NC Division of Water Quality
Planning Section – Modeling & TMDL Unit

TMDL Monitoring Plan for High Rock Lake
Yadkin-Pee Dee River Basin

This document outlines the monitoring plan for High Rock Lake for the purpose of TMDL development. The data to be collected in this study and the subsequent modeling analysis will allow the DWQ to develop a TMDL for several impaired assessment units in the High Rock Lake watershed. Please let me know immediately if some aspect of the study will be difficult or impossible to obtain.

There are several partners involved in this data collection effort. There are also several different types of monitoring that will be performed over the course of this study. Communication will be vital to completing this monitoring project successfully.

Data Management

Data management is an integral part of this study due to the number of partners and amount of data that will be collected. Data will be stored in a central database that will be maintained by LimnoTech. Data should be sent to WHO? HOW OFTEN?

Lake Monitoring

This TMDL study should begin April 2008 and continue through March 2010. A summary of the scope of the monitoring plan can be found in Table 1. The monitoring schedule is provided in Table 2 and includes monitoring by both DWQ and ALCOA Power Generation, Inc. (APGI). During the summer months of May through October, APGI should sample once per month, for a total of approximately 12 sampling events. APGI will need to coordinate with DWQ on their sampling schedule to ensure samples are distributed over each of the summer months.

Spatial Coverage:
Sample the following ten monitoring stations: HRL051, YAD152A, YAD152C, YAD169B, YAD169F, HRL052, YAD169A, YAD169E, YAD152, and YAD1561A. The location of each station is shown in Figure 1. Total number of locations: 10

Table 1. Summary of lake samples for TMDL study period covering April 2008 – March 2010.

Media	Type of analyses	No. of sites	No. of DWQ sampling events over period per site	No. of APGI sampling events over period per site[1]
Surface water	Photic zone chemical, sediment, and biological parameters	10	33	12
	Physicals	10	33	12
	Cross sections	10	1	0
	Algae	4	24	0
	Continuous Temperature	3	n/a	n/a
	Particle Size Distribution	2	8	0
	Photosynthetically Active Radiation	4	24	0
	Reservoir elevation/stage and discharge		0	HOURLY
Below photic zone[3]	Nutrients	3	14	0
Sediment	Benthic nutrient flux (TN, TP and TOC)[3]	3	0	0

1. APGI will sample once per month over the summer months (May through October).
2. 1-meter up from lake bottom
3. Benthic nutrient flux test to be done by EPA Science and Ecosystem Support Division (SESD).

Table 2. Routine lake monitoring schedule, shown as number of sampling events per month.

Month	2008		2009		2010	
	DWQ	APGI	DWQ	APGI	DWQ	APGI
January	0	0	1	0	2	0
February	0	0	1	0	1	0
March	0	0	2	0	2	0
April	1	0	1	0	0	0
May	2	1	1	1	0	0
June	1	1	2	1	0	0
July	2	1	1	1	0	0
August	1	1	1	1	0	0
September	2	1	2	1	0	0
October	1	1	1	1	0	0
November	2	0	1	0	0	0
December	1	0	1	0	0	0
Total	13	6	15	6	5	0

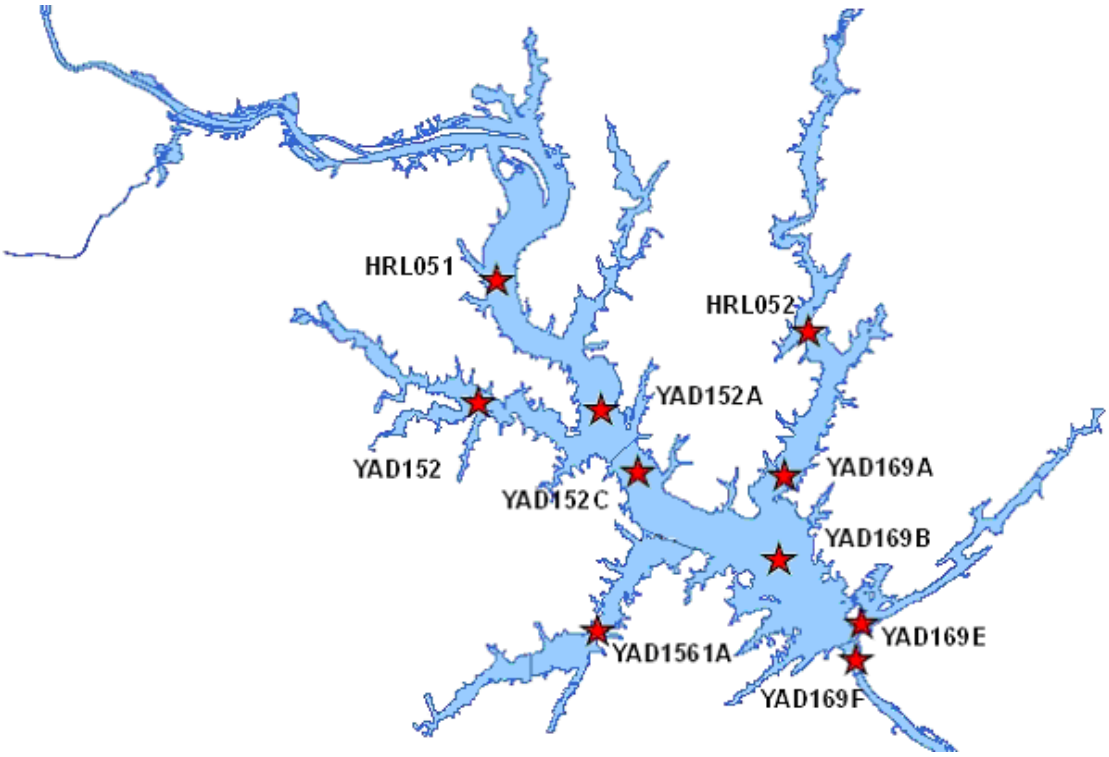

Figure 1. Locations of in-lake stations.

Routine Monitoring:

The following data should be collected by DWQ Intensive Survey (IS) and APGI as per the schedule in Table 2. The following parameters should be collected at each station:

- Water Column Physical Parameters: depth profiles (0.15 meters below surface and then at 1-meter below surface, 2-meters below surface, and so on down to the bottom) of dissolved oxygen, water temperature, pH, and conductivity. Secchi depth should also be included as a physical parameter.
- Photic Zone (i.e. twice the secchi depth) Chemical and Sediment Parameters: total organic carbon (TOC), hardness, total soluble silica, BOD5, ammonia, Total Kjeldahl Nitrogen (TKN), soluble TKN, nitrite & nitrate, total phosphorus, soluble total phosphorus, orthophosphorus, total solids, total volatile solids, total suspended solids, volatile suspended solids, total dissolved solids, and turbidity.
- Photic Zone (i.e. twice the secchi depth) Biological Parameters: chlorophyll *a*.

Nutrient Sampling Below Photic Zone:

DWQ IS should collect grab samples 1-meter up from the lake bottom once per month during the months of May-November at three stations YAD169B, YAD169F, and YAD152C for the following parameters: ammonia, TKN, soluble TKN, nitrite & nitrate, total phosphorus, soluble total phosphorus, orthophosphorus.

Lab analysis:

YRBA's contracted lab (Environment 1) will be responsible for analysis of the above chemical and sediment parameters. YRBA will need to make arrangements to retrieve samples from DWQ IS on the day of collection. YRBA will be responsible for delivering the samples to YRBA's contracted lab to perform the analysis. See Table 7 towards the end of this memo for a summary of which agency is scheduled to perform the analysis for each part of this study.

Phytoplankton Data:

DWQ IS should assess phytoplankton assemblages from photic zone samples at four sites monthly for species characterization (three general categories: blue-greens, greens, and diatoms) and biovolume. The four sites selected for assessment are: YAD152C, YAD169B, HRL052 and YAD1561A

Note: DWQ will perform the phytoplankton analysis. The team collecting samples will need to keep a sample for DWQ to analyze when turning over the collected samples to YRBA.

Cross Sections:

Measure the bathymetry at all 10 stations (HRL051, YAD152A, YAD152C, YAD169B, YAD169F, HRL052, YAD169A, YAD169E, YAD152, AND YAD1561A) one time. For station HRL051 only, measure cross section once at beginning of study and once at the end to determine changes in bathymetry due to sedimentation. Cross-sectional data should be taken as close to normal pool elevation as possible. Notes describing the lake bottom should be recorded at each of the cross sections (e.g. rocky, sandy, muddy, tree stumps).

Continuous Temperature Data:

Using the temperature thermistors, continuous temperature should be measured at three stations using a total of 11 thermistors. Thermistors should be set to record temperature every two hours and should be deployed for the entire study period. Table 3 shows a summary of requested thermistor sampling. DWQ should collect the thermistor data about every three months.

Table 3. Summary of Thermistor Sampling

Ambient Lake Station	Number of Thermistors at Station	Depths to Place Thermistors (meters)
YAD152C	4	1, 2, 4, 6
YAD169F	5	1, 2, 5, 9, and 12
YAD1561A	2	1, 3

Particle Size Distribution:

Particle size distribution (PSD) should be measured from samples collected by DWQ IS at two stations at a rate of once every three months, preferably soon after a flood event. PSD should be measured from composite samples collected in the photic zone (i.e. twice the secchi depth). The

two stations to be sampled are HRL051 and HRL052. These samples will need to be shipped to LimnoTech for analysis.

Photosynthetically Active Radiation (PAR):

PAR should be measured by DWQ in the photic zone monthly at the following four stations: YAD152C, YAD1561A, YAD169B, and HRL052. PAR should be measured just below the surface and then at 1-meter increments until the PAR is 1% of the surface measurement. The depth of 1% PAR should also be recorded.

Benthic Nutrient Flux:

Sediment oxygen demand and benthic nutrient flux (to include NH3, TKN, NO2+NO3, TP, and TOC) should be measured at three stations on one occasion. The three stations are: YAD1561A, YAD169F, and YAD169B. This study should also include nutrient characterization of the sediment.

DWQ has requested assistance from EPA's Science and Ecosystem Support Division (SESD) to perform the benthic flux tests and the sediment nutrient characterization analysis. DWQ will perform the laboratory analysis of the water samples collected during the nutrient flux tests. This test would be done in 2008 or 2009, depending on EPA's schedule.

Reservoir Elevation/Stage:

APGI should measure reservoir elevation/stage and discharge hourly. APGI should also report elevation of the discharge. This data should be provided to DWQ every six months.

Split Sampling:

DWQ IS should perform split sampling for chlorophyll *a* analysis at one station (on a rotating schedule) during each monitoring trip. This will be brought back to the DWQ lab for analysis for the purpose of split sampling. The DWQ lab should analyze for chlorophyll *a* only. The schedule for split sampling is provided in Table 4.

Table 4. DWQ split sampling schedule.

Date	Sampling Event	HRL 051	YAD 152A	YAD 152C	YAD 169B	YAD 169F	HRL 052	YAD 169A	YAD 169E	YAD 152	YAD 1561A
APR 2008	1	**X**									
MAY 2008	1		**X**								
MAY 2008	2			**X**							
JUN 2008	1				**X**						
JUL 2008	1					**X**					
JUL 2008	2						**X**				
AUG 2008	1							**X**			
SEP 2008	1								**X**		
SEP 2008	2									**X**	
OCT 2008	1										**X**
NOV 2008	1	**X**									
NOV 2008	2		**X**								

Date	Sampling Event	HRL 051	YAD 152A	YAD 152C	YAD 169B	YAD 169F	HRL 052	YAD 169A	YAD 169E	YAD 152	YAD 1561A
DEC 2008	1			X							
JAN 2009	1				X						
FEB 2009	1					X					
MAR 2009	1						X				
MAR 2009	2							X			
APR 2009	1								X		
MAY 2009	1									X	
JUN 2009	1										X
JUN 2009	2	X									
JUL 2009	1		X								
AUG 2009	1			X							
SEP 2009	1				X						
SEP 2009	2					X					
OCT 2009	1						X				
NOV 2009	1							X			
DEC 2009	1								X		
JAN 2010	1									X	
JAN 2010	2										X
FEB 2010	1	X									
MAR 2010	1		X								
MAR 2010	2			X							

Watershed Ambient Monitoring

Routine Monitoring:

This section includes routine monitoring plans for the watershed.

Duration. April 2008 thru March 2010.

Frequency. Table 5 lists the monitoring frequency for each station. Most stations should be monitored once per month. Four stations (Q0660000, Q2810000, Q5930000, and Q2710000) should be monitored at least twice per month (as close to every other week as possible). These stations are critical points in the watershed for model calibration and strategy development and require more frequent monitoring.

Spatial coverage. Table 5 lists the 12 stations (also shown in Figure 2) to be included in the routine monitoring. Note that this list does not include all ambient monitoring stations in the watershed. Appendix A in the Field Study and Modeling Plan Memorandum lists all stations in the watershed that should be maintained in future monitoring by both DWQ and YRBA (in other words the stations that should not be dropped from the ambient monitoring program).

Table 5. Stations for routine monitoring.

Station	Collecting Agency	Location	Frequency
Q0450000	YRBA	Yadkin River at Bus421 nr N. Wilkesboro	1x per month
Q0660000	DWQ	Roaring River at SR1990	2x per month
Q0810000	DWQ	Yadkin River at Bus 21 in Elkin	1x per month
Q2040000	DWQ	Yadkin River at SR1605 Enon	1x per month
Q2810000	DWQ/YRBA[1]	Yadkin River at US 64, Yadkin College	2x per month
Q3460000	DWQ	S. Yadkin River at SR1159 nr Mocksville	1x per month
Q4120000	DWQ	2nd Creek at US70 nr Barber	1x per month
Q4540000	YRBA	Grants Creek at SR1915 nr Salisbury	1x per month
Q5135000	YRBA	Swearing Creek at SR1272 nr Linwood	1x per month
Q5210000	YRBA	Town Creek at SR1915 near Spencer	1x per month
Q5930000	DWQ/YRBA[1]	Abbotts Creek at SR1243 Lexington	2x per month
Q2710000	DWQ	Muddy Creek at Frye Bridge Road SR1493	2x per month

1. These stations are to be sampled twice per month, once by DWQ and once by YRBA. DWQ and YRBA will need to coordinate on sampling schedules to ensure that sampling is evenly distributed.

Parameters. The following parameters should be included in the monitoring for all stations listed above:

- Physical Parameters: water temperature, dissolved oxygen, conductivity, and pH.
- Chemical and Sediment Parameters (grab samples): total organic carbon (TOC), ammonia, Total Kjeldahl Nitrogen (TKN), nitrite & nitrate, total phosphorus, orthophosphorus, total solids, total volatile solids, total suspended solids, volatile suspended solids, total dissolved solids, and turbidity.

In addition, BOD5 should also be measured at the following stations at the frequency listed above in Table 5: Q2810000, Q3460000, Q4120000, Q4540000, Q5210000, Q5930000, Q5135000.

This enhanced monitoring should not replace standard ambient monitoring. Lab analysis will be performed by DWQ for samples that DWQ collects and by YRBA's contracted lab for samples that YRBA collects.

Cross Sections:

Stream Cross Section data at the watershed monitoring locations may be available from USGS. DWQ will contact Jerad Bales with USGS to see if this information is available.

Atmospheric Deposition:

The National Atmospheric Deposition Program maintains a wet atmospheric deposition monitoring station in the High Rock watershed http://nadp.sws.uiuc.edu/sites/siteinfo.asp?net=NTN&id=NC34). LTI will be responsible for obtaining this data.

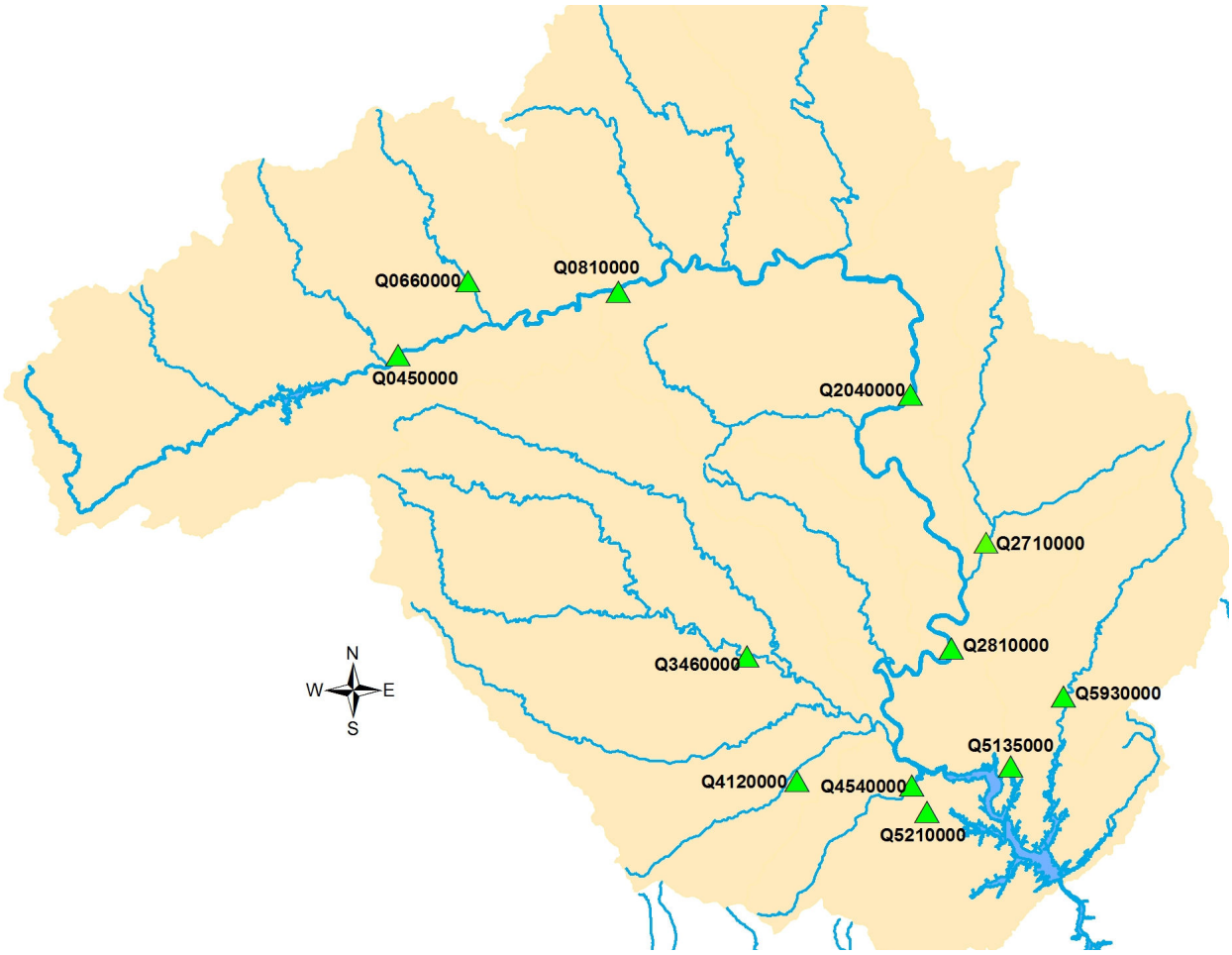

Figure 2. Watershed routine water quality monitoring stations.

Watershed Storm Event Monitoring (during flood events only)

This section outlines the monitoring plan for focused watershed monitoring. This monitoring will be conducted through YRBA's 319-grant funding. This monitoring will take place April 2008 through March 2010 and will focus on high flow events only and will include 10 high flow events each year over the two-year study period, for a total of 20 high flow events. Three of the sites (Q2810000, Q3460000, and Q5930000) will be monitored three times during each flood event (i.e. rising limb, peak flow, and falling limb of hydrograph).

Particle Size Distribution. At the following stations, once every 3 months: Q2810000, Q5930000, Q2710000, and Q0660000. These samples will be collected and shipped to LimnoTech for analysis.

Spatial coverage. Table 6 lists the 14 stations, parameters, and frequency for this focused monitoring.

Table 6. Sites and parameters to measure during flood events.

Site ID	Description of Site	Field Measurements [1]	Nutrient Monitoring [2]	BOD-5	TOC	Enhanced Sediment Monitoring [3]	Particle Size Distribution
Q2810000	Yadkin River at US 64, Yadkin College[4]	30/Yr	30/Yr	30/Yr	30/Yr	30/Yr	4/Yr
Q3460000	S. Yadkin River at SR1159 nr Mocksville[4]	30/Yr	30/Yr	30/Yr	30/Yr	30/Yr	NONE
Q4120000	2nd Creek at US70 nr Barber	10/Yr	10/Yr	10/Yr	10/Yr	10/Yr	NONE
Q4540000	Grants Creek at SR1915 nr Salisbury	10/Yr	10/Yr	10/Yr	10/Yr	10/Yr	NONE
Q5210000	Town Creek @SR1915 nr Spencer	10/Yr	10/Yr	10/Yr	10/Yr	10/Yr	NONE
Q5930000	Abbotts Ck at SR1243 Lexington[4]	30/Yr	30/Yr	30/Yr	30/Yr	30/Yr	4/Yr
Q5135000	Swearing Ck at SR1272 nr Linwood	10/Yr	10/Yr	10/Yr	10/Yr	10/Yr	NONE
Q0450000	Yadkin River at Bus421 nr N. Wilkesboro	10/Yr	10/Yr	NONE	10/Yr	10/Yr	NONE
Q0660000	Roaring River at SR1990	10/Yr	10/Yr	NONE	10/Yr	10/Yr	4/Yr
Q0810000	Yadkin River at Bus 21 in Elkin	10/Yr	10/Yr	NONE	10/Yr	10/Yr	NONE
Q2040000	Yadkin River at SR1605 Enon	10/Yr	10/Yr	NONE	10/Yr	10/Yr	NONE
Q2710000	Muddy Ck at Frye Bridge Road SR1493	10/Yr	10/Yr	NONE	10/Yr	10/Yr	4/Yr
Q5543000	Dutch 2nd Creek at SR 2370 nr Rockwell	10/Yr	10/Yr	NONE	10/Yr	10/Yr	NONE
Q6080000	Flat Swamp Crk at NC 47 nr Denton	10/Yr	10/Yr	NONE	10/Yr	10/Yr	NONE

1. Field Measurements include water temperature, dissolved oxygen, conductivity, and pH.

2. Nutrient Monitoring includes grab samples of ammonia, nitrite/nitrate, TKN, total phosphorus, and ortho-phosphate.
3. Enhanced sediment monitoring includes grab samples of total solids, total volatile solids, total suspended solids, volatile suspended solids, turbidity, and total dissolved solids.
4. Three samples per event will be collected at these locations.

Table 7. Summary of agencies performing analysis of parameters.

	Lab Performing Analysis			
	Environment 1	DWQ	LTI	EPA
In-Lake Sampling				
Chemical Parameters[1]	X			
Sediment Parameters[1]	X			
Split Sampling for CHL-a		X		
Phytoplankton		X[2]		
Particle Size Distribution			X	
Benthic Nutrient Flux		X		
Benthic Sediment Nutrient Characterization				X
Routine Watershed Sampling				
Samples collected by DWQ		X		
Samples collected by YRBA	X			
Storm-Event Watershed Sampling				
All samples will be collected by Environment 1	X			

1. Environment 1 will perform lab analysis for in-lake samples collected by both DWQ and APGI.
2. Phytoplankton analysis will be performed by Mark Vander Borgh, DWQ Ecosystems Unit

NPDES Discharger Increased Monitoring

This section outlines the TMDL study monitoring plan for dischargers in the High Rock Lake watershed. This monitoring schedule will be required only during the two-year study period (April 2008 through March 2010). Note that these monitoring requirements are in addition to existing permit requirements. Facilities will need to continue to monitor for all other parameters listed in their permit.

Table 8 lists the monitoring schedule by permit number for each parameter for major dischargers (over 1 MGD discharge) and Table 9 lists the monitoring schedule for each parameter for selected minor dischargers (less than 1 MGD discharge). The full list of minor dischargers is provided in the Field Study and Modeling Plan.

Table 8. Frequency of measurement for TMDL study parameters for major dischargers.

NPDES Permit No.	Subbasin	Facility name	Permitted flow (MGD)	Flow*	Ammonia nitrogen	Nitrate/ite-nitrogen	TKN	Total nitrogen	Total phosphorus	TSS	Turbidity
NC0005266	03-07-01	Louisiana Pacific ABT Co. Mill	1	continuous	monthly	monthly	monthly	monthly	monthly	5x/week	Weekly
NC0020761	03-07-01	Town of North Wilkesboro Thurman St WWTP	2	continuous	3x/week	monthly	monthly	monthly	monthly	3x/week	Weekly
NC0021717	03-07-01	Town of Wilkesboro Cub Creek WWTP	4.9	continuous	5x/week	monthly	monthly	monthly	monthly	5x/week	Weekly
NC0005312	03-07-02	Interface Fabric Elkin, Inc. WWTP	4	continuous	monthly	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0020338	03-07-02	Town of Yadkinville WWTP	2.5	continuous	3x/week	weekly	weekly	weekly	weekly	3x/week	Weekly
NC0020567	03-07-02	Town of Elkin WWTP	1.8	continuous	weekly	weekly	weekly	weekly	weekly	3x/week	Weekly
NC0021121	03-07-03	City of Mount Airy WWTP	7	continuous	3x/week	monthly	monthly	monthly	monthly	5x/week	Weekly
NC0026646	03-07-03	Town of Pilot Mountain WWTP	1.5	continuous	weekly	monthly	monthly	monthly	monthly	weekly	Weekly
NC0037834	03-07-04	City of Winston-Salem Archie Elledge WWTP	30	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0050342	03-07-04	City of Winston-Salem Muddy Creek WWTP	21	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0023884	03-07-04	City of Salisbury Grants Creek WWTP	7.5	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0004774	03-07-04	Duke Energy Corp. Buck Steam Station	No limit	monthly	n/a	monthly	monthly	monthly	monthly	monthly	monthly
NC0004944	03-07-06	Invista, S.A.R.L. Salisbury Plant	2.3	continuous	weekly	monthly	monthly	monthly	monthly	3x/week	Weekly
NC0005126	03-07-06	Tyson Foods Inc. Harmony Plant	0.5	continuous	weekly	weekly	weekly	weekly	weekly	weekly	Weekly
NC0024872	03-07-06	Davie County Cooleemee WWTP	1.5	continuous	weekly	monthly	monthly	monthly	monthly	3x/week	Weekly
NC0020591	03-07-06	City of Statesville Third Creek WWTP	4	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0031836	03-07-06	City of Statesville Fourth Creek WWTP	4	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0024112	03-07-07	City of Thomasville Hamby Creek WWTP	4	continuous	5x/week	monthly	monthly	monthly	weekly	5x/week	Weekly
NC0024228	03-07-07	City of High Point Westside WWTP	6.2	continuous	5x/week	weekly	weekly	weekly	weekly	5x/week	Weekly
NC0055786	03-07-07	City of Lexington WWTP	5.5	continuous	5x/week	monthly	monthly	monthly	weekly	5x/week	Weekly

* Report Daily Average Flow (cfs) to DWQ

NOTE: Shaded fields indicate those parameters that are not currently in the permit monitoring requirements and will need to be monitored at the specified frequency for the TMDL study.

Table 9. Frequency of measurement for TMDL study parameters for select minor dischargers.

NPDES Permit No.	Subbasin	Facility name	Permitted flow (MGD)	Flow* 50050	Ammonia nitrogen 00625	Nitrate/ite-nitrogen 00631	TKN	Total nitrogen 00600	Total phosphorus 00665	TSS 00530	Turbidity
NC0006254	03-07-01	Omni Supply-River Road Site	0.45	weekly	monthly	monthly	monthly	monthly	monthly	weekly	Weekly
NC0006548	03-07-02	Wayne Farms LLC	0.7	continuous	3x/week	weekly	weekly	weekly	weekly	3x/week	Weekly
NC0021326	03-07-02	Town of Dobson WWTP	0.35	continuous	weekly	monthly	monthly	monthly	monthly	weekly	Weekly
NC0083925	03-07-02	Heater Utilities Inc., Salem Glen SD WWTP	0.14	continuous	2x/month	monthly	monthly	monthly	monthly	weekly	Weekly
NC0021580	03-07-02	Town of Jonesville WWTP	0.4	continuous	weekly	monthly	monthly	monthly	monthly	weekly	Weekly
NC0020931	03-07-02	Town of Boonville WWTP	0.2	continuous	weekly	monthly	monthly	monthly	monthly	weekly	Weekly
NC0055158	03-07-02	Bermuda Center Sanitary District WWTP	0.193	continuous	2x/month	monthly	monthly	monthly	monthly	weekly	Weekly
NC0064726	03-07-02	Town of East Bend, East Bend Industrial Park WWTP	0.1	continuous	weekly	quarterly	quarterly	quarterly	quarterly	weekly	Weekly
NC0086011	03-07-04	Winston-Salem City Neilson WTP	0.5	weekly	monthly	monthly	monthly	monthly	monthly	2x/month	2x/month
NC0004626	03-07-04	PPG Industries Fiber Glass – Lexington Facility	0.6	continuous	weekly	weekly	weekly	weekly	weekly	weekly	Weekly
NC0029246	03-07-04	Norfolk Southern Corp-Linwood Yard	0.317	continuous	monthly	quarterly	quarterly	quarterly	quarterly	monthly	monthly
NC0080853	03-07-04	Lucent Technologies Salem Business Park Remediation Site	0.302	continuous	monthly	monthly	monthly	monthly	monthly	monthly	monthly
NC0021491	03-07-05	Town of Mocksville Dutchmans Creek WWTP	0.68	continuous	weekly	weekly	weekly	weekly	weekly	weekly	weekly
NC0082821	03-07-06	Southern States Coop-Statesville	0.144	continuous	2x/month	monthly	monthly	monthly	monthly	2x/month	2x/month
NC0079898	03-07-06	Needmore Rd Landfill (HNA Holdings Inc.)	0.288	continuous	2x/month	monthly	monthly	monthly	monthly	2x/month	2x/month
NC0087033	03-07-06	Town of Harmony WWTP	0.115	continuous	weekly	quarterly	quarterly	quarterly	quarterly	weekly	weekly
NC0049867	03-07-06	Town of Cleveland WWTP	0.27	continuous	weekly	monthly	monthly	monthly	monthly	weekly	weekly
NC0050903	03-07-06	Town of Mocksville Bear Creek WWTP	0.25	continuous	weekly	monthly	monthly	monthly	monthly	weekly	weekly
NC0078361	03-07-06	Salisbury-Rowan Utilities Second Creek WWTP	0.09	continuous	weekly	quarterly	quarterly	quarterly	quarterly	weekly	weekly

* Report Daily Average Flow (cfs) to DWQ

NOTE: Shaded fields indicate those parameters that are not currently in the permit monitoring requirements and will need to be monitored at the specified frequency for the TMDL study.