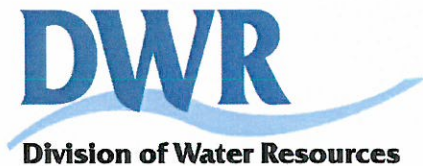


**Memorandum of Agreement
between
The State of North Carolina's Division of Water Resources
and
The Tar Pamlico Basin Association Permittees**

**Effective:
March 1, 2017 through February 28, 2022**



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MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (MOA) is made 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 Tar Pamlico River basin who have voluntarily executed this MOA (the TPBA PERMITTEES), and the TAR PAMLICO BASIN ASSOCIATION (the TPBA), a non-profit corporation whose members include the TPBA PERMITTEES. The MOA includes all the attached tables and appendices. This MOA does not affect any influent or effluent monitoring requirement or any other NPDES permit requirements of individual permit holders with the one exception of performing upstream and downstream water quality monitoring. The TPBA PERMITTEES are exempted from instream monitoring as specified in their individual NPDES permits beginning on the effective date of this MOA and continuing for the duration of each permittee's participation in this MOA. Subsequent to the execution of this MOA, the DWR will issue a letter to each TPBA PERMITTEE notifying the permittee that the instream monitoring requirements as waived in their individual NPDES permits are not effective for as long as this MOA is in place and the permittee remains a party to this MOA.

The purpose of this MOA is to establish a formal agreement between the DWR, the TPBA PERMITTEES, and the TPBA. This MOA authorizes the TPBA to act on behalf of the TPBA PERMITTEES as described herein. This MOA identifies the responsibilities of the TPBA PERMITTEES and the TPBA for surface water monitoring and reporting within the Tar Pamlico River Basin. The water quality monitoring will occur at strategically located surface water sites to obtain information on water quality in the basin. Monitoring sites and parameters, listed in Appendix A, were established by the DWR such that the instream monitoring is efficient, effective, and basin-oriented.

The TPBA will perform the monitoring activities described herein on behalf of TPBA PERMITTEES who are members in good standing of the TPBA. Each TPBA PERMITTEE agrees to remain a member in good standing of the TPBA. The TPBA will contract for the performance of the monitoring activities described herein and in Appendix B with a laboratory appropriately certified by the DWR for the required laboratory and field analyses. Sample collection and field measurements will be made by the TPBA PERMITTEES, the TPBA, or a sub-contractor who will act as agent(s) of the TPBA PERMITTEES for the sole purpose of performing monitoring services required by this MOA. It will be the responsibility of the TPBA to coordinate the collection and analyses of the water quality monitoring data for the locations, parameters, and frequencies specified in Appendix A of this MOA. Sample collection, field measurement, and target reporting limits are specified in Appendix B of this MOA. Monthly and annual reporting requirements, including data format and data summaries are described in Appendix C of this MOA.

The TPBA shall submit the water quality data to the DWR using the format documented in Appendix C of this MOA preferably in Microsoft® Excel, or the equivalent. The TPBA shall submit the water quality data to the DWR within 90 days of the end of the month in which the sampling was performed. All data shall be archived by the TPBA for a period of 5 years. Each

TPBA PERMITTEE has the right to review and comment on work, data or reports prepared by any contractor on behalf of the TPBA PERMITTEES and to notify the DWR 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 of data or other reports to the DWR, it shall be deemed to be waived and the work, data and reports submitted shall be deemed to be approved by the TPBA PERMITTEES. Failure by the TPBA PERMITTEES or the TPBA to collect or analyze the water quality data as described in this MOA, or to provide the data to the DWR in the required format, may result in the revocation of this MOA by the DWR and the return to individual upstream and downstream monitoring requirements, as specified in the individual NPDES permits of the TPBA PERMITTEES.

The TPBA shall submit an annual written report that summarizes the previous calendar year's sampling activities and formally finalizes the water quality data. The report shall be submitted no later than April 30th each year that this MOA is in effect. The annual report shall include the NPDES permit number of each actively participating permit holder and a contact name, email address and phone number for each member. Appendix C of this MOA describes the required annual report content. One hard-copy or electronic copy, signed by the TPBA chairman, of these and any other reports required herein shall be submitted to the DWR Coalition Coordinator at 1621 Mail Service Center, Raleigh, NC 27699-1621.

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, on each day that sampling is discontinued, the DWR Coalition Coordinator 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 not be utilized to avoid the requirements of this MOA when performance of these requirements is attainable. When there is a sampling discontinuance pursuant to this provision, sampling shall be resumed at the first opportunity.

This MOA may be modified by the written consent of the DWR and the TPBA. The DWR or the TPBA 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 MOA agreed to by the DWR and the TPBA. The amendment shall be signed by the TPBA chairman and by the DWR. Such amendments may be entered into at any time.

Routine ambient data collection for total recoverable metals has been suspended since April 3, 2007, via annual memorandums from the DWR Director. No requirements for metals monitoring are included in this MOA. As NPDES permits for TPBA members are reissued, effluent limitations for total recoverable metals and requirements for in-stream hardness monitoring may be included in individual permits. The DWR will work with the TPBA on data collection and analysis, to meet the requirements of the surface water quality rules and any applicable NPDES permits.

The following additional dischargers may enter into this MOA subsequent to the effective date Thereof:

- 1) Dischargers who receive a NPDES permit within the Tar Pamlico River Basin,
or
- 2) Dischargers who have NPDES permits within the Tar Pamlico River Basin but
are not parties to this Agreement.

The addition of such dischargers to this MOA may be made only with the consent of the DWR and the TPBA and shall require a written amendment to this MOA signed by the TPBA chairman, by the DWR, and by an authorized representative of any such discharger who wishes to enter into the MOA. The DWR will not unreasonably withhold consent to the addition of a discharger to the MOA. The DWR will consider modification of the existing monitoring program described in this MOA for the addition of a discharger to the MOA. Such amendments may be made at any time that this MOA is in effect. The TPBA PERMITTEES included in this MOA are listed in Table 1.

This MOA shall be effective until February 28, 2022 unless extended by the consent of both the DWR and the TPBA. Upon sixty (60) days written notice, the DWR or the TPBA may terminate this MOA for any reason. Upon termination of this MOA, the monitoring requirements contained in the individual NPDES permit of each TPBA PERMITTEE shall become effective immediately. An individual permit holder may terminate and cancel its participation in this MOA by providing one-hundred eighty (180) days written notice to the TPBA, and sixty (60) days written notice to the DWR Coalition Coordinators, the appropriate DWR Regional Office, and the DWR 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 MOA or its membership in the TPBA is terminated for any reason, the TPBA may request that DWR review the monitoring plan described in this MOA for a possible reduction in sampling effort or requirements.

Should any part of this Agreement be declared invalid or unenforceable by a court of competent jurisdiction, invalidation of the affected portion shall not invalidate the remaining portions of the Agreement and they shall remain in full force and effect.

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. Jay Zimmerman, P.G.
Director
Division of Water Resources, DEQ

TAR PAMLICO BASIN ASSOCIATION

By: 

Adam Waters
Chairman
Tar Pamlico Basin Association

Table 1
TPBA PERMITTEES

| NPDES Permit Number | Tar Pamlico Basin Association Permittees Ownership & Facility | Authorized Representative and Title |
|---------------------|--|--|
| NC0020231 | Town of Louisburg Louisburg WWTP | Mr. Johnathan Franklin Town Administrator |
| NC0069311 | Franklin County Franklin County Public Utilities | Ms. Angela Harris Town Manager |
| NC0042269 | Town of Bunn Bunn WWTP | Ms. Marcia Strawbridge Mayor |
| NC0025054 | Town of Oxford Oxford WWTP | Mr. David Cottrell Town Manager |
| NC0020061 | Town of Spring Hope Spring Hope WWTP | Mr. John Holpe Town Manager |
| NC0030317 | City of Rocky Mount Tar River WWTP | Mr. Charles Penny City Manager |
| NC0072125 | City of Rocky Mount Tar River WTP | Mr. Charles Penny City Manager |
| NC0072133 | City of Rocky Mount Sunset Ave. WTP | Mr. Charles Penny City Manager |
| NC0020435 | Town of Pinetops Pinetops WWTP | Mr. Lorenzo Carmon Town Administrator |
| NC0020605 | Town of Tarboro Tarboro WWTP | Mr. Troy Lewis Town Manager |
| NC0023337 | Town of Scotland Neck Scotland Neck WWTP | Ms. Nancy Jackson Town Administrator |
| NC0025402 | Town of Enfield Enfield WWTP | Ms. Barbara Simmons Mayor |
| NC0084034 | Town of Enfield Enfield WTP | Ms. Barbara Simmons Mayor |
| NC0020834 | Town of Warrenton Warrenton WWTP | Mr. Robert Davie Town Administrator |
| NC0023931 | Greenville Utilities Commission Greenville WWTP | Mr. Anthony Cannon General Manager |
| NC0026042 | Town of Robersonville Robersonville WWTP | Ms. Elizabeth Jenkins Town Manager |
| NC0026492 | Town of Belhaven Belhaven WWTP | Mr. Woody Jarvis Town Manager |
| NC0020648 | City of Washington Washington WWTP | Mr. Bobby Roberson City Manager |
| NC0081191 | City of Washington Washington WTP | Mr. Bobby Roberson City Manager |

TPBA PERMITEE SIGNATURES

| NPDES Permit Number | Permittee | Signature & Date |
|---------------------|---|---|
| NC0020231 | Town of Louisburg Louisburg WWTP | Signature on file 3/17/2017 Johnathan Franklin Town Administrator |
| NC0069311 | Franklin County Franklin County Public Utilities | Signature on file 3/17/2017 Angela Harris County Manager |
| NC0042269 | Town of Bunn Bunn WWTP | Signature on file 3/17/2017 Marsha Strawbridge Mayor |
| NC0025054 | Town of Oxford Oxford WWTP | Signature on file 3/17/2017 David Cottrell Town Manager |
| NC0020061 | Town of Spring Hope Spring Hope WWTP | Signature on file 3/17/2017 John Holpe Town Manager |
| NC0030317 | City of Rocky Mount Tar River WWTP | Signature on file 3/17/2017 Charles Penny City Manager |
| NC0072125 | City of Rocky Mount Tar River WTP | Signature on file 3/17/2017 Charles Penny City Manager |
| NC0072133 | City of Rocky Mount Sunset Ave. WTP | Signature on file 3/17/2017 Charles Penny City Manager |
| NC0020435 | Town of Pinetops Pinetops WWTP | Signature on file 3/17/2017 Lorenzo Carmon Town Administrator |
| NC0020605 | Town of Tarboro Tarboro WWTP | Signature on file 3/17/2017 Troy Lewis Town Manager |
| NC0023337 | Town of Scotland Neck Scotland Neck WWTP | Signature on file 3/17/2017 Nancy Jackson Town Administrator |
| NC0025402 | Town of Enfield Enfield WWTP | Signature on file 3/17/2017 Barbara Simmons Mayor |
| NC0084034 | Town of Enfield Enfield WTP | Signature on file 3/17/2017 Barbara Simmons Mayor |

| NPDES Permit Number | Permittee | Signature & Date |
|----------------------------|--|---|
| NC0020834 | Town of Warrenton Warrenton WWTP | Signature on file 3/17/2017 Robert Davie Town Administrator |
| NC0023931 | Greenville Utilities Commission Greenville WWTP | Signature on file 3/17/2017 Anthony Cannon General Manager |
| NC0026042 | Town of Robersonville Robersonville WWTP | Signature on file 3/17/2017 Elizabeth Jenkins Town Manager |
| NC0026492 | Town of Belhaven Belhaven WWTP | Signature on file 3/17/2017 Woody Jarvis Town Manager |
| NC0020648 | City of Washington Washington WWTP | Signature on file 3/17/2017 Bobby Roberson City Manager |
| NC0081191 | City of Washington Washington WTP | Signature on file 3/17/2017 Bobby Roberson City Manager |

APPENDIX A

TPBA MONITORING PROGRAM

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

| DWR Station Number | Location | Comments | Latitude | Longitude | County | Region | 8 Digit HUC | Stream Class | Stream Index | Field Parameters (1) | Nutrients (2) | Turbidity | TSS | Fecal Coliform | Metals (3) |
|--------------------|--|--|----------|-----------|-----------|--------|-------------|--------------|--------------|----------------------|---------------|-----------|-----|----------------|------------|
| O0057000 | Tar River at US 158 near Berea | Tar headwaters | 36.3341 | -78.7680 | Granville | RRO | 03020101 | WS-IV NSW | 28-(1) | M + 25M | M | M | M | M | |
| O0320000 | Fishing Crk ups SR 1607 (Knotts Grove Rd) near Oxford | ups of Oxford WWTP | 36.2770 | -78.5911 | Granville | RRO | 03020101 | C NSW | 28-11 | M + 25M | M | M | | M | |
| O1025000 | Tar River at SR 1003 (Sims Bridge Road) near Louisville | Ups Louisville WWTP | 36.1422 | -78.3722 | Franklin | RRO | 03020101 | WS-IV NSW | 28-(15.5) | M + 25M | M | M | M | M | |
| O1030000 | Tabbs Creek at SR 1100 (Egypt Mountain Rd) near Kittrell | Tabbs Creek near mouth | 36.1823 | -78.4556 | Vance | RRO | 03020101 | C NSW | 28-17-(0.5) | M + 25M | M | M | M | M | |
| O1600000 | Cedar Creek at SR 1116 (Cedar Creek Rd) near Franklin | ups Franklin County WWTP | 36.0662 | -78.4313 | Franklin | RRO | 03020101 | C NSW | 28-29-(2) | M + 25M | M | M | | M | |
| O1920000 | Cedar Creek at SR 1109 (Timberlake Rd) near Louisville | dns Franklin County WWTP | 36.0602 | -78.3537 | Franklin | RRO | 03020101 | C NSW | 28-29-(2) | M + 25M | M | M | | M | |
| O2000000 | Tar River at SR 1001 near Bunn | dns Louisville WWTP, DWQ ambient station | 36.0023 | -78.2433 | Franklin | RRO | 03020101 | WS-V NSW | 28-(24.7) | M + 25M | M | M | | M | |
| O2015000 | Crooked Creek at SR 1719 near Bunn | ups Bunn WWTP | 35.9450 | -78.2605 | Franklin | RRO | 03020101 | C NSW | 28-30 | M + 25M | M | M | | M | |
| O2020000 | Crooked Creek at NC 98 near Bunn | dns Bunn WWTP | 35.9386 | -78.2089 | Franklin | RRO | 03020101 | C NSW | 28-30 | M + 25M | M | M | | M | |
| O2101000 | Tar River at SR 1145 (Old Spring Hope Rd) near Spring Hope | ups Spring Hope WWTP | 35.9051 | -78.1132 | Nash | RRO | 03020101 | WS-V NSW | 28-(24.7) | M + 25M | M | M | | M | |
| O2102000 | Tar River at NC 581 near Stanhope | dns Spring Hope WWTP | 35.8821 | -78.0893 | Nash | RRO | 03020101 | WS-V NSW | 28-(24.7) | M + 25M | M | M | | M | |
| O2140000 | Tar River at SR 1981 (Tar River Church Rd) near Cliftonville | ups Tar River Reservoir. | 35.8466 | -77.9639 | Nash | RRO | 03020101 | WS-IV NSW CA | 28-(35.5) | M + 25M | M | M | | M | |
| O2320000 | Sapony Creek at SR 1704 (Batchelor Dr) near Nashville | ups Tar River Reservoir | 35.9320 | -77.9348 | Nash | RRO | 03020101 | WS-IV NSW | 28-55-(5.5) | M + 25M | | M | | M | |
| O2360000 | Tar River at US 301 Bypass at Rocky Mount | btwn reservoir and Rocky Mount, USGS gage | 35.9257 | -77.8307 | Nash | RRO | 03020101 | WS-IV NSW | 28-(64.5) | M + 25M | M | M | M | M | |
| O3140000 | Stony Creek at Winstead Ave near Little Easonburg | USGS gage | 35.9688 | -77.8497 | Nash | RRO | 03020101 | C NSW | 28-68 | M + 25M | M | M | M | M | |
| O3189000 | Tar River at SR 1250 (Springfield Rd) at Rocky Mount | ups Rocky Mount WWTP | 35.9779 | -77.7577 | Edgecombe | RRO | 03020101 | C NSW | 28-(69) | M + 25M | M | M | M | M | |
| O3600000 | Tar River at SR 1252 near Hartsease | dns Rocky Mount WWTP, DWQ ambient station | 35.9409 | -77.6551 | Edgecombe | RRO | 03020101 | WS-IV NSW | 28-(74) | M + 25M | M | M | M | M | |
| O4100000 | Tar River at NC 33 near Tarboro | Tar River dns of Swift Creek and ups of Fishing Creek. | 35.9284 | -77.5498 | Edgecombe | RRO | 03020101 | WS-IV NSW | 28-(74) | M + 25M | M | M | M | M | |
| O4300000 | Fishing Creek at SR 1001 (Dr King Blvd) near Warrenton | ups Warrenton WWTP | 36.3840 | -78.1814 | Warren | RRO | 03020102 | C NSW | 28-79-(1) | M + 25M | M | M | | M | |
| O4400500 | Fishing Creek at SR 1600 (Baltimore Rd) near Warrenton | dns Warrenton WWTP | 36.3574 | -78.1449 | Warren | RRO | 03020102 | C NSW | 28-79-(1) | M + 25M | M | M | | M | |
| O4480000 | Fishing Creek at NC 561 near Wood | Just dns of confluence with Shocco Creek | 36.2011 | -78.0040 | Nash | RRO | 03020102 | WS-V NSW | 28-79-(21) | M + 25M | M | M | M | M | |

A-1

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

| DWR Station Number | Location | Comments | Latitude | Longitude | County | Region | 8 Digit HUC | Stream Class | Stream Index | Field Parameters (1) | Nutrients (2) | Turbidity | TSS | Fecal Coliform | Metals (3) |
|--------------------|---|---|----------|-----------|-----------|--------|-------------|--------------|----------------------|----------------------|---------------|-----------|-----|----------------|------------|
| O4630000 | Little Fishing Creek at NC 481 near White Oak | ups of confluence with Porter Creek, USGS gage. | 36.1862 | -77.8760 | Halifax | RRO | 03020102 | C NSW | 28-79-25 | M + 2SM | M | M | M | M | |
| O4670000 | Fishing Creek at SR 1222 (Bellamy Mill Rd) near Enfield | ups Enfield WWTP, first bridge ups of US 301 | 36.1549 | -77.7404 | Halifax | RRO | 03020102 | WS-IV NSW | 28-79- (25.5) | M + 2SM | M | M | | M | |
| O4690000 | Fishing Creek at SR 1109 (Etheridge Farm Rd) near Enfield | dns Enfield WWTP, first bridge dns of US 301. | 36.1134 | -77.6270 | Halifax | RRO | 03020102 | C NSW | 28-79- (29) | M + 2SM | M | M | | M | |
| O4899000 | Fishing Creek at NC 97 near Lawrence | USGS Gage, nr confluence with Tar | 36.0083 | -77.5252 | Edgecombe | RRO | 03020102 | WS-IV NSW | 28-79- (30.5) | M + 2SM | M | M | M | M | |
| O4995000 | UT to Deep Creek at SR 1104 (Bynums Bridge Rd) near Scotland Neck | ups Scotland Neck WWTP | 36.1355 | -77.4852 | Halifax | RRO | 03020102 | C NSW | 28-79- 32- (0.5)ut18 | M + 2SM | M | M | | M | |
| O5100000 | Deep Creek at US 258 near Scotland Neck | dns Scotland Neck WWTP | 36.1096 | -77.4383 | Halifax | RRO | 03020102 | C NSW | 28-79- 32- (0.5) | M + 2SM | M | M | | M | |
| O5250000 | Tar River at NC 33/US 64 Bus at Tarboro | ups Tarboro WWTP, USGS gage, DWQ ambient station, | 35.8935 | -77.5323 | Edgecombe | RRO | 03020103 | C NSW | 28- (80) | M + 2SM | M | M | M | M | |
| O5600000 | Town Creek at NC 111 (SR 1202) near Wiggins Crossroads | ups Pinetops WWTP | 35.8224 | -77.6339 | Edgecombe | RRO | 03020103 | C NSW | 28-83 | M + 2SM | | M | | M | |
| O5990000 | Town Creek at US 258 near Cobbs Crossroads | dns Pinetops WWTP, USGS gage | 35.7983 | -77.5914 | Edgecombe | RRO | 03020103 | C NSW | 28-83 | M + 2SM | | M | | M | |
| O6000000 | Tar River at NC 42 at Old Sparta | dns Tarboro WWTP, just dns of Town Creek, | 35.7903 | -77.5507 | Edgecombe | RRO | 03020103 | C NSW | 28- (80) | M + 2SM | M | | M | M | |
| O6201000 | Ballhack Canal at SR 1526 near Conetoe | Agricultural land use site, Cropland, no point source dischargers | 35.8645 | -77.4438 | Edgecombe | RRO | 03020103 | C NSW | 28-87- 1.2 | M + 2SM | M | M | M | M | |
| O6240000 | Tar River at US 264 Byp near Greenville | ups Greenville WWTP, USGS gage | 35.6460 | -77.4221 | Pitt | WARO | 03020103 | WS-IV NSW | 28- (84) | M + 2SM | M | M | M | M | |
| O6700000 | Grindle Creek at SR 1427 near Bethel | Agricultural land use site, Cropland, no point source dischargers | 35.7632 | -77.3781 | Pitt | WARO | 03020103 | C NSW | 28-100 | M + 2SM | M | M | M | M | |
| O6798000 | Grindle Creek at US 264 at Pactolus | Last bridge crossing ups of Tar | 35.6243 | -77.2212 | Pitt | WARO | 03020103 | C NSW | 28-100 | M + 2SM | M | M | M | M | |
| O7000000 | Flat Swamp at SR 1159 (Third St) at Robersonville | ups Robersonville WWTP | 35.8160 | -77.2642 | Martin | WARO | 03020103 | C Sw NSW | 28-103-2 | M + 2SM | M | M | | M | |
| O7100000 | Flat Swamp at SR 1157 near Robersonville | dns Robersonville WWTP | 35.7818 | -77.2568 | Martin | WARO | 03020103 | C Sw NSW | 28-103-2 | M + 2SM | M | M | | M | |

(1) Field measurements include: Temperature, Dissolved Oxygen, pH, and Conductivity. M=Monthly, M + 2SM=Monthly with twice 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 includes: Arsenic (total), Cadmium (dissolved), Chromium (dissolved), Copper (dissolved), Iron (total), Lead (dissolved), Nickel (dissolved) and Zinc (dissolved)

APPENDIX B

SAMPLE COLLECTION AND ANALYSIS

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Sample Collection Procedures

Sample collection shall be performed by trained personnel employed with NC DWR certified laboratories in accordance with the DWR NPDES Discharge Monitoring Coalition Program Field Monitoring Guidance Document (December 2012) 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 (40CFR136) 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. 40CFR136 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 (referred to as Practical Quantification Limits (PQLs)) used by the DWR Laboratory. For guidance purposes Table B-1 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 B-1
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 | | 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 $\mu\text{mho/cm}$ 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 $\mu\text{g/L}$ | Report Chlorophyll <i>a</i> values free from pheophytin and other chlorophyll pigments. Analysis by HPLC is not approved by DWR. |
| 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 | |

RLs current as of 8/25/2016

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 B-2. Review the data remark codes at least annually and utilize the most current set, as codes are subject to change. A copy of this table can be found at <http://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/microbiology-inorganics-branch/methods-pqls-qa>.

Table B-2
Data Remark Codes for Use with Coalition Data

| Data Remark Code | Code 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>A1. 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 are 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 coliform 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; 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 a total of the counts from all countable 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 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> |

| Data Remark Code | Code Definition |
|------------------|--|
| | <p>B6. Estimated Value. Blank contamination evident.</p> <p>B7. Many non-coliform colonies or interfering non-coliform growths are present. In this competitive situation, the reported coliform value may under-represent actual coliform density.</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> |

| Data Remark Code | Code Definition |
|------------------|--|
| | <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 parameters.</p> <p><u>Note:</u> 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 | <p>Presumptive evidence of presence of material; estimated value. This code is to be used if:</p> <p>N1. The component has been tentatively identified based on mass spectral library search;</p> <p>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).</p> <p>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 <u>routinely</u> used for most analyses.</i></p> <p>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></p> <p>N5. The component has been tentatively identified based on a retention time standard.</p> |
| P | Elevated practical quantitation limit (PQL)* due to matrix interference and/or sample dilution. |
| Q | <p>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.</p> <p>Q1. Holding time exceeded prior to receipt by lab</p> <p>Q2. Holding time exceeded following receipt by lab</p> |
| 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*. |

| Data Remark Code | Code Definition |
|-------------------------------|--|
| V | <p>Indicates the analyte was detected in both the sample and the associated method blank. <u>Note:</u> The value in the blank shall not be subtracted from the associated samples.</p> <p>V1. The analyte was detected in both the sample and the method blank. V2. The analyte was detected in both the sample and the field blank.</p> |
| X | <p>Sample not analyzed for this constituent. This code is to be used if:</p> <p>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</p> |
| Y | Elevated PQL* due to insufficient sample size |
| Z | <p>The presence or absence of the analyte cannot be verified. The sample analysis/results are not reported due to:</p> <p>Z1. Inability to analyze the sample. Z2. Questions concerning data reliability.</p> |
| Supporting Definitions | |
| 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. |
| PQL | <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 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> |

APPENDIX C

DATA FORMAT AND REPORTING REQUIREMENTS

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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. Do not add, delete or hide rows or columns. 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 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 C-1. 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 TPBA will be required to submit an annual report by April 30th for each year the MOA is in effect. The annual report will 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 TPBA 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 number.
- A list of changes in members' names, ownerships, and discharge locations.
- 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 TPBA's website address.

**Table C-1
File Format for Coalition Data Reporting**

| Station | Date (m/d/yyyy) | Time (h:h:mm) | Depth (m) | Temp (°C) | Temp_rmk | DO (mg/L) | DORMk | pH (su) | pH_rmk | Conductivity (umhos/cm) | Conductivity_rmk | Fecal Coliform | Fecal Coliform | Enterococcus (cfu/100mL) | Enterococcus_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 |
|---------|-----------------|---------------|-----------|-----------|----------|-----------|-------|---------|--------|-------------------------|------------------|----------------|----------------|--------------------------|------------------|--------------------------|-----------------------|-----------------|---------------|----------------------|-----------------|--------------|-----------|--------------|-----------|------------------|---------------|
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| TP (mg/L) | TP_rmk | Total Arsenic, As (ug/L) | Total Arsenic, As_rmk | Cadmium, Cd (ug/L) | Cadmium, Cd_rmk | Chromium, Cr (ug/L) | Chromium, Cr_rmk | Copper, Cu (ug/L) | Copper, Cu_rmk | Total Iron, Fe (ug/L) | Total Iron, Fe_rmk | Lead, Pb (ug/L) | Lead, Pb_rmk | Total Manganese, Mn (ug/L) | Total Manganese, Mn_rmk | Nickel, Ni (ug/L) | Nickel, Ni_rmk | Total Nickel, Ni (ug/L) | Total Nickel, Ni_rmk | Zinc, Zn (ug/L) | Zinc, Zn_rmk | Hardness (ug/L) | Hardness_rmk | Comments |
|-----------|--------|--------------------------|-----------------------|--------------------|-----------------|---------------------|------------------|-------------------|----------------|-----------------------|--------------------|-----------------|--------------|----------------------------|-------------------------|-------------------|----------------|-------------------------|----------------------|-----------------|--------------|-----------------|--------------|----------|
| 665 | 665rmk | 1002 | 1002rmk | 1027 | 1027rmk | 1034 | 1034rmk | 1042 | 1042rmk | 1045 | 1045rmk | 1051 | 1051rmk | 1055 | 1055rmk | 1067 | 1067rmk | 1067 | 1067rmk | 1092 | 1092rmk | 900 | 900rmk | |
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