If there is no result for a particular parameter leave the cell blank. Screen all data for inappropriate or improbable values, such as a pH of 21.2.

Annual Report

The LCFRP is required to submit an annual report by April 30th for each year the Agreement is in effect. The annual report will summarize all data collected in the past calendar year and contain the following elements:

- Monitoring Station List to include station number, station description, county, accurate coordinates (in decimal degrees to 4 decimal places using NAD83), stream classification, and 8 digit hydrologic unit code (HUC).
- List of all certified laboratories that conducted work for the coalition in the past year and laboratory methods used for all parameters. Summarize any laboratory certification issues for individual parameters.
- Submit a CD that includes all monitoring data for the past year with a statistical summary for each station. These data should be combined into a single table containing the year's reviewed and finalized data, which may be placed on the DWQ web site. The annual statistical summary must describe for each parameter at each location:
 - Number of observations (N)
 - Number of observations less than the laboratory reporting level (N<RL)
 - Identify the water quality standard, action level, or other reference level (Ref)
 - Identify the number of observations that do not meet the reference level (N>Ref) or (N<Ref)
 - Maximum observed value and Minimum observed value
 - Annual arithmetic mean (use a geometric mean for fecal coliform data)
- Include a list of active LCFRP members with authorized representative updates, contact names, email addresses and phone numbers. Identify the facility name and permit number. Provide a list of members that are no longer active in the LCFRP.
- Provide a list of changes in members' names, ownerships, and discharge locations.
- Summarize all quality assurance and quality control issues and any field audits conducted.
- Summarize any significant issues, special studies, or projects.
- Describe any required data collection that was missed and provide an explanation.
- Review the monitoring program and suggest potential MOA modifications.
- Provide the Coalition's Website Address.

Table C-1 File Format For Coalition Data Reporting

				Temp (°C)	Temp_rmk	DO (mg/l)	DO_rmk	pH (su)	pH_rmk	Conductivity (uohm/cm)	Conductivity_rmk	Fecal Coliform (#colonies/100ml)	Fecal Coliform_rmk	Suspended Residue (mg/l)	Suspended Residue_rmk	Turbidity (NTU)	Turbidity_rmk	Chlorophyll a (µg/l)	Chlorophyll_rmk	NH3_N (mg/l)	NH3_N_rmk	TKN_N (mg/l)	TKN_N_rmk	NO2_NO3_N (mg/l)	NO2_NO3_N_rmk	TP_P (mg/l)	TP_P_rmk
Station	Date (m/d/yyyy)	Time (hh:mm)	Depth (m)	10	10_rmk	300	300_rmk	400	400_rmk	94	94_rmk	31613	31613_rmk	530	530_rmk	82079	82079_rmk	70953	70953_rmk	610	610_rmk	625	625_rmk	630	630_rmk	665	665_rmk
A1234567	8/19/2002	15:30	0.1	25.2		7.8		6.9		133		110		45		22		23	Q1	0.1		0.2		0.3			
B9876543	8/20/2002	11:50	0.1	27.2		7.1		7.2		125		30		4		5.6		5		0.14		0.6		0.31			
B9876543	8/20/2002	11:50	1	28		6.5		7		122																	
B9876543	8/20/2002	11:50	2	25		6.7		6.9		119																	
B9876543	8/20/2002	11:50	3	17		5.5		6.7		120																	
C1357924	8/21/2002	16:10	0.1	22.1		3.1		6.2		233		15	B1	55		11											
C0246813	9/1/2002	9:30	0.1	19.7		8.3		7		99		6000	B5	410		36				0.26		0.4		0.57			
C0246813	10/1/2002	11:30	0.1	12		8.9		7.3		115		1200	B3	95	A		X3			0.16	J2	0.2		0.09			

The reporting format table continues with metals and comment columns on the next page.

Table C-1 Continued. File Format For Coalition Data Submittals

Cadmium, Cd (µg/L)	Cadmium, Cd_rmk	Chromium, Cr (µg/L)	Chromium, Cr_rmk	Copper, Cu (µg/L)	Copper, Cu_rmk	Nickel, Ni (µg/L)	Nickel, Ni_rmk	Lead, Pb (µg/L)	Lead, Pb_rmk	Zinc, Zn (µg/L)	Zinc, Zn_rmk	Aluminum, Al (µg/L)	Aluminum, Al_rmk	Iron, Fe (µg/L)	Iron, Fe_rmk	Manganese, Mn (µg/L)	Manganese, Mn_rmk	Arsenic, As (µg/L)	Arsenic, As_rmk	Mercury, Hg (µg/L)	Mercury, Hg_rmk	Comments	Enterococci	Enterococci_rmk
1027	1027_rmk	1034	1034_rmk	1042	1042_rmk	1067	1067_rmk	1051	1051_rmk	1092	1092_rmk	1105	1105_rmk	1045	1045_rmk	1055	1055_rmk	1002	1002_rmk	71900	71900_rmk		61211	61211_rmk
130		11	3	27		4.4		610		10		0.21		12		12								
120		10	U	2	U	25	U	2	U	510		10	U	10	U	0.2	U	10	U	10	U			
																						Secchi depth 1.2 meters		
333		10	U	2	U	25	U	2	U	624		10	U	10	U	0.2	U	10	U	10	U	Nutrient Sample Spilled		
120		10	U	2	U	25	U	2	U	510		10	U	10	U	0.2	U	10	U	10	U	2.5" of rain on 8/31/2002		
120		10	U	2	U	25	U	2	U	510		10	U	10	U	0.2	U	10	U	10	U			