



HARPETH RIVER WATERSHED ASSOCIATION

June 27, 2013

Mr. Gary Davis
Tennessee Dept. of Environment and Conservation
Division of Water Pollution Control
6th Floor, L&C Annex 401 Church St.
Nashville, TN 37243

Re: Request for a combined public hearing for the three draft NPDES sewage treatment permits on the Harpeth river in Williamson County: City of Franklin (TN0028827), Berry's Chapel Utility STP (TN0029718), Cartwright Creek (TN0027278)

Dear Mr. Davis,

This letter is an official request for a public hearing on the three draft NPDES permits for the three sewage treatment plants that discharge in the Harpeth in Williamson County. The state has been very accommodating of prior requests for public hearings on these sewer plant permits over the past 15 years and has held a joint hearing back in 2010 when the permits were first put on the same cycle. There has been active interest and efforts over the years by many entities and citizens to address sewer issues and undergo significant efforts that have improved sewer operations, provide centralized sewer treatment for some of the septic neighborhoods that have had problems, and much more. Through many efforts that have been discussed in prior comments and referenced in the permits, there is large number of well-informed people from all sectors who have been working on various aspects of the complex sewer issues in this area of the Harpeth related to the growth of the city of Franklin and northern Williamson County. A public hearing will provide the opportunity for TDEC to receive valuable input. Also it is common practice to hold a public hearing for a major source discharge which is the city of Franklin among these three permits.

HRWA and others have provided extensive analyses, data, information and comments on these three NPDES sewage treatment permits over the past 15 years. We want to confirm that the material provided to TDEC over the past several permit cycles by HRWA, including attachments, as well as those of TCWN and Dr. Joann Burkholder, an aquatic ecologist, who is the director of the Center for Applied Aquatic Ecology at NC State University are considered part of our comments related to these draft permits. It is more efficient to incorporate prior work that is still very relevant to the permits than to repackage such extensive material. TDEC has included comments letters from HRWA, TCWN, and others into the final permits and noted that material is in the permit file in the rationale section of the permits.

We appreciate the thoughtful consideration TDEC and many others have given to the work HRWA provided to TDEC, EPA, the permittees, and other agencies in February of this year that included a compilation of historical water quality data focused on dissolved oxygen, a draft water quality monitoring plan for the Harpeth, and a proposed structure and function for a Technical Advisory Committee (TAC). The TAC would oversee monitoring and needed studies, review data, assess the current TMDLs and oversee studies and efforts to develop revised TMDLs if deemed necessary, and provide recommendations for TDEC. As noted in the draft permits, TDEC agrees that more comprehensive instream data is needed. With increased instream monitoring required in the draft permits, it will be more efficient and cost effective for the permittees to do this via a TAC. Other resources can be leveraged through a TAC such as the current opportunity described in our material with USGS and including stormwater jurisdictions that also have monitoring requirements in their MS4 stormwater permits, and others.

We note that the draft permits include the suggestion for participating in a TAC though the language in the draft permits does not require the establishment of a TAC. Also, the city of Franklin's permit has additional instream monitoring and river studies, but the other two permits do not include specific instream monitoring. HRWA provided a draft of permit language in February that incorporates a TAC and its function and timeline and that includes instream monitoring for each permit. These are slightly revised and attached below. It is important that all three permits include instream monitoring requirements and the burden is not solely upon Franklin. While Franklin is the largest point source discharge at 12 MGD and the single largest source of BOD and nutrient enrichment, all discharges should be involved in instream monitoring since they are contributing to the pollutant loads. The approach of each permit having their own individual monitoring requirements but the option to participate in a collective monitoring effort is used in all of the current systems in place that HRWA reviewed and provided in our February material. We note that TDEC has modified the permit reopener clause to facilitate adjustments to the permit for the establishment and participation in a TAC and watershed monitoring plan and outcomes from the studies and nutrient management plans.

While it will take some time to establish the TAC and finalize a monitoring plan, data can be gathered by having the permittees provide funding for USGS water quality gages. Attached is a chart of the 6 locations from the monitoring plan. In the current permit for the city of Franklin, TDEC has already required diurnal monitoring in the Harpeth at 3 locations to gather Dissolved Oxygen data and other parameters between May and October. HRWA's work submitted in February provides a plan that can be used to have continuous monitoring deployed by this August in order to comply with this part of the current permit. It is not necessary to wait until next summer to have continuous monitoring data being gathered since it is a current permit requirement for one of the permittees now that has not been done. The 3 locations of the 6 that would be best to become active by August, would be the 96 bridge at Pinkerton Park to serve as an upstream of the sewer plant discharge location, Cotton Bridge (which is the relocation of the current USGS gage on Hillsboro Road bridge that was installed as a result of the sewer permit a few years ago), and Highway 100. All 3 are current USGS gage locations for river flow discharge data. Though continuous instream monitoring is not in the current permits for the smaller plants, with this requirement included in the new permits, the two could jointly fund the new gage at Old Hillsboro Road. Please note that these locations are based on a review of the existing data, and would be adjusted as to locations and length of time to be deployed based on the review of the TAC.

HRWA and EPA staff in region IV discussed HRWA's material and proposal of a TAC in March this year over a conference call. Mark Nuhfer offered that EPA would provide staff time to

participate in a TAC which is great news. As TDEC staff knows, the EPA conducted the field research and did the analysis, and wrote the TDML for nutrient enrichment and low dissolved oxygen for the Harpeth River. The key EPA staff involved in that work noted during the conference call discussion that with the removal of the lowhead dam a key condition that affected their modeling work is gone. The staff also noted that the ten years of dissolved oxygen data in the Harpeth that has been gathered by various entities and compiled by HRWA shows that a key assumption that the upper river system would reach water quality standards in a few years from when the TMDL was done in 2004 is no longer a valid assumption. With an unimpounded river and new river models that have already been adapted to the Harpeth with the city of Franklin's work in their Intergrated Watershed Management Plan, it is time to gather important water quality data by conducting the river studies outlined in the draft monitoring plan and incorporated into the draft city of Franklin permit.

The Harpeth River in the summer is a low flow river that is effluent dominated. As Dr. Burkholder stated in her review of all three permits in 2009, "discharge from the STP under its new permit will continue to contribute substantially to the nutrient/eutrophication-related impairment for the receiving segment of this 303(d) listed stream." As she noted with regard to Franklin, since it is by far the largest discharger with a design permit of 12 MGD, the city's "discharge will continue to significantly influence" the Harpeth. The city of Franklin does not discharge in the summer all of its effluent since it has an active effluent reuse program. According to charts produced during the IWRP and as seen in the DMRs, the city is currently discharging less than half of its permitted BOD5 load, very little of its permitted ammonia, but close to the permit limits on the load for total nitrogen. These charts are on pages 25-27 in the compilation of dissolved oxygen data report that HRWA produced and provided as part of our February 2013 material. Even though the other two sewer plants are so much smaller, during the river's summer low flows, these sewer plants still contribute enough pollutant load to affect the river's water quality as seen in the EPA's TMDL model and in analyses already provided. More detail is provided in the HRWA comments that are attached below.

TDEC needs to cap the loads in pounds/day that is currently being discharged by the three sewer plants. This cap would be set based on the current discharge loads if it is below the permitted limits, or set at the permit limits if the facility is currently discharging more than permitted (ie, Cartwright Creek for BOD5). Each sewer plant is discharging into the Harpeth when the river is not meeting dissolved oxygen standards; thus, the river in the summer does not have the capacity for the current loads not to mention the higher permitted loads set by the current permit for Franklin. In order to move toward solutions that bring the river's water quality up to standard, the current pollutant loads need to be capped at current levels until water quality data is gathered and assessed to determine what loads the river can handle, and plans are produced for how the facilities will be able to achieve what is needed. TDEC required Nutrient Management Plans from each facility in the current permit on how each will reduce nutrient inputs that are directly involved in the water quality violations during the summer. It is our understanding from reading the draft permits that these plans have not been developed for the two smaller facilities. The city's IWRP analysis shows that with the Franklin's long-term plan to expand sewage treatment to 24 MGD (double the capacity) the total Nitrogen loads would be higher in the winter than the current permit permits. HRWA would like to include in our comments those provided by TCWN recently that are focused on the need to address and reduce the permit limits for Total Nitrogen and Total Phosphorus.

As noted in prior comments, the city of Franklin is currently producing highly treated effluent and not discharging all of its effluent in the summer because of its effluent reuse program. Approximately 2 MGD of treated effluent is reused in the summer based on the DMRs and the permit renewal. The city has the ability to continue to add to its current facility more flow and still hold to its current total pollutant load through more effluent reuse and other means. A cap based on the current loads enables all three facilities to still accept more inflow as long as there are efforts to reduce the concentration or the amount discharge of effluent or a combination of both to maintain a cap at current loads or the permitted loads for facilities that are discharging more than permitted. Setting a cap at current pollutant loads is a transition measure since the current loads for all three permits still do not enable the river to meet water quality standards.

A review of the DMRs in each permit provides some insight to operations. While Franklin is meeting its permit limits, Cartwright Creek is struggling with high Inflow and Infiltration (I and I) problems. HRWA received a copy of a letter sent to TDEC and the utility recently from a River Rest home owner that found raw sewage in a drainage that flows into Cartwright Creek and into the Harpeth. Both this area of Cartwright Creek and the Harpeth are used by many to recreate. Bruce Myers explained to HRWA that a grease plug was found in the sewer line that has been remedied. This is current example of the need to upgrade collection lines that will reduce the flow. It appears from the DMRs for Cartwright Creek that the I and I flows are one of the reason the facility is discharging approximately 5 times the CBOD5 in pounds/day than the permit limit while the CBOD5 concentration was on average only half the permit limit.

Berry's Chapel has improved its treatment significantly over the years from when it was chronically violating the permit limits. The 125,000 gallon reserve that is still applied to the permit is partially responsible for the facility's ability to meet permit limits in the past few years since it is not handling flow at its design capacity, but only about half. The owners of the facility own property in the area and recently have had plans approved for approximately 20 new homes to connect to the facility. It is important to review closely the reserve that is still in place as a result of prior litigation because of the value the reserve capacity provides in helping ensure that the facility can operate within its permit limits. Nonetheless, as noted above, these permit limits do not ensure that the Harpeth is meeting water quality standards.

HRWA is willing to commit its efforts to help establish a functioning Technical Advisory Committee. Also HRWA is willing to help convene the many entities that could collaborate on creating long-term solutions for sewer that not only involve these three facilities, but HVUD and other sewer providers, the county who took on the hard but valuable effort of providing central sewer to hundreds of homes in septic communities in the Lynwood creek drainage area where systems were failing, and others that have a role in financial arrangements and sources of funding.

Thank you for considering our request for a joint public hearing. Based on prior experience with public hearings, we recommend that it be set up after school is back in session. A date starting the 3rd or 4th week of August would address that for the public schools and most private school, though most everyone is back from summer travels after Labor Day. This would enable more public participation on such an important issue that affects so many people who are not only sewer customers of the 3 facilities but also for the many people who live along the Harpeth and recreate in it. This area of the Harpeth is highly used for recreation in the summer and a powerful motivation for working hard to have the river in the summer meet all water quality standards.

Sincerely,



Dorene Bolze
Executive Director
Harpeth River Watershed Association

cc:

Bob Martineau, TDEC Commissioner
Shari Meghreblian, Deputy Director, TDEC
Sandra Dudley, Director of the Division of Water Resources
Jennifer Dodd, TDEC
Alan Schwendimann, TDEC
Briton Dotson, TDEC
Wade Murphy, TDEC
Sherry Wang, TDEC
Ming Shiao, TDEC
Vojin Janjic, TDEC
Eric Stuckey, City Administrator of Franklin
Mark Hilty, City of Franklin, Director of Water Services
Tyler Ring, Berry's Chapel Utility
Bruce Myers, Cartwright Creek Utility
Jim Giattina, EPA Region IV, Water Protection Division
Chris Thomas, EPA Region IV, Chief, Pollution Control and Implementation Branch
Shawneille Campbell-Dunbar, EPA Region IV, Chief, TMDL Development Section
Mark Nuhfer, EPA Region IV, Chief, Municipal & Industrial NPDES
William Melville, EPA, Region IV, TMDL
Scott Gain, USGS, Director for TN
Shannon Williams, USGS
Steve Alexander, USFWS Cookville
David McKinney, TWRA
Rob Todd, TWRA

Attachments:

1. Draft permit language regarding monitoring and the TAC, including a proposed timeline for the TAC
2. Chart of six USGS continuous water quality and flow gages and partners
3. HRWA comments and proposal on monitoring and TAC, February 10, 2013 (referenced in the rationale section in all three draft permits)
4. HRWA comments on draft permits, December 1, 2009 (included in final permits issued in 2010 for Berry's Chapel and Cartwright Creek Utility)

Proposed permit language for 3 Harpeth River NPDES sewer plant discharges: Franklin (12 MGD), Berry's Chapel (0.4 MGD), and Cartwright Creek (0.25 MGD)

*Proposed revisions to the NPDES Permit # TN0029718 for Berry's Chapel STP
6/27/13*

Permit revisions

Insert new paragraphs 3.5 and 3.6 after Section 3.4 Placement of Signs. Sections 3.5, 3.6, 3.7, and 3.8 from existing Permit # TN0029718 will become Sections 3.7, 3.8, 3.9 and 4.0.

3.5 RECEIVING STREAM MONITORING/REPORTING

A Watershed Monitoring Technical Oversight and Advisory Committee otherwise referred to as the Technical Advisory Committee (TAC) will be formed to provide oversight and guidance on long-term monitoring requirements. The TAC shall finalize a watershed monitoring implementation plan; oversee water quality monitoring to evaluate the sufficiency of the current TMDLs; assist TDEC in developing new TMDLs as needed for any parameter with consistent monitoring results that do not meet state standards; and ensure that any changes in the watershed that may affect water quality will be reviewed and accounted for in future monitoring plans. The TAC shall oversee the development of a new TMDL as deemed necessary based on data.¹ Details on composition, responsibilities, and funding of the TAC are provided in Attachment 1. As a condition of this permit, the permit holder shall actively participate in and contribute to the TAC, including its establishment, continued work, as outlined in Attachment 1. Modifications to this permit must be approved by the TAC and TDEC.

3.6.1 Oversight Of Receiving Stream Monitoring/Reporting

The permittee must submit an implementation plan to TDEC and include sampling and analyzing procedures. The permittee is expected to follow approved plans. QA/QC procedures include: collecting and analyzing a trip, field, and duplicate blank with every 10% of samples, or once in every 10 samples. All meters must be calibrated upon use and have drift checks performed. All samples must be collected using EPA approved standard methods. The permittee will have a copy of the latest approved version of the monitoring plan in its permit file and on site.

The permittee shall complete the receiving stream monitoring and reporting consistent with the requirements established by the Technical Advisory Committee and approved by TDEC, as well as any revisions made over time. The permittee shall also be responsible for any future modifications to the monitoring/reporting requirements that are approved by TDEC and or TAC. The permittee shall be responsible for monitoring and reporting consistent at the following locations:

¹ Suggestion of technical trigger mechanism: for three (3) or more contiguous days during continuous monitoring OR for eight (8) different grab sampling events taken in the morning (before 9 a.m.) within a thirty (30) day period,

- Upstream site downstream of the confluence of Harpeth River and West Harpeth River near Del Rio Pike, RM 79 (approximately)
- Downstream of outfall, Harpeth River RM 75.3, TN46 Old Hillsboro Road

Sampling should be in coordination with TAC and nearby permittees. Once in effect, receiving stream monitoring/reporting consistent with the requirements established by the TAC and approved by TDEC, as well as any revisions made over time shall take the place of this set of NPDES permit requirements immediately.

3.6.2 Monitoring Parameters, Requirements, and Schedule

A. Chemical

Permittee is required to perform the following:

- Monitoring will occur from May 1st through October 31st for each year of the permit. Dry weather samples are to be collected no sooner than 72 hours after a rain event. Two dry-weather grab samples shall be collected monthly during the monitoring season, and at all aforementioned monitoring locations (see Section 3.6.1 for locations).
- Some monitoring will also occur during the period of November 1st through April 30th, in which the permittee will be required to collect one dry weather sample per quarter (November – January; February – April), at all monitoring locations.
 - Parameters included are:
 - Escherichia coli (E.coli)
 - BOD5
 - Ammonia-nitrogen (NH₃)
 - Total Kjehldahl Nitrogen (TKN)
 - Nitrate-Nitrite
 - Ortho Phosphate
 - Total phosphorous
 - Dissolved Oxygen (mg/L, %)
 - Turbidity (NTU)
 - Total Suspended Solids – TSS (mg/L)
 - pH
 - Temperature (C)
 - Conductivity (micro-seiman/cm)
 - Flow (cfs)
- Continuous monitoring shall occur through financial support of a series of USGS gage stations as established by the TAC. The permittee's funding responsibility will be established by TDEC based on TAC recommendation and will include consideration of the permitted discharge. Continuous Monitoring parameters included are:
 - Dissolved oxygen
 - Turbidity
 - pH
 - Flow
 - Nitrate-Nitrite

- During the months of July and August, water quality sondes shall be deployed to collect diurnal data at all monitoring locations for five consecutive days. The sondes shall be set to collect data at 15-minute intervals for the following parameters:
 - Dissolved Oxygen (DO)
 - Temperature (C)
 - pH
 - Conductivity
 - Flow

B. Biological

Macroinvertebrate monitoring will be performed based on TDEC and/or TAC requirements.

(retain section B from Attachment 1, NPDES permit #TN0027278). Everything after Section B will be excised and replaced with above.

The above monitoring/reporting requirements shall be in effect until the Comprehensive Water Quality Monitoring Plan, is formalized by the TAC and put into effect.

This permit shall be modified to meet additional requirements of any newly adopted TMDLs. Refer to section 1.5 above, reopener clause, for the procedure for modifying the permit to be based on this new TMDL.

ATTACHMENT 1: Technical Advisory Committee details and implementation schedule

ATTACHMENT 2: Nutrient Management Planning (in current permit)

Proposed revisions to the NPDES Permit # TN0027278 for Cartwright Creek STP
6/27/2013

Permit revisions

Insert new paragraphs 3.5 and 3.6 after Section 3.4 Placement of Signs. Sections 3.5 and 3.6 from existing Permit # TN0027278 will become Sections 3.7 and 3.8.

3.5 RECEIVING STREAM MONITORING/REPORTING

A Watershed Monitoring Technical Oversight and Advisory Committee otherwise referred to as the Technical Advisory Committee (TAC) will be formed to provide oversight and guidance on long-term monitoring requirements. The TAC shall finalize a watershed monitoring implementation plan; oversee water quality monitoring to evaluate the sufficiency of the current TMDLs; assist TDEC in developing new TMDLs as needed for any parameter with consistent monitoring results that do not meet state standards; and ensure that any changes in the watershed that may affect water quality will be reviewed and accounted for in future monitoring plans. The TAC shall oversee the development of a new TMDL as deemed necessary based on data.² Details on composition, responsibilities, and funding of the TAC are provided in Attachment 1. As a condition of this permit, the permit holder shall actively participate in and contribute to the TAC, including its establishment, continued work, as outlined in Attachment 1. Modifications to this permit must be approved by the TAC and TDEC.

3.6.1 Oversight Of Receiving Stream Monitoring/Reporting

The permittee must submit an implementation plan to TDEC and include sampling and analyzing procedures. The permittee is expected to follow approved plans. QA/QC procedures include: collecting and analyzing a trip, field, and duplicate blank with every 10% of samples, or once in every 10 samples. All meters must be calibrated upon use and have drift checks performed. All samples must be collected using EPA approved standard methods. The permittee will have a copy of the latest approved version of the monitoring plan in its permit file and on site.

The permittee shall complete the receiving stream monitoring and reporting consistent with the requirements established by the Technical Advisory Committee and approved by TDEC, as well as any revisions made over time. The permittee shall also be responsible for any future modifications to the monitoring/reporting requirements that are approved by TDEC and or TAC. The permittee shall be responsible for monitoring and reporting consistent at the following locations:

- 50 yards upstream of Outfall, near the confluence of Harpeth River and Cartwright Creek, Blue Springs Road at RM 68.6
- 150 yards downstream of Outfall.

² Suggestion of technical trigger mechanism: for three (3) or more contiguous days during continuous monitoring OR for eight (8) different grab sampling events taken in the morning (before 9 a.m.) within a thirty (30) day period,

Sampling should be in coordination with TAC and nearby permittees such as Franklin and Berrys Chapel. Once in effect, receiving stream monitoring/reporting consistent with the requirements established by the TAC and approved by TDEC, as well as any revisions made over time shall take the place of this set of NPDES permit requirements immediately.

3.6.2 Monitoring Parameters, Requirements, and Schedule

A. Chemical

Permittee is required to undertake the following:

- Monitoring will occur from May 1 through October 31 each year. Collect two dry-weather grab samples per month during those months, at all monitoring locations aforementioned (see Section 3.7 for locations).
- Monitoring will also occur during the period November 1 through April 30, permittee will be required to collect one dry weather sample per quarter (November – January; February – April), at all monitoring locations.
- Parameters included are:
 - Escherichia coli (E.coli)
 - BOD5
 - Ammonia-nitrogen (NH₃)
 - Total Kjehldahl Nitrogen (TKN)
 - Nitrate-Nitrite
 - Ortho Phosphate
 - Total phosphorous
 - Dissolved Oxygen (mg/L, %)
 - Turbidity (NTU)
 - Total Suspended Solids – TSS (mg/L)
 - pH
 - Temperature (C)
 - Conductivity (micro-seiman/cm)
 - Flow (cfs)
- Continuous monitoring shall occur through financial support of a series of USGS gage stations as established by the TAC. The permittee's funding responsibility will be established by TDEC based on TAC recommendation and will include consideration of the permitted discharge. Continuous Monitoring parameters included are:
 - Dissolved oxygen
 - Turbidity
 - pH
 - Flow
 - Nitrate-Nitrite
- During the months of July and August, water quality sondes shall be deployed to collect diurnal data at all monitoring locations for five consecutive days. The sondes shall be set to collect data at 15-minute intervals for the following parameters:
 - Dissolved Oxygen (DO)
 - Temperature (C)
 - pH
 - Conductivity

- Flow

B. Biological

Macroinvertebrate monitoring will be performed based on TDEC and/or TAC requirements.

The above monitoring/reporting requirements shall be in effect until the Comprehensive Water Quality Monitoring Plan is formalized by the TAC and put into effect.

This permit shall be modified with the new TMDL as its basis immediately after the new TMDL is adopted. Refer to section 1.5 above, reopener clause, for the procedure for modifying the permit to be based on this new TMDL.

ATTACHMENT 1: Technical Advisory Committee details and implementation schedule

ATTACHMENT 2: Nutrient Management Planning (in current permit)

*Proposed revisions to the NPDES Permit # TN0028827 for Franklin STP
6/27/2013*

Permit revisions

Insert revised and new paragraphs here:

3.7 RECEIVING STREAM MONITORING/REPORTING

A Watershed Monitoring Technical Oversight and Advisory Committee otherwise referred to as the Technical Advisory Committee (TAC) will be formed to provide oversight and guidance on long-term monitoring requirements. The TAC shall finalize a watershed monitoring implementation plan; oversee water quality monitoring to evaluate the sufficiency of the current TMDLs; assist TDEC in developing new TMDLs as needed for any parameter with consistent monitoring results that do not meet state standards; and ensure that any changes in the watershed that may affect water quality will be reviewed and accounted for in future monitoring plans. The TAC shall oversee the development of a new TMDL as deemed necessary based on data.³ Details on composition, responsibilities, and funding of the TAC are provided in Attachment 1. As a condition of this permit, the permit holder shall actively participate in and contribute to the TAC, including its establishment, continued work, as outlined in Attachment 1. Modifications to this permit must be approved by the TAC and TDEC.

3.7.1 Oversight of Receiving Stream Monitoring/Reporting

The permittee must submit an implementation plan to TDEC and include sampling and analyzing procedures. The permittee is expected to follow approved plans. QA/QC procedures include: collecting and analyzing a trip, field, and duplicate blank with every 10% of samples, or once in every 10 samples. All meters must be calibrated upon use and have drift checks performed. All samples must be collected using EPA approved standard methods. The permittee will have a copy of the latest approved version of the monitoring plan in its permit file and on site.

The permittee shall complete the receiving stream monitoring and reporting consistent with the requirements established by the Technical Advisory Committee and approved by TDEC, as well as any revisions made over time. The permittee shall also be responsible for any future modifications to the monitoring/reporting requirements that are approved by TDEC and or TAC. The permittee shall be responsible for monitoring and reporting consistent at the following locations:

- Upstream monitoring at Harpeth River, RM 88.5 at TN96, Pinkerton Park
- Upstream monitoring 50 yards upstream of Franklin STP Outfall 001, just downstream of Spencer Creek confluence at Harpeth RM 85.8
- 150 yards downstream of Franklin STP Outfall 001 discharge point

³ Suggestion of technical trigger mechanism: for three (3) or more contiguous days during continuous monitoring OR for eight (8) different grab sampling events taken in the morning (before 9 a.m.) within a thirty (30) day period,

- Downstream of Franklin STP Outfall 001, Harpeth River, RM 87.7 at Cotton Road (referred to as RM 79.8 in current permit.)

Sampling should be in coordination with TAC and nearby permittees such as Berrys Chapel and Cartwright. Once in effect, receiving stream monitoring/reporting consistent with the requirements established by the TAC and approved by TDEC, as well as any revisions made over time shall take the place of this set of NPDES permit requirements immediately.

3.7.2 Monitoring Parameters, Requirements, and Schedule

A. Chemical

Permittee is required to perform the following:

- Monitoring will occur from May 1st through October 31st each year. Collect two dry-weather grab samples once per month at all aforementioned monitoring locations during this monitoring period (see Section 3.7 for locations).
- Some additional monitoring will occur during the period of November 1st through April 30th, in which the permittee will be required to collect one dry weather sample per quarter (November – January; February – April), at all monitoring locations.
- Parameters included are:
 - Escherichia coli (E.coli)
 - BOD5
 - Ammonia-nitrogen (NH₃)
 - Total Kjehldahl Nitrogen (TKN)
 - Nitrate-Nitrite
 - Ortho Phosphate
 - Total phosphorous
 - Dissolved Oxygen (mg/L, %)
 - Turbidity (NTU)
 - Total Suspended Solids – TSS (mg/L)
 - pH
 - Temperature (C)
 - Conductivity (micro-seiman/cm)
 - Flow (cfs)
- Continuous monitoring shall occur through financial support of a series of USGS gage stations as established by the TAC. The permittee's funding responsibility will be established by TDEC based on TAC recommendation and will include consideration of the permitted discharge. Continuous Monitoring parameters included are:
 - Dissolved oxygen
 - Turbidity
 - pH
 - Flow
 - Nitrate-Nitrite
- During the months of July and August, water quality sondes shall be deployed to collect diurnal data at all monitoring locations for five consecutive days, to collect

diurnal data. The sondes shall be set to collect data at 15-minute intervals for the following parameters:

- Dissolved Oxygen (DO)
- Temperature (C)
- pH
- Conductivity
- Flow

B. Biological

Macroinvertebrate monitoring will be performed based on TDEC and/or TAC requirements.

(retain section B from Attachment 1 to NPDES permit #TN0028827). Everything after Section B will be excised and replaced with above.

The above monitoring/reporting requirements shall be in effect until the Comprehensive Water Quality Monitoring Plan, is formalized by the TAC and put into effect.

This permit shall be modified with the new TMDL as its basis immediately after the new TMDL is adopted. Refer to section 1.5 above, reopener clause, for the procedure for modifying the permit to be based on this new TMDL.

ATTACHMENT 1: Technical Advisory Committee details and implementation schedule
ATTACHMENT 2: Nutrient Management Planning (in current permit)

ATTACHMENT 1
Technical Advisory Committee

1. TDEC shall establish a Technical Oversight and Advisory Committee (TAC) to facilitate, support, and oversee each permittee's implementation of a comprehensive monitoring plan, pursuant to the requirements of the federal Clean Water Act and the Tennessee Water Quality Control Act, for the purpose of improving the water quality of the Harpeth River to meet state water quality standards and to maintain them.
2. The TAC is organized as an independent, interdisciplinary information-gathering and advisory group. It is not tasked with regulatory authority, including determinations of noncompliance with permit terms. EPA will steer the mission of the group.
3. The TAC shall be composed of knowledgeable and/or expert representatives in the field of point and nonpoint source discharge, watershed science and restoration, aquatic wildlife, source tracking, engineering (STPs, hydraulics of pipes, CSO systems), TMDL modeling, contaminants of emerging concern, and other fields or experts as deemed necessary by the Committee.

The following groups and entities shall be included:

- Federal agencies: U.S. Environmental Protection Agency (EPA); U.S.G.S.; U.S. Fish and Wildlife Services (endangered species, mussels, etc.) U.S. Army Corps of Engineers
- Tennessee state agencies: Tennessee Department of Environment and Conservation (TDEC); Tennessee Wildlife Resources Association (TWRA)
- Community groups and non-profit organizations: Harpeth River Watershed Association (HRWA); The Nature Conservancy—Tennessee
- Experts in various relevant fields:
 - An aquatic wildlife biologist—from Tennessee Tech University or another state university
 - An expert in the field (s) of source tracking, anthropogenic impact and/or bacteria
 - An engineer with expertise in STPs, hydraulics of pipes and/or CSO systems
 - A TMDL modeling water quality expert
 - An expert in the field of contaminants of emerging concern
 - A section 319 program nonpoint source expert
- At least one representative of NPDES permit holders in the Harpeth River watershed, such as: Cartwright Creek, COF
- At least one representative of MS4 permit holders – Phase I and Phase II –in the Harpeth River watershed, such as: Metro Nashville (Ph I); Brentwood (Ph II); Dickson (Ph II)

Any other groups or organizations necessary or desirable for achievement of the overall goals of the TAC and/or for individual sub-projects may join the TAC upon approval by the above-listed membership and the chair. These subsequently-added members will have standing to submit reports, advise the TAC and participate in discussions, but they shall not be entitled to vote.

4. The TAC shall develop a comprehensive monitoring plan, with the participation of this permit holder and others. This monitoring program is for their protection and benefit. If for some reason a county or city does not wish to retain its discharge allotment in the

watershed or refuses to fund its share of the monitoring program, then its allotment may be divided among the remaining participating entities, with their portion of the cost of the monitoring program rising accordingly.

5. The TAC shall be responsible for developing an implementation plan for this monitoring plan, including specific reporting requirements and a schedule. Each permit holder will be accountable directly to the TAC, however TDEC will retain permit enforcement authority.
6. The TAC shall divide responsibilities among the permittees and sectors represented. The permittees will be responsible according to their proportional allocation in each permit, which TDEC retains authority to set.

Each permit holder is ultimately responsible for its share of monitoring according to this plan, whether that contribution be in kind, financial, or some combination. Each permit will include an attachment describing those responsibilities specific to that permit holder, including but not limited to: monitoring locations, parameters, and frequency; reporting schedule; remedial measures as necessary; and any other changes deemed necessary or desirable.

Compliance Schedule: The TAC shall proceed in accordance with the following schedule:

Timeline	Action
Within 1 month from issuance of permit	TAC is assembled; EPA-appointed compliance officer/agency identified and instated.
Within 2 months from issuance of permit; within 30 days of assembly of Technical Review Team	TAC holds inaugural meeting.
Within 3 months from effective date of permit	TAC will develop an implementation plan for watershed monitoring.
Within 30 days of previous step (5 months from issuance)	TDEC must return a final approved implementation plan to the TAC.
By May 1 immediately following permit issuance date	Implementation plan will be functional, under TAC oversight; data must be collected beginning no later than this date.
By November 1 immediately following permit issuance date	TAC will begin the modeling process based on 6 months of data; TAC will oversee the entire modeling process.
No later than March 15, immediately following the initiation of the modeling process described above, and annually thereafter	TAC will make recommendations regarding the need to develop a new TMDL for nutrient enrichment/low dissolved oxygen to TDEC.
No later than March 15 immediately following the initiation of the modeling process described above, and annually thereafter	TAC will propose revisions to the implementation plan.
Within 6 months after TAC recommends that a new TMDL is warranted, if so recommended	TAC shall coordinate and oversee the development of a draft TMDL, which shall be submitted to TDEC for public notice & comment.
Within 60 days of final approval and adoption of TMDL	The permit must be modified to reflect any changes required by the new TMDL.

HARPETH RIVER WATERSHED WATER QUALITY MONITORING PLAN

USGS Continuous Monitoring - Existing and Proposed Gage Stations (June 2013)

Station Name	USGS Station Number	Existing/funded monitoring						New monitoring proposed				Additional Cooperation	
		Type of data	Total Cost	USGS NSIP funding	USGS Cooperative funding	Cooperator	Name of Funding Cooperator	Type of data	Total Cost	USGS Coop funding	Cooperators		
Harpeth at McDaniel	03432100	Existing gage station that was funded by TDOT through December 2012 will now need to be restarted with new funding. Therefore it counts effectively as a NEW gage station						TDOT was financing this until Dec 2012	continuous stage, discharge, precip, water quality	\$36,000	\$15,840	\$19,800	
Harpeth at Franklin (Hwy 96)	03432350	continuous stage, discharge	\$12,000		\$5,400	\$6,600	Franklin	continuous water quality	\$20,000	\$8,800	\$11,000	USACE operates stage gage	
Harpeth below Franklin (Hillsboro Rd)	03432400	continuous discharge	\$14,000		\$6,300	\$7,700	Franklin	continuous water quality	\$20,000	\$8,800	\$11,000		
Harpeth at Old Hillsboro Rd	NA	NEW GAGE STATION							continuous stage, discharge, water quality	\$34,000	\$14,960	\$18,700	
Harpeth at Bellevue	03433500	continuous stage, discharge, precipitation	\$16,000	\$16,000				continuous water quality	\$20,000	\$8,800	\$11,000		
Harpeth near Kingston Springs	03434500	continuous discharge	\$12,000		\$5,400	\$6,600	TDEC	continuous water quality	\$20,000	\$8,800	\$11,000	USACE operates stage gage	
TOTAL			\$54,000	\$16,000	\$17,100	\$20,900			\$150,000	\$66,000	\$82,500		



HARPETH RIVER WATERSHED ASSOCIATION

February 10, 2013

Mr. Gary Davis
Tennessee Dept. of Environment and Conservation
Division of Water Pollution Control
6th Floor, L&C Annex 401 Church St.
Nashville, TN 37243

Re: Proposed Harpeth River Basin Water Quality Monitoring Plan and Technical Advisory Committee for consideration as part of the Harpeth river sewer NPDES permit renewals

Dear Mr. Davis,

Thank you for keeping us informed of the schedule for issuing the renewals of the three Williamson County Harpeth sewer NPDES permits: Franklin STP, Permit # TN0028827; Berry's Chapel Utility STP, Permit # TN0029718; and Cartwright Creek STP, Permit # TN0027278. Per our conversations in recent months, our understanding is that you are preparing to release draft permits soon and that you are interested in feedback from HRWA and others to strengthen the permit language and to incorporate a plan for water quality monitoring in the Harpeth. Since we provided you with a basic monitoring plan in May, we have worked further to refine it. The newer version along with a map of the monitoring sites is attached.

As I have mentioned to you, HRWA also has been looking for examples from around the country on how to create a technical advisory team that would oversee the final establishment, implementation and interpretation of a monitoring plan. HRWA has called this group a Technical Advisory Committee in these materials. We have attached a description of several from around the country that we used as models for this proposed structure and function of a TAC. The TAC would provide recommendations to TDEC for use in adjusting the permits, determining if a new TMDL is needed, and if so, providing the technical oversight for the modeling and data gathering for a new TMDL. We have provided text for a TAC and a sample time line as part of permit language. The draft permit language attached also focuses on integrating monitoring requirements into the three sewer NPDES permits.

As you know, the city of Franklin's permit has had water quality data gathering requirements for years, but only in the last permit cycle was continuous water quality monitoring on the river required in their permit. It would be most appropriate for all the sewer permittees and the stormwater permittees to be involved in monitoring and have it part of their permit requirements. The stormwater programs in the Harpeth are currently planning to monitor water quality as part of their MS4 permits and are very interested in coordinating efforts and gathering data that will be useful and have meaning as part of an overall river basin monitoring plan that looks all sources.

The Harpeth River Watershed Association is a 501(c)(3) tax exempt, non-profit organization. All donations are tax deductible.
P.O. Box 1127 ■ Franklin, Tennessee 37065 ■ Phone: 615-790-9767 ■ www.harpethriver.org

 Over 75% recycled paper including 25% post consumer fiber.

Since last fall, we have been in contact with permittees, the US Geologic Survey, and others to discuss the overall concept of the monitoring plan and the establishment of a Technical Advisory Committee (TAC). Those with whom we have spoken to in detail so far are amenable to moving forward using the common framework provided by a watershed monitoring plan and under the auspices of a TAC. In addition, USGS has committed to funding a substantial portion of the plan's one component to establish 6 continuous monitoring gage stations along the river. The extra stations and additional equipment only takes a few weeks to install once funding is secured. The goal would be to have them deployed by May to gather important data this coming summer. Four of these stations are already up and running and only require adding water quality parameters. Two new stations would need to be installed. USGS sees this as an excellent opportunity to undertake a pilot study in monitoring the nutrient, nitrate/nitrite. The table of continuous gage station sites, contributors, and costs is attached. This is a terrific partnership opportunity with the permittees funding the difference that is needed along with TDEC and TDOT maintaining or increasing their annual amount.

I have also once again attached our compilation of the ten years of dissolved oxygen data gathered by EPA, TDEC and HRWA, all of which shows conclusively that the Harpeth River is not meeting water quality standards in the low-flow summer months. Another map is attached that shows the locations of the various data gathering sites. As HRWA has noted in prior comments and analyses on the sewer permits and in other venues, the TMDL appears to have set the loads on the river too high. This is based on the fact that the river's DO levels are consistently below standards and the largest point source discharger (the city of Franklin's sewer plant) is not using more than half of the pollutant load allocated to them from the TMDL. In other words, during the summer the Harpeth does not meet state DO standards and the sewer plant is only discharging, on average, half of its permitted TDML load. The city of Franklin's plant is treating its effluent to a very high standard and currently discharges effluent significantly below its permit requirements that are set at the TMDL limits. The city also has an active effluent reuse program so that it is able to increase treatment capacity without it all having to be discharged to the river.

The state water quality standards require regulation of activities such that existing water quality levels are maintained or improved. As modelers like to say, field data trumps models. With the field data indicating continuing issues on the Harpeth and much of the entire length of the river not meeting state standards during the low-flow summer season, we strongly feel that it is time to put a detailed monitoring plan in place. The division is well aware that improvements in receiving stream water quality will require a coordinated effort on behalf of all the permit holders, agencies, and other affected entities. We offer these suggestions to provide for a pragmatic, empirical approach.

We respectfully request that the division consider the following while reviewing these permits: modifications to current permit language; a comprehensive watershed monitoring plan, and formation of a Technical Advisory Committee, to which TDEC may delegate primary responsibility for river water quality monitoring, data collection, interpretation, and oversight of the preparation of any new TMDL.

Permit language modification. We strongly reiterate our prior recommendations from the last permit cycle, along with TCWN's and Dr. JoAnn Burkholder's comments, that the permits include the following language, consistent with state law and with permits in other state water-regulatory permits: "This permit does not authorize discharges that would result in violation of a state water quality standard. Such discharges constitute a violation of this permit." (TDEC Rules,

Chapters 1200-4-3 and 1200-4-4.) In addition, there is some room to reduce the BOD5 load allowed in the city of Franklin's permit without putting too much of a burden on the permittee by reducing the permitted concentration of CBOD5 to a level between its current permit limit (4 mg/l) and what the facility is currently producing (1.42 mg/l) while keeping the design capacity at 12 MGD. The city is in process of working on re-engineering the current facility to increase its design capacity to 16 MGD. Ultimately, the permit issue is about the load that would be set which needs to be reduced from the current permitted amount. This would help guide the city's work on how to design for the increased design flow of 16MGD and meet a reduced overall BOD5 load into the river during the critical summer low flow months.

Establishment of a Technical Advisory Committee (TAC). We recognize the substantial burdens associated with comprehensive watershed management plans. We would welcome the opportunity to work with TDEC to organize and help coordinate a TAC. The Division has the authority to include the establishment of a TAC or any other conditions in NPDES permits pursuant to the federal Clean Water Act § 402(a)(2) and the Tennessee Water Pollution Control Act § 69-3-108(g).⁴ There are further details in the proposed permit language that is attached.

In the fall, HRWA put in a proposal to the TN Healthy Watershed Initiative to fund an effort to establish and coordinate at TAC for 18 months and fund both a year of the 6 USGS continuous gage monitoring and a water quality modeling data gathering study. Though it was not selected for support this year, this effort can still move forward. HRWA would gladly convene a meeting with TDEC, USGS, the permittees, and other experts and agencies to pull expertise to discuss next steps toward getting the 6 USGS gages for continuous water quality monitoring operational by this summer and discuss the concept of a Technical Advisory Committee. The group could also focus on reviewing the current amount of Dissolved Oxygen and other data that has been gathered on the Harpeth and strengths and weaknesses of current river modeling efforts for future use.

⁴ CWA § 402(a) authorizes a federal NPDES permit program, while §402(b) authorizes a state program. Section 402(a)(2) authorizes the Administrator to "prescribe conditions for such permits to assure compliance with the requirements of [NPDES permitting scheme], including conditions on data and information collection, reporting, and such other requirements as he deems appropriate."

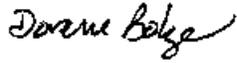
40 C.F.R. 122.44(d) reads in relevant part "In addition to the conditions established under §122.43(a), each NPDES permit shall include conditions meeting the following requirements when applicable... (d) any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to: (1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality..."

Section 69-3-108 of the Tennessee Water Pollution Control Act states in relevant part: (g) The commissioner may grant permits authorizing the discharges or activities described in subsection (b), including, but not limited to, land application of wastewater, but in granting such permits shall impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to accomplish the purposes of this part, and as are not inconsistent with the regulations promulgated by the board. Under no circumstances shall the commissioner issue a permit for an activity that would cause a condition of pollution either by itself or in combination with others. In addition the permits shall include:

(1) The most stringent effluent limitations and schedules of compliance, either promulgated by the board, required to implement any applicable water quality standards, necessary to comply with an areawide waste treatment plan, or necessary to comply with other state or federal laws or regulations; Regulations promulgated by TDEC and authorized by the Tennessee Water Pollution Control Act, Chapters 1200-4-3 and 1200-4-4: 1200-04-05-.04 prohibit the following: "(1) No permits shall be issued authorizing any of the following discharges: ... (f) When the conditions of the permit do not provide for compliance with the applicable requirements of either the federal CWA, or the Tennessee Water Quality Control Act (TWQCA);..."

We look forward to working with TDEC, the permittees, other agencies, and experts to move the watershed water quality monitoring and a Technical Advisory Committee to fruition.

Sincerely,



Dorene Bolze
Executive Director
Harpeth River Watershed Association

Distribution List:

Bob Martineau, TDEC Commissioner
Shari Meghreblian, Deputy Director, TDEC
Sandra Dudley, Director of the Division of Water Resources
Jennifer Dodd, TDEC
Alan Schwendimann, TDEC
Briton Dotson, TDEC
Wade Murphy, TDEC
Sherry Wang, TDEC
Ming Shiao, TDEC
Vojin Janjic, TDEC
Mark Hilty, City of Franklin, Director of Water Services
Tyler Ring, Berry's Chapel Utility
Bruce Myers, Cartwright Creek Utility
Jim Giattina, EPA Region IV, Water Protection Division
Chris Thomas, EPA Region IV, Chief, Pollution Control and Implementation Branch
Shawneille Campbell-Dunbar, EPA Region IV, Chief, TMDL Development Section
Mark Nuhfer, EPA Region IV, Chief, Municipal & Industrial NPDES
Marjan Farzaad, EPA, Region IV, Chief Stormwater & Nonpoint Source Section
Scott Gain, USGS, Director for TN
Shannon Williams, USGS
David McKinney, TWRA
Rob Todd, TWRA

Attachments:

1. Comprehensive Water Quality Monitoring Plan for the Harpeth River Watershed—Sept. 2012
2. Map of monitoring site for the plan
3. Chart for 6 USGS continuous water quality and flow gages and partners
4. Examples of Technical Advisory Committees with draft language for one for Harpeth with timeline
5. Draft permit language specific to monitoring and the TAC
6. Compilation of Ten Years of Dissolved Oxygen Data on the Harpeth—powerpoint of slides that include summary charts from Franklin IWRP work.
7. Map of Dissolved Oxygen data sites over 10 years

December 1, 2009

Mr. Gary Davis
Tennessee Department of Environment and Conservation
Division of Water Pollution Control
6th Floor, L&C Annex
401 Church Street
Nashville, Tennessee 37243

Re: Draft NPDES permits:
Franklin STP, TN0028827; Lynwood Utilities STP, TN0029718;
Cartwright Creek LLC – Grassland STP, TN0027278

Dear Mr. Davis,

Thank you for accommodating our request in October to extend the comment period until December 1 to enable us to compile our materials and analyses to provide to the department on these proposed permits. Please incorporate all of the attachments provided with this summary into our comments for the record. Also, HRWA signs onto the comments provided by the Tennessee Clean Water Network as they have signed onto ours in order to provide the department with comprehensive input without duplicating effort. TCWN has included review of the three permits by Dr. Joann Burkholder, an aquatic ecologist, who is the director of the Center for Applied Aquatic Ecology at NC State University. HRWA has included an analysis and calculations of the pollution load the river can handle based on the TMDL principles and current field conditions from Mike Corn, President of Aquaeter, an environmental engineering firm with extensive experience in TMDLs and water quality.

In addition to these comments I would like to reiterate our request for a joint public hearing on the three proposed permits. Having worked with the department on prior permit renewals (Lynwood and Franklin) and the ARAP permit for a withdrawal regime for Franklin's drinking water plant, I would like to suggest that the joint public hearing be set in January after the public hearings on the triennial review of the water quality standards. In consideration of the holiday season as well, setting a public hearing for late January will enable more public attendance to learn and provide input.

These three sewage treatment plants (STP) discharge directly into the Harpeth River within a 17 mile stretch of one another in the upper third of the watershed. The receiving waters are impaired as a result of low dissolved oxygen levels, nutrients and phosphates according to TDEC's 2008 303(d) list. Franklin's STP, with a design flow of 12 MGD (million gallons a day), is the largest point source discharger in the entire 872 square mile watershed, and is classified as a major discharger. At this time, the facility is operating at about half that capacity. The other two STPs, though significantly smaller as minor dischargers, are not far downstream. The EPA completed a TMDL for Nutrient Enrichment/Low Dissolved Oxygen in 2004 that applied to the Harpeth from the headwaters down to the mainstem's confluence with the Little Harpeth at the Williamson County line.

Violations of the state's dissolved oxygen standard in the Harpeth occur during the summer when the river naturally has its low flow summer season. Data gathered by the EPA, TDEC, HRWA, and consultants in studies related to various permit issues on the Harpeth have documented low dissolved oxygen levels as far downstream as the Harpeth River State Park in Cheatham County. The Harpeth River is listed on the 303(d) for low dissolved oxygen all the way downstream to the confluence with the South Harpeth in Cheatham County. These violations are occurring in two Tier II sections of the Harpeth River: the state scenic river section in Davidson County, and the adjacent downstream section in Cheatham County adjacent to the number properties that comprise the Harpeth River State Park. The attachments include four different dissolved oxygen studies of the Harpeth River that HRWA has conducted since 2002 with various partners and supporters. The two most extensive in 2006 and 2007 were coordinated with TDEC field staff with the study in 2007 funded in part by the TN Wildlife Resources Agency.

A number of analyses have been done that have built on and relooked at key aspects of the EPA's TMDL (Attachments 6 and 7). In addition to the mainstem's dissolved oxygen studies, HRWA has funded analyses, completed an EPA grant with Franklin and Williamson County as partners, and received several state 319 stream restoration grant that have encompassed the following: watershed plans and stream restoration in the headwaters, bacterial surveys and efforts toward addressing failing septic in the headwaters, characterized the effluent domination of the river's flow in the summer downstream from Franklin, amount of industrial chemical oxygen demand just upstream from Franklin's discharge from contaminated groundwater seepage from Egyptian Lacquer, the effect on the river's assimilative capacity from water withdrawals, and the use of site level stormwater runoff tools to reduce stormwater runoff contributions from development.

A key finding from several years of summer dissolved oxygen monitoring is that the Harpeth River does not meet the state water quality D.O. standard upstream from the first permitted sewage treatment plant. Data gathered measured times when the river was below state standards upstream of each of these permitted discharge points. Based on analysis funded by HRWA, at times when the river's dissolved oxygen levels were significantly below standards, the river's flow below Franklin was 50% or more of treated effluent that was then added to by the two downstream STP dischargers. Dissolved oxygen levels slowly increased and were above or close to the state standard in the Harpeth over 30 miles downstream from the Cartwright Creek outfall in Cheatham County where the river's flow was ten times or more what it is through the Franklin and northern Williamson County area. (See attachment 8 for a short summary or the actual reports in attachments 2-7).

Thus, the Harpeth River in the summer season is violating water quality standards for dissolved oxygen when the city of Franklin's plant is discharging at less than half of its permitted design capacity with a very highly treated effluent that is well within the permit limits. From a review of Franklin's DMRs, the plant's effluent is consistently at a BOD₅ of 2 mg/l or less. The proposed permit limit for BOD₅ in the renewal is 4 mg/l which is based on the TMDL. At Franklin's design flow of 12 MGD, this is significantly MORE pounds of oxygen demand than the city currently discharges and the river does not currently meet the state water quality standards under these current conditions. This is the same for the other two permits. These field data findings essentially point to issues with key assumptions in the TMDL, and that it is time for investment in a new TMDL model. (Attachment 6-7).

Field data and analysis provided with these and TCWN's comments all indicate that the Harpeth River is not meeting water quality standards, especially dissolved oxygen, because of effluent discharges from these facilities. The Harpeth river's flow in the summer is so low that permitted effluent discharges can easily make up a significant percent of the river's flow (specific estimates provided in attachments 6-7). To quote Dr. Burkholder in her comments, the Franklin STP with a design flow of 12 MGD "can 'swamp' the natural flow of the stream (low flow 7Q10 is only 0.49 MGD)." Though Franklin's design flow is the largest, because of the river's summer low-flow conditions, both the much smaller Lynwood and Cartwright Creek sewer plants also contribute enough pollutant load to continue to reduce oxygen levels and add nutrients that feed algal growth in the river. Lynwood at 0.4 MGD contributes about 14% of the river's flow when the Harpeth is at low flow, 7Q10 conditions of 2.77 MGD. Cartwright Creek, though the smallest at 0.25 MGD, has such significant inflow/infiltration problems with its collection system, that its effluent flow is nearly double that. So, even this small sewer plant when compared to the large upstream Franklin facility still contributes around 10% to the river's flow during 7Q10, low-flow conditions (2.86 MGD in the river).

As Dr. Burkholder states for the Lynwood and Cartwright Creek permits, "discharge from the STP under its new permit will continue to contribute substantially to the nutrient/eutrophication-related impairment for the receiving segment of this 303(d) listed stream." She states the same thing for Franklin's permit: "discharge ... will continue to significantly influence" the Harpeth.

The analysis provided in the attachment to our comments from Aquaeter (attachment 1) come to the same conclusion based on TMDL pollutant load calculations for oxygen demand. Using the TMDL equation that requires a margin of safety, incorporating pollutant loading from nonpoint sources, and using the specific data derived from the EPA in its TMDL, the amount of pollutant load the Harpeth can assimilate at the point of Franklin's outfall is 130 lbs/day of BOD (biological oxygen demand.) EPA's TMDL in comparison is three times higher at 400 lbs/day. Aquaeter's work incorporates existing conditions in the Harpeth, whereas the EPA's TMDL made a significant assumption that the river in the summer would be above state standard of 5 mg/l. (The TMDL used 6 mg/l). With existing conditions, that include a 300 lb/day pollutant load from the Egyptian Lacquer chemical input from contaminated groundwater, 130 lbs/day is all there is in the Harpeth for the existing three sewer plants. This is significantly less than the proposed permits would allow and the current permits already allow.

Based on the field data and analyses summarized above, the draft permits appear to violate the Clean Water Act and the TN Water Quality Control Act by not setting permit limits so that water quality standards are met in the receiving stream which is the Harpeth (see citations in TCWN comments). In addition, permits cannot be authorized when "conditions of the permit do not provide for compliance with the applicable requirements of the CWA or regulations promulgated under CWA" (40 CFR Part D section 122.4 (a) and (d) and TWQCA 1200-4-5-.04(f)).

HRWA applauds the department in working on a watershed basis in these permit renewals. For the Harpeth river, this is the first time the 3 sewage treatment plants in Williamson County, which include the largest point source discharge in the river system, will have their permits synchronized for renewal. This enables TDEC for the first time to have all the permit holders, sister agencies, private sector experts, non-profit organizations, and the public focusing on

establishing a solution and/or a process for finding a solution that the permits can drive that will result in the Harpeth meeting the state dissolved oxygen water quality standard in the near future.

A key to this will be Franklin's work on its new Integrated Water Resources Plan (IWRP) which will be integrating stormwater runoff, effluent discharge, effluent reuse, and water withdrawal for drinking water. The city of Franklin has also set goals in its sustainability plan for a reduction in the flow of treated effluent into the Harpeth during the summer low flow season. Williamson County has taken a lead role in addressing failing septic systems in neighborhoods around Lynwood STP. Both this sewer plant and Franklin will be receiving the sewage from over 400 currently septic served homes that will reduce the nutrient enrichment into Lynwood Creek that is also listed on the 303(d) list.

Comments Applicable to all three proposed permits:

1. Based on current conditions in the Harpeth, less effluent discharge in volume and in concentration of pollutants needs to be instituted for the low-flow summer season than what current permitted and is in the proposed new permits. A waste load allocation and TMDL needs to be redone for the Harpeth. This can be put in motion as part of Franklin's insightful IWRP initiative. Also, Franklin should not shoulder all the work and cost for developing a WLA for the Harpeth all by itself both in terms of analysis and monitoring. Though, clearly Franklin will take the lead and will likely become the regional sewer system since it has a highly functioning STP that can meet tight effluent limits cost effectively and has already put integrated water management schemes into play, such as effluent reuse.
2. Aquaeter's comments offer an interim WLA for which to finalize the proposed permits for their short term period to the end of November 2011 that would apply for the summer, low-flow season. Establishing a waste load for the Harpeth in the vicinity of the discharges forms the foundation of a watershed based permit. Franklin can currently meet a 130 lbs/day load allocation in the summer since its effluent CBOD5 is very clean at just under 2 mg/l. At a 6 MGD flow, which is what the facility currently produces, and its current BOD5, the Franklin STP could meet this pollutant load. But, it would mean no discharge in the summer for Lynwood and Cartwright Creek (which wasn't even factored into the EPA TMDL.) Franklin in the summer season has been sending 3 -4 MGD of its effluent to irrigation reuse which does not get discharged into the Harpeth. With Franklin's effluent reuse that is already in place, there is some pollutant load that can be allocated to the two other sewer plants in the summer for the short term duration of these permits.
3. Along the same lines of moving to watershed based permitting, all 3 proposed permits need the same effluent concentrations. For example, the proposed permits right now have Franklin with a tighter BOD5 than the other two, and Lynwood with the tightest TN. All 3 have different proposed TP effluent limits too.
4. The Harpeth River segments that all 3 STPs discharge into does not meet water quality standards in the summer predominantly because of effluent discharge. Each permit at the beginning of the rationale section instead says the "division considers these conditions to be due primarily to non-point discharges rather than the permittee's treated wastewater discharge." The field data and analyses presented in these comments and the EPA's TMDL refutes this. The rationale statement needs to be edited to state that conditions in these

segments of the river are due to the permittee's treated wastewater discharge as well as to non-point discharges.

5. Each permit needs language that is similar to what is found in other TDEC permits, such as the construction general permit: "This permit does not authorize discharges that would result in violation of a state water quality standard."
6. Each proposed permit dropped the TMDL reopener clause. Is there other language that accomplishes the same intent? If not, we suggest it be put back in these permits.
7. TDEC should test each facility's effluent quarterly as an independent duplicate sample when the permittee does it. The permittee can pay for this cost. This test would be used to derive the CBODu/BOD5 ratio.
8. The permits should establish a goal or two for the Integrated Water Management Plan that Franklin has begun so that the effort which is intended to improve water quality in the Harpeth produces analysis relevant for all 3 permittees. One goal would be to establish a waster load allocation for the Harpeth. Another goal needs to be to require that Lynwood and Cartwright Creek participate and bring some funding to the effort. (See item #9 and #10 below).

Lynwood and Cartwright Creek permits:

9. The permits for Lynwood and Cartwright Creek need to require their participation and some funding that they bring to Franklin's IWRP process so that all the permittees are involved. The possible scenarios for an implementation plan for a TMDL on the Harpeth for low dissolved oxygen will need to involve all 3 sewer plants. The 3 sewer plant utilities, the city of Franklin and Williamson County have all had discussions already as the northern Williamson County area looks at regional sewer solutions.
10. Both permits need to also require the similar receiving stream investigations that are in Franklin's proposed permit. This might be the best way to essentially have all 3 permittees involved in the IWRP and combining resources for collecting water quality data that is needed to develop a new waste load allocation/new TMDL for the Harpeth for low dissolved oxygen and nutrient enrichment.
11. Lynwood's reserve sewer capacity was a significant step by TDEC when the facility was approved for expansion to address adjacent neighborhoods with failing septic systems. Williamson County leadership has spent considerable effort to now have the sewer hook systems underway. Some of the neighborhoods will actually now be served by Franklin. This is a major step toward regional sewer integration in this area. But, it is critical to keep this reserve capacity in place. Prior analysis provided by HRWA to the department two years ago when the utility wanted to accept almost 430 new homes found that it would be hard for Lynwood to meet its current permit limits as it comes closer to its design capacity as these septic homes are hooked up. We recommend keeping the reserve in place, regardless of the status of the septic hook-up program, since at Lynwood's current operation the river is not meeting standards in the summer.
12. The neighborhood in which Lynwood is located has complained again about odor. What can the department do with regard to the proposed permit to address this problem? The

Cottonwood development layout that this facility was originally built for did not provide much in the way of buffering space for the facility.

13. Cartwright Creek has a significant I/I problem that the department recognizes in the draft permit (page R2). This significant increase in rain and groundwater into the facility is compromising the treatment according to the draft permit. The proposed permit does not have specifics as to how the utility will address this which needs to be done. This issue should be part of the IWRP so that these costs are incorporated in alternatives analysis that the project will be developing.

This permit renewal is really the beginning of developing a comprehensive plan for the mainstem of the Harpeth River so that it meets water quality standards during the summer low flow season. HRWA has been playing a significant role in collaborating with various state and federal agencies, working with the sewage treatment plant permittees, and bringing in private outside TMDL experts to help contribute to creating the framework for a cost effective plan for sewage management for the large growth area of the Harpeth River watershed so that the Harpeth will meet water quality standards as soon as possible. HRWA is looking forward to being a member of the stakeholder group of the IWRP that has its first meeting December 17.

HRWA would like to convene a gathering of all the permit holders, their consultants, other agency experts, TDEC, and any other interested parties to host a presentation and discussion of all the dissolved oxygen data. HRWA will offer this as part of the something we can bring to the IWRP effort. Please do not hesitate to contact me with any questions on these comments and I look forward to working with all the stakeholders.

Sincerely,



Dorie Bolze
Executive Director
(615) 790-9767 ext. 101
(615) 479-0181 (c)

Cc: Paul Sloan, Deputy Director, TDEC
Paul Davis, Director, Water Pollution Control, TDEC
Vojin Janjic, Permit Section, Water Pollution Control, TDEC
Saya Qualls, TDEC
Mark Hilty, City of Franklin director of Water and Sewer
Tyler Ring, president, Lynwood Utility District
Bruce Myers, regional manager, Cartwright Creek LLC
Dave McKinney and staff, TWRA
Steve Alexander, US Fish and Wildlife Service, Cookeville
Rogers Anderson, Williamson County mayor
John Schroer, city of Franklin mayor

Bill Melville, EPA
 Tom McGill, EPA
 Mark Nuhfer, EPA

Attachments:

Below is a list of the attachments and a brief description of their relevance. Some are on the HRWA web site (under Library/Scientific Studies), so their location is supplied so they can be printed out for the file. Most of these documents you and others in the department have received already. I will mail you a printed set as well. Please contact HRWA for copies of any of these attachments.

1. Comments on the Harpeth River Watershed NDPES Permits, by Aquaeter to Harpeth River Watershed Association, Nov. 25, 2009

This memo includes calculations of the waste load allocation based on current river conditions that can be established now to apply for all 3 permits for summer low-flow season discharges until a TMDL is redone.

2. Dissolved Oxygen in the Harpeth River: August-September 2006. Final. Harpeth River Watershed Association. Bolze, Cain, and McFadden. Feb. 2007.

<http://www.harpethriver.org/library/library?id=55414>

This report compiled Dissolved Oxygen data from various sources since the EPA's data for the TMDL in 2001 up to 2006. TDEC's diurnal monitoring data from 2002 and 2003 is in Appendix E. HRWA's first Dissolved Oxygen study from 2002 is Appendix F. The 2006 D.O. monitoring coordinated by HRWA and TDEC was comprised of 10 sampling sites, 3 of which were TDEC sites. Maps in the report help to locate all the sites along almost the entire mainstem from the headwaters to the take out point at the Harpeth River State Park. USGS data on flow during the monitoring is included as well.

3. Dissolved Oxygen Study: June – July 2007. Final. Harpeth River Watershed Association. By Cain and Bolze.

<http://www.sitemason.com/files/bMJfB6/HRWA%20July%202007%20dissolved%20oxygen%20study%20final%20report.pdf>

Eight sites were monitored in the segment of the Harpeth River through downtown Franklin to see if affects of dissolved oxygen could be captured from the chemically contaminated seeps into the Harpeth River and from seeps into Liberty Creek that flows into the Harpeth. The contaminated groundwater is from chemicals released by Egyptian Lacquer Manufacturing Company. The upmost site is above the lowhead dam, and the furthest downstream site is downstream of the Franklin STP outfall.

4. Dissolved Oxygen in the Harpeth River: September 2007. Harpeth River Watershed Association. By Cain and Bolze. (electronic file)

The report is complete but without a discussion section because the most recent version was corrupted. The file is a scan of a printed version. Figure 1 that displays all the site data is missing one site (#10 at RM 84.8), but the data from that site are in the report. Just like with the 2006

survey, TDEC placed diurnal monitoring probes at 3 of the sites. This year's survey was the most extensive in distance and in number of sites.

5. Harpeth River Dissolved Oxygen Survey: September 2008. Draft. (electronic file). This file has all the data from this year's survey in an excel spreadsheet with a summary table. TDEC wasn't able to employ the monitoring probes this year since they were in use in another watershed for the state's five-year cycle. The sites this year begin at the site below the Franklin STP outfall and the furthest downstream is at the Highway 70 bridge in Cheatham County.

6. Water Quality Analysis: Harpeth River Between Franklin and Kingston Springs, TN. Aquaeter. By Corn and Corn. For Harpeth River Watershed Association. September 2006.

<http://www.sitemason.com/files/faR5Vm/Water%20Quality%20Analysis.pdf>

This analysis discusses key assumptions in the EPA's TMDL for low dissolved oxygen, has estimated percentages of river flows that are treated effluent, and has TDEC's diurnal D.O. data from 2002 and 2003. Key assumptions in the TMDL include that the river will be at 6 mg/l of D.O. before the first STP outfall.

7. Dissolved Oxygen in the Harpeth River: Connecting Point Source, Nonpoint Source, and Water Withdrawals. Presentation to the TN AWRA by Aquaeter and HRWA. By Corn, Corn, Bolze, and Davee. April 2008. Powerpoint. (electronic file) The powerpoint has EPA's Dissolved Oxygen data chart from the TMDL from August 2000 (p. 12), river flow data from the 2006 HRWA Dissolved Oxygen survey, three charts from TDEC's diurnal monitoring from 2002 and 2003 with estimated ranges of effluent percentage (pgs 14-16), and a simple mass balance for the Harpeth river to derive the flow needed to assimilate the design capacity of the Franklin sewer plant. If the Harpeth river just upstream of the Franklin outfall is 6 mg/l, then 96 cfs of flow is needed to provide enough oxygen to assimilate the effluent at the design flow of 12 MGD and current effluent concentrations. On page 23 is Figure 18 from the EPA TMDL that indicates that the BOD concentration in Franklin's effluent needs to be 3 mg/l for a 12 MGD design flow to meet the river's D.O. standard of 5 mg/l. This is lower than the 4 mg/l recommended in the TMDL summary table.

8. Two Memos via email by Dorene Bolze, Harpeth River Watershed Association, to EPA, USFWS, TWRA, USGS, Aquaeter, and others, on findings from Dissolved Oxygen surveys. March 08, 2007 re 2006 Dissolved Oxygen study and July 19, 2007 re June 2007 Dissolved Oxygen study in Franklin area. (electronic file)

The memos provide a summary of results that found low dissolved oxygen levels in violation of state water quality standards upstream and downstream of the various sewage treatment plant outfalls. Memos point to analysis of percent of river flow that is treated effluent during the monitoring period. Also discussed are assumptions in the EPA's TMDL for low dissolved oxygen and D.O. drop tied to the seeps of chemicals in the groundwater from Egyptian Lacquer.