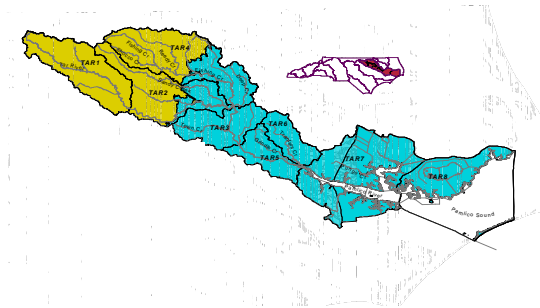


**Memorandum of Agreement  
Between  
The State of North Carolina's Division of Water Quality  
And  
The Tar Pamlico Basin Association (TPBA) Permittees**



**Effective:  
March 1, 2012 through February 28, 2017**

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## MEMORANDUM OF AGREEMENT

This Memorandum of Agreement (MOA) is made by and between the NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES'S DIVISION OF WATER QUALITY (DWQ), 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 DWQ will issue a letter to each TPBA PERMITTEE notifying the permittee that the instream monitoring requirements of its permit 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 DWQ, 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 DWQ 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 DWQ 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 DWQ using the format documented in Appendix C of this MOA preferably in Microsoft® Excel 2003, a subsequent version, or the equivalent. The TPBA shall submit the water quality data to the DWQ 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 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 of data or other reports to the DWQ, 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 DWQ in the required format, may result in the revocation of this MOA by the DWQ 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 results 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. Two copies, signed by the TPBA chairman, of these and any other reports required herein shall be submitted to the DWQ Coalition Coordinators 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 DWQ Coalition Coordinators 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 DWQ and the TPBA. The DWQ 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 DWQ and the TPBA. The amendment shall be signed by the TPBA chairman and by the DWQ. Such amendments may be entered into at any time.

The TPBA has historically monitored total metals at 8 sites as specified in the 2007 – 2012 MOA. However, routine ambient data collection for total recoverable metals has been suspended since April 3, 2007, via annual memorandums from the DWQ Director. For this reason, the TPBA has forgone metals monitoring and accumulated resources for future monitoring. No requirements for metals monitoring are included in this MOA, as the DWQ is currently in the process of reviewing metals water quality assessment techniques, evaluation criteria and relevant standards. However, the DWQ expects to conclude the review within the life cycle of this MOA. At such time, or when the DWQ Director mandates, the TPBA is expected to resume monitoring at a similar level of effort to that historically performed. Within 60 days of the release of relevant documentation, the TPBA will finalize an amendment to the MOA, which includes metals monitoring.

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

- 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 DWQ and the TPBA and shall require a written amendment to this MOA signed by the TPBA chairman, by the DWQ, and by an authorized representative of any such discharger who wishes to enter into the MOA. The DWQ will not unreasonably withhold consent to the addition of a discharger to the MOA. The DWQ 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, 2017 unless extended by the consent of both the DWQ and the TPBA. Upon sixty (60) days written notice, the DWQ 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 ninety (90) days written notice to the TPBA, and sixty (60) days written notice to 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 MOA or its membership in the TPBA is terminated for any reason, the TPBA may request that DWQ review the monitoring plan described in this MOA 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**

**TAR PAMLICO BASIN ASSOCIATION**

By: signature received 2/29/12

By: signature received 2/7/12

**Charles Wakild, P.E.**  
**Director**  
**Division of Water Quality**

**Larry Thomas**  
**Chairman**  
**Tar Pamlico Basin Association**

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**Table 1  
TPBA Permittees**

<b>NPDES Permit Number</b>	<b>Tar Pamlico Basin Association Permittees Ownership &amp; Facility</b>	<b>Authorized Representative and title</b>	<b>County</b>	<b>Region</b>	<b>Sub-basin</b>
NC0020231	Town of Louisburg Louisburg WWTP	Mr. Mark Warren Town Manager	Franklin	Raleigh	030301
NC0069311	Franklin County Franklin County Public Utilities	Mr. Bryce Mendenhall Public Utilities Director	Franklin	Raleigh	030301
NC0042269	Town of Bunn Bunn WWTP	Ms. Marsha W. Strawbridge Mayor	Franklin	Raleigh	030301
NC0025054	Town of Oxford Oxford WWTP	Mr. Mark Donham Town Manager	Granville	Raleigh	030301
NC0020061	Town of Spring Hope Spring Hope WWTP	Mr. John Holpe Town Manager	Nash	Raleigh	030302
NC0030317	City of Rocky Mount Tar River WWTP	Mr. Charles Penny City Manager	Edgecombe	Raleigh	030302
NC0072125	City of Rocky Mount Tar River WTP	Mr. Charles Penny City Manager	Nash	Raleigh	030302
NC0072133	City of Rocky Mount Sunset Ave. WTP	Mr. Charles Penny City Manager	Nash	Raleigh	030302
NC0020435	Town of Pinetops Pinetops WWTP	Mr. Greg Bethea Town Administrator	Edgecombe	Raleigh	030303
NC0020605	Town of Tarboro Tarboro WWTP	Mr. M Alan Thorton Town Manager	Edgecombe	Raleigh	030303
NC0023337	Town of Scotland Neck Scotland Neck WWTP	Ms. Nancy Jackson Town Manager	Halifax	Raleigh	030304
NC0025402	Town of Enfield Enfield WWTP	Ms. Barbara Simmons Mayor	Halifax	Raleigh	030304
NC0084034	Town of Enfield Enfield WTP	Ms. Barbara Simmons Mayor	Halifax	Raleigh	030304
NC0020834	Town of Warrenton Warrenton WWTP	Mr. Jeffery W. Parrott Town Administrator	Warren	Raleigh	030304
NC0023931	Greenville Utilities Commission Greenville WWTP	Mr. Ron Elks General Manager	Pitt	Washington	030305
NC0026042	Town of Robersonville Robersonville WWTP	Ms. Elizabeth Jenkins Town Manager	Martin	Washington	030306
NC0026492	Town of Belhaven Belhaven WWTP	Mr. Guinn Leverett Town Manager	Beaufort	Washington	030307
NC0020648	City of Washington Washington WWTP	Mr. Josh Kay City Manager	Beaufort	Washington	030307
NC0081191	City of Washington Washington WTP	Mr. Josh Kay City Manager	Beaufort	Washington	030307

**TPBA PERMITTEE SIGNATURES**

<b>NPDES Permit Number</b>	<b>Permittee</b>	<b>Signature</b>	<b>Date</b>
NC0020231	Town of Louisburg Louisburg WWTP	signature received 2/15/12 Mark Warren Town Manager	
NC0069311	Franklin County Franklin County Public Utilities	signature received 2/26/12 Bryce Mendenhall Public Utilities Director	
NC0042269	Town of Bunn Bunn WWTP	signature received 2/29/12 Marsha Strawbridge Mayor	
NC0025054	Town of Oxford Oxford WWTP	signature received 2/7/12 Mark Donham Town Manager	
NC0020061	Town of Spring Hope Spring Hope WWTP	signature received 2/24/12 John Holpe Town Manager	
NC0030317	City of Rocky Mount Tar River WWTP	signature received 2/9/12 Charles Penny City Manager	
NC0072125	City of Rocky Mount Tar River WTP	signature received 2/9/12 Charles Penny City Manager	
NC0072133	City of Rocky Mount Sunset Ave. WTP	signature received 2/9/12 Charles Penny City Manager	

**TPBA PERMITTEE SIGNATURES**

<b>NPDES Permit Number</b>	<b>Permittee</b>	<b>Signature</b>	<b>Date</b>
NC0020435	Town of Pinetops Pinetops WWTP	<u>signature received 1/24/12</u> Greg Bethea Town Administrator	
NC0020605	Town of Tarboro Tarboro WWTP	<u>signature received 2/7/12</u> M. Alan Thorton Town Manager	
NC0023337	Town of Scotland Neck Scotland Neck WWTP	<u>signature received 2/29/12</u> Nancy Jackson Town Manager	
NC0025402	Town of Enfield Enfield WWTP	<u>signature received 2/14/12</u> Barbara Simmons Mayor	
NC0084034	Town of Enfield Enfield WTP	<u>signature received 2/14/12</u> Barbara Simmons Mayor	
NC0020834	Town of Warrenton Warrenton WWTP	<u>signature received 1/25/12</u> JefferyParrott Town Administrator	
NC0023931	Greenville Utilities Commission Greenville WWTP	<u>signature received 2/10/12</u> Ron Elks General Manager	
NC0026042	Town of Robersonville Robersonville WWTP	<u>signature received 2/28/12</u> Elizabeth Jenkins Town Manager	



**TPBA PERMITTEE SIGNATURES**

<b>NPDES Permit Number</b>	<b>Permittee</b>	<b>Signature</b>	<b>Date</b>
NC0026492	Town of Belhaven Belhaven WWTP	<u>signature received 2/7/12</u> Guinn Leverett Town Manager	
NC0020648	City of Washington Washington WWTP	<u>signature received 2/29/12</u> JoshKay City Manager	
NC0081191	City of Washington Washington WTP	<u>signature received 2/29/12</u> JoshKay City Manager	



**APPENDIX A**

**TPBA MONITORING PROGRAM**

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**Table A-1  
TPBA Sampling Stations, Parameters & Frequencies**

Station Number	Location	Station Description	Latitude	Longitude	County	Region	8 Digit HUC	Stream Index	Stream Class	<sup>1</sup> Field Parameters	Fecal Coliform	Turbidity	TSS	<sup>2</sup> Nutrients	<sup>3</sup> Metals
O0057000	TAR RIV AT US 158 NR BEREA	Tar headwaters, DWQ benthic and fish station, rare and threatened species area. Excellent fish community	36.33379	-78.76825	GRANVILLE	RRO	03020101	28-(1)	WS-IV NSW	M+2SM	M	M	M	M	
O0320000	FISHING CRK AT SR 1607 KNOTTS GROVE RD NR OXFORD	ups of Oxford WWTP	36.27703	-78.59133	GRANVILLE	RRO	03020101	28-11	C NSW	M+2SM	M	M		M	
O1025000	TAR RIV AT SR 1003 SIMS BRIDGE RD NR LOUISBURG	Ups Louisburg WWTP, USGS gage, Benthic Stn (GF-G)	36.14222	-78.37218	FRANKLIN	RRO	03020101	28-(15.5)	WS-IV NSW	M+2SM	M	M	M	M	
O1030000	TABBS CRK AT SR 1100 EGYPT MOUNTAIN RD NR KITTRELL	Tabbs Creek near mouth, Loading information for Nutrient Transport Model, Fish Stn (Good, but declining), 5 rare mollusks	36.18229	-78.45562	VANCE	RRO	03020101	28-17-(0.5)	C NSW	M+2SM	M	M	M	M	
O1600000	CEDAR CRK AT SR 1116 CEDAR CREEK RD NR FRANKLINTON	ups Franklin County WWTP, federally listed Dwarf Wedgemussel	36.06615	-78.43130	FRANKLIN	RRO	03020101	28-29-(2)	C NSW	M+2SM	M	M		M	
O1920000	CEDAR CRK AT SR 1109 TIMBERLAKE RD NR LOUISBURG	dns Franklin County WWTP, federally listed Dwarf Wedgemussel	36.06024	-78.35373	FRANKLIN	RRO	03020101	28-29-(2)	C NSW	M+2SM	M	M		M	
O2000000	TAR RIV AT SR 1001 NR BUNN	dns Louisburg WWTP, DWQ ambient station	36.00228	-78.24334	FRANKLIN	RRO	03020101	28-(24.7)	WS-V NSW	M+2SM	M	M		M	
O2015000	CROOKED CRK AT SR 1719 BUNN ELEMENTARY SCHOOL RD NR BUNN	ups Bunn WWTP, 5 rare mussels	35.94504	-78.26054	FRANKLIN	RRO	03020101	28-30	C NSW	M+2SM	M	M		M	
O2020000	CROOKED CRK AT NC 98 NR BUNN	dns Bunn WWTP, just ups Tar River. Benthic and Fish Stn (GF), 5 rare mussels in watershed	35.93863	-78.20892	FRANKLIN	RRO	03020101	28-30	C NSW	M+2SM	M	M		M	
O2101000	TAR RIV AT SR 1145 OLD SPRING HOPE RD NR SPRING HOPE	ups Spring Hope WWTP	35.90506	-78.11319	NASH	RRO	03020101	28-(24.7)	WS-V NSW	M+2SM	M	M		M	
O2102000	TAR RIV AT NC 581 NR STANHOPE	dns Spring Hope WWTP	35.88205	-78.08932	NASH	RRO	03020101	28-(24.7)	WS-V NSW	M+2SM	M	M		M	
O2140000	TAR RIV AT SR 1981 TAR RIVER CHURCH RD NR CLIFTONVILLE	ups Tar River Reservoir.	35.84663	-77.96394	NASH	RRO	03020101	28-(35.5)	WS-IV NSW CA	M+2SM	M	M		M	
O2320000	SAPONY CRK AT SR 1704 BATCHELOR DR NR NASHVILLE	ups Tar River Reservoir	35.93201	-77.93478	NASH	RRO	03020101	28-55-(5.5)	WS-IV NSW	M+2SM	M	M			
O2360000	TAR RIV AT US 301 BYP AT ROCKY MOUNT	between reservoir and Rocky Mount, USGS gage.	35.92549	-77.83098	NASH	RRO	03020101	28-(64.5)	WS-IV NSW	M+2SM	M	M	M	M	
O3140000	STONY CRK AT WINSTEAD AVE NR LITTLE EASONBURG	For Nutrient Transport Model, 5 rare mussels, biological impairment 303d, USGS gage	35.96880	-77.84967	NASH	RRO	03020101	28-68	C NSW	M+2SM	M	M	M	M	
O3189000	TAR RIV AT SR 1250 SPRINGFIELD RD AT ROCKY MOUNT	ups Rocky Mount WWTP	35.97789	-77.75769	EDGEcombe	RRO	03020101	28-(69)	C NSW	M+2SM	M	M	M	M	
O3600000	TAR RIV AT SR 1252 NR HARTSEASE	dns Rocky Mount WWTP, DWQ ambient station	35.94090	-77.65511	EDGEcombe	RRO	03020101	28-(74)	WS-IV NSW	M+2SM	M	M	M	M	
O4100000	TAR RIV AT NC 33 NR TARBORO	Tar River dns of Swift Creek and ups of Fishing Creek.	35.92844	-77.54984	EDGEcombe	RRO	03020101	28-(74)	WS-IV NSW	M+2SM	M	M		M	
O4300000	FISHING CRK AT SR 1001 DR KING BLVD NR WARRENTON	ups Warrenton WWTP	36.38402	-78.18135	WARREN	RRO	03020102	28-79-(1)	C NSW	M+2SM	M	M		M	
O4400500	FISHING CRK AT SR 1600 BALTIMORE RD NR WARRENTON	dns Warrenton WWTP, Fish Stn (Exc)	36.35735	-78.14494	WARREN	RRO	03020102	28-19-(1)	C NSW	M+2SM	M	M		M	
O4480000	FISHING CRK AT NC 561 NR WOOD	Just dns of confluence with Shocco Creek, 8 rare mussels and 4 rare fish in watershed.	36.20105	-78.00401	NASH	RRO	03020102	28-79-(21)	WS-V NSW	M+2SM	M	M	M	M	
O4630000	LITTLE FISHING CRK AT NC 481 NR WHITE OAK	ups of confluence with Porter Creek, large numbers of rare aquatic animals in watershed, USGS gage. Nutrient transp. model stn.	36.18620	-77.87601	HALIFAX	RRO	03020102	28-79-25	C NSW	M+2SM	M	M	M	M	

Station Number	Location	Station Description	Latitude	Longitude	County	Region	8 Digit HUC	Stream Index	Stream Class	<sup>1</sup> Field Parameters	Fecal Coliform	Turbidity	TSS	<sup>2</sup> Nutrients	<sup>3</sup> Metals
O4670000	FISHING CRK AT SR 1222 BELLAMY MILL RD NR ENFIELD	ups Enfield WWTP, 8 rare mussels and 4 rare fish in watershed, first bridge ups of US 301, just dns of old mill impoundment	36.15490	-77.74036	HALIFAX	RRO	03020102	28-79-(25.5)	WS-IV NSW	M+2SM	M	M		M	
O4690000	FISHING CRK AT SR 1109 ETHERIDGE FARM RD NR ENFIELD	dns Enfield WWTP, 8 rare mussels and 4 rare fish in watershed, first bridge dns of US 301.	36.11342	-77.62704	HALIFAX	RRO	03020102	28-79-(29)	C NSW	M+2SM	M	M		M	
O4899000	FISHING CRK AT NC 97 NR LAWRENCE	USGS Gage, nr confluence with Tar, 8 rare mussels and 4 rare fish in watershed. Nutrient transp. model station.	36.00828	-77.52518	EDGECOMBE	RRO	03020102	28-79-(30.5)	WS-IV NSW	M+2SM	M	M	M	M	
O4995000	DEEP CRK AT SR 1104 BYNUMS BRIDGE RD NR SCOTLAND NECK	ups Scotland Neck WWTP	36.13551	-77.48517	HALIFAX	RRO	03020102	28-79-32-(0.5)	C NSW	M+2SM	M	M		M	
O5100000	DEEP CRK AT US 258 NR SCOTLAND NECK	dns Scotland Neck WWTP	36.10964	-77.43827	HALIFAX	RRO	03020102	28-79-32-(0.5)	C NSW	M+2SM	M	M		M	
O5250000	TAR RIV AT NC 33 US 64 BUS AT TARBORO	ups Tarboro WWTP, USGS gage, DWQ ambient station, Benthic Stn (Good). Modelers want twice monthly sampling here. Nutrient transport model station.	35.89352	-77.53233	EDGECOMBE	RRO	03020103	28-(80)	C NSW	M+2SM	M	M	M	M	
O5600000	TOWN CRK AT NC 111 SR 1202 NR WIGGINS CROSSROADS	ups Pinetops WWTP	35.82238	-77.63390	EDGECOMBE	RRO	03020103	28-83	C NSW	M+2SM	M	M			
O5990000	TOWN CRK AT US 258 NR COBBS CROSSRAODS	dns Pinetops WWTP, USGS gage	35.79828	-77.59144	EDGECOMBE	RRO	03020103	28-83	C NSW	M+2SM	M	M			
O6000000	TAR RIV AT NC 42 AT OLD SPARTA	dns Tarboro WWTP, just dns of Town Creek, Benthic Stn (Exc).	35.79030	-77.55067	EDGECOMBE	RRO	03020103	28-(80)	C NSW	M+2SM	M	M	M	M	
O6201000	BALLAHACK CANAL AT SR 1526 NR CONETOE	Agricultural land use site, Cropland, no point source dischargers	35.86447	-77.44383	EDGECOMBE	RRO	03020103	28-87-1.2	C NSW	M+2SM	M	M	M	M	
O6240000	TAR RIV AT US 264 BYP NR GREENVILLE	ups Greenville WWTP, USGS gage.	35.64598	-77.42212	PITT	WARO	03020103	28-(84)	WS-IV NSW	M+2SM	M	M	M	M	
O6700000	GRINDLE CRK AT SR 1427 NR BETHEL	Agricultural land use site, Cropland, no point source dischargers	35.76324	-77.37805	PITT	WARO	03020103	28-100	C NSW	M+2SM	M	M	M	M	
O6798000	GRINDLE CRK AT US 264 AT PACTOLUS	Last bridge crossing ups of Tar, Benthic Stn (D-F), Fish Stn, Modeler request	35.62426	-77.22118	PITT	WARO	03020103	28-100	C NSW	M+2SM	M	M	M	M	
O7000000	FLAT SWAMP AT SR 1159 THIRD ST AT ROBERSONVILLE	ups Robersonville WWTP	35.81602	-77.26421	MARTIN	WARO	03020103	28-103-2	C Sw NSW	M+2SM	M	M		M	
O7100000	FLAT SWAMP AT SR 1157 NR ROBERSONVILLE	dns Robersonville WWTP	35.78183	-77.25683	MARTIN	WARO	03020103	28-103-2	C Sw NSW	M+2SM	M	M		M	

<sup>1</sup> Field Parameters include: Dissolved Oxygen (DO), pH, Temperature and Conductivity

<sup>2</sup> Nutrients include: Ammonia (NH<sub>3</sub>) as N, Nitrite/Nitrate (NO<sub>2</sub>/NO<sub>3</sub>) as N, Total Kjeldahl Nitrogen (TKN) as N, and Total Phosphorus (TP) as P

<sup>3</sup> No requirements for metals monitoring are included in this MOA, as the DWQ is currently in the process of reviewing metals water quality assessment techniques, evaluation criteria and relevant standards. However, the DWQ expects to conclude the review within the life cycle of this MOA. At such time, or when the DWQ Director mandates, the TPBA is expected to resume monitoring at a level of effort similar to that in the 2007-2012 MOA. Within 60 days of the release of relevant documentation, the TPBA will finalize an amendment to the MOA, which includes metals monitoring.

M = Sampling once a month

M + 2SM = Monthly Sampling January, February, March, April, October, November, and December and Twice Monthly Sampling May, June, July, August, and September. At least a 10 day interval should exist between Twice Monthly sampling events.

**APPENDIX B**

**SAMPLE COLLECTION AND ANALYSIS**

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### **Sample Collection Procedures**

Sample collection shall be performed by trained personnel employed by NC DWQ certified laboratories in accordance with the DWQ NPDES Monitoring Coalition Program Field Monitoring Guidance Document (May 2008) and subsequent documents. The Field Monitoring Guidance Document can be found on the web at: <http://portal.ncdenr.org/web/wq/ess/eco/coalition>. Alternate collection procedures require the approval of the DWQ coalition coordinators prior to use.

### **Laboratory Analysis**

All laboratory analyses shall be performed at a DWQ 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 DWQ Laboratory Certification Branch (<http://portal.ncdenr.org/web/wq/lab/cert/nonfield/methods>) or the Director of DWQ. 40CFR136 can be accessed on the web at <http://portal.ncdenr.org/web/wq/lab/cert/nonfield/rules>.

Reporting levels will be at least as stringent as the 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**

<b>Parameters</b>	<b>Target Reporting Level</b>	<b>Comments</b>
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 SU.
Specific Conductivity		Report results to the nearest whole $\mu$ mho/cm at 25 °C.
Turbidity	1.0 NTU	
TSS	2.5 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 $\mu$ g/L	Report Chlorophyll <i>a</i> values free from pheophytin and other chlorophyll pigments. Analysis by HPLC is not approved by DWQ.
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	
Al*		
As*		
Cu*		
Cd*		
Cr*		
Fe*		
Pb*		
Hg*		
Ni*		
Zn*		

\*No requirements for metals monitoring are included in this MOA, as the DWQ is currently in the process of reviewing metals water quality assessment techniques, evaluation criteria and relevant standards. However, the DWQ expects to conclude the review within the life cycle of this MOA. At such time, or when the DWQ Director mandates, the TPBA is expected to resume monitoring at a level of effort similar to that in the 2007 – 2012 MOA. Within 60 days of the release of relevant documentation, the TPBA will finalize an amendment to the MOA, which includes metals monitoring.

## 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 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://portal.ncdenr.org/web/wq/lab/qualityassurance>.

**Table B-2**  
**Data Qualification Codes for Use With Coalition Data**

Data Remark Code	Code Definition
<b>A</b>	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>B</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 style="text-align: center;"><i>Fecal coliform or Enterococcus bacteria: 20-60 colonies</i>                      <i>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 a total of the counts from all countable 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 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 colonies or interfering non-coliform growths are present. In this competitive situation, the reported coliform value may under-represent actual coliform 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>
<b>BB</b>	<p>This code applies to most probable number (MPN) microbiological tests.</p> <ol style="list-style-type: none"> <li>1. No wells or tubes gave a positive reaction. Value based upon the appropriate MPN Index and reported as a less than "&lt;" value.</li> <li>2. All wells or tubes gave positive reactions. Value based upon the MPN Index and reported as a greater than "&gt;" value.</li> </ol> <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>

Data Remark Code	Code Definition
C	Total residual chlorine was present in sample upon receipt in the laboratory; value is estimated. Generally applies to cyanide, phenol, NH <sub>3</sub> , 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 &gt;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 &gt;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>Note: A "J" value shall not be used if another code applies (ex. N, V, M).</p>

Data Remark Code	Code Definition
<b>M</b>	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.
<b>N</b>	<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. This code is not routinely used for most analyses.</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. This code is used when an MDL has not been established for the analyte in question.</p> <p>N5. The component has been tentatively identified based on a retention time standard.</p>
<b>P</b>	Elevated practical quantitation limit (PQL)* due to matrix interference and/or sample dilution.
<b>Q</b>	<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>
<b>S</b>	Not enough sample provided to prepare and/or analyze a method-required matrix spike (MS) and/or duplicate (MSD).
<b>U</b>	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*.
<b>V</b>	<p>Indicates the analyte was detected in both the sample and the associated method blank.</p> <p>Note: The value in the blank shall not be subtracted from the associated samples.</p>
<b>X</b>	<p>Sample not analyzed for this constituent. This code is to be used if:</p> <p>X1. Sample not screened for this compound.</p> <p>X2. Sampled, but analysis lost or not performed-field error</p> <p>X3. Sampled, but analysis lost or not performed-lab error</p>
<b>Y</b>	Elevated PQL* due to insufficient sample size
<b>Z</b>	<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.</p> <p>Z2. Questions concerning data reliability.</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 December 7, 2011



## **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. 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 TPBA is required to submit an annual report by April 30<sup>th</sup> 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 TPBA 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 TPBA.
- 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				

**Table C-1 Cont'd  
File Format For Coalition Data Reporting**

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
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	
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	