

**Memorandum of Agreement  
Between  
The State of North Carolina's Division of Water Resources,  
The Lower Cape Fear River Program Permittees,  
and  
The Lower Cape Fear River Program**



Lower Cape Fear River Program



**Effective:  
July 1, 2021 through June 30, 2026**

## MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (MOA) is entered into this 1st day of July 2021, by and between the North Carolina Department of Environmental Quality's Division of Water Resources (DWR), the National Pollutant Discharge Elimination System (NPDES) Dischargers in the Upper Cape Fear River Basin who have voluntarily executed this MOA (LCFRP Permittees), and the LOWER CAPE FEAR RIVER PROGRAM (LCFRP), a non-profit corporation whose members include the LCFRP Permittees (see Table 1). DWR, LCFRP Permittees, and LCFRP are collectively the "Parties."

WITNESSETH, THAT,

Whereas, the LCFRP Permittees have instream (e.g., upstream and downstream) monitoring requirements in their respective NPDES permits pursuant to Federal and State law.

Whereas, the DWR has obligations to collect water quality data, which it uses for various purposes, including but not limited to enforcement, regulatory, scientific, and educational purposes.

Whereas, DWR has discretion in determining instream sampling locations in the context of NPDES permitting.

Whereas, the LCFRP Permittees are willing to combine their resources to provide for a more efficient and effective method for instream monitoring to meet the requirements of their respective NPDES permits.

Whereas, all parties to this MOA benefit from the collection of instream water quality data in the Lower Cape Fear River Basin.

NOW, THEREFORE, in consideration of mutual benefits that will accrue to each party, the Parties agree as follows:

I. Purpose:

The purpose of this MOA is to:

- a. facilitate the collection of instream water quality data for parameters that are of interest to the Parties;
- b. facilitate the collection of instream water quality data at preferred sampling locations (i.e., to reduce duplicative sampling locations and to sample at locations that would otherwise not be sampled) which are mutually agreeable to the Parties;
- c. facilitate the collection of instream water quality data at frequencies that provide useful information to the Parties;
- d. leverage the resources available to the Parties for instream sampling; and
- e. provide the Parties with consistent instream water quality data for the Lower Cape Fear River Basin.

II. General Provisions:

- a. This MOA only applies to the collection and submission of instream water quality monitoring data for the parameters, locations, and frequencies identified in Table 2.

- b. Nothing in this MOA precludes DWR from requesting LCFRP Permittees or LCFRP to take additional samples. Similarly, there is nothing in this MOA that precludes LCFRP Permittees or LCFRP to voluntarily conduct and submit sampling data to DWR in addition to what is set forth in Table 2, including sampling for hardness and emerging compounds of concern. Special/Additional sampling activities outlined in Table 2 are not a legal binding part of this MOA and arrangements are made between the LCFRP and the individual Permittees.
- c. Nothing in this MOA limits DWR's authority to require sampling or investigate pursuant to applicable laws.
- d. This MOA does not relieve LCFRP Permittees from complying with other NPDES permit requirements, including influent and effluent monitoring requirements, or other Federal and State laws, including State water quality standards.
- e. By signing this MOA, the LCFRP Permittees authorize the LCFRP to act as their agent and on their behalf in collecting and submitting instream monitoring data to DWR for the parameters listed in Table 2.
- f. By signing this MOA, the LCFRP Permittees authorize the LCFRP to act as their agent and on their behalf in modifying and renewing this MOA pursuant to Paragraph VIII below.
- g. The LCFRP Permittees are exempted from instream water quality monitoring for certain parameters *as specified in their individual NPDES permits*. If there is any discrepancy or conflict between this MOA and an LCFRP Permittee's NPDES permit, the LCFRP Permittee's NPDES permit shall prevail.

III. Collection of instream water quality data:

- a. The LCFRP and its agents shall perform the collection and analyses of the instream water quality monitoring data for the parameters, locations and frequencies specified in Table 2 of this MOA.
- b. The LCFRP will contract for the performance of the monitoring activities with a laboratory appropriately certified by DWR for the required laboratory and field analysis.
- c. The LCFRP and its agents shall comply with the requirements and protocols set forth in Tables 3 and 4 located in Appendix A.

IV. Submission of (monthly) instream water quality data to DWR:

- a. The LCFRP shall submit the monitoring results to DWR on behalf of LCFRP Permittees.
- b. The LCFRP shall submit the water quality data to the DWR within 90 days of the end of the month in which the sampling was performed to the Coalition Coordinator at [coalitioncoordinator@ncdenr.gov](mailto:coalitioncoordinator@ncdenr.gov).
- c. The LCFRP or its agents shall submit the water quality data to the DWR in a format set forth in Table 5 located in Appendix B of this MOA and preferably in Microsoft® Excel.
- d. The LCFRP shall archive all data for five (5) years.

- e. The LCFRP Permittees may provide comments to DWR on data and work submitted by LCFRP to DWR.
- f. Failure by the LCFRP Permittees or the LCFRP or their agents to collect or analyze the water quality data as described in this MOA, or to provide data to the DWR in the required format, may result in the termination of this MOA by the DWR and the return to individual upstream and downstream monitoring requirements, as specified in the individual NPDES permits for each of the LCFRP Permittees.
- g. Special and/or additional data collected (i.e., hardness) at a designated monitoring station concurrently with the regularly scheduled samples, should be submitted to the Coalition Coordinator.

V. Annual Report:

- a. The LCFRP shall submit an annual written report that summarizes the previous calendar year's sampling activities.
- b. The LCFRP shall submit the annual report no later than April 30th each year that this MOA is in effect and shall comply with the requirements set forth in Appendix B.
- c. The LCFRP shall submit the annual report to the DWR Coalition Coordinator at 1621 Mail Service Center, Raleigh, NC 27699-1621 or electronically at [coalitioncoordinator@ncdenr.gov](mailto:coalitioncoordinator@ncdenr.gov).

VI. Signatures for all Submissions to DWR:

- a. The LCFRP Chair shall sign annual reports submitted to DWR pursuant to this MOA.

VII. Special Circumstances affecting sampling:

- a. Stream sampling under this MOA may be suspended or discontinued under the following circumstances:
  - 1. If flow conditions in the receiving waters and/or extreme weather conditions will result in a substantial risk of injury to the person(s) collecting samples; or
  - 2. If environmental conditions, such as a dry stream, prevent sample collection.
- b. If sampling is suspended or discontinued for any reason, the LCFRP shall provide a written explanation to DWR explaining why sampling was not performed. The written explanation shall be submitted to the DWR Coalition Coordinator with LCFRP's monthly data submittal (electronic submittal is authorized).
- c. If sampling is suspended or discontinued under the provisions above, LCFRP shall resume stream sampling as soon as possible.

VIII. Miscellaneous Provisions:

- a. Entire Agreement: This MOA constitutes the entire agreement between the Parties and supersedes all previous agreements.

- b. Incorporation by reference: Appendices A and B are attached to and incorporated by reference into this MOA.
- c. Savings Clause: Should any part of this MOA be declared invalid or unenforceable by a court of competent jurisdiction, invalidation of the affected portion shall not invalidate the remaining portions of the MOA and they shall remain in full force and effect.
- d. Effective Date and Term: This MOA may be executed in counterparts and is effective upon the signature of DWR, LCFRP, and at least one NPDES Permittee. This MOA becomes effective as to additional NPDES Permittees upon their signature. This MOA is effective until June 30, 2026, unless extended in writing by the consent of both the DWR and the LCFRP.
- e. Modification: Modifications, including changes to sampling parameters, locations, or frequencies, shall be in writing and signed by DWR and the LCFRP.
- f. Subsequent Addition of NPDES Permittees to this MOA: Subsequent to the initial execution of this MOA, NPDES permittees within the Upper Cape Fear River Basin may subsequently be added to this MOA. Subsequent addition of NPDES permittees requires amendment of this MOA in writing, signed by DWR, LCFRP, and the NPDES permittee. The DWR will not unreasonably withhold consent to the addition of NPDES permittees to this MOA. The LCFRP Permittees included in this MOA are listed in Table 1 and will be updated upon the addition/removal of individual participants.
- g. Termination: DWR or LCFRP may unilaterally terminate this MOA for any reason. Unilateral termination requires at least sixty days written notice and is effective upon the date specified in the notice. DWR and LCFRP may mutually terminate this MOA in writing at any time. Upon termination of this MOA, the monitoring requirements contained in the individual NPDES permit for each LCFRP Permittee shall become effective immediately.
- h. Withdrawal from this MOA by LCFRP Permittees: An LCFRP Permittee may withdraw and cancel its participation in this MOA by providing at least sixty (60) days written notice to the LCFRP, the DWR Coalition Coordinator, the appropriate DWR Regional Office(s), and the DWR Water Quality Permitting Section. Subsequent to the required notice period, withdrawal is effective upon a written amendment, signed by DWR, LCFRP, and the withdrawing LCFRP Permittee. Upon withdrawal from this MOA, the monitoring requirements contained in the individual NPDES permit shall become effective immediately.
- i. Effect of an NPDES Permittee Terminating/Cancelling its Membership with the LCFRP: Upon the termination or cancellation of an NPDES Permittee's membership with the LCFRP, the monitoring requirements contained in the individual NPDES permit shall become effective immediately. The LCFRP may request that DWR review the monitoring plan described in this MOA for a possible reduction in sampling effort and/or requirements.
- j. No limitation on use of the data: There are no limitations on DWR's, LCFRP, or LCFRP Permittee's use of the data collected under this MOA.
- k. Remedies for Breach: The only remedy for breach of this MOA is an action for specific

performance or injunction.

1. Authority to sign: In signing this MOA, the individual certifies that he/she has the requisite legal authority and capacity to sign on behalf of his/her respective organization.

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 DWR.

**DIVISION OF WATER  
RESOURCES**

By: 

**S. Daniel Smith  
Director  
Division of Water Resources**

Date: 6/29/2021

**UPPER CAPE FEAR RIVER  
BASIN ASSOCIATION**

By: 

**Beth Eckart  
Chair  
Lower Cape Fear River Program**

Date: 6-16-2021

**Table 1 – LCFRP Permittees**

<b>NPDES Permit</b>	<b>LCFRP Permittees</b>	<b>Authorized Representative and Title</b>	<b>Authorized Representative Signature</b>	<b>Signature Date</b>
NC0001112	Stepan Company	Phillip Cline Plant Manager	<i>Signature of file</i>	3/17/2021
NC0001228	Global Nuclear Fuels Americas, LLC.	Brad Beard Plant Manager	<i>Signature of file</i>	3/20/2021
NC0001422	Duke Energy Progress LLC. Sutton Steam Electric Plant	James Corriher Plant Manager	<i>Signature of file</i>	3/4/2021
NC0003298	International Paper Riegelwood Mill	Tim Gill Manager-Environment, Health, Safety & Sustainability	<i>Signature of file</i>	3/12/2021
NC0003875	Elementis Chromium LP	Matt Hamburg Plant Manager	<i>Signature of file</i>	3/1/2021
NC0020117	City of Clinton Clinton WWTP	Chris Medlin Utilities Director	<i>Signature of file</i>	3/16/2021
NC0020575	Town of Mount Olive Mount Olive WWTP	Jammie Royall Town Manager	<i>Signature of file</i>	3/8/2021
NC0021903	Town of Warsaw Warsaw WWTP	Scotty Summerlin Town Manager	<i>Signature of file</i>	3/8/2021
NC0023256	Town of Carolina Beach Carolina Beach WWTP	Mark Meyer Public Utilities Director	<i>Signature of file</i>	3/19/2021
NC0023965	Cape Fear Public Utilities Association Northside WWTP	James R. Flechtner Executive Director	<i>Signature of file</i>	4/22/2021
NC0023973	Cape Fear Public Utilities Association Southside WWTP	James R. Flechtner Executive Director	<i>Signature of file</i>	4/22/2021
NC0026018	Town of Beulaville Beulaville WWTP	Hutch Jones Mayor	<i>Signature of file</i>	3/10/2021
NC0027065	Archer Daniels Midland Company	Ryan Howard Plant Manager	<i>Signature of file</i>	3/1/2021
NC0075540	Brunswick Regional Water and Sewer H2GO	Bob Walker Director	<i>Signature of file</i>	3/30/2021
NC0081736	Pender County Utilities US 421 WWTF	Kenny Keel Director	<i>Signature of file</i>	3/22/2021
NC0082295	Fortron Industries LLC.	Kevin Sproull Site Director	<i>Signature of file</i>	3/22/2021
NC0086819	NE Brunswick Regional WWTP	Randell K. Woodruff County Manager	<i>Signature of file</i>	3/17/2021

Table 2

LCFRP Sampling Stations, Parameters, & Frequencies

Station Number	Location Description	Station Comments	Latitude (dd,ddd)	Longitude (ddd,ddd)	County	Region	Index	8 Digit HUC	Stream Class	Field Measurements	Nutrients	Turbidity	TSS	Chl-a	Enrichment	Fecal Coliform	Special/Additional
B8340050	Browns Creek at NC 87 nr Elizabethtown	hog farm area	34.6136	-78.5848	Bladen	FRO	18-45	3030005	C	M	M	M				M	
B8340200	Hammond Creek at SR 1704 nr Mt. Olive	hog farm area	34.5685	-78.5515	Bladen	FRO	18-50	3030005	C	M	M	M				M	
B8360000	Cape Fear River at NC 11 nr East Axtakin	just d/s of Lock and Dam #1	34.3969	-78.2675	Bladen	WIRO	18-459	3030005	WS-IV Sw	M+2SM	M	M	M	M		M	
B8450000	Cape Fear River at Nells Eddy Landing nr Acme	1 mile below IP, DWQ ambient stn	34.3555	-78.1794	Columbus	WIRO	18-63	3030005	C Sw	M+2SM	M	M	M			M	
B8465000	Cape Fear River at Inlake nr Hooper Hill	At DAK intake, just ups of Black River	34.3358	-78.0534	Brunswick	WIRO	18-63	3030005	C Sw	M+2SM	M	M	M			M	SA*
B8470000	South River at US 13 nr Cooper	d/s Dunn runoff	35.156	-78.6401	Simpson	FRO	18-68-12-(0.5)	3030006	C Sw	M	M	M				M	
B8604000	Great Coharie Creek at SR 1214 nr Butler Crossroads	8 miles d/s Clinton WWTP, nonpoint impacts	34.9186	-78.3887	Simpson	FRO	18-68-1	3030006	C Sw	M	M	M	M			M	
B8610001	Little Coharie Creek at SR 1207 nr Ingold	Just ups Great Coharie Ck, hog ops in watershed	34.8347	-78.3709	Simpson	FRO	18-68-1-17	3030006	C Sw	M	M	M				M	
B8740000	Six Runs Creek at SR 1003 nr Ingold	Just ups Black River, hog operations in watershed	34.7933	-78.3113	Simpson	FRO	18-68-2-(11.5)	3030006	C Sw ORW+	M	M	M				M	
B8920000	South River at SR 1007 nr Kerr	Ups of Black River	34.6402	-78.3116	Simpson	FRO	18-68-12-(8.5)	3030006	C Sw ORW+	M	M	M				M	
B9000000	Colly Creek at NC 53 at Colly	Hog operations in watershed	34.4641	-78.2569	Bladen	FRO	18-68-17	3030006	C Sw	M	M	M				M	
B9015000	Black River at NC 210 at Still Bluff	1 <sup>st</sup> bridge ups of Cape Fear River	34.4312	-78.1441	Pender	WIRO	18-68	3030006	C Sw ORW+	M	M	M				M	
B9030000	Cape Fear River ups Cape Fear River	1.2 miles ups of Cape Fear River	35.3514	-78.049	Pender	WIRO	16-68	3030006	C Sw ORW+	M+2SM	M	M				M	
B9050025	Cape Fear River ups Indian Creek nr Phoenix	Dns DAK, BASF, and Forton	34.3021	-78.0137	Brunswick	WIRO	18-63	3030005	C Sw	M+2SM	M	M				M	SA*
B9050100	Cape Fear River at Navassa d/s of RR bridge nr Wilmington	Dns Progress Energy and Leland Ind. Pk	34.2594	-77.9877	Brunswick	WIRO	18-71	3030005	SC	M+2SM	M	M	M			M	SA*
B9090000	NE Cape Fear River at NC 403 nr Williams	Ups NE Cape Fear River	34.2437	-77.9698	Brunswick	WIRO	18-71	3030005	SC	M+2SM	M	M				M	
B9130000	Panther Branch (Creek) nr Faison	Dns Mt. Olive WWTP, DWQ ambient stn	35.1784	-77.9807	Duplin	WIRO	18-74-1	3030007	C Sw	M	M	M				M	
B9191000	Goshen Swamp at NC 11 and NC 903 nr Komegy	Sample from Bay Valley access Rd, d/s Bay Valley WWTP	35.1345	-78.1363	Duplin	WIRO	18-74-19-3	3030007	C Sw	M	M	M				M	
B9191500	NE Cape Fear River SR 1700 nr Sarceta	Major trib to NE CFR, Ag and Hog ops in watershed	35.0281	-77.8516	Duplin	WIRO	18-74-19	3030007	C Sw	M	M	M				M	
B9430000	Rockfish Creek at US 117 nr Wallace	Dns Guilford Mills and Cogentrix WWTPs	34.9801	-77.8622	Duplin	WIRO	18-74-1	3030007	C Sw	M	M	M				M	
B9460000	Little Rockfish Creek at NC 11 nr Wallace	Ups Wallace WWTP1, benthic stn	34.7224	-77.9814	Duplin	WIRO	18-74-29-6	3030007	C Sw	M	M	M				M	
B9490000	Angela Creek at NC 53 nr Maple Hill	benthic stn	34.6562	-77.7351	Pender	WIRO	18-74-33-3	3030007	C Sw	M	M	M				M	
B9580000	NE Cape Fear River at US 117 at Castle Hayne	DWQ ambient stn, d/s Elements Chromium WWTP	34.3637	-77.8965	New Hanover	WIRO	18-74-(47.5)	3030007	B Sw	M	M	M				M	SA*
B9670000	NE Cape Fear River nr Wrightsboro	Below GNF and Atravea WWTPs	34.3171	-77.9538	New Hanover	WIRO	18-74-(52.5)	3030007	C Sw	M+2SM	M	M				M	
B9720000	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	3030007	C Sw	M	M	M				M	
B9790000	Brunswick River d/s NC 17 at park nr Beville	Park access from SR 133, d/s Beville WWTP	34.2214	-77.9787	Brunswick	WIRO	18-77	3030005	SC	M	M	M				M	
B9795000	Cape Fear River at Channel Marker 54	Dns Wilmington Southside WWTP	34.1393	-77.946	New Hanover	WIRO	18-71	3030005	SC	M+2SM	M	M				M	
B9800000	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	3030005	SC	M+2SM	M	M				M	
B9850100	Cape Fear River at Channel Marker 35	Ups Carolina Beach WWTP	34.0335	-77.937	Brunswick	WIRO	18-71	3030005	SC	M+2SM	M	M				M	
B9920000	Cape Fear River at Channel Marker 23	Dns Carolina Beach WWTP	33.9456	-77.9696	Brunswick	WIRO	18-(87.5)	3030005	SA HQW	M+2SM	M	M				M	
B9921000	Cape Fear River at Channel Marker 18	Nr Mouth of Cape Fear River	33.913	-78.017	Brunswick	WIRO	18-88-3.5	3030005	SC	M+2SM	M	M				M	

1. Field measurement includes: Temperature, Dissolved Oxygen, pH, and Conductivity. 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 extraordinary 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. Special/Additional: Sampling performed specific to an individual permit

Special/Additional\* - Collected quarterly Total Hardness (as CaCO3) as required by the Intermodal Paper NPDES Permit NC0003298. There is no corresponding DWR station associated with this collection location.

Special/Additional\*\* - Collected quarterly Total Hardness (as CaCO3) as required by the Pender County NPDES Permit #NC0081736.

Special/Additional\*\*\* - Collected quarterly Total Hardness (as CaCO3) as required by the GNF-A NPDES Permit #NC0001228.



**APPENDIX A**  
**SAMPLE COLLECTION AND ANALYSIS**

### Sample Collection Procedures

Sample collection shall be performed by trained personnel employed by NC DWR-certified laboratories in accordance with the DWR Monitoring Coalition Program Field Monitoring Guidance Document (November 2017) and subsequent documents. The Field Monitoring Guidance Document can be found on the web at: <http://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/ecosystems-branch/monitoring-coalition-program>. Alternate collection procedures require the approval of the DWR Coalition Coordinator prior to use.

### Laboratory Analysis

All laboratory analyses shall be performed at a DWR-certified laboratory using approved methods as prescribed by section 40 of the Code of Federal Regulations part 136 (40 CFR part 136) or other methods certified by the DWR Laboratory Certification Branch (<http://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch>) or the Director of DWR. 40 CFR Part 136 can be accessed on the web at <http://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/rules-regulations>.

Reporting levels will be at least as stringent as the reporting levels used by the DWR Laboratory. For guidance purposes Table 3 lists target reporting levels for each parameter based on the reporting levels of the DWR Laboratory. The lowest possible analytical limits for all the parameters should be pursued.

**TABLE 3**  
**DWR Laboratory Reporting Limits**

Parameters	Target Reporting Level	Comments
Water Temperature		Resolution to 0.1 degree Celsius
Dissolved Oxygen		Report results to the nearest 0.1 mg/L.
pH		Report results to the nearest 0.1 pH units.
Specific Conductivity		Report results to the nearest whole $\mu\text{mho}/\text{cm}$ at 25 °C.
Turbidity	1.0 NTU	
TSS	6.2 mg/L	
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 $\mu\text{g}/\text{L}$	Report Chlorophyll <i>a</i> values free from pheophytin and other chlorophyll pigments. Analysis by HPLC is not approved by DWR.
Ammonia (NH <sub>3</sub> 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	
Hardness	1.0 mg/L	

### Data Qualification Codes

When reporting data, the DWR's data qualifier codes must be used to provide additional information regarding data quality and interpretation. The current set of qualifier codes to be used is provided in Table 4. Review the data remark codes at least annually and utilize the most current set, as codes are subject to change. Contact the Coalition Coordinator for a current copy of the codes.

**Table 4**  
**Data Qualification Codes for Use with Coalition Data**

Symbol	Definition
A	<p>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, coliform or acute/chronic metals reporting since averaging multiple results for these parameters is fundamental to those methods or manner of reporting.</p> <p>1 The reported value is an average, where at least one result is qualified with a "U". The PQL is used for the qualified result(s) to calculate the average.</p>
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 <b>membrane filter (MF)</b> 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: <i>Fecal coliform or Enterococcus bacteria: 20-60 colonies Total coliform bacteria: 20-80 colonies</i></p> <ol style="list-style-type: none"> <li>1 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.</li> <li>2 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 "&lt;" value).</li> <li>3 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 "&gt;" value.</li> <li>4 Filters have counts of both &gt;60 or 80 and &lt;20. Reported value is estimated or is a total of the counts on all filters reported per 100 ml.</li> <li>5 Too many colonies were present; too numerous to count (TNTC). TNTC is generally defined as &gt;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.</li> <li>6 Estimated Value. Blank contamination evident.</li> <li>7 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.</li> </ol> <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.). <u>Note:</u> A "J2" should be used for spiking failures.</p>
C	<p>Total residual chlorine was present in sample upon receipt in the laboratory; value is <b>estimated</b>. Generally, applies to cyanide, phenol, NH3, TKN, coliform, and organics.</p>

Symbol	Definition
G	<p>A single quality control failure occurred during biochemical oxygen demand (BOD) analysis. The sample results should be used with caution.</p> <ol style="list-style-type: none"> <li>1 The dissolved oxygen (DO) depletion of the dilution water blank exceeded 0.2 mg/L.</li> <li>2 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.</li> <li>3 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.</li> <li>4 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 <b>estimated</b> value.</li> <li>5 The glucose/ glutamic acid standard exceeded the range of <math>198 \pm 30.5</math> mg/L.</li> <li>6 The calculated seed correction exceeded the range of 0.6 to 1.0 mg/L.</li> <li>7 Less than 1 mg/L DO remained for all dilutions set. The reported value is an <b>estimated</b> greater than value and is calculated for the dilution using the least amount of sample.</li> <li>8 Oxygen usage is less than 2 mg/L for all dilutions set. The reported value is an <b>estimated</b> less than value and is calculated for the dilution using the most amount of sample.</li> <li>9 The DO depletion of the dilution water blank produced a negative value. The cBOD value is greater than the BOD value.</li> </ol> <p>Note: A "G" value shall be accompanied by justification for its use denoted by the numbers listed above (e.g., G1, G2, etc.).</p>
J	<p><b>Estimated</b> value; value may not be accurate. This code is to be used in the following instances:</p> <ol style="list-style-type: none"> <li>1 Surrogate recovery limits have been exceeded.</li> <li>2 The reported value failed to meet the established quality control criteria for either precision or accuracy.</li> <li>3 The sample matrix interfered with the ability to make any accurate determination.</li> <li>4 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, etc.).</li> <li>5 Temperature limits exceeded (samples frozen or <math>&gt;6^{\circ}\text{C}</math>) during transport or not verifiable (e.g., no temperature blank provided): non-reportable for NPDES compliance monitoring.</li> <li>6 The laboratory analysis was from an unpreserved or improperly chemically preserved sample. The data may not be accurate.</li> <li>7 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.</li> <li>8 Temperature limits exceeded (samples frozen or <math>&gt;6^{\circ}\text{C}</math>) during storage, the data may not be accurate.</li> <li>9 The reported value is determined by a one-point estimation rather than against a regression equation. The estimated concentration is less than the laboratory PQL and greater than the laboratory method detection limit.</li> <li>10 Unidentified peak; estimated value.</li> <li>11 The reported value is determined by a one-point estimation rather than against a regression equation. The estimated concentration is less than the laboratory PQL and greater than the instrument noise level. This code is used when an MDL has not been established for the analyte in question.</li> <li>12 The calibration verification did not meet the calibration acceptance criterion for field parameters.</li> </ol> <p>Note: A "J" value shall be accompanied by justification for its use denoted by the numbers listed above (e.g., J1, J2, etc.). A "J" value shall not be used if another code applies (e.g., N, V, M).</p>
M	<p>Sample and duplicate results are "out of control". The sample is non-homogenous (e.g., VOA soil). The reported value is the lower value of duplicate analyses of a sample.</p>

Symbol	Definition
N	Presumptive evidence of presence of material; estimated value. This code is to be used if: 1 The component has been tentatively identified based on mass spectral library search. 2 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). 3 This code shall be used if the level is too low to permit accurate quantification, but the estimated concentration is less than the laboratory PQL and greater than the laboratory method detection limit. This code is not routinely used for most analyses. 4 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. This code is used when an MDL has not been established for the analyte in question. 5 The component has been tentatively identified based on a retention time standard.
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. 1 Holding time exceeded prior to receipt by lab. 2 Holding time exceeded following receipt by lab.
P	Elevated PQL due to matrix interference and/or sample dilution.
S	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or matrix spike duplicate (MSD).
U	Indicates that the analyte was analyzed for, but not detected above the reported PQL. The number value reported with the "U" qualifier is equal to the laboratory's PQL*.
UU	Indicates that the analyte was not detected by a screen analysis. The number value reported with the "UU" qualifier is equal to the laboratory's PQL. The number value was determined by a one-point estimation at the PQL, rather than against a regression equation.
V	Indicates the analyte was detected in both the sample and the associated blank. Note: The value in the blank shall not be subtracted from the associated samples. 1 The analyte was detected in both the sample and the method blank. 2 The analyte was detected in both the sample and the field blank.
X	Sample not analyzed for this constituent. This code is to be used if: 1 Sample not screened for this compound. 2 Sampled, but analysis lost or not performed-field error. 3 Sampled, but analysis lost or not performed-lab error.  Note: an "X" value shall be accompanied by justification for its use by the numbers listed.
Y	Elevated PQL due to insufficient sample size.
Z	The sample analysis/results are not reported due to: 1 Inability to analyze the sample. 2 Questions concerning data reliability.  Note: The presence or absence of the analyte cannot be verified.
<b>Supporting Definitions listed below</b>	
MDL	A Method Detection Limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the true value is greater than zero and is determined in accordance with 40 CFR Part 136, Appendix B.
ML	Minimum Levels are used in some EPA methods. A Minimum Level (ML) is the lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method - specified sample weights, volumes, and cleanup procedures have been employed. The ML is calculated by multiplying the MDL by 3.18 and rounding the result to the nearest factor of 10 multiple (i.e., 1, 2, or 5). For example, MDL = 1.4 mg/L; ML = 1.4 mg/L x 3.18 = 4.45 rounded to the nearest factor of 10 multiple (i.e., 5) = 5.0 mg/L.

<b>Supporting Definitions listed below</b>	
<b>PQL</b>	<p>The Practical Quantitation Limit (PQL) is defined as the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. PQLs are subjectively set at some multiple of typical MDLs for reagent water (generally 3 to 10 times the MDL depending upon the parameter or analyte and based on the analyst's best professional judgement, the quality and age of the instrument and the nature of the samples) rather than explicitly determined. PQLs may be nominally chosen within these guidelines to simplify data reporting and, where applicable, are generally equal to the concentration of the lowest non-zero standard in the calibration curve. PQLs are adjusted for sample size, dilution and % moisture. For parameters that are not amenable to MDL studies, the PQL may be defined by the sample volume and buret graduations for titrations or by minimum measurement values set by the method for method-defined parameters (e.g., BOD requires a minimum DO depletion of 2.0 mg/L, fecal coliform requires a minimum plate count of 20 cfu, total suspended residue requires a minimum weight gain of 2.5 mg, etc.). Additionally, some EPA methods prescribe Minimum Levels (MLs) and the lab may set the PQL equal to this method-stated ML. Determination of PQL is fully described in the laboratory's analytical Standard Operating Procedure (SOP) document.</p>

\*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, 18<sup>th</sup> ed.)

\*\* Data remarks are current as of May 4, 2018.

**APPENDIX B**  
**DATA FORMAT AND REPORTING REQUIREMENTS**

### Data Format for Monthly submittals:

Table 5 provides the format of a data submittal spreadsheet. **It is very important that the format of the headings and the number and order of columns is consistent among all monthly submissions.** Do not use commas, tabs, or other common file delimiters anywhere in the submittal spreadsheet table. Do not add, delete, or hide any rows or columns. The first row should contain the column headings only. Column headings must include appropriate information on measurement units (e.g., mg/L, µg/L, cfu/100mL, etc.). The second row must contain the method code. The DWR station number (e.g., B6140000) must be provided as identified in the MOA. The comment column is used 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 5. If there is no result for a particular parameter, leave the cell blank. Delete duplicate rows for stations that were not sampled (e.g., stations sampled twice in summer months). Screen all data for inappropriate or improbable values, such as a pH of 21.2 SU.

### Annual Report:

The LCFRP will be required to submit an annual report by April 30<sup>th</sup> for each year the MOA is in effect. The annual report will formally summarize all data collection activities in the past calendar year and contain at least the following elements:

- Monitoring Station List to include station number, station description, county, accurate coordinates (in decimal degrees to 4 decimal places), stream classification, and 8-digit hydrologic unit code (HUC).
- List of all certified laboratories that conducted work for the coalition in the past year; identify time frames for all laboratories and analysis methods used during the year; and summarize any laboratory certification issues for individual parameters.
- A list of active LCFRP members with authorized representative updates, contact names, email addresses, and phone numbers. Identify the facility name and permit number.
- A list of members whom became inactive during the year and their permit numbers.
- A summary of all quality assurance and quality control issues and any field audits conducted.
- A summary of any significant issues, special studies, or projects.
- Description of any required data collection that was missed, with an explanation.
- Suggested changes to the monitoring program and/or MOA modifications.
- The LCFRP's website address.



Table 5  
File Format for Coalition Data Reporting

Station	Date (m/d/yyyy)	Time (hh:mm)	Depth (m)	Temp (°C)	Temp_rmk	DO (mg/L)	DOrmk	pH (su)	pH_rmk	Conductivity (umhos/cm)	Conductivity_rmk	Fecal Coliform	Fecal Coliform_rmk	Suspended Residue (mg/L)	Suspended Residue_rmk	Turbidity (NTU)	Turbidity_rmk	Chlorophyll_a (ug/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 (mg/L)	TP_rmk	Hardness (ug/L)	Hardness_rmk	Comments	