



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

**401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243**
September 30, 2010

Mr. Mark Hilty
Director
Franklin Water Management Department
109 3rd Ave. S.
Franklin, TN 37064

Subject: NPDES Permit No. TN0028827
Franklin STP
Franklin, Williamson County, Tennessee

Dear Mr. Hilty:

In accordance with the provisions of the Tennessee Water Quality Control Act, Tennessee Code Annotated (T.C.A.), Sections 69-3-101 through 69-3-120, the Division of Water Pollution Control hereby issues the enclosed NPDES Permit. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that a petition for permit appeal may be filed, pursuant to T.C.A. Section 69-3-105, subsection (i), by the permit applicant or by any aggrieved person who participated in the public comment period or gave testimony at a formal public hearing whose appeal is based upon any of the issues that were provided to the commissioner in writing during the public comment period or in testimony at a formal public hearing on the permit application. Additionally, for those permits for which the department gives public notice of a draft permit, any permit applicant or aggrieved person may base a permit appeal on any material change to conditions in the final permit from those in the draft, unless the material change has been subject to additional opportunity for public comment. Any petition for permit appeal under this subsection (i) shall be filed with the board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit.

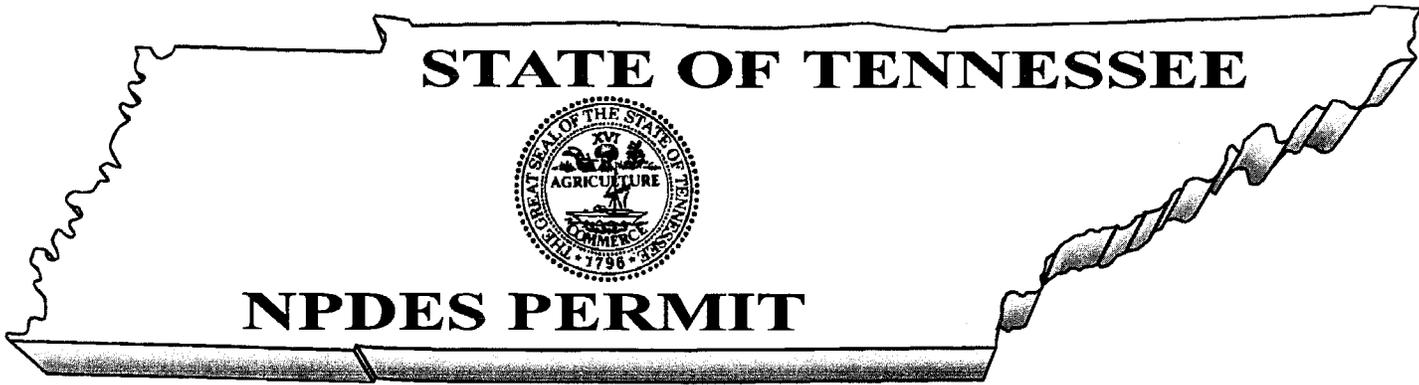
If you have questions, please contact the Division of Water Pollution Control at your local Field Office at 1-888-891-TDEC; or, at this office, please contact Mr. Gary Davis at (615) 532-0649 or by E-mail at Gary.Davis@tn.gov.

Sincerely,

Vojin Janjic
Manager, Permit Section
Division of Water Pollution Control

Enclosure

cc/ec: DWPC, Permit Section & Nashville Environmental Field Office
Ms. Connie A. Kagey, NPDES Permit Section, EPA Region IV, Kagey.Connie@epamail.epa.gov



No. TN0028827

Authorization to discharge under the
National Pollutant Discharge Elimination System (NPDES)

Issued By

**Tennessee Department of Environment and Conservation
Division of Water Pollution Control
401 Church Street
6th Floor, L & C Annex
Nashville, Tennessee 37243-1534**

Under authority of the Tennessee Water Quality Control Act of 1977 (T.C.A. 69-3-101 et seq.) and the delegation of authority from the United States Environmental Protection Agency under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251, et seq.)

Discharger: **Franklin STP**
is authorized to discharge: **treated municipal wastewater from Outfall 001
also permitted for unrestricted non-potable reuse**
from a facility located: **in Franklin, Williamson County, Tennessee**
to receiving waters named: **Harpeth River at mile 85.2**
in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on: **November 1, 2010**

This permit shall expire on: **November 30, 2011**

Issuance date: **September 30, 2010**


Paul E. Davis, Director
Division of Water Pollution Control

TABLE OF CONTENTS

	<u>Page</u>
1.0. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	1
1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS	1
1.2. MONITORING PROCEDURES	5
1.2.1. Representative Sampling	5
1.2.2. Sampling Frequency	6
1.2.3. Test Procedures	6
1.2.4. Recording of Results	6
1.2.5. Records Retention	6
1.3. REPORTING	7
1.3.1. Monitoring Results	7
1.3.2. Additional Monitoring by Permittee	7
1.3.3. Falsifying Results and/or Reports	8
1.3.4. Monthly Report of Operation	8
1.3.5. Bypass and Overflow Reporting	8
1.3.5.1. Report Requirements	8
1.3.5.2. Anticipated Bypass Notification	8
1.3.6. Reporting Less Than Detection	8
1.4. COMPLIANCE WITH SECTION 208	9
1.5. REOPENER CLAUSE	9
2.0. GENERAL PERMIT REQUIREMENTS	10
2.1. GENERAL PROVISIONS	10
2.1.1. Duty to Reapply	10
2.1.2. Right of Entry	10
2.1.3. Availability of Reports	10
2.1.4. Proper Operation and Maintenance	10
2.1.5. Treatment Facility Failure (Industrial Sources)	11
2.1.6. Property Rights	11
2.1.7. Severability	11
2.1.8. Other Information	11
2.2. CHANGES AFFECTING THE PERMIT	11
2.2.1. Planned Changes	11
2.2.2. Permit Modification, Revocation, or Termination	12
2.2.3. Change of Ownership	12
2.2.4. Change of Mailing Address	13

2.3.NONCOMPLIANCE	13
2.3.1. Effect of Noncompliance.....	13
2.3.2. Reporting of Noncompliance	13
2.3.3. Overflow	14
2.3.4. Upset.....	15
2.3.5. Adverse Impact	15
2.3.6. Bypass	15
2.3.7. Washout.....	16
2.4.LIABILITIES.....	16
2.4.1. Civil and Criminal Liability.....	16
2.4.2. Liability Under State Law	17
3.0. PERMIT SPECIFIC REQUIREMENTS.....	18
3.1.CERTIFIED OPERATOR.....	18
3.2.POTW PRETREATMENT PROGRAM GENERAL PROVISIONS.....	18
3.3.SLUDGE MANAGEMENT PRACTICES	23
3.4.BIOMONITORING REQUIREMENTS, CHRONIC	25
3.5.PLACEMENT OF SIGNS.....	27
3.6.ULTIMATE CBOD INVESTIGATIONS.....	28
3.7.RECEIVING STREAM MONITORING/REPORTING	28
3.8.NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING	28
3.9.TREATED WASTEWATER REUSE	28
3.10.ANTIDegradation	29
4.0. DEFINITIONS AND ACRONYMS	30
4.1.DEFINITIONS.....	30
4.2.ACRONYMS AND ABBREVIATIONS.....	33
ATTACHMENTS	30
1.RECEIVING STREAM INVESTIGATIONS.....	36
2.NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING	39
ADDENDUM TO RATIONALE.....	AD-1

RATIONALE	R-1
R1. FACILITY INFORMATION.....	R-1
R2. RECEIVING STREAM INFORMATION	R-1
R3. CURRENT PERMIT STATUS	R-1
R4. PERMIT RENEWAL CONSIDERATIONS	R-2
R5. NEW PERMIT COMPLIANCE SUMMARY	R-3
R6. CURRENT PERMIT DISCHARGE MONITORING REPORT (DMR)	R-3
R7. NEW PERMIT REQUIREMENTS RATIONALE.....	R-3
R7.1. FLOW.....	R-5
R7.2. CONTROL REQUIREMENTS/MONITORING FOR CBOD5, ULTIMATE CBOD, DISSOLVED OXYGEN, NH3-N, AND CBOD5 REMOVAL	R-5
R7.3. TOTAL SUSPENDED SOLIDS (TSS) AND TSS REMOVAL	R-5
R7.4. AQUATIC TOXICITY POTENTIAL DUE TO AMMONIA NITROGEN ...	R-6
R7.5. TOTAL AND INSOLUBLE NITROGEN AND PHOSPHORUS	R-6
R7.6. TOTAL COPPER AND SILVER	R-8
R7.7. <i>E. coli</i>	R-9
R7.8. TOTAL RESIDUAL CHLORINE.....	R-9
R7.9. SETTLEABLE SOLIDS.....	R-9
R7.10. pH	R-9
R7.11. IC25 – CHRONIC WHOLE EFFLUENT TESTING	R-9
R7.12. METALS AND TOXICS CONSIDERATIONS	R-10
R7.13. OVERFLOW AND BYPASS REPORTING	R-12
R7.14. OTHER REQUIREMENTS AND CONDITIONS.....	R-12
R7.15. CERTIFIED WASTEWATER TREATMENT OPERATOR	R-12
R7.16. COLLECTION SYSTEM CERTIFIED OPERATOR	R-12
R7.17. PRETREATMENT PROGRAM.....	R-12
R7.18. TREATED WASTEWATER REUSE.....	R-13
R7.19. PERMIT TERM.....	R-13
R7.20. INSTREAM MONITORING REQUIREMENTS	R-13
R7.21. ANTIDegradation STATEMENT/WATER QUALITY STATUS.....	R-13
 APPENDICES	 R-15
1. WASTEWATER TREATMENT PLANT SCHEMATIC DIAGRAM.....	R-15
2. CURRENT PERMIT LIMITATIONS AND MONITORING REQUIREMENTS....	R-16
3. TREATED WASTEWATER REUSE CONSIDERATIONS	R-23
4. DISCHARGE MONITORING REPORT (DMR) RESULTS.....	R-24

5. AMMONIA NITROGEN AQUATIC TOXICITY CALCULATIONS.....R-26

6. TREATED EFFLUENT PHOSPHORUS CONTROL CONSIDERATIONSR-27

7. NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING.....R-28

8. METALS AND TOXICS CALCULATIONS.....R-29

PUBLIC HEARING - NOTICE OF DETERMINATION..... NOD-1

GMDa
TN0028827PMT.DOC

1.0. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

The City of Franklin (permittee) is authorized to discharge treated municipal wastewater from Outfall 001 to the Harpeth River at river mile 85.2. The permittee is also authorized unrestricted non-potable reuse of its treated municipal wastewater. The permittee wastewater treatment plant has a 12 MGD design capacity. The Outfall 001 discharge shall be limited and monitored by the permittee as specified below:

Parameters	Effluent Limitations							Monitoring Requirements		
	Monthly Average Conc. (mg/l)	Monthly Average Amount (lb/day)	Weekly Average Conc. (mg/l)	Weekly Average Amount (lb/day)	Daily Maximum Conc. (mg/l)	Daily Minimum Percent Removal	Measurement Frequency	Sample Type	Sampling Point	
CBOD ₅ (summer)	4.0	400	6.0	600	8.0	40	7/week	composite	effluent	
	Report	—	—	—	Report	—	7/week	composite	influent	
CBOD ₅ (winter)	10	1,001	15	1,500	20	40	7/week	composite	effluent	
	Report	—	—	—	Report	—	7/week	composite	influent	
CBOD _u (a) (summer)	—	—	—	—	Report	—	1/year	composite	effluent	
Ammonia as N (summer)	0.4	40	0.6	60	0.8	—	7/week	composite	effluent	
Ammonia as N (winter)	1.5	150	2.3	230	3.0	—	7/week	composite	effluent	
Total Nitrogen (summer)	5.0	377 (b)	—	—	Report	—	2/month	composite	effluent	
	—	—	—	—	—	—	2/month	composite	influent	
Total Nitrogen (winter)	Report	(b)	—	—	Report	—	2/month	composite	effluent	
	—	—	—	—	—	—	2/month	composite	influent	
Insoluble TKN as N (summer)	Report	—	—	—	—	—	2/month	composite	effluent	
	5.0	Report	—	—	Report	—	2/month	composite	effluent	
Total Phosphorus as P (summer)	—	—	—	—	—	—	2/month	composite	influent	
	Report	Report	—	—	—	—	2/month	composite	effluent	
Total Phosphorus as P (winter)	—	—	—	—	—	—	2/month	composite	effluent	
	Report	Report	—	—	—	—	2/month	composite	influent	
Insoluble Total Phosphorus as P (summer)	Report	—	—	—	—	—	2/month	composite	effluent	
	10 (c)	1,001	15	1,501	20	40	7/week	composite	effluent	
Suspended Solids (summer)	Report	—	—	—	Report	—	7/week	composite	influent	
	30	3,002	40	4,003	45	40	7/week	composite	effluent	
Suspended Solids (winter)	Report	—	—	—	Report	—	7/week	composite	effluent	
	—	—	—	—	—	—	7/week	composite	influent	

Note: Summer = May 1 – Oct. 31 and winter = Nov. 1 – Apr. 30. The permittee shall achieve CBOD₅ and TSS of at least 85 percent removals, on a monthly average basis.

Total Nitrogen and Total Phosphorus monitoring – report monthly influent and effluent average concentrations, mass loadings, and percentage removals based on 2/month monitoring.

(a) Ultimate CBOD (CBOD_u) shall be determined pursuant to Section 3.6.

(b) Annual Total Nitrogen average permit limit shall be ≤ 290 lb/day, and result shall be reported with the DMR submitted by January 15.

(c) A violation of this value will not result in a Notice of Violation (NOV) if the reason for a higher monthly average value occurrence was not due to tertiary filter neglect.

Parameters	Effluent Limitations			Monitoring Requirements		
	Monthly Average (mg/L)	Daily Minimum (mg/L)	Daily Maximum (mg/L)	Measurement Frequency	Sample Type	Sampling Point
Sanitary Sewer Overflows, Total Occurrences	Report	Report	Report	continuous	visual	NA
Dry Weather Overflows, Total Occurrences	Report	Report	Report	continuous	visual	NA
Bypass of Treatment, Total Occurrences	Report	Report	Report	continuous	visual	NA
Selenium, Total	0.005	—	0.019	Semiannual	composite	effluent
Silver, Total	0.010	—	0.010	Semiannual	composite	effluent
Cyanide, Total	0.00478	—	0.0205	Semiannual	composite	effluent
<i>E. coli</i> (ctu/100 ml)	126	—	941	7/week	grab	effluent
Chlorine Residual, Total (b)	—	—	0.02 (a)	7/week	grab	effluent
Settleable Solids (ml/l)	—	—	1.0	7/week	composite	effluent
Dissolved Oxygen (mg/l)	—	8.0 (a)	—	7/week	grab	effluent
pH (s. u.)	—	6.0	9.0	7/week	grab	effluent
Flow (MGD)	Report	—	Report	7/week	continuous	influent
IC ₂₅ (c)	Report	>100% (Survival, reproduction and growth)	Report	7/week	continuous	effluent
				1/quarter	composite	effluent

(a) Instantaneous requirement
 (b) Applicable if chlorination is used for disinfection or when the treated effluent may be reasonably expected to contain total residual chlorine. Total residual chlorine (TRC) monitoring shall be applicable when chlorine, bromine, or any other oxidants are added. The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC shall be interpreted to constitute compliance with the permit.
 (c) Whole effluent toxicity – chronic testing pursuant to Section 3.4.

The City of Franklin is authorized to distribute treated municipal wastewater for non-potable reuse. The reuse water shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Effluent Limitations		Monitoring Requirements		
	Daily Minimum	Daily Maximum	Measurement Frequency	Sample Type	Sampling Point
<i>E.coli</i>		23 colonies /100 ml (see the following paragraphs)	1/day	grab	See note (1)
Residual Chlorine, Total	1 mg/l (after 30 min.)		1/day or continuous	grab	See notes (1) and (2)

(1) Daily *E.coli* and total residual chlorine samples shall be collected at the point of release from the treatment system. Quarterly *E.coli* and residual chlorine samples must be collected for analysis at two points within the distribution system: one that is representative of the system's average residence time and one that is representative of the system's maximum residence time.

(2) Total residual chlorine (TRC) monitoring shall be applicable when chlorine, bromine, or any other oxidants are added. The acceptable methods for analysis of TRC are any methods specified in Title 40 CFR, Part 136 as amended. The method detection level (MDL) for TRC shall not exceed 0.05 mg/l unless the permittee demonstrates that its MDL is higher. The permittee shall retain the documentation that justifies the higher MDL and have it available for review upon request. In cases where the permit limit is less than the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit.

This permit allows the operation of land application (spray irrigation or drip irrigation). The operation must be such that there is no contamination of and no wastewater discharge to any surface or subsurface stream because of collected pools of water called "ponding" or because of improper irrigation. Applications shall not be performed when wet or frozen conditions exist at the application sites. Any runoff due to improper operation must be reported in writing to the Division of Water Pollution Control, Environmental Field Office - Nashville within 5 days of the incident. In addition, the reuse irrigation system must be operated in a manner preventing the creation of a public health hazard or a public/private nuisance. Additional requirements are found in Section 3.9.

The wastewater discharge must be disinfected to the extent that viable coliform organisms are effectively eliminated. The concentration of the *E. coli* group after disinfection shall not exceed 126 cfu per 100 ml as the geometric mean calculated on the actual number of samples collected and tested for *E. coli* within the required reporting period. The permittee may collect more samples than specified as the monitoring frequency. Samples may not be collected at intervals of less than 12 hours. For the purpose of determining the geometric mean, individual samples having an *E. coli* group concentration of less than one (1) per 100 ml shall be considered as having a concentration of one (1) per 100 ml. In addition, the concentration of the *E. coli* group in any individual sample shall not exceed a specified maximum amount. A maximum daily limit of 487 cfu per 100 ml applies to lakes and Exceptional Tennessee Waters. A maximum daily limit of 941 cfu per 100 ml applies to all other recreational waters.

There shall be no distinctly visible floating scum, oil or other matter contained in the wastewater discharge. The wastewater discharge must not cause an objectionable color contrast in the receiving stream.

The wastewater discharge shall not contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream.

Sludge or any other material removed by any treatment works must be disposed of in a manner that prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA 68-31-101 *et seq.* and the Tennessee Hazardous Waste Management Act, TCA 68-46-101 *et seq.*

For the purpose of evaluating compliance with the permit limits established herein, where certain limits are below the State of Tennessee published required detection levels (RDLs) for any given effluent characteristics, the results of analyses below the RDL shall be reported as Below Detection Level (BDL), unless in specific cases other detection limits are demonstrated to be the best achievable because of the particular nature of the wastewater being analyzed.

For CBOD₅ and TSS, the treatment facility shall demonstrate a minimum of 85% removal efficiency on a monthly average basis. This is calculated by determining an average of all daily influent concentrations and comparing this to an average of all daily effluent concentrations. The formula for this calculation is as follows:

$$\left[1 - \frac{\text{average of daily effluent concentration}}{\text{average of daily influent concentration}} \right] \times 100\% = \% \text{ removal}$$

The treatment facility will also demonstrate 40% minimum removal of the CBOD₅ and TSS based upon each daily composite sample. The formula for this calculation is as follows:

$$\left[1 - \frac{\text{daily effluent concentration}}{\text{daily influent concentration}} \right] \times 100\% = \% \text{ removal}$$

1.2. MONITORING PROCEDURES

1.2.1. Representative Sampling

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge, and shall be taken at the following location(s):

Influent samples must be collected prior to mixing with any other wastewater being returned to the head of the plant, such as sludge return. Those systems with more than one influent line must collect samples from each and proportion the results by the flow from each line.

Effluent samples must be representative of the wastewater being discharged and collected prior to mixing with any other discharge or the receiving stream. This can be a different point for different parameters, but must be after all treatment for that parameter or all expected change:

- a. CBOD₅ samples can be collected before disinfection to avoid having to seed the samples and dechlorinate if chlorine is used.
- b. The chlorine residual must be measured after the chlorine contact chamber and any dechlorination. It may be to the advantage of the permittee to measure at the end of any long outfall lines.
- c. Samples for *E. coli* can be collected at any point between disinfection and the actual discharge.
- d. The dissolved oxygen can drop in the outfall line; therefore, D.O. measurements are required at the discharge end of outfall lines greater than one mile long. Systems with outfall lines less than one mile may measure dissolved oxygen as the wastewater leaves the treatment facility. For systems with dechlorination, dissolved oxygen must be measured after this step and as close to the end of the outfall line as possible.
- e. Total suspended solids and settleable solids can be collected at any point after the final clarifier.

- f. Biomonitoring tests (if required) shall be conducted on final effluent.

1.2.2. Sampling Frequency

Where the permit requires sampling and monitoring of a particular effluent characteristic(s) at a frequency of less than once per day or daily, the permittee is precluded from marking the "No Discharge" block on the Discharge Monitoring Report if there has been any discharge from that particular outfall during the period which coincides with the required monitoring frequency; i.e. if the required monitoring frequency is once per month or 1/month, the monitoring period is one month, and if the discharge occurs during only one day in that period then the permittee must sample on that day and report the results of analyses accordingly.

1.2.3. Test Procedures

- a. Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304 (h) of the Clean Water Act (the "Act"), as amended, under which such procedures may be required.
- b. Unless otherwise noted in the permit, all pollutant parameters shall be determined according to methods prescribed in Title 40, CFR, Part 136, as amended, promulgated pursuant to Section 304 (h) of the Act. For mercury monitoring EPA Method 245.7 or 1631E must be used, unless otherwise authorized by the division in writing.
- c. Composite samples must be proportioned by flow at time of sampling. Aliquots may be collected manually or automatically. The sample aliquots must be maintained at ≤ 6 degrees Celsius during the compositing period.

1.2.4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The exact place, date and time of sampling;
- b. The exact person(s) collecting samples;
- c. The dates and times the analyses were performed;
- d. The person(s) or laboratory who performed the analyses;
- e. The analytical techniques or methods used, and;
- f. The results of all required analyses.

1.2.5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation shall be retained for a minimum of three (3) years, or longer, if requested by the Division of Water Pollution Control.

1.3. REPORTING

1.3.1. Monitoring Results

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Report (DMR) forms or an electronic program supplied by the Division of Water Pollution Control. Submittals shall be postmarked or sent electronically no later than 15 days after the completion of the reporting period. The top two copies of each report are to be submitted. A copy should be retained for the permittee's files. DMRs and any communication regarding compliance with the conditions of this permit must be sent to:

**TENNESSEE DEPT. OF ENVIRONMENT & CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
COMPLIANCE REVIEW SECTION
401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243-1534**

The first DMR is due on the 15th of the month following permit effectiveness.

DMRs and any other report or information submitted to the division must be signed and certified by a responsible corporate officer as defined in 40 CFR 122.22, a general partner or proprietor, or a principal municipal executive officer or ranking elected official, or his duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

The electronic submission of DMRs will be accepted only if approved in writing by the division. For purposes of determining compliance with this permit, data submitted in electronic format is legally equivalent to data submitted on signed and certified DMR forms.

The permittee shall submit its Monthly Operating Report (MOR) to the division's Nashville Environmental Field Office - Water Pollution Control.

1.3.2. Additional Monitoring by Permittee

If the permittee monitors any pollutant specifically limited by this permit more frequently than required at the location(s) designated, using approved analytical methods as specified herein, the results of such monitoring shall be included in the

calculation and reporting of the values required in the DMR form. Such increased frequency shall also be indicated on the form.

1.3.3. Falsifying Results and/or Reports

Knowingly making any false statement on any report required by this permit or falsifying any result may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Water Pollution Control Act, as amended, and in Section 69-3-115 of the Tennessee Water Quality Control Act.

1.3.4. Monthly Operating Reports (MOR)

Monthly operating reports shall be submitted on standard forms to the appropriate Division of Water Pollution Control Environmental Field Office in Jackson, Nashville, Chattanooga, Columbia, Cookeville, Memphis, Johnson City, or Knoxville. Reports shall be submitted by the 15th day of the month following data collection.

1.3.5. Bypass and Overflow Reporting

1.3.5.1. Report Requirements

A summary report of known or suspected instances of overflows in the collection system or bypass of wastewater treatment facilities shall accompany the Discharge Monitoring Report. The report must contain the date and duration of the instances of overflow and/or bypassing and the estimated quantity of wastewater released and/or bypassed.

The report must also detail activities undertaken during the reporting period to (1) determine if overflow is occurring in the collection system, (2) correct those known or suspected overflow points and (3) prevent future or possible overflows and any resulting bypassing at the treatment facility.

On the DMR, the permittee must report the number of sanitary sewer overflows, dry-weather overflows and in-plant bypasses separately. Three lines must be used on the DMR form, one for sanitary sewer overflows, one for dry-weather overflows and one for in-plant bypasses.

1.3.5.2. Anticipated Bypass Notification

If, because of unavoidable maintenance or construction, the permittee has need to create an in-plant bypass which would cause an effluent violation, the permittee must notify the division as soon as possible, but in any case, no later than 10 days prior to the date of the bypass.

1.3.6. Reporting Less Than Detection

A permit limit may be less than the accepted detection level. If the samples are below the detection level, then report "BDL" or "NODI =B" on the DMRs. The permittee must use the correct detection levels in all analytical testing required in the permit. The required detection levels are listed in the Rules of the Department of

Environment and Conservation, Division of Water Pollution Control, Chapter 1200-4-3-.05(8).

For example, if the limit is 0.02 mg/l with a detection level of 0.05 mg/l and detection is shown; 0.05 mg/l must be reported. In contrast, if nothing is detected reporting "BDL" or "NODI =B" is acceptable.

1.4. COMPLIANCE WITH SECTION 208

The limits and conditions in this permit shall require compliance with an area-wide waste treatment plan (208 Water Quality Management Plan) where such approved plan is applicable.

1.5. REOPENER CLAUSE

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 307(a)(2) and 405(d)(2)(D) of the Clean Water Act, as amended, if the effluent standard, limitation or sludge disposal requirement so issued or approved:

- a. Contains different conditions or is otherwise more stringent than any condition in the permit; or
- b. Controls any pollutant or disposal method not addressed in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

All permit reopener provisions shall be subject to applicable public participation.

For cause the division may reopen and modify the permit for changes required due to the permittee's reuse irrigation practices allow application sites to potentially exceed the State groundwater nitrate criteria. The division may reopen the permit to include mercury limits and/or more frequent monitoring requirements based on results from the more sensitive testing methods.

2.0. GENERAL PERMIT REQUIREMENTS

2.1. GENERAL PROVISIONS

2.1.1. Duty to Reapply

Permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director of Water Pollution Control (the "director") no later than 180 days prior to the expiration date. Such forms shall be properly signed and certified.

2.1.2. Right of Entry

The permittee shall allow the director, the Regional Administrator of the U.S. Environmental Protection Agency, or their authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;
- b. To inspect at reasonable times any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit; and
- c. To sample at reasonable times any discharge of pollutants.

2.1.3. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Water Pollution Control Act, as amended, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Water Pollution Control. As required by the Federal Act, effluent data shall not be considered confidential.

2.1.4. Proper Operation and Maintenance

- a. The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is

necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.

- b. Dilution water shall not be added to comply with effluent requirements to achieve BCT, BPT, BAT and or other technology based effluent limitations such as those in State of Tennessee Rule 1200-4-5-.09.

2.1.5. Treatment Facility Failure (Industrial Sources)

The permittee, in order to maintain compliance with this permit, shall control production, all discharges, or both, upon reduction, loss, or failure of the treatment facility, until the facility is restored or an alternative method of treatment is provided. This requirement applies in such situations as the reduction, loss, or failure of the primary source of power.

2.1.6. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

2.1.7. Severability

The provisions of this permit are severable. If any provision of this permit due to any circumstance, is held invalid, then the application of such provision to other circumstances and to the remainder of this permit shall not be affected thereby.

2.1.8. Other Information

If the permittee becomes aware of failure to submit any relevant facts in a permit application, or of submission of incorrect information in a permit application or in any report to the director, then the permittee shall promptly submit such facts or information.

2.2. CHANGES AFFECTING THE PERMIT

2.2.1. Planned Changes

The permittee shall give notice to the director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

- a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
- b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants, which

are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1).

2.2.2. Permit Modification, Revocation, or Termination

- a. This permit may be modified, revoked and reissued, or terminated for cause as described in 40 CFR 122.62 and 122.64, Federal Register, Volume 49, No. 188 (Wednesday, September 26, 1984), as amended.
- b. The permittee shall furnish to the director, within a reasonable time, any information which the director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the director, upon request, copies of records required to be kept by this permit.
- c. If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established for any toxic pollutant under Section 307(a) of the Federal Water Pollution Control Act, as amended, the director shall modify or revoke and reissue the permit to conform to the prohibition or to the effluent standard, providing that the effluent standard is more stringent than the limitation in the permit on the toxic pollutant. The permittee shall comply with these effluent standards or prohibitions within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified or revoked and reissued to incorporate the requirement.
- d. The filing of a request by the permittee for a modification, revocation, reissuance, termination, or notification of planned changes or anticipated noncompliance does not halt any permit condition.

2.2.3. Change of Ownership

This permit may be transferred to another party (provided there are neither modifications to the facility or its operations, nor any other changes which might affect the permit limits and conditions contained in the permit) by the permittee if:

- a. The permittee notifies the director of the proposed transfer at least 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and
- c. The director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

Pursuant to the requirements of 40 CFR 122.61, concerning transfer of ownership, the permittee must provide the following information to the division in their formal notice of intent to transfer ownership: 1) the NPDES permit number of the subject permit; 2) the effective date of the proposed transfer; 3) the name and address of the transferor; 4) the name and address of the transferee; 5) the names of the responsible parties for both the transferor and transferee; 6) a statement that the transferee assumes responsibility for the subject NPDES permit; 7) a statement that the transferor relinquishes responsibility for the subject NPDES permit; 8) the signatures of the responsible parties for both the transferor and transferee pursuant to the requirements of 40 CFR 122.22(a), "Signatories to permit applications"; and, 9) a statement regarding any proposed modifications to the facility, its operations, or any other changes which might affect the permit limits and conditions contained in the permit.

2.2.4. Change of Mailing Address

The permittee shall promptly provide to the director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

2.3. NONCOMPLIANCE

2.3.1. Effect of Noncompliance

All discharges shall be consistent with the terms and conditions of this permit. Any permit noncompliance constitutes a violation of applicable state and federal laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

2.3.2. Reporting of Noncompliance

a. 24-Hour Reporting

In the case of any noncompliance which could cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the Division of Water Pollution Control in the appropriate Environmental Field Office within 24-hours from the time the permittee becomes aware of the circumstances. (The Environmental Field Office should be contacted for names and phone numbers of environmental response team).

A written submission must be provided within five days of the time the permittee becomes aware of the circumstances unless the director on a case-by-case basis waives this requirement. The permittee shall provide the director with the following information:

- i. A description of the discharge and cause of noncompliance;

- ii. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and
- iii. The steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. Scheduled Reporting

For instances of noncompliance which are not reported under subparagraph 2.3.2.a above, the permittee shall report the noncompliance on the Discharge Monitoring Report. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

2.3.3. Overflow

- a. "**Overflow**" means any release of sewage from any portion of the collection, transmission, or treatment system other than through permitted outfalls.
- b. Overflows are prohibited.
- c. The permittee shall operate the collection system so as to avoid overflows. No new or additional flows shall be added upstream of any point in the collection system, which experiences chronic overflows (greater than 5 events per year) or would otherwise overload any portion of the system.
- d. Unless there is specific enforcement action to the contrary, the permittee is relieved of this requirement after: 1) an authorized representative of the Commissioner of the Department of Environment and Conservation has approved an engineering report and construction plans and specifications prepared in accordance with accepted engineering practices for correction of the problem; 2) the correction work is underway; and 3) the cumulative, peak-design, flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. The inflow and infiltration reduction must be measured by the permittee using practices that are customary in the environmental engineering field and reported in an attachment to a Monthly Operating Report submitted to the local TDEC Environmental Field Office. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.
- e. In the event that more than 5 overflows have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium or completion of the actions identified in this paragraph, the permittee may request a meeting with the Division of Water Pollution Control EFO staff to petition for a waiver based on mitigating evidence.

2.3.4. **Upset**

- a. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;
 - iii. The permittee submitted information required under "Reporting of Noncompliance" within 24-hours of becoming aware of the upset (if this information is provided orally, a written submission must be provided within five days); and
 - iv. The permittee complied with any remedial measures required under "Adverse Impact."

2.3.5. **Adverse Impact**

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of Tennessee resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2.3.6. **Bypass**

- a. "**Bypass**" is the intentional diversion of waste streams from any portion of a treatment facility. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses are prohibited unless all of the following 3 conditions are met:

- i. The bypass is unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There are no feasible alternatives to bypass, such as the construction and use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass, which occurred during normal periods of equipment downtime or preventative maintenance;
 - iii. The permittee submits notice of an unanticipated bypass to the Division of Water Pollution Control in the appropriate Environmental Field Office within 24 hours of becoming aware of the bypass (if this information is provided orally, a written submission must be provided within five days). When the need for the bypass is foreseeable, prior notification shall be submitted to the director, if possible, at least 10 days before the date of the bypass.
- c. Bypasses not exceeding permit limitations are allowed **only** if the bypass is necessary for essential maintenance to assure efficient operation. All other bypasses are prohibited. Allowable bypasses not exceeding limitations are not subject to the reporting requirements of 2.3.6.b.iii, above.

2.3.7. Washout

- a. For domestic wastewater plants only, a "washout" shall be defined as loss of Mixed Liquor Suspended Solids (MLSS) of 30.00% or more. This refers to the MLSS in the aeration basin(s) only. This does not include MLSS decrease due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to infiltration and inflow.
- b. A washout is prohibited. If a washout occurs the permittee must report the incident to the Division of Water Pollution Control in the appropriate Environmental Field Office within 24 hours by telephone. A written submission must be provided within five days. The washout must be noted on the discharge monitoring report. Each day of a washout is a separate violation.

2.4. LIABILITIES

2.4.1. Civil and Criminal Liability

Except as provided in permit conditions for "**Bypassing**," "**Overflow**," and "**Upset**," nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this Permit, it shall be the responsibility of the permittee to conduct

its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2.4.2. Liability Under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or the Federal Water Pollution Control Act, as amended.

3.0. PERMIT SPECIFIC REQUIREMENTS

3.1. CERTIFIED OPERATOR

The waste treatment facilities shall be operated under the supervision of a Grade IV certified wastewater treatment operator and the collection system shall be operated under the supervision of a Grade II certified collection system operator in accordance with the Water Environmental Health Act of 1984.

3.2. POTW PRETREATMENT PROGRAM GENERAL PROVISIONS

As an update of information previously submitted to the division, the permittee will undertake the following activity.

- a. The permittee has been delegated the primary responsibility and therefore becomes the "control authority" for enforcing the 40 CFR 403 General Pretreatment Regulations. Where multiple plants are concerned the permittee is responsible for the Pretreatment Program for all plants within its jurisdiction. The permittee shall implement and enforce the Industrial Pretreatment Program in accordance with Section 403(b)(8) of the Clean Water Act, the Federal Pretreatment Regulations 40 CFR 403, Tennessee Water Quality Control Act Part 63-3-123 through 63-3-128, and the legal authorities, policies, procedures, and financial provisions contained in its approved Pretreatment Program, except to the extent this permit imposed stricter requirements. Such implementation shall require but not limit the permittee to do the following:
 - i. Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user (IU), whether the IU is in compliance with the pretreatment standards;
 - ii. Require development, as necessary, of compliance schedules for each IU for the installation of control technologies to meet applicable pretreatment standards;
 - iii. Require all industrial users to comply with all applicable monitoring and reporting requirements outlined in the approved pretreatment program and IU permit;
 - iv. Maintain and update, as necessary, records identifying the nature and character of industrial user discharges, and retain such records for a minimum of three (3) years;
 - v. Obtain appropriate remedies for noncompliance by an IU with any pretreatment standard and/or requirement;

- vi. Publish annually, pursuant to 40 CFR 403.8 (f)(2)(viii), a list of industrial users that have significantly violated pretreatment requirements and standards during the previous twelve-month period.
 - vii. Maintain an adequate revenue structure for continued operation of the pretreatment program.
 - viii. Update its Industrial Waste Survey at least once every five years. Results of this update shall be submitted to the Division of Water Pollution Control, Pretreatment Section within 120 days of the effective date of this permit.
 - ix. Submit a written technical evaluation of the need to revise local limits within 120 days of the effective date of this permit to the state pretreatment program coordinator. The evaluation shall include the most recent pass-through limits proposed by the division. The technical evaluation shall be based on practical and specialized knowledge of the local program and not be limited by a specified written format.
- b. The permittee shall enforce 40 CFR 403.5, "prohibited discharges". Pollutants introduced into the POTW by a non-domestic source shall not cause pass through or interference as defined in 40 CFR Part 403.3. These general prohibitions and the specific prohibitions in this section apply to all non-domestic sources introducing pollutants into the POTW whether the source is subject to other National Pretreatment Standards or any state or local pretreatment requirements.

Specific Prohibitions. Under no circumstances shall the permittee allow introduction of the following wastes in the waste treatment system:

- i. Pollutants which create a fire or explosion hazard in the POTW;
- ii. Pollutants which will cause corrosive structural damage to the treatment works, but in no case discharges with pH less than 5.0 unless the system is specifically designed to accept such discharges.
- iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the treatment system resulting in interference.
- iv. Any pollutant, including oxygen-demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment works.
- v. Heat in amounts which will inhibit biological activity in the treatment works resulting in interference, but in no case heat in such quantities that the temperature at the treatment works exceeds 40°C (104°F) unless the works are designed to accommodate such heat.
- vi. Any priority pollutant in amounts that will contaminate the treatment works sludge.

- vii. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - viii. Pollutants which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker health and safety problems;
 - ix. Any trucked or hauled pollutants except at discharge points designated by the POTW.
- c. The permittee shall notify the Tennessee Division of Water Pollution Control of any of the following changes in user discharge to the system no later than 30 days prior to change of discharge:
- i. New introductions into such works of pollutants from any source which would be a new source as defined in Section 306 of the Act if such source were discharging pollutants.
 - ii. New introductions of pollutants into such works from a source which would be subject to Section 301 of the "Federal Water Quality Act as Amended" if it were discharging such pollutants.
 - iii. A substantial change in volume or character of pollutants being introduced into such works by a source already discharging pollutants into such works at the time the permit is issued.

This notice will include information on the quantity and quality of the wastewater introduced by the new source into the publicly owned treatment works, and on any anticipated impact on the effluent discharged from such works. If this discharge necessitates a revision of the current NPDES permit or pass-through guidelines, discharge by this source is prohibited until the Tennessee Division of Water Pollution Control gives final authorization.

d. Reporting Requirements

The permittee shall provide a semiannual report briefly describing the permittee's pretreatment program activities over the previous six-month period. Reporting periods shall end on the last day of the months of March and September. The report shall be submitted to the Division of Water Pollution Control, Central Office and a copy to the appropriate Environmental Field Office no later than the 28th day of the month following each reporting period. For control authorities with multiple STPs, one report should be submitted with a separate Form 1 for each STP. Each report shall conform to the format set forth in the State POTW Pretreatment Semiannual Report Package which contains information regarding:

- i. An updated listing of the permittee's industrial users (including information required pursuant to 403.12(i)(1), e.g., deletions and additions, categorical

standards applied, local standards more stringent than categorical standards, and standards applied to each industrial user).

- ii. Results of sampling of the influent and effluent of the wastewater treatment plant. At least once each reporting period, the permittee shall analyze the wastewater treatment plant influent and effluent for the following pollutants, using the prescribed sampling procedures:

Pollutant	Sample Type
chromium, trivalent	24-hour composite
chromium, hexavalent	24-hour composite
copper	24-hour composite
lead	24-hour composite
nickel	24-hour composite
zinc	24-hour composite
cadmium	24-hour composite
mercury	24-hour composite
silver	24-hour composite
total phenols	grab
cyanide	grab

If any particular pollutant is analyzed more frequently than is required, the permittee shall report the maximum and average values in its semiannual report. All upsets, interferences, and pass-through violations must also be reported on the semiannual report, the actions that were taken to determine the causes of the incidents and the steps that have been taken to prevent the incidents from recurring.

At least once during the term of this permit, the permittee shall analyze the effluent from the STP (and report the results in the next regularly scheduled report) for the following pollutants:

chromium III	cyanide	phthalates, sum of the following: bis (2-ethylhexyl) phthalate butyl benzylphthalate di-n-butylphthalate diethyl phthalate
chromium VI	silver	
copper	benzene	
lead	carbon tetrachloride	
nickel	chloroform	
zinc	ethylbenzene	1,2 trans-dichloroethylene
cadmium	methylene chloride	tetrachloroethylene
mercury	naphthalene	toluene
phenols, total	1,1,1 trichloroethane	trichloroethylene
chromium, total		

- iii. Compliance with categorical and local standards, and review of industrial compliance, which includes a summary of the compliance status for all permitted industries. Also included is information on the number and type of major violations of pretreatment regulations, and the actions taken by the POTW to obtain compliance. The effluent from all significant industrial users must be analyzed for the appropriate pollutants at least once per reporting period.
- iv. A list of industries in significant non-compliance as published in local newspapers in accordance with the requirements set forth in 40 CFR 403.8(f)(2)(viii).
- v. A description of all substantive changes made to the permittee's pretreatment program. Any such changes shall receive prior approval. Substantive changes include, but are not limited to, any change in any ordinance, major modification in the program's administrative structure, local limits, or a change in the method of funding the program.
- vi. Summary of permittee's industrial user inspections, which includes information on the number and type of industry inspected. All significant industrial users must be inspected at least once per year.

3.3. SLUDGE MANAGEMENT PRACTICES

- a. The permittee must comply with 40 CFR 503 et seq. Sludge shall be sampled and analyzed at a frequency dependant both on the amount of sludge generated annually and on the disposal practice utilized. Whenever sampling and analysis are required by 40 CFR 503, the permittee shall report to the division the quantitative data for the following parameters:

1)	Arsenic	7)	Nickel
2)	Cadmium	8)	Selenium
3)	Copper	9)	Zinc
4)	Lead	10)	Nitrite plus Nitrate, NO ₂ , + NO ₃ as N
5)	Mercury	11)	Total Kjeldahl Nitrogen, as N
6)	Molybdenum	12)	Ammonia, NH ₃ , as N

This sludge analysis must be submitted by February 19th of each calendar year. This information shall be submitted to the Division of Water Pollution Control, Central Office, 401 Church Street, 6th Floor Annex, Nashville TN 37243-1534, Attention: Sludge Coordinator, Municipal Facilities Section.

- b. Land application of sludge shall halt immediately if any of the following concentrations are exceeded:

POLLUTANT	CONCENTRATION (mg/kg ¹)
Arsenic	75
Cadmium	85
Zinc	7500
Copper	4300
Lead	840

POLLUTANT	CONCENTRATION (mg/kg ¹)
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100

1 Dry Weight Basis

Monthly average pollutant concentrations shall not exceed Table 3 of 40 CFR §503.13. If they are exceeded cumulative pollutant loading rates are to be calculated and recorded and shall not exceed Table 2 of 40 CFR §503.13 for the life of the land application site.

- c. If land application is the final disposition of the wasted sludge, the permittee shall provide pathogen reduction, sludge stabilization and comply with land and crop usage controls as listed in 40 CFR Part 503, as authorized by the Clean Water Act. Records must be maintained by the permittee that indicate compliance or non-compliance with this rule. If the permittee is required to report to EPA, copies of all reports should be sent to the division, at the address listed in paragraph 1 of this section.
- d. Before land applying municipal sludge the permittee must obtain approvals for each site(s) in writing from the division using the latest revision of Guidelines for Land Application or Surface Disposal of Biosolids, unless the sludge being land applied meets the pollutant concentrations of 40 CFR 503.13(b)(3), the Class A pathogen requirements in 40 CFR 503.32(a), and one of the vector attraction reduction requirements in 40 CFR 503.33 (b)(1) through (b)(8).
- e. Reopener: If an applicable "acceptable management practice" or numerical limitation for pollutants in sewage sludge promulgated under Section 405(d)(2) of the Clean Water Act, as amended by the Water Quality Act of 1987, is more stringent than the sludge pollutant limit or acceptable management practice in this permit, or controls a pollutant not limited in this permit, this permit shall be promptly modified or revoked and reissued to conform to the requirements promulgated under Section 405(d)(2). The permittee shall comply with the limitations by no later than the compliance deadline specified in the applicable regulations as required by Section 405(d)(2) of the Clean Water Act.
- f. Notice of change in sludge disposal practice: The permittee shall give prior notice to the director of any change planned in the permittee's sludge disposal practice. If land application activities are suspended permanently and sludge disposal moves to a municipal solid waste landfill, the permittee shall contact the local Division of Solid Waste Management office address for other permitting and approvals (see table below):

Division of Solid Waste Management			
Office	Location	Zip Code	Phone No.
Chattanooga	540 McCallie Avenue, Suite 550	37402-2013	(423) 634-5745
Jackson	1625 Hollywood Drive	38305	(731) 512-1300
Cookeville	1221 South Willow Avenue	38506	(931) 432-4015
Columbia	2484 Park Plus Drive	38401	(931) 380-3371
Johnson City	2305 Silverdale Road	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	37921	(865) 594-6035
Memphis	2510 Mt. Moriah Road, Suite E-645	38115-1511	(901) 368-7939
Nashville	711 R.S. Gass Boulevard	37243-1550	(615) 687-7000

For sludge disposal to a municipal solid waste landfill (or co-composting facility), such processing is controlled by the rules of the Tennessee Division of Solid Waste Management (DSWM) and Federal Regulations at 40 CFR 258. If the permittee anticipates changing its disposal practices to either land application or surface disposal, the Division of Water Pollution Control shall be notified prior to the change. A copy of the results of pollutant analyses required by the Tennessee Division of Solid Waste Management (DSWM) and/or 40 CFR 258 shall be submitted to the Division of Water Pollution Control.

3.4. BIOMONITORING REQUIREMENTS, CHRONIC

The permittee shall conduct a 3-Brood Water Flea (*Ceriodaphnia dubia*) Survival and Reproduction Test and a 7-Day Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test on samples of final effluent from Outfall 001.

The measured endpoint for toxicity will be the inhibition concentration causing 25% reduction in survival, reproduction and growth (IC₂₅) of the test organisms. The IC₂₅ shall be determined based on a 25% reduction as compared to the controls, and as derived from linear interpolation. The average reproduction and growth responses will be determined based on the number of *Ceriodaphnia dubia* or *Pimephales promelas* larvae used to initiate the test.

Test shall be conducted and its results reported based on appropriate replicates of a total of five serial dilutions and a control, using the percent effluent dilutions as presented in the following table:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
Permit Limit (PL) (a)	0.50 X PL	0.25 X PL	0.125 X PL	0.0625 X PL	Control
% effluent					
100	50	25	12.5	6.25	0

(a) Permit limit > 100%

The dilution/control water used will be moderately hard water as described in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition). A

chronic standard reference toxicant quality assurance test shall be conducted with each species used in the toxicity tests and the results submitted with the discharge monitoring report. Additionally, the analysis of this multi-concentration test shall include review of the concentration-response relationship to ensure that calculated test results are interpreted appropriately.

Toxicity will be demonstrated if the IC_{25} value is not greater than 100%. Toxicity demonstrated by the tests specified herein constitutes a violation of this permit.

All tests will be conducted using a minimum of three 24-hour flow-proportionate composite samples of final effluent collected on days 1, 3 and 5. If, in any control more than 20% of the test organisms die in 7 days, the test (control and effluent) is considered invalid and the test shall be repeated within two (2) weeks. Furthermore, if the results do not meet the acceptability criteria in Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013 (or the most current edition), or if the required concentration-response review fails to yield a valid relationship per guidance contained in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA-821-B-00-004 (or the most current edition), that test shall be repeated. Any test initiated but terminated before completion must also be reported along with a complete explanation for the termination.

In the event of a test failure, the permittee must start a follow-up test within 2 weeks and submit results from a follow-up test within 30 days from obtaining initial WET testing results. The follow-up test must be conducted using the same serial dilutions as presented in the corresponding table(s) above. **The follow-up test will not negate an initial failed test. In addition, the failure of a follow-up test will constitute a separate permit violation.**

In the event of 2 consecutive test failures or 3 test failures within a 12-month period for the same outfall, the permittee must initiate a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) study within 30 days and so notify the division by letter. This notification shall include a schedule of activities for the initial investigation of that outfall. **During the term of the TIE/TRE study, the frequency of biomonitoring shall be once every three months.** Additionally, the permittee shall submit progress reports once every three months throughout the term of the TIE/TRE study. The toxicity must be reduced to allowable limits for that outfall within 2 years of initiation of the TIE/TRE study. Subsequent to the results obtained from the TIE/TRE studies, the permittee may request an extension of the TIE/TRE study period if necessary to conduct further analyses. The final determination of any extension period will be made at the discretion of the division.

The TIE/TRE study may be terminated at any time upon the completion and submission of 2 consecutive tests (for the same outfall) demonstrating compliance. Following the completion of TIE/TRE study, the frequency of monitoring will return to a regular schedule, as defined previously in this section as well in Part I of the permit. **During the course of the TIE/TRE study, the permittee will continue to conduct toxicity testing of the outfall being investigated at the frequency of**

once every three months but will not be required to perform follow-up tests for that outfall during the period of TIE/TRE study.

Test procedures, quality assurance practices, determinations of effluent survival/reproduction and survival/growth values, and report formats will be made in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013, or the most current edition.

Results of all tests, reference toxicant information, copies of raw data sheets, statistical analysis and chemical analyses shall be compiled in a report. The report will be written in accordance with Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, EPA-821-R-02-013, or the most current edition.

Two copies of biomonitoring reports (including follow-up reports) shall be submitted to the division within 90 days from the permit's effective date. One copy of the report shall be submitted along with the discharge monitoring report (DMR). The second copy shall be submitted to the local Division of Water Pollution Control office address.

Division of Water Pollution Control			
Office	Location	Zip Code	Phone No.
Chattanooga	540 McCallie Avenue, Suite 550	37402-2013	(423) 634-5745
Jackson	1625 Hollywood Drive	38305	(731) 512-1300
Cookeville	1221 South Willow Avenue	38506	(931) 432-4015
Columbia	2484 Park Plus Drive	38401	(931) 380-3371
Johnson City	2305 Silverdale Road	37601	(423) 854-5400
Knoxville	3711 Middlebrook Pike	37921	(865) 594-6035
Memphis	2510 Mt. Moriah Road, Suite E-645	38115-1511	(901) 368-7939
Nashville	711 R.S. Gass Boulevard	37243-1550	(615) 687-7000

3.5. PLACEMENT OF SIGNS

Within sixty (60) days of the effective date of this permit, the permittee shall place and maintain a sign(s) at each outfall and any bypass/overflow point in the collection system. For the purposes of this requirement, any bypass/overflow point that has discharged five (5) or more times in the last year must be so posted. The sign(s) should be clearly visible to the public from the bank and the receiving stream. The minimum sign size should be two feet by two feet (2' x 2') with one-inch (1") letters. The sign should be made of durable material and have a white background with black letters.

The sign(s) are to provide notice to the public as to the nature of the discharge and, in the case of the permitted outfalls, that the discharge is regulated by the Tennessee Department of Environment and Conservation, Division of Water Pollution Control. The following is given as an example of the minimal amount of information that must be included on the sign:

Permitted CSO or unpermitted bypass/overflow point:

UNTREATED WASTEWATER DISCHARGE POINT
Franklin STP
(615) 791-3218
NPDES Permit NO. TN0028827
TENNESSEE DIVISION OF WATER POLLUTION CONTROL
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

NPDES Permitted Treated Municipal Wastewater Outfall:

OUTFALL 001 - TREATED MUNICIPAL WASTEWATER
Franklin STP
(615) 791-3218
NPDES Permit NO. TN0028827
TENNESSEE DIVISION OF WATER POLLUTION CONTROL
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

No later than sixty (60) days from the effective date of this permit, the permittee shall have the above sign(s) on display in the location specified.

3.6. ULTIMATE CBOD INVESTIGATIONS

The permittee shall monitor and report as an attachment to its monthly DMRs, its Outfall 001 treated effluent ultimate CBOD using a method proposed by the permittee and approved in writing by the division. The permittee shall submit its proposed ultimate CBOD method(s) to the division's Water Pollution Control Nashville Environmental Field and Central Offices within 60 days from the permit's effective date.

3.7. RECEIVING STREAM MONITORING/REPORTING

As defined in Attachment 1, the permittee shall complete the receiving stream monitoring/reporting consistent with the permittee's most recent prior NPDES permit, as modified. Additionally, as defined in Attachment 1, the permittee shall complete supplemental instream monitoring - diurnal investigations and identify enhancements for improving its receiving stream water quality. Within three months from the permit's effective date, the permittee may request proposed changes to the Attachment 1 requirements. Should the division agree in writing with the request, no permit modification will be required.

3.8. NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING

Pursuant to the requirements delineated in Attachment 2, the permittee shall develop/implement a Nutrient Management Plan (NMP) with appropriate reporting for its wastewater treatment plant. The permittee can request proposed changes to the Attachment 2 provisions within three months from the permit's effective date. If the division agrees in writing with the proposed changes, no permit modification will be necessary.

3.9. TREATED WASTEWATER REUSE

This permit allows treated wastewater effluent to be distributed for land application reuse by industrial customers, commercial developments, golf courses, recreational areas, residential developments and other non-potable uses. The reuse water must receive all treatment steps applied to the discharged wastewater and must comply with all effluent limitations applied to the discharge wastewater. In addition, the reuse wastewater must comply with the numeric limitations in Section 1.1 and the following requirements:

- No discharge of the reuse water to waters of the State of Tennessee is allowed.
- Reuse activities are restricted to use of the water in a manner that results in its disposal by land application (including via spray irrigation or drip irrigation systems). The application rate employed shall be restricted such that there shall be no ponding or runoff of the reuse water. This requirement shall not be construed to warrant any use of harvested products from irrigated cover crops and the permittee shall take full responsibility for their proper use or disposal. Dedicated irrigation sites shall be owned by the permittee (or covered by a perpetual easement for use as a land application site) and approved by the division prior to their use for irrigation purposes.
- In order to protect public health, this permit requires that the permittee meet a daily maximum *E. coli* concentration of 23 cfu per 100 ml and a daily minimum total chlorine residual of 1.0 mg/l (after holding the sample for 30 minutes) exiting the treatment system and within the reuse distribution system.
- The permittee shall take appropriate measures, including signs, tags, permanently imprinted warnings, appropriate color piping/equipment, etc., to insure that all points where water can be accessed from the reuse distribution system are clearly marked to indicate that the reuse water is unfit for drinking or other potable purposes.

3.10. ANTIDegradation

Pursuant to the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06, titled "Tennessee Antidegradation Statement," and in consideration of the department's directive in attaining the greatest degree of effluent reduction achievable in municipal, industrial, and other wastes, the permittee shall further be required, pursuant to the terms and conditions of this permit, to comply with the effluent limitations and schedules of compliance required to implement applicable water quality standards, to comply with a State Water Quality Plan or other state or federal laws or regulations, or where practicable, to comply with a standard permitting no discharge of pollutants.

4.0. DEFINITIONS AND ACRONYMS

4.1. DEFINITIONS

A "**bypass**" is defined as the intentional diversion of waste streams from any portion of a treatment facility.

A "**calendar day**" is defined as the 24-hour period from midnight to midnight or any other 24-hour period that reasonably approximates the midnight to midnight time period.

A "**composite sample**" is a combination of not less than 8 influent or effluent portions, of at least 100 ml, collected over a 24-hour period. Under certain circumstances a lesser time period may be allowed, but in no case, less than 8 hours.

The "**daily maximum concentration**" is a limitation on the average concentration in units of mass per volume (e.g. milligrams per liter), of the discharge during any calendar day. When a proportional-to-flow composite sampling device is used, the daily concentration is the concentration of that 24-hour composite; when other sampling means are used, the daily concentration is the arithmetic mean of the concentrations of equal volume samples collected during any calendar day or sampling period.

"**Degradation**" means the alteration of the properties of waters by the addition of pollutants or removal of habitat. Alterations not resulting in the condition of pollution that are of a temporary nature or those alterations having *de minimus* impact (not measurable or less than 5 percent loss of assimilative capacity due to a single discharger or less than 10 percent reduction for multiple dischargers) will not be considered degradation. Degradation will not be considered *de minimus* if a substantial loss (more than 50 percent) of assimilative capacity has already occurred.

"**Discharge**" or "discharge of a pollutant" refers to the addition of pollutants to waters from a source.

A "**dry weather overflow**" is a type of sanitary sewer overflow and is defined as one day or any portion of a day in which unpermitted discharge of wastewater from the collection or treatment system other than through the permitted outfall occurs and is not directly related to a rainfall event. Discharges from more than one point within a 24-hour period shall be counted as separate overflows.

An "**ecoregion**" is a relatively homogeneous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

The "**geometric mean**" of any set of values is the n^{th} root of the product of the individual values where "n" is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For the purposes of calculating the geometric mean, values of zero (0) shall be considered to be one (1).

A "**grab sample**" is a single influent or effluent sample collected at a particular time.

The "**instantaneous maximum concentration**" is a limitation on the concentration, in milligrams per liter, of any pollutant contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The "**instantaneous minimum concentration**" is the minimum allowable concentration, in milligrams per liter, of a pollutant parameter contained in the wastewater discharge determined from a grab sample taken from the discharge at any point in time.

The "**monthly average amount**", shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

The "**monthly average concentration**", other than for *E. coli* bacteria, is the arithmetic mean of all the composite or grab samples collected in a one-calendar month period.

A "**one week period**" (or "**calendar-week**") is defined as the period from Sunday through Saturday. For reporting purposes, a calendar week that contains a change of month shall be considered part of the latter month.

"**Pollutant**" means sewage, industrial wastes, or other wastes.

A "**quarter**" is defined as any one of the following three-month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, and/or October 1 through December 31.

A "**rainfall event**" is defined as any occurrence of rain, preceded by 10 hours without precipitation that results in an accumulation of 0.01 inches or more. Instances of rainfall occurring within 10 hours of each other will be considered a single rainfall event.

A "**rationale**" (or "fact sheet") is a document that is prepared when drafting an NPDES permit or permit action. It provides the technical, regulatory and administrative basis for an agency's permit decision.

A "**reference site**" means least impacted waters within an ecoregion that have been monitored to establish a baseline to which alterations of other waters can be compared.

A “**reference condition**” is a parameter-specific set of data from regional reference sites that establish the statistical range of values for that particular substance at least-impacted streams.

A “**sanitary sewer overflow (SSO)**” is defined as an unpermitted discharge of wastewater from the collection or treatment system other than through the permitted outfall.

“**Sewage**” means water-carried waste or discharges from human beings or animals, from residences, public or private buildings, or industrial establishments, or boats, together with such other wastes and ground, surface, storm, or other water as may be present.

“**Severe property damage**” when used to consider the allowance of a bypass or SSO means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass or SSO. Severe property damage does not mean economic loss caused by delays in production.

“**Sewerage system**” means the conduits, sewers, and all devices and appurtenances by means of which sewage and other waste is collected, pumped, treated, or disposed.

A “**subcoregion**” is a smaller, more homogenous area that has been delineated within an ecoregion.

“**Upset**” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

The term, “**washout**” is applicable to activated sludge plants and is defined as loss of mixed liquor suspended solids (MLSS) of 30.00% or more from the aeration basin(s).

“**Waters**” means any and all water, public or private, on or beneath the surface of the ground, which are contained within, flow through, or border upon Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters.

The “**weekly average amount**”, shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar week when the measurements were made.

The "**weekly average concentration**", is the arithmetic mean of all the composite samples collected in a one-week period. The permittee must report the highest weekly average in the one-month period.

4.2. ACRONYMS AND ABBREVIATIONS

1Q10 – 1-day minimum, 10-year recurrence interval

30Q5 – 30-day minimum, 5-year recurrence interval

7Q10 – 7-day minimum, 10-year recurrence interval

BAT – best available technology economically achievable

BCT – best conventional pollutant control technology

BDL – below detection level

BOD₅ – five day biochemical oxygen demand

BPT – best practicable control technology currently available

CBOD₅ – five day carbonaceous biochemical oxygen demand

CEI – compliance evaluation inspection

CFR – code of federal regulations

CFS – cubic feet per second

CFU – colony forming units

CIU – categorical industrial user

CSO – combined sewer overflow

DMR – discharge monitoring report

D.O. – dissolved oxygen

E. coli – *Escherichia coli*

EFO – environmental field office

LB (lb) - pound

IC₂₅ – inhibition concentration causing 25% reduction in survival, reproduction and growth of the test organisms

IU – industrial user

IWS – industrial waste survey

LC₅₀ – acute test causing 50% lethality

MDL – method detection level

MGD – million gallons per day

MG/L (mg/l) – milligrams per liter

ML – minimum level of quantification

ml – milliliter

MLSS – mixed liquor suspended solids

MOR – monthly operating report

NODI – no discharge

NOEC – no observed effect concentration

NPDES – national pollutant discharge elimination system

PL – permit limit

POTW – publicly owned treatment works

RDL – required detection limit

SAR – semi-annual [pretreatment program] report

SIU – significant industrial user

SSO – sanitary sewer overflow

STP – sewage treatment plant

TCA – Tennessee code annotated

TDEC – Tennessee Department of Environment and Conservation

TIE/TRE – toxicity identification evaluation/toxicity reduction evaluation

TMDL – total maximum daily load

TRC – total residual chlorine

TSS – total suspended solids

WQBEL – water quality based effluent limit

Attachment 1 RECEIVING STREAM INVESTIGATIONS

The permittee shall continue the receiving stream monitoring/reporting pursuant to its current permit, with the modifications noted in this attachment. Also, the permittee must expand its receiving stream evaluations/reporting to include instream diurnal monitoring stations (one upstream and two downstream of the Outfall 001 discharge), and complete additional investigations focused on improving its receiving stream's water quality. As such, this attachment includes the following specific permit requirements focused on collecting additional data and completing evaluations for making receiving stream water quality improvements:

- Continuation of Current Permit Receiving Stream Monitoring/Reporting (with Modifications)
- Additional Instream Monitoring Stations – Diurnal Investigations
- Investigations Focused on Identifying/Implementing Advanced Methods for Improved Receiving Stream Water Quality

The above investigations as delineated in this attachment, shall be completed following finalized programs/monitoring locations/procedures...submitted by the permittee and approved in writing by the division. This attachment presents the basic concepts for the receiving stream investigations and changes can be proposed by the permittee and as approved in writing by the division will not require a permit modification.

Continuation of Current Permit's Receiving Stream Monitoring/Reporting (with Modifications)

The permittee shall perform the following receiving stream monitoring (pursuant to procedures proposed by the permittee and division-approved in writing):

A. Chemical

1. Type of sample - grab
2. Locations relative to the Outfall 001 discharge:
 - Site 1 Approximately 50 yards upstream (just downstream of Spencer Creek confluence)
 - Site 2 Approximately 150 yards downstream
 - Site 3 Downstream at the Cotton Road Bridge (@ Cotton Lane) - approximately at river mile 79.8)
3. Analysis/Frequency (Monitoring May through October, with one sample collected at each location, mid-channel, at mid-depth)

Instream samples shall be collected/monitored once per week between the hours of 6:00 a.m. - 8:00 a.m. (with corresponding once per month 4:30 p.m. – 6:30 p.m. monitoring) for the following parameters:

CBOD5, ammonia – nitrogen, total nitrogen, total phosphorus, total suspended solids, pH, temperature, conductivity, and estimated flowrate. Climatological

information shall be recorded for the monitoring time, with an attached summary for the prior week.

Note – Based on the monitoring results, the division may, without reopening the permit, determine that mid-day instead of the morning monitoring must be used for the duration of the permit.

B. Biological

1. Frequency - Annually during low flow, high temperature conditions.
2. The survey shall be conducted by qualified biologists. The permittee shall notify the Nashville Environmental Field Office, Division of Water Pollution Control, at least two weeks prior to conducting the biological survey.
3. Approximate Locations Relative to the Outfall 001 Discharge:
 - a) 50 yards upstream
 - b) 150 feet downstream
 - c) 500 feet downstream

The sites selected must provide riffle habitat and must be generally comparable. No site shall be in an area where modification has taken place (i.e., dams, bridges). Prior to sampling, all selected stream-sampling points shall be marked on a topographical map, submitted to and approved by the Nashville Environmental Field Office, Division of Water Pollution Control.

4. The biosurvey will integrate habitat assessment with macroinvertebrate assessment. The survey will be conducted in accordance with semi-quantitative single habitat protocols issued by the Division as adapted from EPA's Rapid Bioassessment Protocols For Use in Streams and Rivers EPA/841-B-99-002. Habitat will be numerically assessed using the High Gradient Habitat Assessment Field Data Sheet in Appendix A of the EPA manual. Two 1-meter square riffle kicks using a 500-micron net will be collected as outlined in section 7.1. of the EPA manual. Samples will be composited and preserved for lab analysis. A 200-organism sub-sample will be processed in accordance with section 7.3. All *taxa* are to be identified to the genus level. Biometrics and data interpretation must be completed in accordance with most current approved WPC methodology.
5. The following information shall be recorded at each station during the biosurvey:
 - a) water temperature (°C)
 - b) dissolved oxygen (mg/l)
 - c) pH (s.u.)
 - d) conductivity (umhos/cm)
 - e) stream flow (cfs)

Results of the chemical and biological stream monitoring shall be submitted to the division's Water Pollution Control Nashville Environmental Field Office and Planning and Standards Section in Nashville.

Additional Instream Monitoring Stations - Diurnal Investigations

The permittee shall propose for division approval, the actual monitoring locations, instrumentation/analytical parameters, procedures, data handling methods, and schedule for the instream diurnal investigations. The division would prefer continuous monitoring during May through October. However, at a minimum the diurnal monitoring shall include one period per month (4 to 5 days of continuous monitoring) during low-flow (non-rainy conditions), with every other month including an additional period which also includes stormwater input. The permittee shall submit its proposed diurnal investigation program to the division's Water Pollution Control - Nashville Environmental Field and Central Offices and Nashville Watershed Management Office within 60 days from the permit's effective date. Following written approval from the division, the permittee shall proceed with the diurnal testing which should involve:

1. Type of monitoring – continuous using instream sondes (with appropriate calibration and crosschecks via grab samples. At a minimum, the sondes shall be able to monitor the instream temperature, pH, dissolved oxygen, and conductivity at 15 minute intervals, with transmitting and/or local recording features. The permittee shall obtain concurrent climatological data and stream flow estimates for the three monitoring sites.
2. Locations (specific instream monitoring sites to be defined by permittee and approved in writing by the division):
 - a) One site upstream of STP discharge
 - b) Two downstream of STP discharge

Identifying/Implementing Advanced Methods for Improved Receiving Stream Water

The permittee shall develop, complete investigations, and implement feasible options for improving its receiving stream water quality. The permittee has already started investigating options for improving its receiving stream water quality, and is in the process of retaining an environmental engineering firm with the expertise to assist with these investigations. Specifically, the permittee is proceeding with its Integrated Water Management Plan (IWMP) development. A major element for IWMP investigation is the permittee's receiving stream's water quality as related to the Outfall 001 discharge. The division expects that via the IWMP, the permittee will investigate a wide array of treated wastewater discharge options which could result in major receiving stream water quality improvements. For example, facilities for treated effluent hold and release, receiving stream flow augmentation and/or *in-situ* oxygen addition during critical periods, and multiple discharges are just a few options that may be considered. The IWMP may also address receiving stream water quality improvements that may be available based on upgrades to the permittee's stormwater MS4 permit. Pursuant to its IWMP the permittee may decide to complete additional instream investigations e.g., to better understand reasons for the receiving stream's sediment oxygen demand and define/implement controls for improving the receiving stream's water quality.

The permittee shall provide the division (at locations noted below) with its proposed plans/procedures for completing these investigations for division approval. Annually, the permittee shall submit a status reports on a calendar year basis. The reports (as updated) must be submitted by February 15 to the division's Water Pollution Control Nashville

Environmental Field and Central Offices with another copy (which can be electronic) sent to the Watershed Management Section in Nashville.

Attachment 2 NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING

At a minimum, the permittee shall develop/implement as soon as possible the Nutrient Management Plan (NMP) requirements presented in this attachment for enhanced control of the Outfall 001 treated wastewater total nitrogen and phosphorus. The NMP shall be oriented toward identifying the use of its existing facilities (without major capital expenditures) such that changing operations/usages may result in decreases in the discharged treated wastewater total nitrogen and phosphorus.

The permittee's NMP at a minimum shall address the following elements to maximize wastewater nutrients removal:

- Develop a list of potentially applicable nutrient control mechanisms for additional total nitrogen and total phosphorus removal. This evaluation must include investigational options/requirements, and timing/schedule/performance considerations.
- Evaluation of Franklin STP historical wastewater characteristics, e.g. variations in strength and mass loadings, especially treatment plant performance during the summer season (May through October).
- Results from literature and discussions with others, including municipalities, consultants will be evaluated in developing/implementing the Franklin STP enhanced nutrients control program.
- Treatability/testing results from bench, pilot and/or the full-scale Franklin STP regarding improved summer season nutrient control, e.g., operation at alternative food:microorganism ratios or sludge ages, alternative/supplementary basin(s)/facilities usage/temporary pumping, chemicals addition, and supplementary monitoring.
- Identification of increased Franklin STP treatment system monitoring to provide for enhanced nutrient control, e.g., multi-point dissolved oxygen monitoring points to ensure satisfactory operating conditions in anoxic zones, biological nitrification/denitrification regions, and multi-point pH/alkalinity monitoring/supplementing.
- Ongoing correlations of Franklin STP operational/treatment data to provide for an increased understanding of the nature of the wastewater nutrients, control methods and cost-effectiveness. The permittee shall also investigate as possible the relationship between its discharged nutrient loadings and potential instream impacts, e.g., based on diurnal variations in dissolved oxygen concentration and pH.
- Define treated effluent TSS characteristics in terms of insoluble total nitrogen and phosphorus contents, variability and additional control options.

The following are example NMP enhancement goals for treated effluent:

- Total Nitrogen – treatment enhancements/advanced controls are expected to be required to consistently achieve the TMDL's 290 lb/day total nitrogen annual average limitation, especially as the permittee's actual raw flow approaches the 12 mgd design capacity.
- Total Phosphorus – identify near-term treatment enhancements/advanced controls to consistently achieve for the summer season a monthly average treated effluent of ≤ 3.0 mg/l as P (with decreased variance), and unless otherwise determined, maintain the actual Outfall 001 discharge Total Nitrogen:Total Phosphorus ratio at approximately 2:1.

The permittee shall develop and submit a NMP report to the division's Water Pollution Control - Permits Section (Nashville Environment Field and Central Offices) within 9 months from the permit's effective date, and updated annually for a calendar year submittal. The NMP report(s) must be submitted to the division by February 15.

ADDENDUM TO RATIONALE

Franklin STP

NPDES PERMIT No. TN0028827

Permit Writer: Gary Davis

This Addendum to Rationale presents the permittee's written comments concerning the draft permit, followed by the division's responses provided in **bold italics** font. Also, written draft permit comments were provided by the Harpeth River Watershed Association (HRWA), Tennessee Clean Water Network (TCWN) and USEPA, which are likewise addressed. This "Addendum to Rationale" provides the basis for augmenting the draft permit's "Rationale" and finalizing the permit. This Addendum to Rationale includes references to the division's August 31, 2010 Public Hearing – Notice of Determination (NOD), which is presented in this document following the Rationale. The Public Hearing served for receiving comments regarding the draft permits and their renewals for Franklin STP (TN0028827), Lynwood Utility Corp. STP (TN0029718), and Cartwright Creek, LLC – Grassland STP (TN0027278).

Permittee's Comments (Cover Letter)

The permittee's draft permit cover letter comments are presented in Attachment AD-1. The permittee's draft permit comments attached to the November 30, 2009 cover letter are presented subsequently, along with the division's responses.

Several of the draft permit conditions make reference to the September 2004 Organic Enrichment/ Low Dissolved Oxygen, TMDL study developed by EPA. Franklin has made repeated objections to these findings and has submitted comments indicating our objections. We continue to note our objections and disagree with the findings and the use of these findings for developing the proposed permit limits. In addition to our previously submitted comments, we feel the recent developments concerning pollutants from the Egyptian Lacquer plant and the resulting low dissolved oxygen in Liberty Creek at the Harpeth River in that vicinity may play an important role in understanding the underlying causes of dissolved oxygen levels in the Harpeth River.

The City of Franklin has recently entered into a contract with CDM to provide an Integrated Water Management Plan (IWMP). We anticipate this to be a very detailed and extensive plan, and we will gather input from a variety of stakeholders. Several of the proposed permit provisions will be identified and more fully developed and addressed during the IWMP process. The City of Franklin will spend hundreds of thousands of dollars on the IWMP. We are confident that the results of this plan will greatly improve the water quality within the Harpeth River. Many of our comments to the permit refer to Franklin's proactive approach in developing the IWMP.

Division's Response (Permittee's Cover Letter Comments)

The division acknowledges that numerous organizations have presented comments regarding EPA's 2004 TMDL perceived shortcomings. The division has taken a broad-based approach for the integration of the TMDL requirements, and has incorporated several flexibility features, e.g., using WWTP controls/effluent limits/corresponding instream data collection requirements that can be used by the permittee to demonstrate that more effective water quality improvements should be achieved. Such results will allow the division to make permit modifications if proposed/justified by the permittee based on actual empirical data. The division is aware of adverse water quality impacts due to non-point receiving stream inputs, including those associated with the Egyptian Lacquer facility.

The division is in favor of the permittee's IWMP approach for defining cost-effective environmental control solutions for the complex receiving stream problems. As such, the final permit includes flexibility to allow for incorporating final permit limitations/requirements modifications/adjustments pursuant to division-approved IWMP findings as proposed by the permittee based on actual data/evaluations/investigation results.

Permittee's No. 1 Comment

Permit Cover Sheet: The proposed time period for the new permit is approximately two years. We request that the permit expiration date be extended to a minimum of three years, with a preference of five years.

Division's Response For Permittee's No. 1 Comment

The division conducts water quality monitoring, assessing and permitting on a 5 year watershed cycle. Due to permit scheduling for other permittees within the Harpeth River watershed, the permit expiration date will remain November 30, 2011.

Permittee's No. 2 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations: The rationale and justification for the addition of CBODu is unclear. The permit rationale (R 7.2) indicated the 2004 TDML (should be TMDL) used a relatively high treated effluent ultimate BOD for its modeling. It is assumed using the high ultimate CBOD is a more conservative approach to protect the water quality within the receiving stream. While it may be to Franklin's advantage to provide additional monitoring of ultimate CBOD in the receiving stream, we do not believe the cost and variability in this testing procedure is warranted. We may determine that ultimate CBOD analysis may be necessary during the evaluation of the alternatives within our IWMP. However, at this time, we do not believe there is justification for this requirement and request that it be removed from the permit.

Division's Response For Permittee's No. 2 Comment

Long-term (ultimate) CBOD testing provides information regarding the permittee's Outfall 001 treated effluent's potential impact on the receiving stream's dissolved oxygen. The permittee's CBODu testing procedure needs to be structured for defining both the time required to achieve the maximum total carbonaceous biochemical oxygen and corresponding CBOD5 result. Even with treated effluents having the same CBODu/CBOD5 ratio, major differences in the instream dissolved oxygen demand (and resulting residual dissolved oxygen) can occur depending upon how long it takes for the CBODu to occur. Does the CBODu occur at day 20 verses day 90? As such, the time element for the CBODu defines the actual carbonaceous biochemical oxygen demand kinetics and how quickly the instream oxygen demand will be exerted.

Quarterly CBODu monitoring had been included in the draft permit requirements to allow the permittee/consultant and the division to determine if seasonal CBODu variations occur. However, after further division consideration, the permit has been finalized to include annual CBODu monitoring, with sampling occurring during the summer season (May 1 to October 31), since this is the critical receiving stream low-flow period.

Permittee's No. 3 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations - Total Nitrogen: The monthly average amount and pounds per day for total nitrogen is 377 pounds during the summer period, however, there is a subnote that requires the total nitrogen average permit limit be less than 290 pounds per day. We request that this annual total nitrogen permit limit of 290 pounds per day be removed from the permit at this time. We recognize the need to have a TMDL driven mass limit within our permit. However, we believe this can be deferred until the IWMP and our Nutrient Management Plan have been developed and implemented. We request inclusion of the 377 pounds per day limit only.

Division's Response For Permittee's No. 3 Comment

The finalized permit provides major permittee flexibility via its Nutrient Management Plan/IWMP to identify/implement cost-effective solutions for the receiving stream's low-flow summer water quality problems (nutrients - resulting algal growth, and low dissolved oxygen). The annual average 290 lb/day total nitrogen discharge limit was used for finalizing the permit, since it is the TMDL value. The 377 lb/day total nitrogen limit for the summer months (May 1 to October 31) is being retained from the current permit.

The division understands that a more effective receiving stream water quality solution may require future permit modification/adjustments, based on additional actual Outfall 001 discharge, receiving stream data, and investigational results.

Permittee's No. 4 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations – Total Phosphorous Summer Period: The proposed permit requires a 3 mg/L monthly average concentration for total phosphorous. Rationale noted in Section R 7.5 notes that the Division considers that the permittee has demonstrated its ability to technically achieve the monthly average treated effluent total phosphorous of 3 mg/L for the summer months due to the plant's ability to meet this limit as noted on the permittee's DMR data. While the plant consistently achieved a total phosphorous level of less than 3 mg/L, there have been several occurrences during the summer months that would have resulted in violation of this permit. Since there is no technical data to support a 3.0 mg/L limit other than past performance of the plant, we propose that the limit be set at 5 milligrams per liter. We would propose that one of the targeted goals to be included in the Nutrient Management Plan and the IWMP is to achieve a total phosphorous concentration of not more than 3 mg/L. Consequently, we propose this limit be raised to 5.0 milligrams per liter.

Division's Response For Permittee's No. 4 Comment

The division agrees with the permittee's proposed limit and has finalized the permit to include an Outfall 001 total phosphorus limit of 5.0 mg/L for the summer months (May 1 to October 31). Also, the final permit also includes the permittee's proposed targeting goal of 3.0 mg/L total phosphorus (summer months) to be addressed as part of its Nutrient Management Plan/IWMP.

The division expects results from the Nutrient Management Plan/IWMP evaluations to be useful in defining the limiting nutrient (total nitrogen or total phosphorus) and ratio warranted for reducing the potential for instream algal growth.

Permittee's No. 5 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations – Copper and Silver: The proposed permit includes daily maximum levels of 0.075 and 0.10 for copper and silver respectively. The proposed effluent limits do not indicate what the units are for these parameters. We have assumed that they are milligrams per liter. The rationale for the total copper and silver limits is shown in R 7.6 and R 7.12. The proposed limits are apparently based on the Division's reasonable potential water quality evaluation. It is noted, however, that R 7.12 of the rationale states that the summary of the Semi-Annual Report data does not indicate that the potential exists for water quality criteria for any of the metals in toxic consideration to be exceeded. Therefore, we are unclear as to what the rationale would be for adding these metal limits to the new permit. We request that the total copper and silver limits be removed from the draft permit.

We also request that the pass-through limits we received on September 21, 2009, from Ms. Jennifer Dodd be reviewed and compared to the worksheets shown in the draft permit. There are a few inconsistencies between the pass-through limits as contained in the September 21st letter and the information shown on page R-34 of 37 in the draft permit. In addition, we are confused between the information shown on page R-34 and R-37 of the draft permit. Both of these appear to be pass-through calculations. However, the information shown on R-37 had some slight differences from the information contained on R-34. We request that you review this information and provide better clarity on the proposed pass-through limits and the information shown on pages R-34 and R-37.

Division's Response For Permittee's No. 5 Comment

Pursuant to a December 10, 2009 USEPA draft permit email comment, as discussed subsequently in this Addendum to Rationale, the division requested and received supplemental permit renewal information Outfall 001 treated effluent metals data from the permittee (including copper, silver, and selenium results) as provided in Appendix AD-1A). Based on the permittee's supplemental information, the division completed the reasonable potential evaluation (also included in Appendix AD-1A) and made the following determinations for finalizing the permit:

- 1. The Outfall 001 treated effluent silver monthly average and daily maximum limits are set at 0.010 mg/L, with semiannual monitoring based on composite samples.**
- 2. Outfall 001 discharge copper limits are not required and the permittee must continue to complete its pass-through monitoring pursuant to its pretreatment program.**
- 3. For the Outfall 001 treated effluent, selenium limits are included (monthly average at 0.005 mg/L and daily maximum 0.019 mg/L).**

Revised pass-through limits will be issued to the permittee, consistent with the final permit requirements. The information provided in the Rationale p. R-34 presents the pass-through reasonable potential evaluation and was used for comparison with effluent quality per EPA's 40 POTWs survey and considered the permittee semi-annual monitoring results as presented on p. R-35. The reasonable potential evaluation presented on p. R-37 and as supplemented in this Addendum to Rationale Appendix AD-1A, allowed the division to consider both the pass-through monitoring results and permit renewal application data, with any updates. At times some minor differences exist, e.g., due to differing datasets being used.

Pursuant to the permittee's No. 5 comment and further division reasonable potential review of information provided on p. R-37, the new permit includes Outfall 001 total cyanide limits of 0.00478 mg/l for the monthly average with a daily maximum of 0.0205 mg/l.

Permittee's No. 6 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations: Over the past several years, the City of Franklin has expanded its reclaimed water system. The City has continued to keep TDEC involved of these efforts and Franklin has been a leader within the state of Tennessee in the development and regulation of reclaimed water systems. We are convinced that the Harpeth River Watershed has benefited from our proactive approach to the use of reclaimed water. The Franklin Reclaimed Water System has expanded to include reuse by industrial customers, commercial developments, golf courses, recreational areas, residential developments both individual properties and common areas within these developments, and other non-potable uses.

We are in agreement with the limitations proposed and most of the narrative limitations proposed in Section 3.9. We are, however, concerned with the addition of the narrative requirements that application rates shall be restricted, such that nitrogen uptake by the receiving crop cover is sufficient during all months of the year to prevent the reuse water from causing the ground water underlying the application sites to exceed State groundwater criteria for nitrates. We believe this new requirement is unnecessary and excessive. The numerical limits in our permit are very restrictive and limit the nitrogen that can be contained in our reclaimed water. In addition, there are dozens of sites with a variety of cover crops where the reclaimed water is presently utilized. With the continued development of the reclaimed distribution system, we fully expect that the number of sites could increase drastically during the next dry weather period. The vast majority of these locations are turf grass-type cover crops

and the application rates are limited to only that amount that is required for adequate irrigation of the turf grasses. Consequently, we request that the narrative limitation related to the application rates be removed from this permit.

Division's Response For No. 6 Comment

The division has include the "... nitrogen uptake by the receiving crop cover is sufficient during all months of the year to prevent the reuse water from causing the ground water underlying the application sites to exceed State groundwater criteria for nitrates" provision in other POTW treated effluent reuse NPDES permits. The division agrees that the permittee has to achieve very high quality effluent ammonia-nitrogen and total nitrogen limitations. As such, this provision is being removed from the permit, however for cause the division may reopen the permit and include comprehensive application criteria. If the permit is reopened for modification, applicable public participation measures would be used.

Permittee's No. 7 Comment

Section 1.1 – Numerical and Narrative Effluent Limitations Suspended Solids Summer Period: The proposed monthly average concentration limits for suspended solids is 30 milligrams per liter. As noted in the rationale in 7.3, water quality regulations require a 30 milligram per liter TSS limit. The Division has proposed to reduce this limit to 10 milligrams per liter for the summer period. There is no basis for this permit limit reduction nor does the water quality criteria and regulations for the state of Tennessee require the reduction to 10 mg/L. As noted, Franklin Wastewater Treatment Plant does have advanced filtration for the removal of suspended solids from the effluent. This in itself is not sufficient justification in our opinion for the suspended solids limits to be decreased from its current value. We request the total suspended solids limit be maintained at 30 milligrams per liter. It is noted, however, in order to comply with other permit conditions, the City of Franklin will have to maintain its advanced filtration process to achieve other permit limits and will achieve total suspended solids limit less than 30 milligrams per liter.

Division's Response For No. 7 Comment

The division considers the more stringent effluent 10 mg/L TSS limit for summer conditions to be appropriate due to the following rationale.

The state water quality standards require regulation of activities such that existing water quality levels are maintained or improved. TSS is a concern because of the potential for nutrient feedback to the water column via suspended solids settling/accumulation/biodegradation in the downstream receiving stream pools under low-flow summer conditions. EPA's TMDL made reference to the receiving stream's high sediment oxygen demand (SOD). Therefore, this needs to be addressed in the permit.

The permittee's permit renewal application presents the wastewater treatment plant's design capacity for TSS removal at 95%. For the summer average influent TSS value of 212 mg/L (as shown the Rationale p. R-24), this removal results in an effluent TSS equal

to 10.6 mg/L, which the permittee has also demonstrated to be achievable. (The effluent TSS secondary treatment standard 30 mg/L requirement is based on 85% TSS removal using an influent TSS of 200 mg/L.)

The permittee should note that the TSS 10 mg/l has a permit qualifier added now to explicitly state that a violation of this value will not result in a Notice of Violation (NOV) if the reason for a higher monthly average value occurrence was not due to tertiary filter neglect.

Permittee's No. 8 Comment

Section 3.7 – Receiving Stream Monitoring/Reporting: The proposed permit adds additional receiving stream monitoring or reporting requirements. Specifically, the permit requires supplemental in-stream monitoring and diurnal investigations at various locations within the receiving stream. The receiving stream investigations are described in Attachment 1 of the draft permit. As we have previously indicated, the City of Franklin is in the very early stages of an IWMP. This investigation will take several years to complete and we believe will have a positive impact on the watershed in the Franklin area. Inasmuch as the City of Franklin had previously initiated the IWMP without a requirement or mandate from TDEC, we request greater flexibility in the additional in-stream monitoring and the requirements of identifying and implementing advanced methods of improving receiving stream water quality as defined in the permit.

Attached to our comments is the detailed Scope of Work, Work Flow and Schedule for the first phase of the IWMP. We request that the provisions contained in Attachment 1 of the draft permit, particularly those related to the diurnal investigations and the implementation of advanced methods for improving receiving stream water quality be deleted from the draft permit and replaced with conditions and requirements that match those identified in our scope of work Attachment. Franklin is very committed to the development of the IWMP and believes this is a much better and more cost-effective approach to improving the water quality of our watershed, and we suggest that our proposed IWMP Work Plan be referenced in the draft permit as opposed to the language proposed by the Division in Attachment 1.

Division's Response For No. 8 Comment

The division is in favor of the permittee's progressive step forward by the development of its IWMP and looking for cost-effective receiving stream water quality improvements. The division concurs with the permittee's request for including greater flexibility in the proposed permit requirements associated with additional instream monitoring and identifying and implementing advanced methods for improving receiving stream water quality. The permittee's September 2009 IWMP work plan (Task 2.1 River/Watershed Data includes assessing existing data regarding "Water quality on nutrients, DO, bacteria, chlorophyll, TSS, etc.". However, the division considers additional instream monitoring will be necessary to identify the receiving streams characteristics. As such, the permittee will have up to three months from the permit's effective date to propose changes to the provisions addressed Attachment 1. Should the division agree in writing

with the permittee's written Attachment 1 proposed changes request, then such action can occur without reopening the permit.

Permittee's No. 9 Comment

Section 3.8 – Nutrient Management Plan/Reporting: The proposed permit requires the development of a Nutrient Management Plan (NMP) as described in Attachment 2. The City of Franklin is continually looking for enhancements to help control the effluent discharge from the treatment plant. Various operational enhancements and changes and other alternatives continue to be evaluated for the most cost-effective solution to help achieve a very high quality effluent. We request that the Nutrient Management Plan, as presented in Attachment 2 be deferred in this draft permit, and we will incorporate some of the provisions included in the Division's Attachment 2 into our IWMP. We believe it is important for the goals for the watershed to be established by the stakeholders and that any water quality improvement plan that will be developed by the City of Franklin should incorporate those goals, along with the suggestions included in Attachment 2. We request that the Nutrient Management Plan, as proposed in Attachment 2, be incorporated into our future phases of the IWMP and be removed from the permit at this time.

Division's Response For No. 9 Comment

The division anticipated that improvements in the receiving stream water quality would require a coordinated effort involving requirements presented in Attachments 1 and 2, and that would be included in the permittee's IWMP evaluations. The division considers the permitting flexibility/provisions afforded for the permittee's compliance with the Attachment 1 (as presented by the division's above response for the permittee's No. 8 comment) to also be applicable to the Attachment 2 requirements. Therefore, the permittee will have up to three month from the permit's effective date to propose changes to the provisions addressed Attachment 2. Should the division agree in writing with the permittee's written Attachment 2 changes request, then no permit modification will be required.

Harpeth River Watershed Association (HRWA) Comments

HRWA's written comments are provided in Attachment AD-2. The attachments referenced in the HRWA comments are available in the division's permit file. From the HRWA comments the division extracted the following brief topical summary as related to the permittee's (Franklin STP TN0028827) draft permit, with the corresponding division response.

The Harpeth River's dissolved oxygen is below the state water quality standard of 5.0 mg/L above and below the discharges from the three wastewater treatment plants during effluent dominated low-flow summer conditions, including downstream sections classified as Exceptional Tennessee Waters. An inaccurate 2004 TMDL was developed by the USEPA and used by the division to define discharge requirements for the proposed new permits. Therefore, additional load reductions are warranted for the discharges, beyond those presented in the three draft permits (Franklin STP TN0028827, Lynwood Utility Corp. STP TN0029718, and Cartwright Creek, LLC – Grassland STP TN0027278).

Division's Response For HRWA Summary

The division did incorporate the requirements included in the USEPA's 2004 TMDL in the proposed draft permits, and included key investigational/implementation requirements for better understanding the nature of the receiving stream's dissolved oxygen encumbrances and enhancement opportunities. For example, for the Franklin STP TN0028827 permit, the draft permit was finalized to define the actual Outfall 001 treated effluent CBODu, develop/implement a receiving stream monitoring/reporting program (Attachment 1), and a nutrient management plan (Attachment 2). The new permit provides for a pragmatic/empirical approach which the division considers essential for the development/implementation of elements needed for enhancing the receiving stream's dissolved oxygen during the low-flow summer conditions.

Franklin STP's implementation of its Integrated Water Management Plan (IWMP) should result in further consideration of the impacts from the numerous non-point sources and the direct dischargers and identify upgrading/enhancing options for improving the instream dissolved oxygen during low-flow summer conditions. As such, upgrade options can be assessed in term of the actual receiving stream's capacity. The division has suggested to the downstream dischargers (Lynwood Utility Corp. STP TN0029718 and Cartwright Creek, LLC – Grassland STP TN0027278) that they be involved as possible in the IWMP.

Tennessee Clean Water Network (TCWN) Comments

TCWN comments are provided in Attachment AD-3, which also includes Dr. Burkholder comments. From the TCWN comments the division extracted the following brief topical summaries extracted as related to the three permits, with the corresponding division responses. Likewise addressed are TCWN's comments focused on permittee's (Franklin STP TN0028827) draft permit.

TCWN Summary Comment No. 1

Due to the low receiving stream natural flow, the three discharges likely cause or contribute to the segment water quality impairments. The draft permits provisions would cause a condition of pollution and do not include the most stringent limits necessary to implement ammonia-nitrogen, total nitrogen, total phosphorus and CBOD5 water quality standards.

Division's Response For TCWN Summary Comment No. 1

The division included the USEPA's 2004 TMDL provisions for the necessary controls for the permittees' CBOD5, ammonia-nitrogen, and total nitrogen. The draft permits included total phosphorus limits also for additional nutrients control. Additional permit requirements were included, as noted above in the division's responses to the HRWA comments.

TCWN Summary Comment No. 2

TCWN suggested that the permit include “This permit does not authorize discharges that would result in violation of a state water quality standard (TDEC Rules, Chapters 1200-4-3 and 1200-4-4). Such discharges constitute a violation of this permit.” Such language allows TDEC to protect water quality if the permit’s numeric effluent and monitoring requirements are not sufficient.

Division’s Response For TCWN Summary Comment No. 2

See division’s response to TCWN Summary Comment No. 1 above. Note that the permit standard language requires as provided in Part 2.4.2, the permittee to comply with all state and federal water quality laws.

TCWN Summary Comment No. 3

TCWN’s nutrient contributions comments:

- a. Total phosphorus and total nitrogen limits are high compared to levels determined to cause noxious algal blooms (per Dr. Burkholder comments also attached in Appendix AD - 3. It is feasible for each facility to meet lower limits.
- b. The draft permits developed using USEPA’s 2004 TMDL total nitrogen wasteload allocations as annual average total nitrogen (lbs/day), which results in significant exceedances of loading limits.
- c. Numeric total nitrogen and total phosphorus limits need to be established for the entire year. Limiting winter loading important because a portion of the nutrient loads are stored in the streambed sediment and will contribute to summer eutrophication.
- d. None of the permits take into consideration inorganic nitrogen or bioavailable organic nitrogen, which are the most important forms of nitrogen in relation to cause of eutrophication.
- e. The total nitrogen and total phosphorus limits should be based on analysis of the assimilative capacity of the receiving waters rather than the facilities’ demonstrated performance.
- f. The division should assess if the application of its 2001 *Development of Regionally-Based Interpretations of Tennessee’s Narrative Nutrient Criterion* could better serve to protect the segments water quality.

More stringent numerical limits are necessary for all three STP permits. The state has the authority and responsibility to set effluent limits in compliance with water quality standards per 40 CFR 122.44(d).

Division’s Response For TCWN Summary Comment No. 3

The division included the TMDL total nitrogen limits. Additionally, the permits included total phosphorus limits and advanced pragmatic/empirical measures including upstream/downstream diurnal monitoring/reporting requirements in conjunction with other permitting requirements as noted above in the HRWA response, to identify actual effective measures for defining dissolved oxygen improvements. The division considers

the development/implementation of the permittee's IWMP to provide for significant nutrient controls.

The division's responses for the above items "a" through "f" and summary comment follows:

a. Many factors can result in algal blooms including the treated effluent total nitrogen and total phosphorus. Other factors include ratio of total nitrogen/total phosphorus, solar radiation and temperature. The instream upstream/downstream diurnal variation results in dissolved oxygen and pH will provide useful information regarding the potential impacts from the dischargers and upgrade options. The IWMP will be focused on defining upgrades for the dischargers and non-point source inputs.

b. The division's understanding is that the 2004 TMDL provided annual average mass loadings. The draft permits include elements for identifying/implementing upgrades for improving the instream dissolved oxygen. The permits will expire in 2011 at which time additional information should be available to make changes in treated effluent limitations/monitoring requirements, if warranted.

c. Annual average total nitrogen treated effluent mass loading limits provides coverage for the permits. The largest discharger's (Franklin STP TN0028827) current permit includes a total nitrogen mass loading limit of 377 lb/day for summer operation, and this value was retained for the new permit. The three permits include discharge total phosphorus limits for summer operation. During winter periods the receiving stream flows are much higher, therefore due to hydraulics reduced streambed sediment accumulation with corresponding transport downstream are expected.

d. The 2004 TMDL presented total nitrogen allocations, which were used for developing the discharge permits. Total nitrogen discharge values automatically limits the inorganic and bioavailable organic nitrogen components. Within the context of the IWMP additional nitrogen species monitoring would be acceptable to the division, if such results could be effective for controlling algal growth.

e. Total nitrogen discharge limits were based on the 2004 TMDL allocations, with the wastewater treatment plant performances being used for the total phosphorus limits. As explained above in response to the HRWA's comments, the division expects the elements included in the permits to allow more specific nutrient limits to be developed in the future.

f. The division considers the application of the 2004 TMDL requirements, with phosphorus limits and permitting elements to provide the most effective method to make water quality improvements.

The division considers the discharge limits and permitting conditions included in the finalized permit to be appropriate for upgrading the receiving stream's water quality.

The definition of "degradation" in Section 4.1 of the permits contradicts the "de minimis" definition in Tenn. R. and Regs 1200-4-3-.04(4). In the rules the cumulative impact can not exceed 10% of the assimilative capacity for *de minimis* determinations unless the Division determines there is a scientific basis demonstrating additional impacts are insignificant. The definition provided in the permits, and all other NPDES permits, can establish a *de minimis* level at 50% of assimilative capacity in direct contradiction to the rules of the Department. The permit language must be altered to "Degradation will not be considered de minimis if 10% of the receiving water assimilative capacity is already being used."

Division's Response For TCWN Summary Comment No. 4

This is the renewal of three existing permits and does not involve new or expanded discharges and the new permit addresses controls necessary to remedy the instream low dissolved oxygen under low-flow summer conditions. The permit's definition for "Degradation" was supplemented to include the TCWN's noted 10% provision as follows: "... (not measurable or less than 5 percent loss of assimilative capacity due to single discharger or less than 10 percent loss for multiple dischargers)...".

TCWN Summary Comment No. 4

There should be language in each of these permits placing a moratorium on any new connections while the receiving waters are still impaired for low dissolved oxygen and nutrients. The river is already beyond its assimilative capacity and increasing the potential for further contribution to these impairments is only going to further degrade the water quality of Harpeth River.

Division's Response For TCWN Summary Comment No. 5

If the receiving stream's low dissolved oxygen were solely due these three point source dischargers, then the division would likely include additional control options, potentially including moratoriums. However, it is well known that non-point receiving stream inputs are having an adverse impact on the dissolved oxygen levels associated with low flow summer conditions. The permit includes a broad array of controls on the point source dischargers for remedying the receiving stream's low dissolved oxygen during summer conditions. The division cannot regulate most of the non-point sources.

TCWN's Franklin STP - Specific Comment No. 1

1. Section 1.1: The reduction in suspended solids to 10 mg/l in the summer also needs to be applied to winter months to address concern about suspended solids impacting pools in the receiving waters.

Division's Response For TCWN's Franklin STP- Specific Comment No. 1

During winter periods the receiving stream flows are much higher, therefore due to hydraulics reduced streambed sediment accumulation should occur since material should be transported downstream.

TCWN's Franklin STP - Specific Comment No. 2

2. Section 3.2 d. ii: The second table contains pre-treatment pollutants required to be analyzed once during the term of the permit. These pollutants should be analyzed and reported at least once a year.

Division's Response For TCWN's Franklin STP- Specific Comment No. 2

These pretreatment program requirements are used unless specific the pollutant(s) present receiving stream water quality concerns. If so, then more frequent monitoring requirements are incorporated into the permit.

TCWN's Franklin STP - Specific Comment No. 3

3. Section 3.4: The chronic biomonitoring for effluent toxicity will yield helpful information, but it is required too infrequently, except when there is a test failure. No requirements were specified for monitoring toxic chemical environmental contaminants in the effluent, which have become of increasing concern for human health.

Division's Response For TCWN's Franklin STP- Specific Comment No. 3

The division uses its reasonable potential approach to determine if permit discharge limits or monitoring requirements are warranted for toxic chemicals. The permit addresses human health concerns in Part 1.1 "The wastewater discharge shall not contain pollutants in quantities that will be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving stream."

TCWN's Franklin STP - Specific Comment No. 4

4. Section 3.9: Does this language exempt the permit holder from having to obtain a State Operating Permit for the reuse of treated wastewater? It may not be necessary to require reuse water to receive the same treatment as that water being discharged as effluent in the Harpeth River. These will lead to additional chemicals unnecessarily being applied to land. The language must require for the protection of human and animal health, as well as the prevention of pollutant loadings to our waters, but does not need to create additional chemical waste on the land and in the groundwater.

Division's Response For TCWN's Franklin STP- Specific Comment No. 4

A State Operating Permit (SOP) is not required. The division agrees that reuse applications could translate to differing treatment requirements. The E. coli and total residual chlorine limits are more stringent for reuse. In Part 1.1 the permit includes the

provision, "In addition, the reuse irrigation system must be operated in a manner preventing the creation of a public health hazard or a public/private nuisance."

TCWN's Franklin STP - Specific Comment No. 5

5. Attachment 1 (page 35): Chemical monitoring of receiving stream water quality is to be required at three locations (1 upstream, 2 downstream), but only one sample is to be collected mid-depth, mid-channel. Replicates are necessary. Also, the early morning schedule will not detect high pH from algal blooms that may develop downstream in response to nutrient over-enrichment (e.g. phosphorus) from the STP. Monitoring should be required mid-day rather than early morning.

Division's Response For TCWN's Franklin STP- Specific Comment No. 5

The pH values that may develop downstream due to algal blooms would be measured via the diurnal instream monitoring. The permit now includes a provision allowing the division to, without reopening the permit, switch the early morning monitoring to mid-day as suggested by TCWN, if warranted based on the late afternoon results.

TCWN's Franklin STP - Specific Comment No. 6

6. Section R7.5: The permit should more clearly explain any relationship of this facility and that of Jones Creek STP and what considerations from the Jones Creek STP NMP were applied in this permit.

Division's Response For TCWN's Franklin STP- Specific Comment No. 6

The Water Authority of Dickson County - Jones Creek STP TN0066958 permit includes requirements for the development/implementation of a Nutrient Management Plan for optimizing WWTP nutrient removal and includes a receiving stream study for defining impacts from both point and non-points nutrient sources. This information is available in the permit file.

USEPA Comments

The following USEPA comments were extracted from the USEPA's 12/10/2009 email for the Franklin STP proposed permit:

1. A selenium limit (both monthly average and daily maximum) should be applied, since this is a continuous discharge. Per the rationale (p. R-36) the calculated instream water quality selenium equals 4.7 ug/l (chronic) and 29 ug/l (acute). The application shows (six samples) that the average daily discharge 27 ug/l and daily maximum 29 ug/l. Based on these values reasonable potential is evident and permit should have a selenium limit.
2. Per 40 CFR 122.45(d) since this is a continuous discharge total copper and total silver monthly average limitations (even if the frequency is 2x/year), with the chronic values in the permit. Page 2 needs to also include parameter units.

3. The total mercury used (<0.2 ug/l) was not sufficiently stringent for the reasonable potential calculations, and must also be addressed in the permittee's pretreatment program monitoring. The permit needs a reopener provision such that it can be modified if the more sensitive method mercury results in a discharge limit/more frequent monitoring requirement based on reasonable potential water quality calculations.

The USEPA acknowledges the inclusion of appropriate limits for the TMDL (CBOD5, ammonia, and total nitrogen), the ultimate CBOD study, the continued instream monitoring, and the development of the Nutrient Management Plan.

Division's Response For USEPA's Comments

Pursuant to the USEPA comments, the division requested that the permittee provide the supplementary permit application Outfall 001 treated effluent silver, copper, and selenium results. The data is presented in Appendix AD-1A. Water quality reasonable potential calculations for the Outfall 001 treated effluent silver, copper, and selenium are also provided in Appendix AD-1A.

The draft permit was finalized by addressing the USEPA's comments as follows:

- 1. Based on the reasonable potential results the new permit includes Outfall 001 total selenium limits (0.005 mg/l monthly average and 0.019 mg/l daily maximum) based on composite sampling and semiannual monitoring frequency.***
- 2. Pursuant to the reasonable potential evaluation, no total copper Outfall 001 discharge limits are needed. However, total silver limits (0.010 mg/l for both monthly average and daily maximum) were used for finalizing the permit based on composite sampling and semiannual monitoring.***
- 3. For mercury monitoring the permittee must use the more sensitive testing method (EPA Method 245.7 or 1631E) for its pretreatment program mercury pass-through testing and permit renewal applications. Also, a reopener provision was included to allow the division to modify the permit to include Outfall 001 treated effluent monitoring limits and/or changes in monitoring frequency, if warranted based on results from a more sensitive mercury method and reasonable potential evaluations.***

Addendum to Rationale Attachments:

Attachment AD – 1, Permittee's (Cover Letter) Comments – (2009 IWMP work plan is available in the division's permit file)

Attachment AD – 2, Harpeth River Watershed Association (HRWA) Comments

Attachment AD – 3, Tennessee Clean Water Network (TCWN) Comments

Attachment AD – 1, Permittee's (Cover Letter) Comments

WATER MANAGEMENT DEPARTMENT

Mark S. Hilty, P.E.
Director



John C. Schroer
Mayor of Franklin

Eric S. Stuckey
City Administrator

**HISTORIC
FRANKLIN
TENNESSEE**

November 30, 2009

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

RE: DRAFT NPDES PERMIT NO. TN0028827
Franklin Sewage Treatment Plant

Dear Mr. Davis:

We are writing as a follow up to our letter of September 23, 2009 requesting an extension until December 1, 2009 for submittal of comments on our draft permit. Attached are our comments, questions and objections to the referred permit. We are hopeful that you will be able to incorporate our proposed revisions or modifications to the draft permit. Once you have had a chance to review and provide your response to our comments, we will be happy to meet with you to try and resolve any continued objections.

Several of the draft permit conditions make reference to the September 2004 Organic Enrichment/ Low Dissolved Oxygen, TMDL study developed by EPA. Franklin has made repeated objections to these findings and has submitted comments indicating our objections. We continue to note our objections and disagree with the findings and the use of these findings for developing the proposed permit limits. In addition to our previously submitted comments, we feel the recent developments concerning pollutants from the Egyptian Lacquer plant and the resulting low dissolved oxygen in Liberty Creek at the Harpeth River in that vicinity may play an important role in understanding the underlying causes of dissolved oxygen levels in the Harpeth River.

The City of Franklin has recently entered into a contract with CDM to provide an Integrated Water Management Plan (IWMP). We anticipate this to be a very detailed and extensive plan, and we will gather input from a variety of stakeholders. Several of the proposed permit provisions will be identified and more fully developed and addressed during the IWMP process. The City of Franklin will spend hundreds of thousands of dollars on the IWMP. We are confident that the results of this plan will greatly improve the water quality within the Harpeth River. Many of our comments to the permit refer to Franklin's proactive approach in developing the IWMP.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark S. Hilty', is written over a light blue horizontal line.

Mark Hilty, P.E.
Director, Water Management Department

Attachment

Attachment AD – 1A, Permittee’s (Supplemental Outfall 001 Metals Data)

Outfall 001 Treated Effluent Silver, Copper & Selenium

	Silver	Copper	Selenium
Detection Limit	0.00050	0.02000	0.02000
	(mg/L)	(mg/L)	(mg/L)
Date of Test			
4/6/2005	0.00050	0.01000	0.01000
5/3/2005	0.03200	0.01000	0.01000
6/7/2005	0.00070	0.01000	0.01000
7/5/2005	0.00058	0.01000	0.06000
8/2/2005	0.00510	0.01000	0.01000
9/13/2005	0.00060	0.01000	0.01000
10/4/2005	0.00025	0.01000	0.01000
11/8/2005	0.00025	0.01000	0.01000
12/6/2005	0.00025	0.01000	0.01000
1/3/2006	0.00025	0.01000	0.01000
2/8/2006	0.00025	0.01000	0.01000
3/7/2006	0.00025	0.01000	0.01000
4/4/2006	0.00025	0.01000	0.01000
5/2/2006	0.00025	0.01000	0.01000
6/6/2006	0.00025	0.01000	0.01000
7/5/2006	0.00025	0.01000	0.01000
8/8/2006	0.00025	0.01000	0.01000
9/5/2006	0.00025	0.01000	0.01000
10/3/2006	0.00025	0.01000	0.01000
11/7/2006	0.00025	0.01000	0.01000
12/5/2006	0.00025	0.01000	0.01000
1/2/2007	0.00025	0.01000	0.01000
2/6/2007	0.00025	0.01000	0.01000
3/6/2007	0.00068	0.01000	0.01000
4/3/2007	0.00062	0.01000	0.01000
5/8/2007	0.00050	0.01000	0.01000
6/5/2007	0.00025	0.02600	0.01000
7/3/2007	0.00025	0.01000	0.01000
8/7/2007	0.00025	0.01000	0.01000
9/4/2007	0.00025	0.01000	0.01000
10/2/2007	0.00025	0.01000	0.01000
11/6/2007	0.00025	0.01000	0.01000
12/4/2007	0.00025	0.01000	0.03300
1/2/2008	0.00140	0.01000	0.01000
2/5/2008	0.00025	0.01000	0.01000
3/4/2008	0.00025	0.01000	0.01000
4/8/2008	0.00025	0.01000	0.01000
5/6/2008	0.00025	0.01000	0.01000
6/3/2008	0.00025	0.01000	0.01000
7/8/2008	0.00025	0.01000	0.01000
8/5/2008	0.00025	0.01000	0.01000
9/3/2008	0.00025	0.01000	0.01000
10/7/2008	0.00025	0.01000	0.05300
11/4/2008	0.00025	0.01000	0.01000
12/2/2008	0.00025	0.01000	0.05200
1/6/2009	0.00025	0.01000	0.05200
2/3/2009	0.00025	0.01000	0.02000
3/3/2009	0.00025	0.01000	0.02100
4/7/2009	0.00025	0.01000	0.01000
5/5/2009	0.00025	0.01000	0.01000
6/9/2009	0.00025	0.01000	0.01000
7/7/2009	0.00025	0.01000	0.01000
8/4/2009	0.00025	0.01000	0.01000
9/8/2009	0.00025	0.01000	0.01000

	Silver	Copper	Selenium
	(mg/L)	(mg/L)	(mg/L)
Max	0.0320	0.026	0.060
Ave	0.0010	0.010	0.014

* Average Values Use 1/2 BDL for those values below BDL

# of test results	54	54	54
# of values above	10	1	7
Maximum Value	0.03200	0.02600	0.06000
Average Value	0.00099	0.01030	0.01409

* Average Values Use 1/2 BDL for those values below BDL

**COPPER, SILVER AND SELENIUM
 WATER QUALITY BASED EFFLUENT CALCULATIONS
 OUTFALL 001**

FACILITY: Franklin **PERMIT #:** TN0028827 **DATE:** 8/18/2009 **CALC BY:** GMDa

non-regulated stream worksheet (7010)

Stream (7010) (MGD)	Stream (30Q5) (MGD)	Waste Flow (MGD)	Ttl. Susp. Solids (mg/l)	Hardness (as CaCO3) (mg/l)	Margin of Safety (%)
0.49	1.29	12	15	200	90

PARAMETER	1 Stream Background Conc. (ug/l)	2 Fish/Aqua Life (F & AL) WQC lab conditions		3 Acute (ug/l)	4 F & AL - instream allowable ambient conditions (F)		5 Chronic (ug/l)	6 Acute (ug/l)	7 Calc. Effluent Concentration based on F & AL		8 Human Health Water Quality Criteria *		9 Organisms (ug/l)	10 In-Stream Criteria (Water/Organisms) (ug/l)	11 DWS (ug/l)	12 Organisms (ug/l)	13 Calc. Effluent Concentration ** (ug/l)	14 DWS (ug/l)	15 Return Appl. Eff. Agt/Max (ug/l)	
		Chronic (ug/l)	Acute (ug/l)		Fraction Dissolved (Fraction)	Fraction Dissolved (Fraction)			Chronic (ug/l)	Acute (ug/l)	Water/Organisms (ug/l)	Organisms (ug/l)								Water/Organisms (ug/l)
Copper (a,b)	1.5	16.193	25.823	25.823	0.324	0.324	49.915	79.598	46.7	74.5									1026	Copper (a,b)
Silver (a,b,f)	0.500	NA	10.597	10.597	1.000	1.000	NA	10.597	N/A	9.9									1032	Silver (a,b,f)
Selenium	0.000	5.0	20.0	20.0	1.000	1.000	5.0	20.0	4.7	18.7									1460	Selenium

- a Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.
- b The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.
- c The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.
- d The criteria for this parameter is in the total form.
- e Previously, the Division established that 0.006 ug/L would be maximum background default if no sample data available or if all samples were <RDL (<0.2 ug/L), based on reference stream monitoring by DOE.
- f Silver limit is daily max if column 8 is most stringent.
- g When columns 7 or 8 result in a negative number, use results from columns 5 or 6, respectively.
- h When columns 12, 13 or 14 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.
- * Domestic supply included in river use so pick from columns 7, 8, 12, 13, 14, 15 or Domestic supply not included in river use so pick from columns 7, 8, 12 or 15.
- ** Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

Attachment AD – 2, Harpeth River Watershed Association (HRWA) Comments



**HARPETH RIVER
WATERSHED ASSOCIATION**

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

REC'D
12/1/09
Permit Section

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, effluent domination of the river's flow in the summer downstream from Franklin, industrial chemical oxygen demand just upstream from Franklin's discharge by contaminated groundwater from Egyptian Lacquer, 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 four times higher at 427 lbs/day. Aquaeter's

work is based on 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.

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--the Harpeth (see citations in TCWN comments). In addition, permits can not 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 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 what is in the proposed 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.
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 just 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 water quality data that is needed for developing a 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 have 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 sits 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 any 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 will be part 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 NPDES Permits, by Aquacter 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%2007%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.

Attachment AD – 2, Tennessee Clean Water Network (TCWN) Comments

Tel: (865) 522-7007
Fax: (865) 525-1986
info@tcwn.org
www.tcwn.org



P.O. Box 1521
Knoxville, Tennessee 37901
125A South Gay Street
Knoxville, TN 37902

November 30, 2009

Mr. Gary Davis
Tennessee Department of Environment & Conservation
Water Pollution Control
6th Floor L & C Annex
401 Church Street
Nashville, TN 37243-1534

Subject: Draft NPDES Permits TN0028827 (Franklin STP), TN0027278 (Cartwright Creek, LLC - Grassland STP) and TN0029718 (Lynwood Utility Corp. STP)

Dear Mr. Davis,

The Tennessee Clean Water Network (TCWN) submits these comments in response to the public notice regarding the draft NPDES permits for three sewage treatment plants (STP) in the Harpeth River Watershed: TN0028827 (Franklin STP), TN0027278 (Cartwright Creek, LLC - Grassland STP) and TN0029718 (Lynwood Utility Corp. STP). Below is a general summary of our comments. Please incorporate all attachments written by Dr. JoAnn Burkholder (Professor, Applied Aquatic Ecology at North Carolina State University) as part of these comments. TCWN also signs on to the comments submitted by the Harpeth River Watershed Association and recognizes through their comments, the Harpeth River Watershed Association signs onto these comments submitted by TCWN.

We appreciate the extension of this public comment period in order to thoroughly review these draft permits. We also appreciate the opportunity to comment on this permit and look forward to hearing from the Division.

Comments applicable to all three permits

1. Stream flow, effluent flow and contribution to impairments.

These three STPs discharge directly into the Harpeth River within a 17 mile stretch of one another. The receiving waters are impaired as a result of low dissolved oxygen levels and nutrients. According to Tennessee's Section 303(d) List of Impaired Waters, the receiving segment of the Lynwood Utilities STP and the Cartwright Creek LLC-Grassland STP discharges (HUC 05130204009_3000) is impaired by nutrients and low dissolved oxygen, while the receiving segment of the Franklin STP (HUC 05130204010_1000) is impaired as a result of low dissolved oxygen and phosphate.

The effluent from these plants constitutes a significant percentage of the total flow of this stretch of the Harpeth River. The 7Q10 for the segment in which the Franklin STP discharges is 0.49 MGD. The Franklin facility has a design capacity of 12 MGD. It is more than apparent the Franklin STP effluent will not only take over the natural flow of the river, but will also constitute a considerable portion of the stream flow into which Cartwright Creek and Lynwood STPs are discharging.

With such a low natural stream flow it is likely the major discharge of pollutants of concern from the three STPs will cause or contribute to the existing impairments of the stream segment. The statements provided by Dr. JoAnn Burkholder, the more detailed discussion below, and the comments/attachments submitted by the Harpeth River Watershed Association, support this conclusion.

Accordingly, The draft permits appear to violate Sections 402 and 302 of the federal Clean Water Act, 33 U.S.C. §§ 1342(b)(1)(A) and 1312(a), and Tenn. R. and Regs 1200-4-5-.04(f) by failing to impose effluent limits that are sufficiently stringent to attain and maintain applicable water quality criteria for ammonia as nitrogen, Total Nitrogen, Total Phosphorus, and CBOD₅. See also 40 C.F.R. §§ 122.44(d)(1)(vii)(A) and 123.25.

Issuance of the draft permit as proposed would also appear to violate Tenn. Code Ann. § 69-3-108(e) because it (1) would approve an activity that would cause a condition of pollution, and (2) fails to include the most stringent effluent limits necessary to implement applicable water quality standards for ammonia as nitrogen, Total Nitrogen, Total Phosphorus, and CBOD₅ in the Harpeth River.

2. Narrative protection from water quality criteria violations.

In order to adhere to water quality standards and protect the water quality of the receiving waters, each permit should include the following language, which is similar to that included in other TDEC permits:

This permit does not authorize discharges that would result in violation of a state water quality standard (TDEC Rules, Chapters 1200-4-3 and 1200-4-4). Such discharges constitute a violation of this permit.

This language preserves TDEC's authority to protect water quality in the event the permit's numeric effluent limits and monitoring requirements prove not to be sufficient for that purpose. Given that very similar language is included in TDEC's construction general permit, which applies to hundreds of point-source dischargers around the state, it would be reasonable to include these provisions in all NPDES permits issued in Tennessee.

3. Nutrient contributions.

- a. The total phosphorus (TP) and total nitrogen (TN) limits are high compared to what has been determined to cause noxious algal blooms (see comments by Dr. Burkholder, attached). It is feasible for each facility to meet lower limits.

- b. In compliance with the 2004 Harpeth River Organic Enrichment/Low Dissolved Oxygen TMDL, daily maximum loading limits must be included. This TMDL provides a wasteload allocation (WLA) for each STP (page 55). The WLA for TN is provided as "annual total nitrogen lbs/day." However, the permits take the lbs/day WLAs from the TMDL and use them as averages. Stating these WLAs as averages in the permits provides for significant exceedances of this loading limit.
- c. Numeric TP and TN limits need to be established for the entire year. Limiting loading in the winter is important because a portion of the nutrient loads are stored in the streambed sediment and will contribute to summer eutrophication.
- d. None of the permits take into consideration inorganic nitrogen or bioavailable organic nitrogen, which are the most important forms of nitrogen in relation to causes of eutrophication.
- e. The TN and TP limits should be based on analysis of the assimilative capacity of the receiving waters rather than the facilities' demonstrated performance.
- f. The Division should assess if the application of its 2001 *Development of Regionally-Based Interpretations of Tennessee's Narrative Nutrient Criterion* could better serve to protect the water quality of the receiving segments.

More stringent numeric nutrient limits are necessary for all three of these STP permits. In accordance with 40 CFR § 122.44(d) the state has the authority and responsibility to set effluent limits in compliance with water quality standards.

4. Definition of degradation.

The definition of "degradation" in Section 4.1 of the permits contradicts the "de minimis" definition in Tenn. R. and Regs 1200-4-3-.04(4). In the rules the cumulative impact can not exceed 10% of the assimilative capacity for *de minimis* determinations unless the Division determines there is a scientific basis demonstrating additional impacts are insignificant. The definition provided in the permits, and all other NPDES permits, can establish a *de minimis* level at 50% of assimilative capacity in direct contradiction to the rules of the Department. The permit language must be altered to "Degradation will not be considered de minimis if 10% of the receiving water assimilative capacity is already being used."

5. Moratorium on connections

There should be language in each of these permits placing a moratorium on any new connections while the receiving waters are still impaired for low dissolved oxygen and nutrients. The river is already beyond its assimilative capacity and increasing the potential for further contribution to these impairments is only going to further degrade the water quality of Harpeth River.

Comments specific to the Franklin STP (TN0028827)

1. Section 1.1: The reduction in suspended solids to 10 mg/l in the summer also needs to be applied to winter months to address concern about suspended solids impacting pools in the receiving waters.

2. Section 3.2 d. ii: The second table contains pre-treatment pollutants required to be analyzed once during the term of the permit. These pollutants should be analyzed and reported at least once a year.
3. Section 3.4: The chronic biomonitoring for effluent toxicity will yield helpful information, but it is required too infrequently, except when there is a test failure. No requirements were specified for monitoring toxic chemical environmental contaminants in the effluent, which have become of increasing concern for human health.
4. Section 3.9: Does this language exempt the permit holder from having to obtain a State Operating Permit for the reuse of treated wastewater? It may not be necessary to require reuse water to receive the same treatment as that water being discharged as effluent in the Harpeth River. These will lead to additional chemicals unnecessarily being applied to land. The language must require for the protection of human and animal health, as well as the prevention of pollutant loadings to our waters, but does not need to create additional chemical waste on the land and in the groundwater.
5. Attachment 1 (page 35): Chemical monitoring of receiving stream water quality is to be required at three locations (1 upstream, 2 downstream), but only one sample is to be collected mid-depth, mid-channel. Replicates are necessary. Also, the early morning schedule will not detect high pH from algal blooms that may develop downstream in response to nutrient over-enrichment (e.g. phosphorus) from the STP. Monitoring should be required mid-day rather than early morning.
6. Section R7.5: The permit should more clearly explain any relationship of this facility and that of Jones Creek STP and what considerations from the Jones Creek STP NMP were applied in this permit.

Comments specific to Cartwright Creek, LLC – Grasslands STP (TN0027278)

1. Section R6: The permit compliance problems, extensive FI issues, mechanical breakdowns, and sampling/analytical technique shortcomings require much further analysis. Taking these problems into consideration, how much of the data in this permit or that on which effluent limits are based is accurate?
2. Section R6: Since the FI problem has not been resolved, it is expected treatment of BOD and other pollutants will continue to be compromised.
3. Section R7.5: This STP is contributing to the impairments of the receiving waters. The stream has an “unusual series of pools” (page R-7), making it more vulnerable to impacts from the high concentrations of N and P allowed in this permit during the critical summer period. This STP, with design capacity 0.25 MGD, but with a 0.402 MGD average monthly flow from excessive FI problems, can contribute approximately 10% or more of the flow in the Harpeth River at low-flow conditions (7Q10 of 2.86 MGD). Considering these facts collectively, it is anticipated the discharge from this STP under its new permit for secondary sewage treatment will continue to contribute substantially to the nutrient-related impairments of the receiving segment.

Comments specific to Lynwood Utility Corp. STP (TN0029718)

1. Section 1.1: According to Appendix 2 (page R-12), the current permit limits include a winter daily maximum concentration of 20 mg/l and a 40% daily minimum percent

removal for CBODs. These are absent in Section 1.1. The removal of these limits appears to violate anti-backsliding rules in accordance with the Clean Water Act Section 402(e).

2. Although this STP has an advanced treatment system consisting of extended aeration, two-stage activated sludge treatment for biological nitrification/denitrification and has had minimal operational problems during the present permit term, it could potentially contribute up to 14% of the flow in the Harpeth River at low-flow conditions (7Q10 of 2.77 MGD). Also the series of pools in this river make it more vulnerable to impacts from the still relatively high concentrations of nitrogen and phosphorus discharged through this permit. Even if this STP complies with the proposed numeric effluent limits, its discharge will continue to contribute substantially to the nutrient-related impairments of the receiving waters.

Comments applicable to Cartwright Creek, LLC – Grasslands STP (TN0027278) and Lynwood Utility Corp. STP (TN0029718)

The 2004 Harpeth River Organic Enrichment/Low Dissolved Oxygen TMDL noted to consistently achieve an in-stream DO concentration at or above the required minimum of 5.0 mg/L, substantial reductions would be required in the receiving stream's sediment oxygen demand (SOD), in conjunction with an average annual TN mass loading of no more than 15 lbs/day from Cartwright Creek STP's outfall 001 (page R-5) and no more than 22 lbs/day from Lynwood STP's outfall 001 (page R-4). The draft permits note the TMDL described this stream segment as nitrogen-limited, but supplies of both TN and TP are high in these discharges, so it is likely Harpeth River sustains over-enrichment of both nutrients. The draft writing also asserts "the additional TN reduction requirements along with decreases in the SOD should help to attenuate the low-flow dissolved oxygen problems." Inherent problems with this logic are:

1. The new permits were described to address SOD by requiring measurement of the insoluble TKN and TP associated with the suspended solids in the effluent. This action will not decrease the SOD. It is also unclear as to how much the average annual TN mass loading limit will decrease SOD. The planned steps to decrease SOD and the amount of the decrease should be better explained so the efficacy of these draft permits in decreasing SOD can be evaluated.
2. The TN targets in these permits are high in comparison to what is needed to continue to promote eutrophication of this stream, which is already impaired because of too much nutrient pollution. In addition, high NH₃-N will continue to be allowed to be discharged by these facilities and it is a preferred source of nitrogen for many nuisance algae. The draft writing states the new permits require additional nitrogen reduction, but do not include information as to how much nitrogen reduction will be imposed.
3. The Division acknowledges the in-stream "nutrient eutrophication biological indicators" have been specifically identified as needing additional controls, so the new permits include average monthly TP limits for the critical summer season of 5.7 mg/L for Lynwood STP and 3.5 mg/L for Cartwright Creek STP. However, these limits are very high relative to what is needed to promote noxious algal blooms, nor are they based upon an analysis of the assimilative capacity of the receiving waters.

4. The 2004 TMDL targeted CBOD₅, as well as TN to address the low dissolved oxygen impairment. Yet the draft permits retain the same CBOD₅ limits as the old permits. Section R7.2 of the permits notes these facilities are required to remove at least 85% of the CBOD₅ and TSS entering each facility on a daily basis, as the *minimum* requirement for all municipal treatment facilities contained in CFR 40 § 133.102. Therefore, the minimum is continuing to be required of these STPs, despite the known impairment of receiving waters, and despite the identified concern solids are accumulating in the series of pools.

Thank you again for the opportunity to comment on these permits. We look forward to hearing from the Division.

Sincerely,


Dana L. Wright
Director of Policy and Legislative Affairs

Attached: *1. Review of the document, "Draft of NPDES Permit No. TN0028827 – Franklin STP, Williamson County, Tennessee"*
2. Review of the document, "Draft of NPDES Permit No. TN0029718 – Lynwood Utility Corporation STP in Franklin, Williamson County, Tennessee"
3. Review of the document, "Draft of NPDES Permit No. TN0027278 – Cartwright Creek-Grassland STP in Franklin, Williamson County, Tennessee"

Cc: Mr. Tyler Ring, President, Lynwood Utility Corporation
Mr. Mark Hilty, Director, Franklin Water Management Department
Mr. Bruce Meyer, Regional Manager, Cartwright Creek, LLC
Ms. Dorie Bolze, Executive Director, Harpeth River Watershed Association

Review of the document, "Draft of NPDES Permit No. TN0028827 – Franklin STP, Williamson County, Tennessee"

By Dr. JoAnn Burkholder

Effluent limitations (nutrients, SS, overflows/bypasses)

Five-day carbonaceous biochemical oxygen demand (CBOD₅) [new, lower] - summer monthly avg. 4 mg/L, weekly avg. 6 mg/L, daily maximum 8 mg/L; winter monthly avg. 10 mg/L, weekly avg. 15 mg/L, daily maximum 20 mg/L

Ultimate BOD₅ [new] - report

Ammonia (NH₃N) [new, lower] summer monthly avg. 0.4 mg/L; weekly avg. 0.6 mg/L; daily maximum 0.8 mg/L
winter monthly avg. 1.5 mg/L; weekly avg. 2.3 mg/L; daily maximum 3 mg/L

Total nitrogen (TN) summer 5 mg/L; winter - report;
the 2004 TMDL represents annual TN mass loading discharge limits (in pounds per day) on an annual basis - annual TN average permit limit ≤ 290 pounds per day
Note: the TN limit of 5.0 mg/L as a monthly average with a summer seasonal average maximum of 377 pounds per day is pursuant to the TMDL requirements; an additional TMDL requirement is to achieve 290 pounds per day TN on an annual basis.

Total phosphorus (TP) [new] - summer monthly avg. 3 mg/L; winter - report

Suspended solids (SS) - [new, lower] summer monthly avg. 10 mg/L; weekly avg. 40 mg/L; daily maximum 45 mg/L;
winter monthly avg. 30 mg/L, weekly avg. 40 mg/L, daily maximum 45 mg/L

Total copper and total silver - [new] 0.075 mg/L and 0.01 mg/L, respectively, as treated effluent daily maxima

Overflows, bypasses - report

The Franklin sewage treatment plant (STP) has an advanced treatment system with extended aeration activated sludge, tertiary filtration with denitrification, and UV disinfection. The effluent from this wastewater treatment plant (WWTP) consists of 99% municipal waste flow and 1% industrial waste flow. The permit allows water reuse through land application via spray or drip irrigation.

Overall Assessment

The Harpeth River is on the state's 303(d) list - its water quality is impaired to the extent that it can no longer support its designated uses for fish and aquatic life. Causes of impairment were identified as intermittent low dissolved oxygen during summer low-flow conditions, and "nutrient/eutrophication biological indicators" that were not described. TN DEC attributes the impaired status of this stream mostly to nonpoint sources, especially storm sewer systems, rather than this point source (p.R-2). This is noteworthy especially considering that the Franklin STP discharges from Outfall 001 to the Harpeth River at river mile 85.2. This STP, with design capacity of 12 mgd, can "swamp" the natural flow of the stream (low flow 7Q10, 0.49 mgd in that segment). Thus, this point source, although not yet at full capacity, has the potential to contribute up to ~24-fold more than the natural stream flow. Moreover, a series of pools make this stream more vulnerable to pollutant impacts. *Considering these facts collectively, I expect that the discharge from this STP under its new permit will continue to significantly influence the receiving segment of this 303(d)-listed stream.*

The *new permit* incorporates requirements from the 2004 TMDL for the Harpeth River. It will include additional discharge requirements (substantially lower NH₃N, TN, and SS in summer), a monthly average limit for TP concentration, decreased CBOD₅ limits, and ultimate BOD monitoring, although the permitted level of TP remains high relative to concentrations that have been linked to noxious algal blooms (~100 µg/L). Moreover, if the TN is mostly nitrate + bioavailable organic N, a value of 5 mg/L is excessive in comparison to concentrations that can promote noxious algal blooms (~100 µg/L). This stream is already impaired for nutrient/eutrophication biological indicators. Investigational requirements will include the development and implementation of a Nutrient Management Plan (NMP), expanded instream monitoring

(1 upstream site, 2 downstream sites; diurnal monitoring with automated sondes and corresponding metadata; macroinvertebrate monitoring), and chronic biomonitoring tests for effluent toxicity. The WWTP recently expanded, and TN DEC has identified a need for additional effluent data/instream information. Thus, the permittee is also being required to develop an Integrated Water Management Plan (IWMP) that will address options for further upgrading treatment plant performance. The draft permit includes relatively low *Escherichia coli* limits to protect the health of people who may come into contact with the receiving stream water. Helpful explanation about *E. coli* standards was included in this draft document (p.R-9). The well-designed diurnal monitoring and macroinvertebrate monitoring will yield valuable information, and the decreased NH_3N will benefit the stream ecosystem. Nevertheless, some serious shortcomings remain which should be addressed:

- The permit should clarify the amount of nitrate in the effluent discharge, and also the amount of bioavailable organic N, which are important forms of N for causing continued impairment related to eutrophication.
- The permit should clearly explain the involvement of the Jones Creek STP permit in considerations about the Franklin STP permit (p.R-8: The permittee is required to complete an extensive instream investigation to more clearly determine the impact of its treated wastewater, but additional information about this point source would be helpful).
- Chemical monitoring of receiving stream water quality is to be required at three locations (1 upstream, 2 downstream), but only one sample is to be collected mid-depth, mid-channel. Replicates are needed. The instream samples are to be collected once per week between the hours of 6 am to 8 am, but this very early morning schedule will not detect high pH from algal blooms that may develop downstream in response to nutrient over-enrichment (e.g. phosphorus) from the WWTP. Mid-day monitoring would be required, so it would be helpful to consider scheduling the chemical monitoring during mid-day rather than early morning.
- It would be helpful to collect additional nutrient series data to coincide with the macroinvertebrate biomonitoring.
- The chronic biomonitoring for effluent toxicity will yield helpful information, but it is infrequently required (a minimum of three 24-hour proportionate composite samples of final effluent collected on days 1, 3 and 5) unless there is a test failure. In the event of two consecutive test failures or of three test failures within a 12-month period for the same outfall, the permittee is required to initiate a Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) study, but even then, biomonitoring is only required quarterly (until two consecutive tests demonstrate compliance). No requirements were specified for monitoring toxic chemical environmental contaminants in the effluent, which have become of increasing concern for human health.
- Toxic contaminants chromium (trivalent, hexavalent), copper, lead, nickel, zinc, cadmium, mercury, silver, total phenols, and cyanide are required to be monitored in the influent and effluent only "at least once" during each reporting period (p.21). These pollutants along with 13 others are also required to be monitored "at least once during the term of this permit". These are extremely low monitoring frequencies. No information is given about the 1% industrial effluent and its main toxic pollutant contributions, which would help guide assessment of the toxic substance monitoring. [Readers were informed (p.R-10) that pass-through limitations for heavy metals and other toxic substances were recalculated as part of the permit reissuance process and/or due to changes in the industrial waste contribution to the WWTP.]
- There is no mention of pharmaceuticals, hormones and various other toxic chemical environmental contaminants (CECs) that have become of increasing concern for the health of aquatic life as well as humans. P.R-36 includes information about many CECs; this table requires further clarification (date(s) when in-stream background concentrations were measured? Explain the permit appl.; are these constituents measured and if so, how often?).
- The basis for the new required treated effluent daily maxima for total copper and total silver is to be semi-annual monitoring, which is extremely infrequent.
- TN DEC will require a reduction in SS to 10 mg/L as a monthly average during summer because of concern about the insoluble N and P discharged in that season. Because of the additional concern that pools along the stream are being impacted by high SS, it would be helpful for the agency to limit SS during winter months as well, which should be achievable with the present technology of this WWTP.

- The planned steps to decrease SOD, and the amount of the decrease, should be better explained (p.R-7).
- TN DEC acknowledges that instream nutrient/eutrophication biological indicators have been specifically identified as needing additional controls, so the draft permit includes an average monthly TP limit for the critical summer season. However, as mentioned, the selected target of 3 mg/L is high relative to what is needed to promote noxious algal blooms. Moreover, this limit should be based upon an analysis of the assimilative capacity of this stream segment in summer. Instead, it was based upon the treatment plant's demonstrated performance (p.R-28), despite the fact that instream phosphate has been specifically identified as indicating that supplementary water quality additional controls that are needed (p.R-7).

General Weaknesses

The permittee is relieved of the "Overflows are prohibited" requirement if the cumulative, peak-design flows potentially added from new connections and line extensions upstream of any chronic overflow point are less than or proportional to the amount of inflow and infiltration removal documented upstream of that point. This allowance is not antidegradation; it seems instead to target a goal of "status quo" in this 303(d)-listed stream.

The permittee shall submit the results of an Industrial Waste Survey (IWS) within 120 days of the effective date of the permit. Development of a pretreatment program may be required after completion of the industrial use review. Substantial potential industrial waste problems could occur during the 120-day period.

Prohibited discharges include "pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems". There should also be provision to protect workers and others in the area from *chronic* health problems.

A warning sign for the general public is required only if there have been 5 or more bypasses/overflows within the previous year. It would be more protective of public health to post the affected area after each spill.

Reference site is defined as "least impacted waters within an ecoregion". This may differ greatly from the natural condition of streams in the area prior to human alteration.

RATIONALE

Franklin STP

NPDES PERMIT No. TN0028827

Permit Writer: Gary Davis

R1. FACILITY INFORMATION

Franklin STP
Mr. Mark Hilty – Water Management Department Director
Franklin, Williamson County, Tennessee
(615) 794-4554
Treatment Plant Average Design Flow: 12 MGD
Percentage Industrial Flow: 1 %
Treatment Description: Advanced Treatment System (Extended aeration activated sludge, tertiary filtration w/denitrification), and UV disinfection

R2. RECEIVING STREAM INFORMATION

Harpeth River at mile 85.2
Watershed Group: Harpeth
Hydrocode: 5130204
Low Flow: 7Q10 = 0.49 MGD (0.76 CFS)
30Q5 = 1.29 MGD (1.14 CFS)
Low-Flow Reference:
USGS StreamStat – Streamflow Statistics (7Q10 for Outfall 001 Discharge Location) w/30Q5 Estimated

Receiving stream designated uses and water quality status:

Domestic Wtr Supply	Industrial	Fish & Aquatic	Recreation
--	--	(a)	(b)
Livestock Wtr & Wlfe	Irrigation	Navigation	
(c)	(c)	--	

(a) Not fully supporting
 (b) Not assessed
 (c) Fully supporting

R3. CURRENT PERMIT STATUS

Permit Type:	Municipal
Classification:	Major
Effective Date:	Dec. 1, 2003
Expiration Date:	Nov. 30, 2006

R4. PERMIT RENEWAL CONSIDERATIONS

- a. To achieve its current permit limitations the permittee operates an advanced treatment system (extended aeration activated sludge, which includes biological nitrification and tertiary filters/denitrification (with methanol addition). Sludge dewatering is completed using dissolved air flotation units and belt filter presses for landfill disposal. The permittee's wastewater treatment system is schematically shown in Appendix 1. The permittee's current NPDES permit limitations and monitoring requirements are summarized in Appendix 2.
- b. The receiving stream's Fish and Aquatic Life designated usage is not being fully supporting due to intermittent decreased instream dissolved oxygen (associated with summer low-flow conditions) and elevated phosphorus. The division considers these conditions to be due primarily to non-point discharges (including upstream inputs) rather than the permittee's treated wastewater discharge. Since the permittee's Outfall 001 contains contaminants which the division considers as contributing to the "not fully supporting" designated usage, the new permit includes numerous requirements focused on making improvements in the receiving stream's water quality.
- c. The new permit includes additional Outfall 001 discharge requirements, e.g., for the summer season (May through October), a treated effluent total phosphorus concentration monthly average limit, decreased CBOD5 limits, and ultimate BOD monitoring) and several investigational requirements as special conditions, including the development/implementation of a Nutrient Management Plan (NMP), expanded instream monitoring (new locations/multi-probe sonde instrumentation/diurnal monitoring – with corresponding meteorological measurements), MS4 interfacing/upgrading, and investigating receiving stream improvements (e.g, flow augmentation/*in-situ* oxygen transfer evaluations).
- d. Requirements for the Harpeth River Watershed (HUC 05130204) presented in the September 2004 "Final Organic Enrichment/Low Dissolved Oxygen, Total Maximum Daily Load (TMDL)" were integrated into the new permit.
- e. The new permit renewal is of short duration (expiration date = November 30, 2011), and the division considers that it needs to get additional treatment plant effluent characterization data/instream information, and correspondingly have the permittee investigate/implement wastewater treatment plant operational performance enhancements.
- f. The division now includes *E. coli* limits on treated sewage discharges for the protection of recreational use of the stream in lieu of fecal coliform limits.
- g. Since the expansion of permittee's wastewater treatment plant has been completed, the new permit has been focused on its performance pursuant to the current permit's Outfall 001 discharge limitations and monitoring requirements applicable since November 1, 2004.

- h. As defined in Appendix 3 the new permit includes clarifications regarding the current permit's treated wastewater reuse provisions.
- i. The permittee is currently developing an Integrated Water Management Plan (IWMP) which will also address options for further upgrading its wastewater treatment plant's performance and focus on water quality issues/remedies for the receiving stream and improved water quality.

R5. NEW PERMIT COMPLIANCE SCHEDULE SUMMARY

Compliance Schedule Summary

Description of Report to be Submitted	Reference Section in Permit
Monthly Discharge Monitoring Report (DMR)	1.3.1
Monthly Operating Report (MOR)	1.3.1
Monthly Bypass and Overflow Summary Report	1.3.5.1
Industrial Waste Survey Report within 120 days of the effective permit date	3.2.a.viii
Sludge analysis must be submitted by February 19 th of each calendar year	3.3.a
Biomonitoring Report beginning within 90 days of the effective permit date	3.4
Receiving Stream Monitoring Report	3.7
Nutrient Management Plan (NMP)/Report	3.8

R6. CURRENT PERMIT DISCHARGE MONITORING REPORT (DMR) REVIEW

Since the expansion of the permittee's wastewater treatment plant has been completed, the new permit has been focused on its performance pursuant to the current permit's Outfall 001 discharge limitations and monitoring requirements applicable since November 1, 2004. A DMR results summary is provided in Appendix 4 for the period November 2004 through July 2009. Based on these results, the permittee has had minimal problems achieving its current permit limitations.

R7. NEW PERMIT REQUIREMENTS RATIONALE

This section provides the rationale for the new permit's Outfall 001 discharge limitations/monitoring requirements and special conditions.

NEW PERMIT DISCHARGE PARAMETERS AND RATIONALE REFERENCES

Parameters	Rationale References
Flow - Raw Wastewater and Treated Effluent	Refer to Section R7.1.
CBOD ₅ and Ultimate CBOD	Refer to Section R7.2.
NH ₃ -N	Refer to Sections R7.2. and R7.4.
Total Nitrogen and Insoluble TKN	Refer to Section R7.5.
Total Phosphorus and Insoluble Phosphorus	Refer to Section R7.5.
Total Suspended Solids	Refer to Section R7.3.
Dissolved Oxygen	Refer to Section R7.2.
Total Chlorine Residual	Refer to Section R7.8.
Total Copper and Silver	Refer to Section R7.6.
<i>E. coli</i>	Refer to Section R7.7.
Settleable Solids	Refer to Section R7.9.
pH	Refer to Section R7.10.
IC ₂₅	Refer to Section R7.11.
Metals and Toxics	Refer to Section R7.12.
Sanitary Sewer Overflows	Refer to Section R7.13.
Dry Weather Overflows	Refer to Section R7.13.
Bypass of Treatment	Refer to Section R7.13.

Note: Summer = May 1 – Oct. 31 and winter = Nov. 1 – Apr. 30. Weekly limitations on CBOD₅ and TSS concentrations are given as required per 40 CFR 133.102(a)(2) or 133.102(a)(4)(2) & 133.102 (b)(2) respectively; daily CBOD₅ and TSS limitations are authorized by T.C.A. 1200-4-5-.09; monthly and weekly mass loads are limited per 40 CFR 122.45(f) and based on the design flow as per 40 CFR 122.45(b); monthly average percent removal rates for CBOD₅ and TSS are required per 40 CFR 133.102(a)(3) or 133.102(a)(4)(iii) and 133.102 (b)(3) respectively. A minimum 40% daily removal rate is required as equivalent to a daily mass load limitation.

R7.1. FLOW

The permittee must continue to daily monitor its influent raw wastewater and treated effluent flows. Since the permit provides for treated wastewater reuse, the Outfall 001 discharged to the receiving stream can be substantially less than the raw wastewater flow. Flow is monitored and used to calculate contaminant mass loading rates.

R7.2. CONTROL REQUIREMENTS/MONITORING FOR CBOD₅, ULTIMATE CBOD, DISSOLVED OXYGEN, NH₃-N, AND CBOD₅ PERCENT REMOVAL

- a. The EPA completed extensive computer modeling for developing its 2004 TMDL for addressing organic enrichment and low dissolved oxygen conditions within the receiving stream. Based on the TMDL requirements the Outfall 001 monthly average CBOD₅ (summer period) for the new permit was decreased from 6.0 mg/l to 4.0 mg/l along with mass loading, with corresponding maximum weekly average and daily values. The TDML also considered the oxygen requirements associated with the permittee's Outfall 001 treated effluent ammonia-nitrogen, without changes from the current permit values. The TMDL also noted that substantial reductions in the receiving stream's sediment oxygen demand (SOD) would be needed in conjunction with a further reduction in the monthly average Outfall 001 total nitrogen mass loading in order to consistently achieve an instream dissolved oxygen concentration at or above the required minimum of 5.0 mg/l. Reduction requirements for the permittee's treated effluent total nitrogen and phosphorus are presented in Section R7.5., and the expanded instream monitoring is provided in Section R7.20. The TMDL did not require an increase in the permittee's current permit dissolved oxygen limit of 8.0 mg/l. Therefore, the new permit also requires that the permittee's treated effluent be at least 8.0 mg/l. The 2004 TDML used a relatively high Outfall 001 treated effluent ultimate CBOD for its modeling. As such, the new permit includes Outfall 001 treated effluent ultimate CBOD monitoring on a quarterly basis pursuant to procedure proposed by the permittee and approved in writing by the division.
- b. The treatment facility is required to remove at least 85% of the CBOD₅ and TSS that enter the facility on a monthly basis. This is part of the minimum requirement for all municipal treatment facilities contained in Code of Federal Regulations 40 Part 133.102. The reasons stated by the U.S.E.P.A. for these requirements are to achieve these two basic objectives:
 - (1) To encourage municipalities to correct excessive inflow and infiltration (I/I) problems in their sanitary sewer systems, and
 - (2) To help prevent intentional dilution of the influent wastewater as a means of meeting permit limits.

The treatment facility is required to remove at least 40% of the CBOD₅ and TSS that enter the facility on a daily basis. This percent removal will be calculated based on its daily monitoring results and recorded on the Monthly Operation Report (MOR). The number of excursions (days when CBOD₅ and/or TSS removal is less than 40%) will be reported on the Discharge Monitoring Report (DMR).

R7.3. TOTAL SUSPENDED SOLIDS (TSS) AND TSS REMOVAL

The current permit includes the technology-based average monthly effluent limit of 30 mg/l, pursuant to federal secondary standards (Rule 1200-4-5-.09). The 30 mg/l TSS limit will be retained in the new permit for winter months. However, due to the division's concern for decreasing the insoluble nitrogen and phosphorus discharged during summer months, the new permit includes a 10 mg/l TSS limit as a monthly average. The permittee has an advanced treatment plant with tertiary filtration, and has demonstrated (as shown in Appendix 4) that this level of treatment is achievable.

R7.4. AQUATIC TOXICITY POTENTIAL DUE TO AMMONIA NITROGEN

As shown in Appendix 5, aquatic toxicity due to the Outfall 001 ammonia-nitrogen values is not expected.

R7.5. TOTAL AND INSOLUBLE NITROGEN AND PHOSPHORUS

Total Nitrogen and Phosphorus monitoring is imposed in support of the joint State/Federal Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico. Monitoring results from major municipal and industrial facilities discharging within the Mississippi River Basin will help assess current point source loadings to the Gulf and enable the task force to track changes in loadings across the basin over time. EPA believes that Section 308(a) of the Clean Water Act provides broad authority to require nutrient monitoring, even where there is no reasonable potential for a particular facility to cause or contribute to excursions of criteria within the immediate receiving waterbody. Additionally, influent monitoring of the same parameters and frequency is imposed by the state for use in evaluating ability of existing technologies to remove nutrients.

The TDML referenced in Section R4, highlights that inadequate dissolved oxygen (< 5.0 mg/l) within the receiving stream (upstream and downstream of the permittee's Outfall 001 discharge) under low-flow summer conditions occurs, and discusses the corresponding role of nutrients (total nitrogen and phosphorus) for some portions of the receiving stream. For the NPDES dischargers upstream of the Franklin STP Outfall 001, the TMDL specifies total nitrogen and total phosphorus discharge loadings under summer and winter conditions (the ratio of the total nitrogen to total phosphorus mass loadings for these upstream dischargers was 2:1). However, for the permittee and two local downstream dischargers, Lynwood Utility STP (TN0029718) and Cartwright Creek LLC STP (TN0027278), the TMDL represents total nitrogen mass loading discharge limits (lb/day) on an annual basis. The TMDL annual total nitrogen mass loading discharge limits will be used for the new permits for these three dischargers. As such, the following rationale was used to define treated effluent total and insoluble nitrogen and phosphorus limits and monitoring requirements as follows:

- Total and Insoluble Nitrogen Requirements
- Total and Insoluble Phosphorus Requirements
- Nutrient Management Plan Development and Implementation

Total and Insoluble Nitrogen Requirements

Pursuant to the TMDL requirements, the total nitrogen limits (5.0 mg/l monthly average with a summer seasonal average maximum of 377 lb/day) in its current permit will be retained for the new permit, with the additional TMDL requirement of achieving 290 lb/day total nitrogen on an annual basis. Based on the DMR results and raw wastewater loading conditions and operational flexibility (e.g., treated wastewater reuse) as provided in Appendix 4, the permittee has been able to comply with the 290 lb/day annual average. However, the permittee has not been operating its wastewater treatment plant at its 12 mgd design capacity. As such, the division expects that further treatment enhancements/operational provisions, including the development/implementation of a Nutrient Management Plan (NMP), in conjunction with instream investigation/potential water quality upgrades will be needed. Thus, specific NMP and instream investigational requirements are included in the new permit, Appendix 2.

The permittee's treatment system is an advanced system, and includes tertiary filters. However, due to the receiving stream's unusual serial pools arrangement, which the division considers problematic effluent suspended solids may settle/accumulate under the instream pond-like conditions during summer low flow conditions. Settled solids, thicken and lower portions undergo anaerobic digestion with nutrients release to the water column. The 2004 TMDL noted the SOD's impact on the receiving stream, and the need for its reduction. As such, the new permit also requires the permittee to determine the insoluble TKN and total phosphorus associated with its Outfall 001 effluent suspended solids as part of the NMP developed pursuant to Appendix 2. Monitoring and reporting of treated effluent insoluble total TKN and phosphorus is required based on 2/month sampling.

Total and Insoluble Phosphorus Requirements

The 2004 TMDL does not specifically present Outfall 001 discharge total phosphorus mass loading requirements for the permittee. However, as presented in the 2008 303(d) listing, the receiving stream is now identified as not fully supporting its fish and aquatic life use due to low dissolved oxygen and phosphate, with sources referenced as discharges from Municipal Separate Storm Sewer Systems (MS4) and Municipal Point Source Discharges. As such, since the permittee's discharge also includes phosphorus, additional controls are being specifically incorporated in the new permit to reduce the potential for these receiving stream water quality shortcomings. The TMDL noted that this segment was considered to be nitrogen-limited and as such, the additional total nitrogen reduction requirements along with decreases in the sediment oxygen demand (SOD) should help to attenuate the low-flow dissolved oxygen problems. However, since instream phosphate has been now specifically identified as an indication for supplementary water quality additional controls needed, the new permit includes an average monthly total phosphorus 3.0 mg/l limit for the summer months, with monitoring reporting required for winter conditions. The division considers that the permittee has demonstrated its ability to technically achieve the monthly average treated effluent total phosphorus of 3.0 mg/l for the summer months, since this limit was derived based on the permittee's DMR data and the "Technical Support Document for Water Quality Based Toxics Control" (TSD) methodology (with the limit set at the 95 percentile total phosphorus value, as shown in Appendix 6).

As discussed subsequently, this new permit also requires the permittee to develop/implement a nutrient management plan (with targeting goals included in Attachment 2) which provide for identifying wastewater treatment plant operational changes/alternative/expanded facilities usage and increased wastewater nutrient removal. Additionally, as discussed in Section R7.20, the permittee must complete instream diurnal monitoring investigations to define the variations in dissolved oxygen, pH, temperature and conductivity in the receiving stream at one upstream and two downstream locations.

Nutrient Management Plan (NMP)/Report

As a permit condition, the division required another discharger within the Harpeth River watershed (Water Authority of Dickson County – Jones Creek STP TN0066958) to develop/implement a Nutrient Management Plan (NMP) for identifying changes in operation of its wastewater treatment plant for improved nutrient control. Because the division considers that additional nutrient Outfall 001 discharge controls are warranted, the new permit includes instream evaluations/enhancements for achieving instream water quality improvements. As such, the permittee must develop/implement its NMP to include at a minimum the elements presented in the new permit's Attachment 2 and discussed in Appendix 7. For the Jones Creek STP permit (referenced above) the division authorized the permittee to complete an extensive instream investigation, to more clearly determine the impact of its treated wastewater. The new permit includes NMP requirements along with corresponding instream diurnal monitoring to provide for empirically identifying/resolving receiving stream's assessed shortcomings and making improvements, even for the near-term.

R7.6. TOTAL COPPER AND SILVER

Based on the division's reasonable potential water quality evaluations as shown subsequently in Section R7.12, treated effluent daily maximum limits of 0.075 mg/l and 0.010 mg/l are included in the new permit for total copper and total silver, respectively (based on semiannual monitoring).

R7.7. *E. coli*

Wastewater disinfection is required to protect the receiving stream from pathogenic microorganisms. Fecal coliform and *E. coli* are indicator organisms used as a measure of bacteriological health of a receiving stream and the effectiveness of disinfection.

As of September 30, 2004, the criterion for fecal coliform has been removed from the State's Water Quality Standards. Thus, the division imposes an *E. coli* limit on discharges of treated sewage for the protection of recreational use of the stream in lieu of the fecal coliform limit. The *E. coli* daily maximum limit of 487 cfu per 100 ml applies to lakes and Exceptional Tennessee Waters. A maximum daily limit of 941 cfu per 100 ml applies to all other recreational waters. The new permit includes a 126 cfu/100 ml monthly average *E. coli* limit (based on the geometric mean) with a 941 cfu/100 ml daily maximum value limit.

R7.8. TOTAL RESIDUAL CHLORINE

The total residual chlorine limit is derived using the mass balance formula and the EPA instream protection value of 0.019 mg/l for fish and aquatic life. Applying this formula yields the following calculation:

$$\frac{0.019 (Q_d + Q_s)}{Q_d} = \text{Limit (mg/l)} = \frac{0.019 (12 + 0.49)}{12} = 0.0198 \text{ mg/l} \approx 0.02 \text{ mg/l}$$

where:

- 0.019 = instream acute protection value (mg/l)
- 12 = Q_d, design flow of STP (MGD)
- 0.49 = Q_s, 7Q₁₀ flow of receiving stream (MGD)

R7.9. SETTLEABLE SOLIDS

Settleable solids results provide an indication of the treatment system performance. The treated effluent settleable solids limitation (1.0 ml/L) included in the current permit will be used for the new permit.

R7.10. pH

The permittee's must comply with secondary treatment technology pH limitations (6.0 to 9.0 s.u.) for its treated effluent. These pH limits are in the current permit and will be used for the new permit.

R7.11. IC₂₅ – CHRONIC WHOLE EFFLUENT TESTING

The division evaluates all dischargers for reasonable potential to exceed the narrative water quality criterion, "no toxics in toxic amounts". The division has determined that for municipal facilities with stream dilutions of less than 500 to 1, any of the following conditions demonstrates reasonable potential to exceed this criterion.

- a. Toxicity is suspected or demonstrated.
- b. A pretreatment program is required.
- c. The design capacity of the facility is greater than 1.0 MGD.

Since the facility has a pretreatment program and is greater than 1.0 MGD, biomonitoring will be continued to be required in the new permit. The permittee's Outfall 001 IC₂₅ results

were consistently >100%. However, since the receiving stream is effluent dominated under low flow conditions the new permit will continue to require the Outfall 001 treated effluent to achieve an IC₂₅ limit of > 100%.

R7.12. METALS AND TOXICS CONSIDERATIONS

The permittee's pretreatment pass-through results and receiving stream water quality calculations are presented in Appendix 8, and discussed subsequently.

Pass-Through Evaluations

Pass-through limitations for heavy metals and other toxic substances have been recalculated as part of the permit reissuance process and/or due to changes in industrial waste contribution to the POTW. This POTW is required to implement/maintain a pretreatment program. More frequent monitoring will be required in the permit if (a) the reported concentrations approach or exceed calculated allowable values, (b) significant amounts of particular pollutants are present which may impact the treatment process sludge character or the receiving stream, or (c) minimum information is lacking to accurately calculate water quality protection values, in which case additional stream monitoring may also be required.

A summary of the semi-annual report data does not indicate that the potential exists for the water quality criteria for any parameter to be exceeded. Appendix 8 lists the metal and toxic parameters calculations and the procedure used to derive the results.

Volatile organic, acid-extractable, and base-neutral compounds

The division evaluated effluent concentrations of volatile organic, acid-extractable, and base-neutral compounds and antimony, arsenic, beryllium, selenium and thallium for potential to violate water quality criteria using the following mass balance equation:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

where:

- C_m = resulting in-stream concentration after mixing
- C_w = concentration of pollutant in wastewater
- C_s = stream background concentration
- Q_w = wastewater flow, (STP design flow)
- Q_s = stream low flow

to protect water quality:

$$C_w \leq C_a$$

where:

$$\begin{aligned} C_a &= \text{STP effluent concentration allowable} \\ &= \frac{(S_A) [C_m (Q_s + Q_w) - Q_s C_s]}{Q_w} \end{aligned}$$

and (S_A) = the percent "Stream Allocation".

The reasonable potential evaluation uses the following assumptions and procedures:

- a. Stream background concentrations, C_s , for all volatile organic, acid-extractable, and base-neutral compounds equal zero unless actual stream data exists to show otherwise. Use of the effluent concentrations of such pollutants contributed by upstream dischargers as background is not justifiable due to the volatility and reactivity of these pollutants.
- b. The stream allocation, S_A , is 90% and is used as a factor of safety.
- c. A mass balance uses the STP design flow, the receiving stream critical low flow (7Q10 or 1Q10), the state water quality numeric criteria, and the stream allocation safety factor to derive the allowable effluent concentrations.
- d. When pollutants have potential to violate standards because the concentrations are below the scan detection levels but could be above the allowable water quality based effluent concentrations, the pollutants are handled one of three (3) ways:
 - i. Additional testing of detected and non-detected pollutants is required if contributing industrial processes are likely to contain them and the effluent scans have not met the minimum required detection levels (RDL) in the state water quality standards or approximated the method detection limits (MDL) of the approved test methods for the pollutants in 40 CFR Part 136.
 - ii. If the required RDL has been used and resulted in non-detection, or if an MDL has been used with non-detection and the contributing industrial processes do not reasonably contain that pollutant, the division drops the pollutant from further consideration.
 - iii. Pollutants detected at levels high enough to violate standards are limited in the permit to the allowable concentration, C_w , based on STP design flow.

Calculations for this permit have been done using a standardized spreadsheet, titled "Water Quality Based Effluent Calculations", and are located in Appendix 8. All metals other than antimony, arsenic, beryllium, selenium, and thallium have been evaluated using procedures described in the rationale, or fact sheet, section headed, "Metals and Other Toxic Substances".

The evaluation indicates that volatile organic, acid extractable, and base neutral compounds and antimony, arsenic, beryllium, selenium, and thallium do not exhibit the

potential to violate water quality criteria and thus will not be given effluent limitations and monitoring requirements in the permit.

R7.13. OVERFLOW AND BYPASS REPORTING

For the purposes of demonstrating proper operation of the collection, transmission, and treatment system, the permit defines overflow as any release of sewage other than through permitted outfalls. This definition includes, but is not necessarily limited to, sanitary sewer overflows and dry weather overflows. For example, a collection system blockage or hydraulic overload that causes backup and release of sewage into a building during a wet weather event may not clearly fit either the definition of a sanitary sewer overflow or a dry weather overflow. However, any unpermitted release potentially warrants permittee mitigation of human health and/or water quality impacts via direct or indirect contact and demonstrates a hydraulic problem in the system that needs permittee consideration as part of proper operation and maintenance of the system.

For the more typical, unpermitted, releases into the environment, this permit intends interchangeable use of the terms, "overflow" and "sanitary sewer overflow" for compliance reporting purposes.

R7.14 OTHER REQUIREMENTS AND CONDITIONS

The new permit includes other requirements and condition such as those discussed subsequently.

R7.15. CERTIFIED WASTEWATER TREATMENT OPERATOR

The waste treatment facilities shall be operated under the supervision of a Grade IV certified wastewater treatment operator in accordance with the Water Environmental Health Act of 1984.

R7.16. COLLECTION SYSTEM CERTIFIED OPERATOR

The collection system shall be operated under the supervision of a certified Grade II collection system operator in accordance with the Water Environmental Health Act of 1984.

R7.17. PRETREATMENT PROGRAM

The Franklin STP has an approved pretreatment program. An updated Industrial Waste Survey must be completed within 120 days of permit reissuance.

At least once each reporting period, all permittees with approved pretreatment programs are required to analyze the STP influent and effluent for the following pollutant parameters: chromium (trivalent and hexavalent and total if drinking water use applies), copper, lead, nickel, zinc, silver, cadmium, mercury, total phenols, and cyanide. These pollutants were selected because, historically, they are the ones that tend to be predominant in industrial wastewaters. Other pollutants may be added to the list, as required.

Data from the permittee's semiannual reports (results shown in Appendix 9) and Toxics Release Inventory (TRI) data were analyzed. If any effluent contaminant equaled or exceeded 85% of the pass-through limit, or if the TRI list indicates what may be a significant amount of other pollutants being discharged to the sewer system, the contaminant was added to the list of those that are required to be sampled. Based on the division's review of the semiannual reports and other documents, sampling for additional pollutants is not required at this time.

R7.18. TREATED WASTEWATER REUSE

Appendix 3 presents the basis for the permittee's reuse of its treated wastewater.

R7.19. PERMIT TERM

This permit will expire in calendar year 2011 in order to coordinate its reissuance with other permits located within the Harpeth Watershed.

R7.20. INSTREAM MONITORING REQUIREMENTS

As shown in the permit (Attachment 1), the permittee must continue the receiving stream monitoring/reporting pursuant to its current permit/as modified pursuant to this new permit. Additionally, the division is requiring that the permittee expand its receiving stream evaluations/reporting to include diurnal investigations with multi-probe monitoring at three new instream monitoring stations (one upstream and two downstream of the Outfall 001 discharge). Also, the division expects via the permittee's new Integrated Water Management Plan to complete extensive investigations/evaluations as to how to achieve cost-effectively upgrades for improving the water quality within the receiving stream.

R7.21. ANTIDegradation STATEMENT/WATER QUALITY STATUS

Tennessee's Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 1200-4-3-.06. It is the purpose of Tennessee's standards to fully protect existing uses of all surface waters as established under the Act.

Stream determinations for this permit action are associated with the waterbody segment identified by the division as segment ID# TN05130204016_1000. The division has made a water quality assessment of the receiving waters associated with the permittee's treated wastewater discharge and has determined that the receiving stream to be neither an exceptional nor outstanding national resource water. Additionally, this receiving stream water does not fully support its fish and aquatic life designated uses due to decreased dissolved oxygen and phosphate (phosphorus) from discharges from municipal separate storm sewer systems (MS4) and municipal point sources. The permittee's Outfall 001 discharge from Outfall 001 contains contaminants associated with the decreased receiving stream dissolved oxygen and phosphorus. Thus, the new permit includes numerous more stringent Outfall 001 discharge limitations and investigational/increased

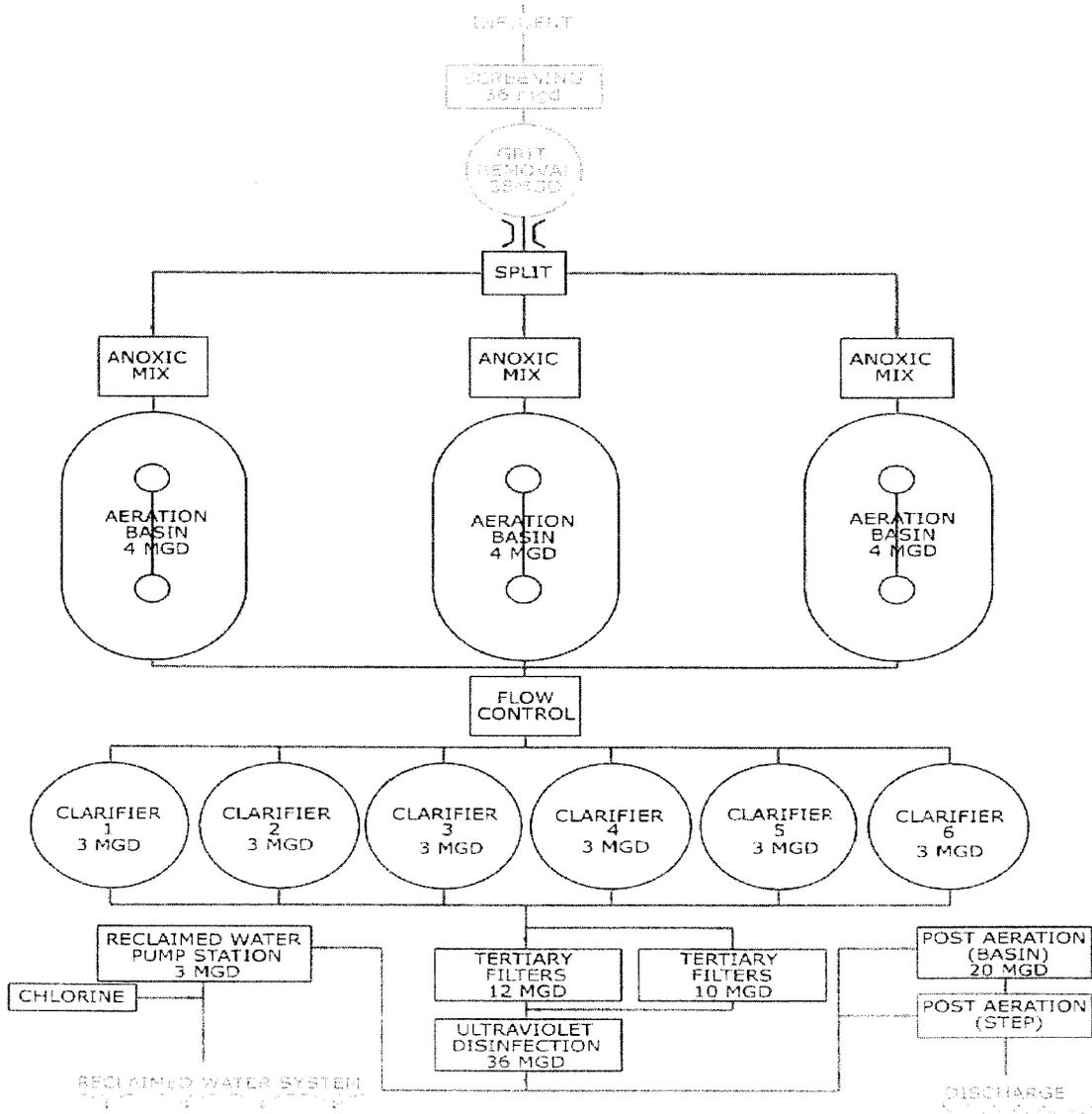
wastewater control provisions to improve the instream water quality. As discussed in the 2004 TMDL referenced subsequently, upgrades for upstream decreased dissolved oxygen and phosphorus are required.

A TMDL has been developed and approved for this waterbody segment for the following Outfall 001 discharge parameters:

<u>Parameters</u>	<u>TMDL Approval Date</u>
CBOD ₅ and Total Nitrogen	September 2004

The new permit's terms and conditions are consistent with the TMDL's required wasteload allocations.

Appendix 1
WASTEWATER TREATMENT PLANT SCHEMATIC DIAGRAM



APPENDIX 2

CURRENT PERMIT LIMITATIONS AND MONITORING REQUIREMENTS

The following limits will apply through October 31, 2004.

Discharge 001 consists of municipal wastewater from a treatment facility with a design capacity of 5.5 MGD. Discharge 001 shall be limited and monitored by the permittee as specified below during "normal discharge mode" as defined subsequently:

Effluent Characteristics	Effluent Limitations							Monitoring Requirements		
	Monthly Average Conc. (mg/l)	Monthly Average Amount (lb/day)	Weekly Average Conc. (mg/l)	Weekly Average Amount (lb/day)	Daily Maximum Conc. (mg/l)	Daily Minimum Percent Removal	Measurement Frequency	Sample Type	Sampling Point	
CBOD ₅ (May 1 - Oct. 31)	6 Report	275	9	413	12 Report	40	5/week	composite	effluent	
CBOD ₅ (Nov. 1 – Apr. 30)	10 Report	459	15	688	20 Report	40	5/week	composite	influent	
Ammonia as N (May 1 - Oct. 31)	0.4	18	0.6	28	0.8		5/week	composite	effluent	
Ammonia as N (Nov. 1 – Apr. 30)	1.5	69	2.3	106	3.0		5/week	composite	effluent	
Total Nitrogen*	Report						1/week	composite	effluent	
Total Phosphorus	Report						1/week	composite	effluent	
Suspended Solids	30 Report	1,376	40	1,835	45 Report	40	5/week 5/week	composite composite	effluent influent	

Note: The permittee shall achieve 85% removal of CBOD₅ and TSS on a monthly average basis. The permittee shall report all instances of overflow and/or bypasses. See Part 1.D.5a for reporting requirements.

*The permittee must comply with a seasonal average of 377 ppd for the period from May 1 through October 31. The seasonal average will be reported on the October DMR.

The following limits will apply through October 31, 2004.

Effluent Characteristics	Effluent Limitations		Monitoring Requirements			Sampling Point
	Monthly Average	Daily Minimum	Daily Maximum	Measurement Frequency	Sample Type	
Fecal Coliform	200 colonies/100 ml (see the following paragraphs)		1000/100 ml	5/week	grab	effluent
<i>E. coli</i>	126 colonies /100 ml (see the following paragraphs)			5/week	grab	effluent
Chlorine Residual (Total)			0.02 mg/l instantaneous	5/week	grab	effluent
Settleable Solids			1.0 ml/l	5/week	composite	effluent
Dissolved Oxygen		8.0 mg/l instantaneous		5/week	grab	effluent
pH (Standard Units)		6.0	9.0	5/week	grab	effluent
Influent Flow (MGD)	Report		Report	7/week	continuous	influent
Flow discharged to stream (MGD)	Report		Report	7/week	continuous	effluent
Stream Flow (MGD)	Report		Report	7/week	daily	stream
Dilution Ratio	Report		Report	7/week	daily	calculated
IC ₂₅	Survival, reproduction and growth in 100% treated effluent			1/quarter	composite	effluent

Normal Discharge Mode: Monthly average effluent flow \leq 5.5 MGD, or
 Monthly average stream flow < 42 MGD (65 CFS), summer; or
 Summer dilution ratio < 8:1; or
 Monthly average stream flow < 23 MGD (36 CFS), winter; or
 Winter dilution ratio < 4.5:1

The following limits will apply through October 31, 2004.

Discharge 001 shall be limited and monitored by the permittee as specified below during high flow discharge mode as defined on page 4.

Effluent Characteristics	Effluent Limitations							Monitoring Requirements		
	Monthly Average Conc. (mg/l)	Monthly Average Amount (lb/day)	Weekly Average Conc. (mg/l)	Weekly Average Amount (lb/day)	Daily Maximum Conc. (mg/l)	Daily Minimum Percent Removal	Measurement Frequency	Sample Type	Sampling Point	
CBOD ₅	25 Report	Report	30	Report	35 Report	40	5/week 5/week	composite composite	effluent influent	
Ammonia as N	5	Report	7.5	Report	10		5/week	composite	effluent	
Total Nitrogen*	Report						1/week	composite	effluent	
Total Phosphorus	Report						1/week	composite	effluent	
Suspended Solids	30 Report	Report	40	Report	45 Report	40	5/week 5/week	composite composite	effluent influent	

Note: The permittee shall achieve 85% removal of CBOD₅ and TSS on a monthly average basis. The permittee shall report all instances of overflow and/or bypasses. See Part 1.D.5a for reporting requirements.

*The permittee must comply with a seasonal average of 377 ppd for the period from May 1 through October 31. The seasonal average will be reported on the October DMR.

The following limits will apply through October 31, 2004.

Effluent Characteristics	Effluent Limitations		Monitoring Requirements			
	Monthly Average	Daily Minimum	Daily Maximum	Measurement Frequency	Sample Type	Sampling Point
Fecal Coliform	200 colonies/100 ml (see the following paragraphs)		1,000/100 ml	5/week	grab	effluent
<i>E. coli</i>	126 colonies /100 ml (see the following paragraphs)			5/week	grab	effluent
Chlorine Residual (Total)			0.02 mg/l instantaneous	5/week	grab	effluent
Settleable Solids			1.0 ml/l	5/week	composite	effluent
Dissolved Oxygen		6.0 mg/l instantaneous		5/week	grab	effluent
pH (Standard Units)		6.0	9.0	5/week	grab	effluent
Influent Flow (MGD)	Report		Report	7/week	continuous	influent
Flow discharged to stream (MGD)	Report		Report	7/week	continuous	effluent
Stream Flow (MGD)	Report		Report	7/week	daily	stream
Dilution Ratio	Report		Report	7/week	daily	calculated
IC ₂₅	Survival, reproduction and growth in 100% treated effluent			1/quarter	composite	effluent

High Flow Discharge Mode: Monthly average effluent flow > 5.5 MGD, and
 Monthly average stream flow \geq 42 MGD (65 CFS), summer; and
 Summer dilution ratio \geq 8:1; or
 Monthly average stream flow \geq 23 MGD (36 CFS), winter; and
 Winter dilution ratio \geq 4.5:1

The following limits will apply from November 1, 2004 through November 30, 2006.

The City of Franklin is authorized to discharge treated municipal wastewater from Outfall 001 to the Harpeth River at at mile 85.2. Discharge 001 consists of municipal wastewater from a treatment facility with a design capacity of 12 MGD. Discharge 001 shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Effluent Limitations										Monitoring Requirements		
	Monthly Average Conc. (mg/l)	Monthly Average Amount (lb/day)	Weekly Average Conc. (mg/l)	Weekly Average Amount (lb/day)	Daily Maximum Conc. (mg/l)	Daily Minimum Percent Removal	Measurement Frequency	Sample Type	Sampling Point				
CBOD ₅ (May 1 - Oct. 31)	6 Report	601	9	901	12 Report	40	7/week 7/week	composite composite	effluent influent				
CBOD ₅ (Nov. 1 - Apr. 30)	10 Report	1,001	15	1,500	20 Report	40	7/week 7/week	composite composite	effluent influent				
Ammonia as N (May 1 - Oct. 31)	0.4	40	0.6	60	0.8		7/week	composite	effluent				
Ammonia as N (Nov. 1 - Apr. 30)	1.5	150	2.3	230	3.0		7/week	composite	effluent				
Total Nitrogen* (May 1 - Oct. 31)	5.0						2/month	composite	effluent				
Total Nitrogen (Nov. 1 - Apr. 30)	Report						2/month	composite	effluent				
Total Phosphorus	Report						2/month	composite	effluent				
Suspended Solids	30 Report	3,002	40	4,003	45 Report	40	7/week 7/week	composite composite	effluent influent				

*The permittee must comply with a seasonal average of 377 ppd for the period from May 1 through October 31. The seasonal average will be reported on the October DMR.

The following limits will apply from November 1, 2004 through November 30, 2006.

Effluent Characteristics	Effluent Limitations			Monitoring Requirements		
	Monthly Average	Daily Minimum	Daily Maximum	Measurement Frequency	Sample Type	Sampling Point
Fecal Coliform	200 colonies/100 ml (see the following paragraphs)		1000/100 ml	7/week	grab	effluent
<i>E. coli</i>	126 colonies/100 ml (see the following paragraphs)			7/week	grab	effluent
Chlorine Residual (Total)			0.02 *mg/l instantaneous	7/week	grab	effluent
Settleable Solids			1.0 ml/l	7/week	composite	effluent
Dissolved Oxygen		8.0 mg/l instantaneous		7/week	grab	effluent
pH (Standard Units)		6.0	9.0	7/week	grab	effluent
Flow (MGD)	Report Report		Report Report	7/week 7/week	continuous continuous	influent effluent
IC ₂₅	Survival, reproduction and growth in 100% treated effluent			1/quarter	composite	effluent

* To be applied only if chlorine is used for disinfection or when the effluent may be reasonably expected to contain chlorine.
 Note: See Part III (D) for biomonitoring test and reporting requirements. See next page for percent removal calculations.
 Note: The permittee shall achieve 85% removal of CBOD₅ and TSS on a monthly average basis. The permittee shall report all instances of overflow and/or bypasses. See Part 1.D.5a for reporting requirements.

The City of Franklin is authorized to distribute treated municipal wastewater for non-potable reuse. The reuse effluent shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Effluent Limitations		Monitoring Requirements		
	Daily Minimum	Daily Maximum	Measurement Frequency	Sample Type	Sampling Point
Fecal Coliform		14 colonies /100 ml (see the following paragraphs)	7/week	grab	See note (1)
Residual Chlorine (Total)	1 mg/l (after 30 min.)		7/week or continuous	grab	See note (1)

(1) Daily fecal coliform and total residual chlorine samples should be collected at the point of release from the treatment system. Quarterly fecal coliform and total residual chlorine samples should be collected for analysis at two points within the distribution system: one that is representative of the system's average residence time and one that is representative of the system's maximum residence time.

APPENDIX 3 TREATED WASTEWATER REUSE CONSIDERATIONS

The new permit continues to authorize the permittee to operate an unrestricted treated wastewater reuse program for industrial customers, commercial developments, golf courses, recreational areas, and residential developments for irrigation in common areas. Irrigation system can use a combination of both spray disposal (above ground) and drip irrigation (below ground) as needed to minimize potential for human contact while maximizing wastewater disposal.

Reuse activities are restricted to use of the water in a manner that results in its disposal by land application (including via spray irrigation or drip irrigation systems). No discharge of the reuse water is allowed to waters of the State of Tennessee. The application rate shall be restricted such that there shall be no ponding or runoff of the reuse water. Application rates shall also be restricted such that nitrogen uptake by the receiving cover crop is sufficient during all months of the year to prevent the reuse water from causing the groundwater underlying the application site to exceed State groundwater criteria for nitrate. This requirement shall not be construed to warrant any use of harvested products from irrigated cover crops and the permittee shall take full responsibility for their proper use or disposal. Dedicated irrigation sites shall be owned by the permittee (or covered by a perpetual easement for use as a land application site) and approved by the division prior to their use for irrigation purposes.

In order to protect public health, the division will require that the permittee achieve the maximum *E.coli* limit and a minimum chlorine residual limit at the primary distribution point and also at points throughout the distribution system.

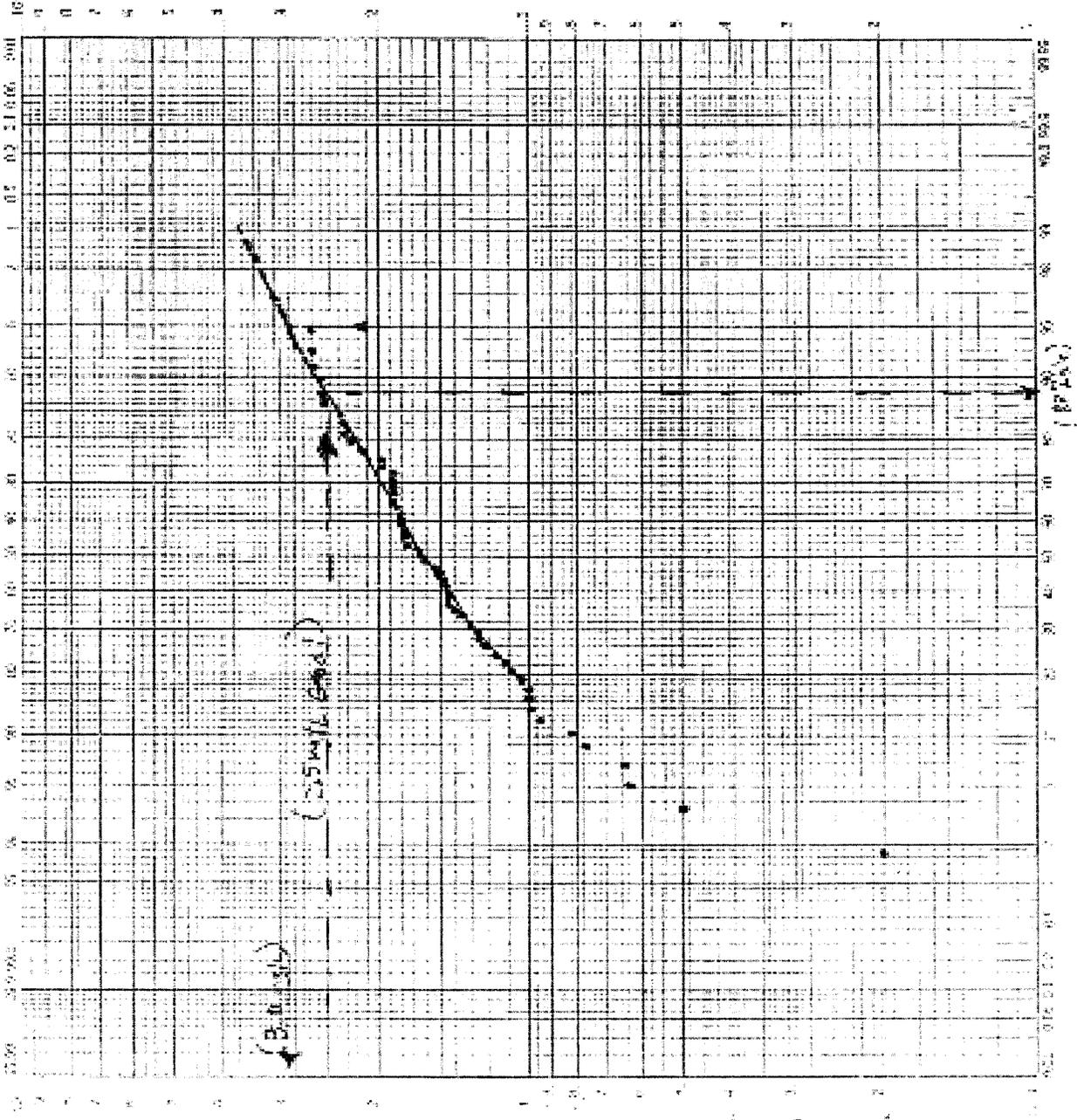
Franklin STP (Rationale)
 NPDES Permit TN0028827
 Page R-25 of R-37

Franklin STP Data Results TN0028827

Month Ending Date	Influent Flow (mgd)	Influent Flow (M.Avg.)	pH	D.O. (mg/L)	TP (mg/L)	TN (mg/L)	Suspend Solids (mg/L)	Fecal Coliform (cfu/100 mL)	Fecal Coliform (M.Avg.)	TRC (mg/L)	Overflow (count)	Bypass (count)	Stream Flow (mgd)	Dilution Ratio (Avg. %)	Max (%)	
1/23/2004	8.22	32.37	6.55	19.50	8.5	8.0	0.95	2.78	1	0.2	0	0	321.3	2779.1	35.0	141.5
1/24/2004	12.09	25.02	10.33	22.40	0.8	7.9	0.99	2.50	1	0.2	0	0	951.8	5,118.7	72.9	275.9
1/25/2004	9.70	15.87	7.31	12.94	9.0	7.9	0.90	3.20	2	0.2	0	0	443.7	2,527.0	50.3	194.3
2/29/2005	9.99	14.75	6.70	12.47	9.1	7.8	0.91	2.88	4	0.2	0	0	375.2	1,299.1	59.9	112.1
3/31/2005	7.10	13.35	5.88	9.42	9.2	8.0	0.90	1.82	24	0.2	0	0	227.1	1,292.6	39.0	158.6
4/30/2005	9.00	10.31	6.13	14.77	9.2	7.9	0.91	1.68	33	0.2	0	0	367.8	1,273.2	37.5	104.6
5/31/2005	5.43	7.51	4.61	6.94	6.9	7.9	0.90	1.62	48	0.2	0	0	59.6	204.2	11.4	26.4
6/30/2005	5.40	7.91	4.85	7.95	8.8	7.9	0.91	1.84	13	0.2	0	0	39.9	111.8	6.9	13.1
7/31/2005	5.37	7.11	4.54	5.95	8.2	7.9	0.90	1.79	2	0.2	1	0	53.0	239.5	8.2	35.8
8/31/2005	5.56	12.59	4.45	11.12	8.2	7.9	0.91	1.45	5	0.2	0	0	25	316.0	3.3	27.4
9/30/2005	5.94	7.45	4.37	6.63	8.2	7.9	0.90	1.93	6	0.2	0	0	22.5	59.5	3.9	10.8
10/31/2005	5.03	5.43	3.29	4.58	8.4	7.9	0.90	1.48	2	0.2	0	0	12.3	16.8	2.7	3.6
11/23/2005	5.04	6.56	3.15	5.95	8.4	7.9	0.91	1.20	14	0.2	0	0	23.7	134.4	6.1	31.2
12/1/2005	5.58	9.21	4.11	6.55	8.5	7.9	0.90	0.84	1	0.2	0	0	4.1	242.8	7.8	43.7
1/13/2006	6.03	21.08	6.27	15.71	8.5	7.9	0.90	1.16	1	0.2	0	0	461.6	3,939.0	41.8	229.7
2/29/2006	6.51	13.35	5.77	10.24	8.9	8.0	0.92	0.83	1	0.2	0	0	265.6	1,059.9	39.6	102.5
3/31/2006	7.67	10.91	6.16	6.50	9.5	8.1	0.92	0.51	1	0.2	0	0	211.1	814.3	31.8	102.9
4/30/2006	6.97	16.10	7.48	14.73	9.0	8.0	0.91	0.95	5	0.2	0	0	381.1	2,326.7	42.6	157.0
5/31/2006	7.81	10.43	6.55	6.42	9.3	7.9	0.92	0.22	1	0.2	0	0	141.5	346.4	19.4	36.5
6/30/2006	5.99	7.43	4.44	6.58	8.6	8.0	0.92	0.78	1	0.2	0	0	44.9	131.8	6.0	19.0
7/31/2006	5.52	9.15	4.24	7.57	8.0	8.0	0.93	1.80	30	0.2	0	0	17.7	52.4	2.9	7.9
8/31/2006	5.79	7.12	4.45	5.90	8.0	8.0	0.92	1.25	3	0.2	0	0	17.6	121.5	2.9	15.5
9/30/2006	5.75	8.35	4.16	7.37	8.0	8.0	0.94	1.95	283	0.2	0	0	18.3	55.6	3.2	8.5
10/31/2006	5.71	7.14	4.24	5.83	8.0	8.0	0.91	1.00	2	0.2	0	0	52.1	305.1	8.7	20.1
11/30/2006	5.58	12.54	5.28	12.24	8.5	8.0	0.92	2.39	1	0.2	0	0	82.1	391.2	8.9	37.3
12/31/2006	7.00	13.32	6.06	11.91	9.0	8.0	0.91	1.66	10	0.2	0	0	329.1	1,460.6	34.9	121.8
1/31/2007	6.98	15.81	6.20	13.50	9.7	8.0	0.92	1.00	3	0.2	0	0	99.4	303.8	14.7	40.8
2/29/2007	6.72	8.98	6.15	11.12	10.5	8.0	0.91	1.65	4	0.2	0	0	195.6	1,570.5	24.9	136.2
3/31/2007	7.10	13.11	5.17	12.12	9.5	8.0	0.91	1.85	9	0.2	0	0	99.5	331.5	14.5	36.1
4/30/2007	7.10	9.97	6.12	6.61	9.2	8.0	0.91	2.28	2	0.2	0	0	45.4	127.3	9.5	21.9
5/31/2007	5.95	9.82	4.16	6.33	9.2	8.0	0.92	2.90	3	0.2	0	0	19.5	37.5	4.8	8.3
6/30/2007	5.29	9.20	3.44	5.30	9.0	8.1	0.93	1.81	4	0.2	0	0	19.9	44.6	3.9	10.7
7/31/2007	5.51	5.95	3.64	5.84	9.1	8.1	0.91	0.65	1	0.2	0	0	14.1	43.0	1.9	5.3
8/31/2007	5.39	5.88	3.17	4.43	8.0	8.1	0.92	1.78	3	0.2	0	0	41.9	310.9	5.3	27.4
9/30/2007	6.72	16.08	4.72	12.95	8.2	8.0	0.93	2.70	3	0.2	0	0	41.9	310.9	5.3	27.4
10/31/2007	6.72	16.08	4.72	12.95	8.2	8.0	0.93	2.70	3	0.2	0	0	41.9	310.9	5.3	27.4
11/30/2007	7.51	10.65	5.49	7.80	9.2	9.1	0.92	1.99	3	0.2	0	0	73.2	306.3	11.1	43.1
12/31/2007	6.99	13.45	6.85	10.62	9.5	8.1	0.92	1.45	2	0.2	0	0	173	506.1	22.1	53.4
1/31/2008	6.47	17.29	7.76	14.21	9.5	8.1	0.92	1.52	167	0.2	0	0	188	678.6	21.0	61.9
2/29/2008	10.17	15.05	6.61	12.76	9.2	8.1	0.92	1.78	1	0.2	0	0	328.3	1,195.9	36.5	94.2
3/31/2008	10.77	13.21	8.47	11.59	9.5	8.1	0.92	1.39	4	0.2	0	0	291.8	685.1	32.2	72.6
4/30/2008	13.41	29.70	11.49	25.57	9.5	8.1	0.92	1.11	1	0.2	0	0	465.1	2,216.9	33.3	89.7
5/31/2008	8.80	12.51	7.24	10.42	9.2	9.1	0.92	1.09	20	0.2	0	0	159.3	643.1	20.2	80.2
6/30/2008	7.20	9.11	3.42	5.54	8.3	8.2	0.94	2.45	142	0.2	0	0	74.8	484.7	18.3	78.5
7/31/2008	6.93	9.78	4.20	7.55	8.3	8.2	0.93	3.20	3	0.2	0	0	17.6	102.8	20.7	5.5
8/31/2008	5.17	9.39	2.51	5.95	8.0	8.2	0.94	3.45	5	0.2	0	0	12.3	25.9	8.0	20.5
9/30/2008	5.10	7.84	1.63	3.75	8.0	8.2	0.94	2.34	2	0.2	0	0	38.5	295.0	9.5	31.0
10/31/2008	7.17	12.61	3.28	8.92	8.1	8.1	0.93	2.69	10	0.2	0	0	24.7	34.9	5.6	9.2
11/30/2008	6.78	7.70	3.79	5.22	8.7	8.2	0.93	2.53	2	0.2	0	0	357.1	1,790.3	34.6	107.6
12/31/2008	11.99	21.56	8.36	16.49	9.5	8.1	0.93	1.90	20	0.2	0	0	260.4	1,279.7	27.9	102.8
1/31/2009	10.66	18.76	7.92	12.32	9.8	8.1	0.93	1.68	3	0.2	0	0	111.8	232.7	17.1	30.1
2/29/2009	6.77	13.39	6.00	9.32	9.6	8.1	0.92	1.95	1	0.2	0	0	371.6	1,286.1	37.4	101.9
3/31/2009	11.59	17.46	6.64	12.93	10.0	9.1	0.92	1.42	6	0.2	0	0	339.6	1,725.6	34.0	96.1
4/30/2009	12.16	24.70	8.91	17.77	9.4	8.1	0.92	1.50	2	0.2	0	0	11.8	232.7	17.1	30.1
5/31/2009	14.51	28.41	10.70	25.50	8.7	8.1	0.92	1.31	2	0.2	0	0	11.8	232.7	17.1	30.1
6/30/2009	7.22	9.18	3.64	7.09	8.0	8.2	0.93	2.58	2	0.2	0	0	167.7	828.6	19.6	66.3
7/31/2009	7.02	13.73	4.45	10.11	8.0	8.1	0.93	2.35	3	0.2	0	0	12.3	16.8	1.9	3.9
8/31/2009	7.77	12.59	5.78	10.55	8.8	8.0	0.92	1.66	2	0.2	0	0	12.3	16.8	1.9	3.9
9/30/2009	5.03	5.43	1.63	3.75	8.0	7.8	0.90	0.32	1	0.2	0	0	961.8	5,118.7	72.9	275.9
10/31/2009	14.51	29.70	11.19	25.50	10.5	8.2	0.95	3.45	5	0.2	0	0	12.3	16.8	1.9	3.9
Permit Limit	NA	NA	NA	NA	3.0	6.0	9.0	Report	5.0 (s)	1.0	200	1,000	NA	NA	NA	NA

APPENDIX 6
TREATED EFFLUENT TOTAL PHOSPHORUS CONTROL CONSIDERATIONS

**Figure 4-1. Outfall 001 Average Monthly Effluent Total Phosphorus Probability Plot
(Summer Months May-Oct for Period Apr. 2005 – July 2009)**



Franklin STP (Rationale) NPDES Permit TN0028827 Page R-27 of R-37

APPENDIX 7 NUTRIENT MANAGEMENT PLAN (NMP)/REPORTING

Exact Outfall 001 treated effluent nutrient control requirements needed for remedying the summer low-flow receiving stream reduced dissolved oxygen/elevated phosphate problems are not well known at this time. The instream low dissolved oxygen problems exist both upstream and downstream of the permittee's discharge. The receiving stream is effluent dominated during very low flow summer conditions.

As such, the division has included the 2004 TMDL total nitrogen discharge requirements in the new permit, as well as the incorporation of supplementary enhanced instream investigations to further identify the impact of algal activity during the summer season (May through October). Additionally, to cap the Outfall 001 discharge at its current concentration, the new permit includes a total phosphorus limit (3.0 mg/l monthly average) for the summer months, based on the treatment plant's demonstrated performance. Further, the new permit requires the permittee to develop a Nutrient Management Plan (NMP) with reporting, pursuant to the criteria presented in the new permit's Attachment 2.

The NMP provides a basis for the permittee to conduct additional evaluations/implement effective methods for enhanced wastewater nutrients (total nitrogen and phosphorus) removal by modifying its treatment facilities operation.

APPENDIX 8 METALS AND TOXICS CALCULATIONS

The following procedure is used to calculate the allowable instream concentrations for pass-through guidelines and relevant water quality based permit limitations.

- a. The most recent background conditions of the receiving stream segment are compiled. This information includes:
 - * 7Q10 for receiving stream (0.49 MGD, USGS- StreamStats)
 - * 30Q5 for receiving stream (1.29 MGD – estimated)
 - * Calcium hardness (200 mg/l)
 - * Total suspended solids (15 mg/l)
 - * Background metals concentrations (½ water quality criteria)
 - * Other dischargers impacting this segment (downstream Lynwood Utility Corp. STP TN0029718 and Cartwright Creek LLC STP TN0027278)
 - * Downstream water supplies, if applicable
- b. The chronic water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel and zinc. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions.
- c. The acute water quality criteria are converted from total recoverable metal at lab conditions to dissolved lab conditions for the following metals: cadmium, copper, trivalent chromium, lead, nickel, zinc and silver. Then translators are used to convert the dissolved lab conditions to total recoverable metal at ambient conditions for the following metals: cadmium, copper, lead, nickel and silver.
- d. The resulting allowable trivalent and hexavalent chromium concentrations are compared with the effluent values characterized as total chromium on permit applications. If reported total chromium exceeds an allowable trivalent or hexavalent chromium value, then the calculated value will be applied in the permit for that form of chromium unless additional effluent characterization is received to demonstrate reasonable potential does not exist to violate the applicable state water quality criteria for chromium.
- e. A standard mass balance equation determines the total allowable concentration (permit limit) for each pollutant. This equation also includes a percent stream allocation of no more than 90%.

The following formulas are used to evaluate water quality protection:

$$C_m = \frac{Q_s C_s + Q_w C_w}{Q_s + Q_w}$$

where:

C_m = resulting in-stream concentration after mixing
C_w = concentration of pollutant in wastewater
C_s = stream background concentration
Q_w = wastewater flow
Q_s = stream low flow

to protect water quality:

$$C_w \leq \frac{(S_A) [C_m (Q_s + Q_w) - Q_s C_s]}{Q_w}$$

where (S_A) is the percent "Stream Allocation".

Calculations for this permit have been done using a standardized spreadsheet, titled "Water Quality Based Effluent Calculations." Division policy dictates the following procedures in establishing these permit limits:

1. The critical low flow values are determined using USGS data:

Fish and Aquatic Life Protection

7Q10 - Low flow under natural conditions

1Q10 - Regulated low flow conditions

Other than Fish and Aquatic Life Protection

30Q5 - Low flow under natural conditions

2. Fish & Aquatic Life water quality criteria for certain Metals are developed through application of hardness dependent equations. These criteria are combined with dissolved fraction methodologies in order to formulate the final effluent concentrations.
3. For criteria that are hardness dependent, chronic and acute concentrations are based on a Hardness of 25 mg/L and Total Suspended Solids (TSS) of 10 mg/L unless STORET or Water Supply intake data substantiate a different value. Minimum and maximum limits on the hardness value used for water quality calculations are 25 mg/L and 400 mg/L respectively. The minimum limit on the TSS value used for water quality calculations is 10 mg/L.
4. Background concentrations are determined from the division database, results of sampling obtained from the permittee, and/or obtained from nearby stream sampling data. If this background data is not sufficient, one-half of the chronic "In-stream Allowable" water quality criteria for fish and aquatic life is used. If the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, then the measured background concentration is used in lieu of the chronic "In-stream Allowable" water quality criteria for the purpose of calculating the appropriate effluent limitation (C_w). Under these circumstances, and in the event the "stream allocation" is less than 100%, the calculated chronic effluent limitation for fish and aquatic life should be equal to the chronic "In-stream Allowable" water quality criteria. These guidelines should be strictly followed where the industrial source water is not the receiving stream.

Where the industrial source water is the receiving stream, and the measured background concentration is greater than the chronic "In-stream Allowable" water quality criteria, consideration may be given as to the degree to which the permittee should be required to meet the requirements of the water quality criteria in view of the nature and characteristics of the receiving stream.

The spreadsheet has fifteen (15) data columns, all of which may not be applicable to any particular characteristic constituent of the discharge. A description of each column is as follows:

Column 1: The "Stream Background" concentrations of the effluent characteristics.

Column 2: The "Chronic" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Continuous Concentration (CCC) is calculated using the equation:

$$CCC = (\exp \{ m_c [\ln (\text{stream hardness})] + b_c \}) (CCF)$$

CCF = Chronic Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent; no chronic criterion exists for silver. Published criteria are used for non-metal parameters.

Column 3: The "Acute" Fish and Aquatic Life Water Quality criteria. For cadmium, copper, trivalent chromium, lead, nickel, silver, and zinc, this value represents the criteria for the dissolved form at laboratory conditions. The Criteria Maximum Concentration (CMC) is calculated using the equation:

$$CMC = (\exp \{ m_A [\ln (\text{stream hardness})] + b_A \}) (ACF)$$

ACF = Acute Conversion Factor

This equation and the appropriate coefficients for each metal are from Tennessee Rule 1200-4-3-.03 and the EPA guidance contained in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996). Values for other metals are in the total form and are not hardness dependent. Published criteria are used for non-metal parameters.

Column 4: The "Fraction Dissolved" converts the value for dissolved metal at laboratory conditions (columns 2 & 3) to total recoverable metal at in-stream ambient conditions (columns 5 & 6). This factor is calculated

using the linear partition coefficients found in *The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007, June 1996) and the equation:

$$\frac{C_{\text{diss}}}{C_{\text{total}}} = \frac{1}{1 + \{ [K_{\text{po}}] [\text{ss}^{(1+a)}] [10^{-6}] \}}$$

ss = in-stream suspended solids concentration [mg/l]

Linear partition coefficients for streams are used for unregulated (7Q10) receiving waters, and linear partition coefficients for lakes are used for regulated (1Q10) receiving waters. For those parameters not in the dissolved form in columns 2 & 3 (and all non-metal parameters), a Translator of 1 is used.

- Column 5:** The "Chronic" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 2 by the value in column 4.
- Column 6:** The "Acute" Fish and Aquatic Life Water Quality criteria at in-stream ambient conditions. This criteria is calculated by dividing the value in column 3 by the value in column 4.
- Column 7:** The "Chronic" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the chronic limit.
- Column 8:** The "Acute" Calculated Effluent Concentration for the protection of fish and aquatic life. This is the acute limit.
- Column 9:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Organism Consumption (Recreation).
- Column 10:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Water and Organism Consumption. These criteria are only to be applied when the stream use classification for the receiving stream includes both "Recreation" and "Domestic Water Supply."
- Column 11:** The In-Stream Water Quality criteria for the protection of Human Health associated with the stream use classification of Domestic Water Supply.
- Column 12:** The Calculated Effluent Concentration associated with Organism Consumption.
- Column 13:** The Calculated Effluent Concentration associated with Water and Organism Consumption.

Column 14: The Calculated Effluent Concentration associated with Domestic Water Supply.

Column 15: The Effluent Limited criteria. This upper level of allowable pollutant loading is established if (a) the calculated water quality value is greater than accepted removal efficiency values, (b) the treatment facility is properly operated, and (c) full compliance with the pretreatment program is demonstrated. This upper level limit is based upon EPA's 40 POTW Survey on levels of metals that should be discharged from a POTW with a properly enforced pretreatment program and considering normal coincidental removals.

The most stringent water quality effluent concentration from Columns 7, 8, 12, 13, 14, and 15 is applied if the receiving stream is designated for domestic water supply. Otherwise, the most stringent effluent concentration is chosen from columns 7, 8, 12, and 15 only.

PASS-THROUGH LIMITATIONS FOR METALS AND OTHER TOXIC SUBSTANCES
WATER QUALITY BASED EFFLUENT CALCULATIONS
CUTFALL 001

CALC BY:
CER

FACILITY: Franklin
 PERMIT #: TN0028827
 DATE: 6/18/2009

non-regulated stream worksheet (7010)

Stream	Stream Flow (MGD)	Waste Flow (MGD)	Tot Susp Solids (mg/l)	Hardness (as CaCO3) (mg/l)	Range of Salts (%)
Franklin	1.230	12.000	13.778	192.815	90

PARAMETER	Stream		F & A1- in-stream allowable ambient conditions (F&A)		F & A1- in-stream allowable ambient conditions (F&A)		Human Health Criteria		Calc. Effluent Concentration **		effluent limited case
	Conc. (ug/l)	Flow (MGD)	Chronic (ug/l)	Acute (ug/l)	Chronic (ug/l)	Acute (ug/l)	Water/Organisms (ug/l)	DWS (ug/l)	Organisms (ug/l)	DWS (ug/l)	
Copper (a,b)	0.463	15.587	0.220	17.632	75.627	44.57	N/A	N/A	N/A	N/A	80.0
Chromium III	0.242	120.784	0.100	136.132	493.570	695.41	N/A	N/A	N/A	N/A	N/A
Chromium VI	1.124	N/A	1.000	11.000	19.359	14.70	N/A	N/A	N/A	N/A	N/A
Chromium, Total	0.500	90.554	0.395	278.945	2645.279	1913.96	4600.0	610.0	100.0	100.0	66.10
Nickel (a,b)	0.060	0.388	0.250	1.489	14.615	13.67	N/A	N/A	N/A	N/A	4.94
Cadmium (a,b)	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	4.94
Lead (a,b)	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	4.94
Mercury (T)(c)	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	0.4
Silver (a,b,f)	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	5.0
Zinc (a,b)	3.162	205.679	1.000	204.208	759.328	717.02	140.0	140.0	200.0	139.29	199.10
Cyanide (d)	2.000	5.200	1.000	5.200	22.000	20.51	15000.0	1300.0	1000.0	14951.25	998.75
Toluene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	15.0
Benzene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	3.0
1,1,1 Trichloroethane	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	30.0
Ethylbenzene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	1.1
Carbon Tetrachloride	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	4.0
Chloroform	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	15.0
Tetrachloroethylene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	85.0
1,2 trans Dichloroethylene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	25.0
Total Phenols	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	10.0
Naphthalene	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	1.5
Total Phthalates	0.006	0.388	0.174	29.215	748.705	27.36	N/A	N/A	N/A	N/A	50.0
Chlorine (T, Res)	1.000	19.000	1.000	19.000	19.000	19.55	N/A	N/A	N/A	N/A	64.5

a Denotes metals for which Fish & Aquatic Life Criteria are expressed as a function of total hardness.
 b The criteria for this metal is in the dissolved form at lab conditions. The calculated effluent concentration is in the total recoverable form.
 c The chronic criteria for mercury is not converted to dissolved, since it is based on fish tissue data rather than toxicity.
 d The criteria for this parameter is in the total form.
 e Previously, the Division established that 0.006 ug/L would be maximum background default if no sample data available or if all samples were <RDL (<0.2 ug/L), based on reference stream monitoring by DOE.
 f Silver limit is daily max if column 8 is most stringent.
 g When columns 7 or 6 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.
 h When columns 12, 13 or 14 result in a negative number, use results from columns 9, 10 or 11, respectively, as applicable.
 i Domestic supply included in river use so pick from columns 7, 8, 12, 13, 14, 15 or Domestic supply not included in river use so pick from columns 7, 8, 12 or 15.
 ** Water Quality criteria for stream use classifications other than Fish & Aquatic Life are based on the 30Q5 flow.

WATER QUALITY BASED EFFLUENT CALCULATIONS
 OUTFALL 001
 FACILITY: Franklin STP
 PERMIT: TN0028827

Stream (7Q10) [MGD]	Stream (30QS) [MGD]	Waste Flow [MGD]	Tl. Susp Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
0.49	1.29	1.2	15	200	90

PARAMETER	Stream Background [ug/l]	Detection Levels			Fish/Aqua Life Water Quality Criteria		Calculated Effluent		Human Health Water Quality Criteria (30QS)			Permit Appl. (ug/MGD)		
		Scan [ug/l]	WQC RCL [ug/l]	TEPA RCL [ug/l]	Chronic [ug/l]	Acute [ug/l]	Organisms [ug/l]	Water/Org [ug/l]	CWS [ug/l]	Organisms [ug/l]	Water/Org [ug/l]			
ANTIMONY	0.0	3.8	3.0									0.4/1.2		
ARSENIC	0.0	1.0	1.0	150.0	340.0	140.5	318.5	10.0	10.0	10.0	10.0	10.0	1/2.4	
BERYLLIUM	0.0	2.0	1.0										4.0	
SELENIUM	0.0	5.0	2.0	5.0	20.0	4.7	19.7						49.0	
THALLIUM	0.0	5.0	*					0.47	0.24	2.0	0.5	0.2	2.0	<10
ACROLEIN	0.0	50.0	1.0					290.0	190.0		239.1	189.4		<10
ACRYLONITRILE	0.0	50.0	1.0					2.5	0.51		2.5	0.5		<10
BENZENE	0.0	1.0	1.0					510.0	22.0	5.0	509.5	21.5	5.0	<1
BROMOFORM	0.0	1.0	1.0					1400.0	43.0		1395.5	42.4		<1
CARBON TETRACHLORIDE	0.0	1.0	1.0					16.0	2.2	5.0	15.9	2.2	5.0	<1
CHLOROBENZENE	0.0	1.0	*					1600.0	130.0		1500.8	129.4		<1
CHLORODIBROMO METHANE	0.0	1.0	*											<1
CHLOROETHANE	0.0	1.0	*					130.0	4.0		129.6	4.0		<1
2-CHLOROETHYL VINYL ETHER	0.0	1.0	*											<10
CHLOROFORM	0.0	5.0	0.5					4700.0	57.0		4684.7	56.8		<5
DICHLOROBROMO METHANE	0.0	1.0	1.0					170.0	5.2	NA	169.1	5.2	NA	<1
1,1-DICHLOROETHANE	0.0	1.0	1.0					NA	NA	NA	NA	NA	NA	<1
1,2-DICHLOROETHANE	0.0	1.0	1.0					370.0	3.8	5.0	358.3	3.8	5.0	<1
TRANS 1,2-DICHLOROETHYLENE	0.0	1.0	*											<1
1,1-DICHLOROETHYLENE	0.0	1.0	*					10000	140.0	100.0	9967.5	139.5	99.7	<1
1,2-DICHLOROPROPANE	0.0	1.0	1.0											<1
1,3-DICHLORO-PROPYLENE	0.0	1.0	*					160.0	5.0	5.0	149.5	5.0	5.0	NA
ETHYLBENZENE	0.0	1.0	1.0					210.0	3.1		209.3	3.1		NA
METHYL BROMIDE	0.0	1.0	1.0					2100	530.0	700.0	2093.2	529.3	897.2	<1
METHYL CHLORIDE	0.0	1.0	1.0					1500.0	47.0		1495.1	46.9		<1
1,1,2-TETRACHLORO-ETHANE	0.0	5.0	1.0					5900.0	46.0		5890.8	45.9		<5
TETRACHLORO-ETHYLENE	0.0	1.0	0.5					40.0	1.7		39.9	1.7		<1
TOLUENE	0.0	1.0	1.0					33.0	6.0	5.0	32.9	6.0	5.0	<1
1,1,1-TRICHLOROETHANE	0.0	1.0	1.0					15000	1300.0	1000.0	14951.3	1295.8	995.8	<5
1,1,2-TRICHLOROETHANE	0.0	1.0	0.2							200.0			199.1	<1
TRICHLOROETHYLENE	0.0	1.0	1.0					160.0	5.0	5.0	159.5	5.0	5.0	<1
VINYL CHLORIDE	0.0	1.0	2.0					300.0	25.0	5.0	299.0	24.9	5.0	<1
P-CHLORO-M-CRESOL	0.0	10.0	*					24.0	0.25	2.0	23.9	0.2	2.0	<10
2-CHLOROPHENOL	0.0	10.0	*					150.0	81.0		149.5	80.7		<10
2,4-DICHLOROPHENOL	0.0	10.0	*					290.0	77.0		289.1	76.7		NA
2,4-DIMETHYLPHENOL	0.0	10.0	*					850.0	300.0		847.2	299.8		<10
4-6-DINITRO-O-CRESOL	0.0	10.0	24.0					280.0	13.0		279.1	13.0		<10
2,4-DINITROPHENOL	0.0	10.0	42.0					5300.0	69.0		5282.8	68.8		<10
3-NITROPHENOL	0.0	10.0	*											<10
4-NITROPHENOL	0.0	10.0	*											<10
PENTACHLOROPHENOL	0.0	10.0	5.0	15	19	11.1	17.8	30.0	2.7	1.0	29.9	2.7	1.0	<10
PHENOL	0.0	10.0	*					1700000	21000.0		1694475.0	20931.0		<10
2,4,6-TRICHLOROPHENOL	0.0	10.0	2.7					24.0	14.0		23.9	14.0		<10
ACENAPHTHENE	0.0	10.0	*					890.0	670.0		889.3	667.8		<10
ACENAPHTHYLENE	0.0	10.0	2.3											<10
ACRYLONITRILE	0.0	10.0	0.7					40000	3300.0		39870.0	3273.0		<10
ANTHRACENE	0.0	50.0	*					0.0020	0.0020		0.002	0.002		<10
BENZ(a)ANTHRACENE	0.0	10.0	0.3					0.18	0.018		0.2	0.04		<10
DECA(1)PYRENE	0.0	10.0	0.3					0.18	0.018	0.2	0.2	0.04	0.2	<10
1,4-BENZ(a)FLUORANTHENE	0.0	10.0	0.3					0.18	0.018		0.2	0.0		<10
BEZ(a)HOPHYRENE	0.0	10.0	*											<10
BENZ(a)FLUORANTHENE	0.0	10.0	0.3					0.18	0.018		0.2	0.0		<10
BIS (2-CHLOROETHOXY) METHANE	0.0	10.0	*											<10
BIS (2-CHLOROETHYL) ETHER	0.0	10.0	1.0					5.0	0.30		5.3	0.3		<10
BIS (2-CHLOROISOPROPYL) ETHER	0.0	10.0	*					65000	1400.0		64788.8	1395.4		<10
BIS (2-ETHYLEXYL) PHTHALATE	0.0	10.0	2.5					22.0	12.0	6.0	21.9	12.0	6.0	5/14
1-BROMOPHENYL PHENYL ETHER	0.0	10.0	*											<10
BUTYL BENZYL PHTHALATE	0.0	10.0	*											<10
2-CHLORONAPHTHALENE	0.0	10.0	*					1900.0	1500.0		1893.3	1495.1		<10
4-CHLOROPHENYL PHENYL ETHER	0.0	10.0	*					1500.0	1000.0		1501.0	996.8		<10
CHRYSENE	0.0	10.0	2.5											<10
DIBUTYL PHTHALATE	0.0	10.0	2.5					4500.0	2000.0		4485.4	1997.5		<10
DIMETHYL PHTHALATE	0.0	10.0	*											<10
DIBENZO(a,h)ANTHRACENE	0.0	10.0	0.3					0.18	0.018		0.2	0.0		<10
1,2-DICHLOROBENZENE	0.0	1.0	2.0					0.45	0.015		0.2	0.0		<10
1,3-DICHLOROBENZENE	0.0	5.0	2.0					900.0	120.0		899.5	119.0		<10
1,4-DICHLOROBENZENE	0.0	5.0	2.0					190.0	63.0		189.4	62.8		<10
1,3-DICHLOROBENZIDINE	0.0	10.0	*					0.20	0.2		0.2	0.2		<10
DIBUTYL PHTHALATE	0.0	10.0	1.4					34000	1700.0		43827.0	1394.0		<10
DIMETHYL PHTHALATE	0.0	10.0	1.6					110000	27000.0		1096129.0	269122.0		<10
2,4-DINITROTOLUENE	0.0	10.0	1.0					34.0	1.1		33.9	1.1		<10
2,6-DINITROTOLUENE	0.0	10.0	*											<10
1,3-DIPHENYLUREAZINE	0.0	10.0	2.2					7.0	0.4		7.0	0.4		<10
FLUORANTHENE	0.0	10.0	0.3					140.0	130.0		139.5	129.6		<10
FLUCORENE	0.0	10.0	0.3					5300.0	1100.0		5282.3	1099.4		<10
HEPTACHLOROBENZENE	0.0	10.0	1.9					0.0029	0.0028	1.0	0.003	0.0	1.0	<10
HEPTACHLOROBUTADIENE	0.0	10.0	5.0					130.0	4.4		129.4	4.4		<10
HEPTACHLOROCYCLOPENTADIENE	0.0	10.0	*											<10
HEPTACHLOROPHTHALENE	0.0	10.0	0.5					1100.0	40.0	50.0	1098.4	39.9	49.0	<10
INDENY(1,2,3-cd)PYRENE	0.0	10.0	*					32.0	14.0		32.0	14.0		<10
ISOPHTHALENE	0.0	10.0	*					0.18	0.018		0.2	0.0		<10
ISOPHTHALENE	0.0	10.0	*					9600	350.0		9603.3	349.0		<10
MITROBENZENE	0.0	10.0	*											<10
4-NITROSCC(a)PROPYLENARINE	0.0	10.0	10.0					600.0	17.0		582.3	16.9		<10
4-NITROSCC(a)METHYLENARINE	0.0	10.0	*					5.1	0.051		5.1	0.0		<10
4-NITROSCC(a)PHENYLENARINE	0.0	10.0	*					39.0	0.039		39.0	0.0		<10
4-NITROSCC(a)PHENYLENARINE	0.0	10.0	*					60.0	33.3		53.3	29.9		<10
1,2-DITHIURENE	0.0	10.0	0.7											<10
PYRENE	0.0	10.0	0.3					8000.0	810.0		7997.0	807.0		<10
1,2,4-TRICHLOROBENZENE	0.0	10.0	*					70.0	30.0	70.0	69.4	30.0	69.0	<10

a. Columns 7-8 and 12-14 are the effluent concentrations allowable to prevent exceedance of water quality criteria.
 b. Potential to exceed criteria exists if the measured quantity in column 13 exceeds or could exceed the calculated allowable concentrations in columns 7-8 and 12-14.
 c. Additional testing is required if the detection level used in the test is higher than the state RCL and/or the MCL of the applicable EPA test method and industry is known to have that pollutant.
 d. All background concentrations for these organic, acid-extractable, and base-neutral compounds are assumed zero in the absence of supporting monitoring data.
 e. Other metals for which data were provided on the application are evaluated on the Metals & Toxics spreadsheet.
 f. The downstream hardness was calculated based on an application effluent hardness of 162 mg/L and an upstream hardness of 200 mg/L.
 g. Reasonable potential does not exist for the following reasons:
 1. The required MCL has been used and resulted in non-detection (ND), or the contributing industrial processes are not likely to contain them.

Pass Through Considerations

	6/11/2006	85% PTL	PTL 8/18/2009	Apr-09	Oct-08	Apr-08	Oct-07	Apr-07	Oct-06	Apr-06	Oct-05	Apr-05	Oct-04
TR 0028827													
COPPER	0.04643	0.03788	0.04457	0.02000	0.02000	0.02000	0.02100	0.02000	0.02000	0.02000	0.02000	0.02000	0.01000
CHROMIUM	0.06000	N/A	N/A	0.01000	0.01000	0.00850	0.00100	0.00100	0.01000	0.01000	0.01000	0.01000	0.01000
CHROMIUM, III		0.05100	0.06000										
CHROMIUM, VI		0.00859	0.01010										
NICKEL	0.18000	0.15300	0.18000	0.00300	0.00300	0.00100	0.00300	0.00270	0.00300	0.00300	0.00490	0.00600	0.01000
CADMIUM	0.00138	0.00117	0.00138	0.00100	0.00100	0.00100	0.00100	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
LEAD	0.02865	0.02325	0.02735	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
MERCURY	0.00003	0.00004	0.00005	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020
SILVER	0.00500	0.00425	0.00500	0.00050	0.00050	0.00060	0.00052	0.00053	0.00050	0.00050	0.00100	0.00400	0.00500
ZINC	0.20000	0.17000	0.20000	0.05800	0.04000	0.05100	0.06200	0.05500	0.05500	0.05700	0.06200	0.04700	0.05300
CYANIDE	0.00474	0.00406	0.00478	0.00500	0.00500	0.00500	0.00500	0.00500	0.00450	0.00620	0.00450	0.00460	0.00450
TOLUENE	0.01500	0.01275	0.01500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
BENZENE	0.00300	0.00255	0.00300	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
1,1,1 TRICHLOROETHANE	0.03000	0.02550	0.03000	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
ETHYLBENZENE	0.00400	0.00340	0.00400	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
CARBON TETRACHLORIDE	0.01500	0.01275	0.01500	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
CHLOROFORM	0.08500	0.07225	0.08500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
TETRACHLOROETHYLENE	0.02500	0.02125	0.02500	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
TRICHLOROETHYLENE	0.01000	0.00850	0.01000	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
1,2 TRANSDICHLOROETHYL	0.00150	0.00128	0.00150	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
METHYLENE CHLORIDE	0.05000	0.04250	0.05000	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500	0.00500
TOTAL PHENOLS	0.05000	0.04250	0.05000	0.04000	0.04000	0.04200	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000	0.01000
NAPHTHALENE	0.00100	0.00085	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100
TOTAL PHTHALATES	0.06450	0.05483	0.06450	0.00880	0.03720	0.05100	0.00880	0.00860	0.01270	0.00550	0.04000	0.04000	0.01000

Bolded in effluent data exceeds 85% of proposed PTLs

Shaded means detection level

PUBLIC HEARING – NOTICE OF DETERMINATION

Franklin STP

NPDES PERMIT No. TN0028827

Permit Writer: Gary Davis

This section presents the division's Notice of Determination (NOD) for the August 31, 2010 public hearing regarding National Pollutant Discharge Elimination System (NPDES) permit renewals for Franklin STP (TN0028827), Lynwood Utility Corp. STP (TN0029718), and Cartwright Creek, LLC – Grassland STP (TN0027278). This NOD is based on comments provided verbally during the public hearing (with brief summary/division paraphrasing-clarifications included below), and those written and provided to the division within the 10 day period. The division's responses to these comments are provided below in ***bold/italic*** font. Results from this NOD, the draft permit's Rationale, and the Addendum to Rationale provided the basis for finalizing the proposed permit. Note for this NOD, the Lynwood Utility Corp. STP (TN0029718) will be called "Lynwood STP" and Cartwright Creek, LLC – Grassland STP (TN0027278) is designated "Cartwright Creek STP".

Public Hearing Verbal Comments

The division considers that its responses to the public hearing verbal comments have been addressed in the relevant permits' "Addendum to Rationale"

Harpeth River Watershed Association (Mr. Michael Cain and Ms. Dorie Bolze)

Michael Cain (Watershed Assistant and Restoration Manager)

Mr. Cain participated in four receiving stream dissolved oxygen investigations conducted during 2006 – 2008. They think a low dissolved oxygen point upstream of the Franklin STP is associated with Egyptian lacquer seeps. Dissolved oxygen upstream of the Franklin STP is low during the summer. Assumptions in the (EPA TMDL) model are inaccurate, resulting in the actual instream dissolved oxygen being less than that was assumed for the modeling; which has resulted in overestimating the receiving stream's assimilative capacity.

The dissolved oxygen problem from Eagleville (upstream) is due to septic tanks and farmer issues, which are fixable. Even if fixed, the three STPs will continue to stress the river so they need more stringent discharge limits, and they all need the same set of limits. There needs to be a single value (e.g., dissolved oxygen allowance) shared among the permittees. Use same discharge limits for the three STPs and split for the three dischargers.

EPA's TMDL models did not adjust for algae. Because of headwater impacts from waste/agricultural stormwater runoff, huge instream dissolved oxygen swings are seen and the model did not account for these impacts. As such, the three STPs permits (which were based on TMDL) did not address the low upstream dissolved oxygen concentrations. Continuous instream dissolved oxygen monitoring data are needed. Suggest four continuous monitoring stations (upstream of Franklin STP at Highway 96 (re: upstream of three STPs), Franklin Recreation Complex (re: downstream of Franklin STP), between Lynwood Utility Corp. STP and

Cartwright Creek, LLC – Grassland STP (re: local impact from Lynwood Utility Corp. STP) and Highway 100 (re: downstream of three STPs). Data should be put in public viewable website and the results can be used for revising the model.

Ms. Dorie Bolze (Director)

A large amount of instream dissolved oxygen data has been collected which demonstrates the need for continuous monitoring. Kansas has instream dissolved oxygen data online, so does the USGS, which allows the public to see real time what's going on in the river. For January through April lots of receiving stream flow. The dissolved oxygen problem is associated with the low-flow summer conditions. They understand that steps are being taken for the wastewater from the local failing septic tanks subdivisions to be pumped to the Franklin STP for treatment. The state's instream dissolved oxygen water quality standard is 5.0 mg/L, and low dissolved oxygen problems exist, mostly in mornings before sunrise. Graph shows river daily dissolved oxygen dips below 5 mg/L. River dissolved oxygen is different in winter when flow much higher. In summer the receiving stream has a problem assimilating treated wastewater. The three STPs are represented here tonight, and the Franklin STP has invested lots of effort in the last 10 years. Suggest that Lynwood STP and Cartwright Creek STP should be part of the integrated water management plan discussions.

STPs loadings needs to be determined and cost-effective ways of making improvements are needed. EPA's TMDL and safety factors warrant additional consideration e.g., due to organics in Liberty Creek (Elmco/Egyptian Lacquer sources). Pollutants create an oxygen demand in the river. The safety factor does not leave much for the three STPs. HRWA has worked on this and their work has shown that at times the river has only half as much capacity as the EPA TMDL model predicts. Maybe overstates receiving stream's capacity by 2 or 3 times. The BOD5 loadings discharged is still too large. Franklin STP gets more discharge allocation (lb/day) because of its larger size. The other STPs have more stringent limits than the Franklin STP. HRWA's written comments for the draft permits are on their website. The draft permits need to avoid antibacksliding pursuant to state's rules. Currently, Franklin STP's treated effluent is about 6 mgd of which approximate 3 mgd during summers goes to golf courses for watering. There is still time to make changes because the Franklin STP plant is not at its 12 mgd design flow yet. River in summer is quite small. Franklin STP's discharge is largest on the river. In the summer, the Harpeth River can get to ½ mgd flow. The receiving stream would be swamped if the Franklin STP were not doing reuse. The receiving stream is 50% treated effluent, at times. We don't want to paddle in 90% treated effluent. Ultimately, we have to meet the water quality standard in the Harpeth River. Because of the nature of the river and algae blooms, the effects move downstream to Cheatham County impacting the scenic portion of the Harpeth River, including the Harpeth River State Park.

Franklin and Williamson County have stringent stormwater regulations, but no one has done anything specific to address non-point source loads. The Beaver Creek wastewater treatment facility in East Tennessee has also focused on controls for non-point sources. This is the type of thing the integrated management plan will address, but they are not supposed to discharge into a stream that is already impacted. I appreciate what everyone is doing and want to remind everyone that this river does not meet water quality standards in summer. HRWA is thrilled that leadership provided by Franklin STP, but need the permits to make it happen. The permits need to be tighter than what is in the TMDL. Need to focus on dissolved oxygen under summer conditions. The division needs to force the issue and deadlines are required.

Tennessee Clean Water Network (Ms. Stephanie Matheny, Esq.)

Thanks to the division for having public hearing and processing the three permits simultaneously. However, thinks draft permits do not go far enough to protect water quality and will violate water quality criteria. Water quality act notes that waters are held in trust and users have right to unpolluted waters. Every permit shall include most stringent limits required to maintain standards.

Narrative standards are needed to require actions for maintaining water quality standards. Law says permits not in compliance with water quality standards will not be allowed. These conditions are included in construction stormwater permit, but division repeatedly declines to put these conditions in STP permits.

Need to reduce CBOD5, total nitrogen and total phosphorus to 1/2 to 1/3 of that in drafts. TCWN submitted written comments for the three draft permit. TDEC should start over and issue more stringent permit limits which are protective of water quality standards.

Cartwright Creek, LLC – Grasslands STP (Mr. Bruce Meyer – Operations Manager)

The STP serves 530 customers. Our major technical concern is meeting nitrogen standard; cannot meet limits now and will have to make upgrades. Have an interest in reusing our treated effluent on the Old Natchez golf course during summers. This would result in up to 0.25 mgd reuse during summers.

Whatever choice taken, funded will be by rate structure to customers. Provided math example. Actions are limited, since they are regulated by Tennessee Regulatory Authority (TRA). Once we define the monetary requirements, we won't be able to get a loan in this climate. Requesting help through county and state agencies in helping get a loan, not a grant or free money. Need a low interest loan. Noted rate case, use an open book approach and trying their best to upgrade the facility, and love the concept of reuse. Intent was to reuse originally, but the golf course approach fell through. Franklin STP has done a tremendous job. We liked reuse before reuse was cool. We can if we get finances in order. We need \$100,000 just to get TRA approval baseline studies for collection/do studies on a solution. Trying to upgrade WWTP

9th District, Grassman Commissioner (Ms. Mary Brockman)

As a property owner along Harpeth River on old Hillsboro road, a fan of watershed association, and a commissioner for the Grassland area, have concerns regarding more scrutiny on the two smaller utilities. Cartwright Creek STP is aging plant needing considerable upgrades. Grassland area depends on that treatment system. Now doing a comprehensive plan and area of study, coming back up is grassland as a major concern. Don't think it can be business as usual. It seems that with permitting we're getting the cart before the horse – have issues. Some neighborhoods have gone (450 homes) from Lynwood STP to Franklin STP. It is a good thing. Was harming the Harpeth River, almost public health issue. Going to the Franklin River was the right decision. Lynwood STP's reserved capacity for those homes, what will happen to that capacity – will it go for new homes? Another point to be made are landslides in vicinity of her farm from top of bank all the way down into the river, e.g., hundreds of trees/land, looking at fixes through a grant and forestry. This flooding has resulted in changes to the river –

tremendous changes to the banks of the river – losing stabilized banks – lost stabilizing vegetation – don't know how this might affect the permits. There is demand for this river and we need to put heads together with regards to Lynwood STP and Cartwright Creek STP. Applaud Cartwright Creek STP wanting to reuse. Cost required for upgrades, but is there another answer.

Franklin STP TN0028827 - Public Hearing Written Comments

Gary Davis - Franklin STP - Draft Permit/Public Hearing Comments

From: Mark Hilty <mark.hilty@franklintn.gov>
To: "gary.davis@tn.gov" <gary.davis@tn.gov>
Date: 9/10/2010 4:26 PM
Subject: Franklin STP - Draft Permit/Public Hearing Comments
CC: Vic Bates <vich@franklintn.gov>, Wayne Davenport <wayned@franklintn.gov>, Bo Butler <bbutler@ssr-inc.com>, David Parker <Davidp@franklintn.gov>, Russell Truell <russellt@franklintn.gov>, Eric Stuckey <eric.stuckey@franklintn.gov>
Attachments: Franklin_NPDES_Response_091130.pdf

Mr. Davis,

The City of Franklin Water Management Department would like to offer the following comments regarding the draft NPDES permit and public hearing conducted on August 31, 2010 at 6:00 PM CDT at the Williamson County Parks and Recreation Department, Franklin Recreation Complex.

The Franklin STP has been cited as a major factor in the DO concerns in the Harpeth River. While data presented by the Harpeth River Watershed Organization during the hearing indicates that the DO concentrations downstream of the City's STP are far greater than that of the upstream reaches, the Franklin STP is still concerned about the quality of data collected.

The analysis for DO is a very important test in waste treatment process and water pollution. The two approved methods described in Standard Methods 20th Edition are the Winkler or iodometric method and its modifications and the electronic method using membrane electrodes. The effect of interferences should be considered when selecting a method.

Using the Winkler method with samples containing organic matter can cause negative errors because organic matter is oxidized when the oxidized manganese precipitate is acidified. "Various modifications of the iodometric method have been developed to eliminate or minimize effects of interferences ; nevertheless, the method is inapplicable to a variety of industrial and domestic wastewaters. Moreover, the iodometric method is not suited for field testing and cannot be adapted easily for continuous monitoring or for DO determination in situ." (SM 4500-0 G).

These problems are minimized when membrane covered systems are used because an oxygen-permeable membrane serves as a diffusion barrier against impurities. Additionally, membrane electrodes are suited for DO monitoring in situ because they are submersible and can be used in lakes, stream surveys, industrial effluents, activated sludge units and estuarine and oceanographic studies. The portability and ease of operation is convenient for field applications also. "Membrane electrodes provide an excellent method for DO analysis in polluted waters, highly colored waters and strong waste effluents. They are recommended for use especially under conditions that are unfavorable for use of the iodometric method or when that test and its modifications are subject to serious errors caused by interferences." (SM 4500-0 G).

Sampling methods are also of prime importance. In a stream for instance, DO measurements should be taken at mid-stream and mid-depth, not on the periphery or in pooled water with no flow. Uniformity in DO analysis testing methods and sampling methods should be adhered to by all individuals involved in a DO study for meaningful and accurate data comparison. In this vein, the City of Franklin would like to review methods, applicable bench sheets, and the Quality Control program used for the data collected by HRWA that is subsequently being used to help determine the draft permit limits.

The City of Franklin would like to also reiterate the comments provided in November 2009 (attached). We believe that the comments submitted are substantial enough for issuance of a revised draft permit.

The City of Franklin is committed to operating and maintaining our treatment facilities to meet all of the requirements of our permit and protecting the water quality of the Harpeth River. We recognize the value of the river and all water resources to our City. We look forward to working with the Division to reach an agreement on permit limits based on protecting the water quality of this important resource.

Thank you for the opportunity to present this information. Sincerely,

Mark S. Hilty
Director
City of Franklin
Water Management Department

405 Hillsboro Road
Franklin, Tennessee 37064
Phone: 615.794.4554
Fax: 615.790.1340

This message has been prepared on resources owned by the City of Franklin, TN. It is subject to the City's Policy for the Use of Computers, Internet and eMail. Messages that are received or created by any City staff member may be a public record subject to Tennessee Open Records Act, T.C.A. 10-7-503, et seq., and the rules of the Open Records Commission. **DO NOT COPY OR FORWARD TO UNAUTHORIZED PERSONS.** This message may contain confidential information and is intended only for the use of the specific individual(s) to which it is addressed. If you are not an intended recipient of this message, you are hereby notified that any unauthorized use, dissemination or copying of this message or any information it contains is strictly prohibited. If you have received this message in error, please delete it and immediately notify the sender by reply email.

Division's Response For Franklin's STP Public Hearing Written Comments

The division acknowledges the potential dissolved oxygen monitoring problems/interferences with some historical instream data. The permittee can further investigate shortcomings of the database. The permittee's draft permit comments were addressed in the Addendum to Rationale, and considered for finalizing the permit.

Lynwood Utility Corp. STP TN0029718 - Public Hearing Written Comments



P.O. Box 303 Phone/Fax: 615-885-6278 Hermitage, TN 37076-0303

September 7, 2010

Mr. Vojin Janjic, Manager Permit Section
Tennessee Department of Environment & Conservation
Division of Water Pollution Control
6th Floor – L&C Annex
401 Church Street
Nashville, TN. 37243-1534

**RE: Lynwood STP Public Hearing
August 31, 2010
GAM Project No. 10-080**

RECEIVED
SEP 08 2010
Permit Section

Dear Mr. Janjic,

During the public hearing on Lynwood Utility Corporation's draft permit, a public comment was made that the 0.125 MGD reserve capacity in Lynwood's existing permit should remain in the new NPDES permit. Lynwood strongly disagrees.

This 0.125 MGD reserve capacity is included and is part of Lynwood's total 0.40 MGD permitted treatment capacity. The sewer plant's last expansion was designed to treat an average daily sewage flow of 0.40 MGD. The sole purpose for which this 0.125 MGD capacity was reserved no longer exists. When Lynwood's existing permit was issued, TDEC required that 0.125 MGD of Lynwood's capacity be reserved for the Meadowgreen, Green Acres and Farmington Subdivisions (the Subdivisions). This 0.125 MGD capacity was reserved to allow Lynwood, Williamson County and the Subdivisions to make a good faith attempt to negotiate an agreement for Lynwood to provide sewer service to the Subdivisions. If no agreement could be reached, TDEC granted Lynwood the right to request a release of this reserved capacity.

After the existing permit was issued, Lynwood performed an engineering study and prepared a report which was submitted to TDEC and Williamson County which described how these three Subdivisions could be provided sewer service. The study described the alternatives of the installation of a gravity sewer system or of a pressurized grinder pump/forcemain type system and the estimated costs for each alternative. After receiving this engineering study and report, Williamson County decided to hire an engineering firm to do another study to determine how to provide sewer service to the Subdivisions. After Williamson County completed its study, the County began negotiations with Lynwood about treating the waste water from the Subdivisions provided the County and the

Mr. Vojin Janjic, Manager Permit Section
September 7, 2010
Page 2 of 2

homeowners in the Subdivisions financed the collection system to transport the sewer to Lynwood for treatment. These negotiations began in earnest in the spring of 2005. Lynwood representatives had several meetings and conversations with the Williamson County Mayor, the County engineering firm and the County's attorney on this project to negotiate an agreement which would make it economically feasible for Lynwood to provide sewer service to the residents of these Subdivisions. These meetings included discussions about the County's construction of the collection system, Lynwood's costs to provide treatment for the additional flow and Lynwood's takeover of the collection system and included negotiations on the specific terms of an agreement. The County's engineer submitted plans for the construction of the collection system for review by Lynwood. These negotiations continued until the spring of 2009.

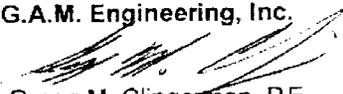
After Williamson County began negotiations with Lynwood to provide sewer service to the Subdivisions, Williamson County began having simultaneous negotiations with the City of Franklin about providing sewer service to the Subdivisions. Ultimately, the County entered into an agreement with the City of Franklin to provide sewer service to these Subdivisions. I have enclosed a copy of the Agreement between Williamson County and the City of Franklin dated April 9, 2009, setting for the terms and conditions under which the City of Franklin will provide sewer service to the residents of the Meadowgreen, Hillsboro Acres, Brownwood and Farmington Subdivisions. The collection system to serve these Subdivisions is currently under construction.

The purpose of reserving 0.125 MGD in Lynwood's permit was to allow the Subdivisions the opportunity to use this capacity to treat their sewer because of failing septic systems in these Subdivisions. The residents of these Subdivisions no longer need this reserved capacity since the City of Franklin has agreed to treat their waste water. Therefore, the purpose for reserving this capacity in the Lynwood treatment plant no longer exists. Lynwood has complied with the conditions for the release of this 0.125 MGD in its existing permit.

Lynwood respectfully requests that the requirement that it reserve 0.125 MGD of its capacity be removed from its proposed NPDES permit. The release of this reserved capacity will permit Lynwood to use this capacity to serve future growth within its service area. The release of this reserved capacity will not adversely affect the daily operation of the Lynwood plant since it has been designed and constructed to treat an average daily flow of 0.40 MGD. Continuing the 0.125 MGD reserved capacity in the proposed permit is not in the public interest. The release of this capacity will permit future homes in Lynwood's service area to have sewer service which will give Lynwood the opportunity to improve its financial condition increasing its ability to make improvements to its plant and collection system to produce quality treated effluent entering the Harpeth River.

If you have any questions or need additional information please feel free to contact me.

Sincerely,
G.A.M. Engineering, Inc.


Gregg M. Clinger, P.E.

Cc: Tyler Ring, Don Scholes

RECEIVED

SEP 8 2010

Permit Section

Note:

Attachment – April 9, 2009 Agreement Available in Division's Permit File

Division's Response For Lynwood Utility Corp. STP Public Hearing Written Comments

The division no longer considers the permittee's reserve capacity to be relevant because of its change to a not-for-profit corporation without TRA oversight, and permit finalization elements warranted. The Lynwood Utility Corp. STP's name change occurred from the division's standpoint per a July 29, 2010 letter from Tyler Ring (President) to the division, announcing its name as Berry's Chapel Utility, Inc. The finalized permit for the previously named "Lynwood Utility Corp. STP" is now "Berry's Chapel Utility STP", with the same NPDES permit number TN0029718.

Cartwright Creek, LLC – Grassland STP TN0027278 - Public Hearing Written Comments

From: "Bruce E. Meyer" <bmeyer@sheafferinternational.com>
To: Gary Davis <Gary.Davis@tn.gov>
CC: Delmar Reed <dreed@sheafferinternational.com>, "Robert I. Cochrane" <rco...
Date: 9/10/2010 4:46 PM
Subject: Cartwright Creek's draft NPDES Comment

Gary,

As a follow-up comment to the public hearing testimony last week: The reuse of Cartwright Creek's effluent at the golf course could result in a substantial reduction of effluent volume and nutrients to the Harpeth River during summer months. Please consider reviewing and adjusting the concentration limits for total nitrogen, ammonia, and phosphorus to reflect the reduction in total mass loading in the event treated effluent is used on the golf course.

Please contact me if you have any questions.

Thank you,

Bruce Meyer
Sheaffer Wastewater Solutions, LLC
Manager of Cartwright Creek, LLC

1551 Thompsons Station Road West
P.O. Box 147
Thompsons Station, TN 37179

Office: 615-261-8600
Mobile: 615-714-7868
bmeyer@sheafferinternational.com<mailto:bmeyer@sheafferinternational.com>
<mailto:bmeyer@sheafferinternational.com>

Division's Response For Cartwright Creek, LLC - Grassland STP Public Hearing Written Comments

As shown in the Addendum to Rationale, the division has included alternative summer monthly average total nitrogen and total phosphorus concentration limits based on reuse via the golf course. Due to antibacksliding provisions, no reuse adjustment was included for ammonia-nitrogen.

HRWA - Public Hearing Written Comments



**HARPETH RIVER
WATERSHED ASSOCIATION**

September 10, 2010

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

Re: NPDES permits:
Franklin STP TN0028827
Lynwood Utilities STP TN0029718
Cartwright Creek LLC STP TN0027278

Mr. Davis,

I am submitting comments to the above proposed permits that are in addition to those submitted in December 2009 on behalf of the Harpeth River Watershed Association. The attached graphs of dissolved oxygen from several studies conducted by HRWA and TDEC indicate that the Harpeth River is not meeting state standards for dissolved oxygen during the summer months. While there are non-point source contributions to this problem, especially in the headwaters near Eagleville, the addition of sewer effluent at the limits of the draft permits amounts to further degradation and contributes substantially to the failure of the receiving water to meet state standards for dissolved oxygen downstream of Franklin, a direct violation of the Clean Water act and the Tennessee Water Quality Control Act.

In accordance with the CWA "anti-backsliding rule," all three permits need to have the same limit set for each parameter based on the tightest of either the EPA's TMDL, the most stringent limit among the three permits currently in place, or what each permittee is currently achieving. In addition, the permits for all three STPs should be bubbled together into a watershed based permit. All three plants are within relatively close proximity to each other with little additional watershed flow input during the summer low flow season. From a regulatory standpoint, it would make sense to bundle them into one overall permit with the one overall load for each pollutant allocated fairly among them, perhaps based on flow discharge.

All three permittees as a group should be required to monitor the river in real time for DO, in a fashion similar to the USGS Real Time data available on the web. The current state of technology makes this very doable, and by combining efforts, i.e. sharing sampling points and data, this should be very cost effective. This is currently being done in Kansas. One of the shortcomings of the TMDL was the lack of enough good data and real time data from at least four points along the river would not only provide plenty of data points to model the river, but data to verify and/or calibrate the model and evaluate the permit limits now and in the future.

Finally, the permittees should be encouraged to help improve water quality upstream where non-point sources are the main problem. Discharging into a river that is already impaired is not permitted under state and federal law, so improving water quality above the point sources should be in the permittees best interest.

With the proposed limits, water quality in the Harpeth River during the summer low flow months will at best, not improve, and more likely, decline as more growth occurs. Imposing tighter limits now will most likely be much more cost effective than waiting for water quality to decline further and having draconian measures imposed in the future.

Our concern at HIRWA is the health of the Harpeth River now and into the future. We believe this is achievable in spite of the explosive growth this area has been experiencing, but it takes forward thinking about more than the current state of the economy. The Harpeth River provides economic services to the communities that it flows through, both direct and indirect, and care needs to be taken to insure that it is able to continue, and even increase those services in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Cain". The signature is fluid and cursive, written over a light blue horizontal line.

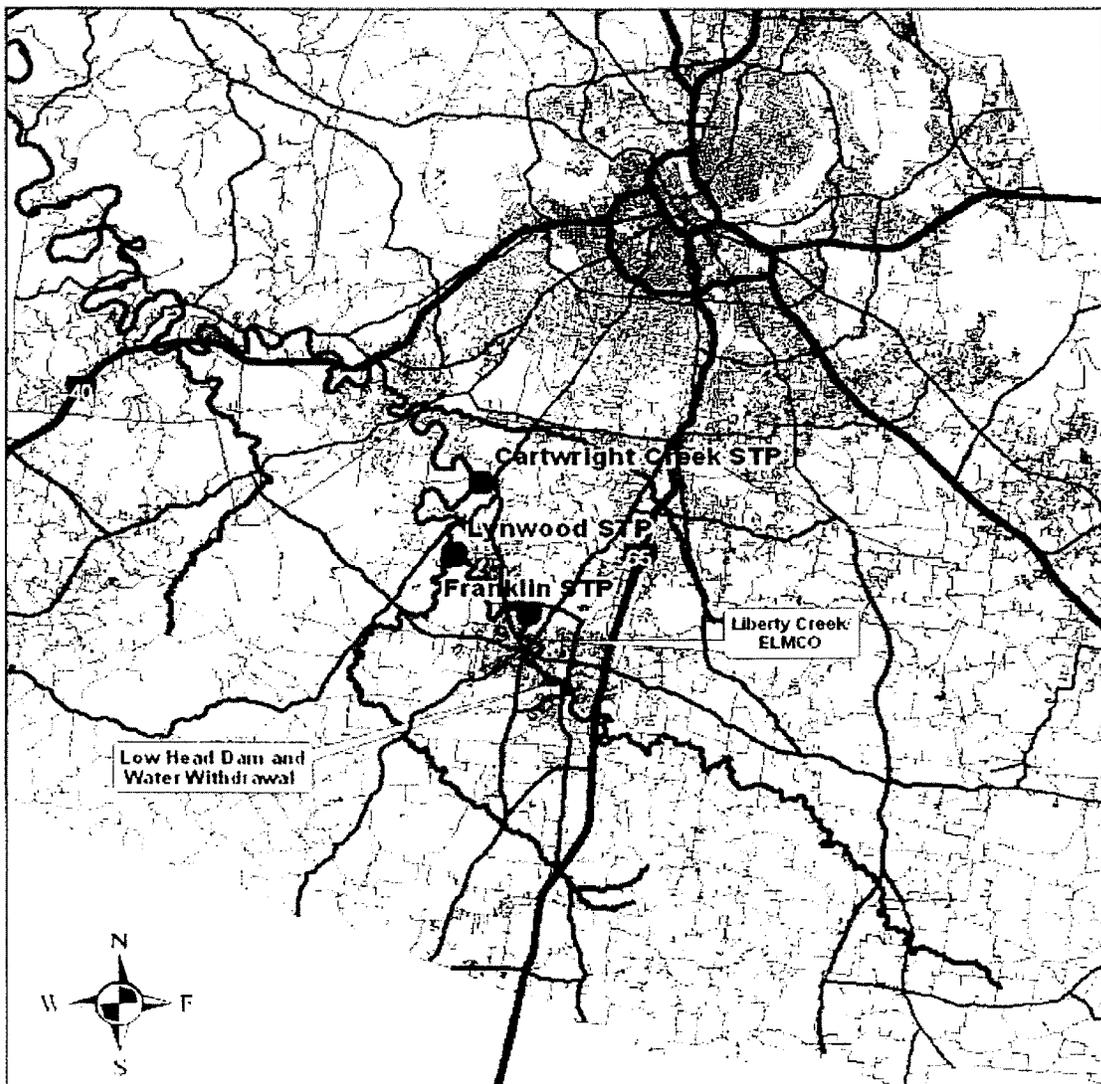
Michael Cain
Watershed Assessment and Restoration Manager
Harpeth River Watershed Association
michaeltcain@harpethriver.org, (615) 790-9767 ext 102

Attachment:



**HARPETH RIVER
WATERSHED ASSOCIATION**

**Dissolved Oxygen Study Charts
2006, 2007, 2008**



This map created for Harpeth River Watershed Association by M Cain using ESRI software and data from tngio.org and data gathered by HRWA staff.

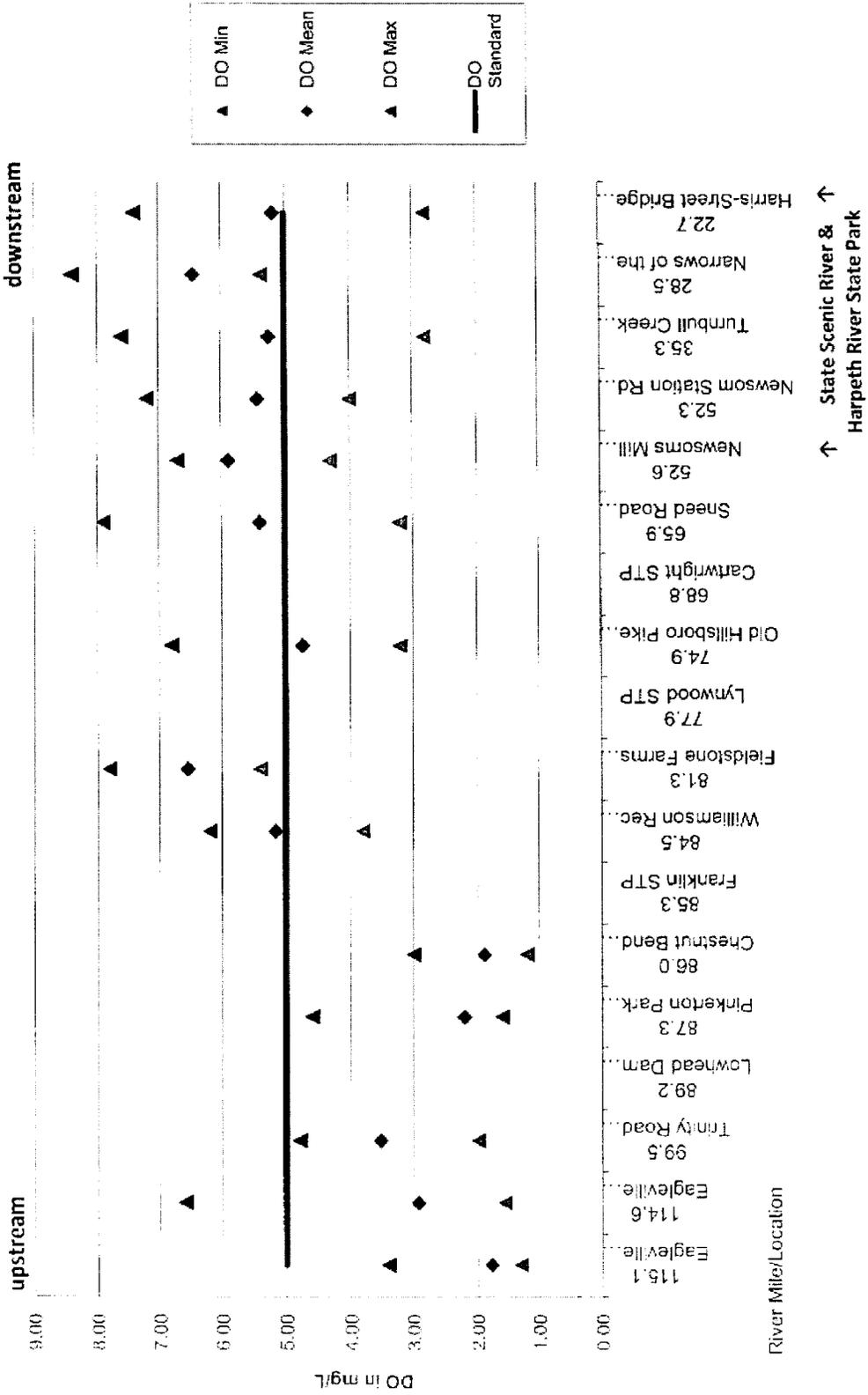
0 1 2 3 4 5 6 7 8 9 10 Miles

Studies by HRWA, including these charts are available at www.harpethriver.org/library



September 2006 Harpeth River Dissolved Oxygen Study

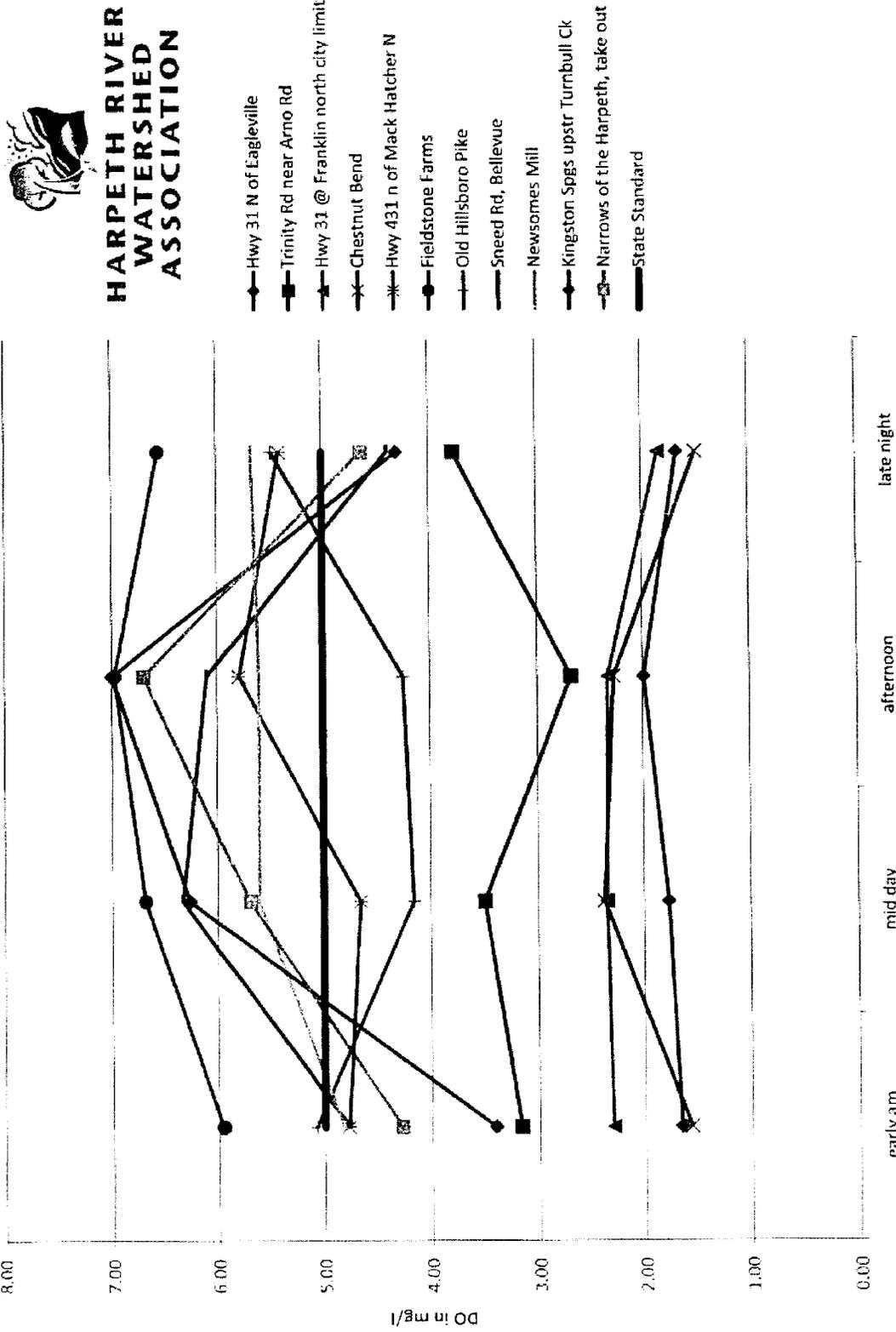
min - average - max in mg/liter



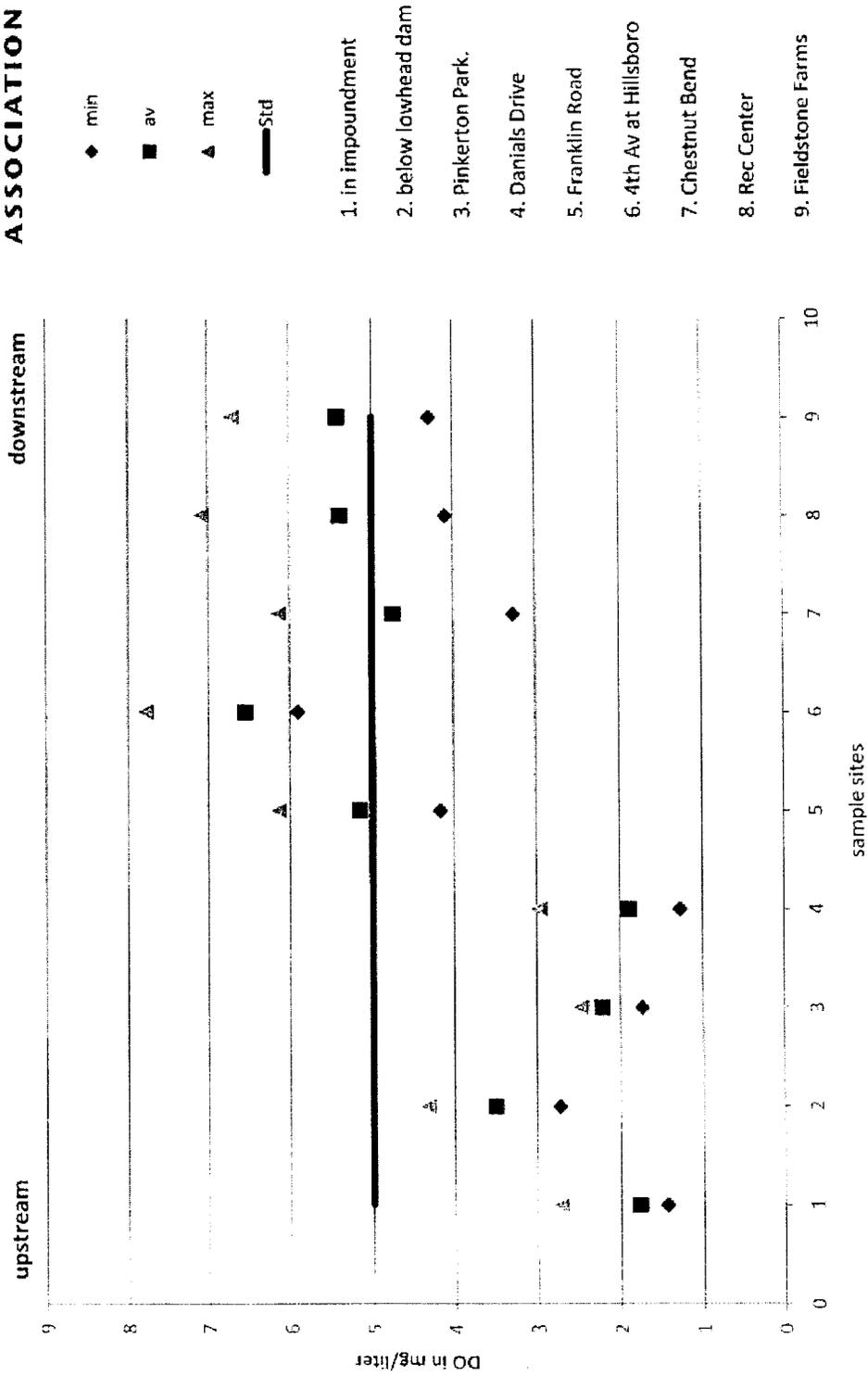
River Mile/Location

↑ State Scenic River &
 Harpeth River State Park

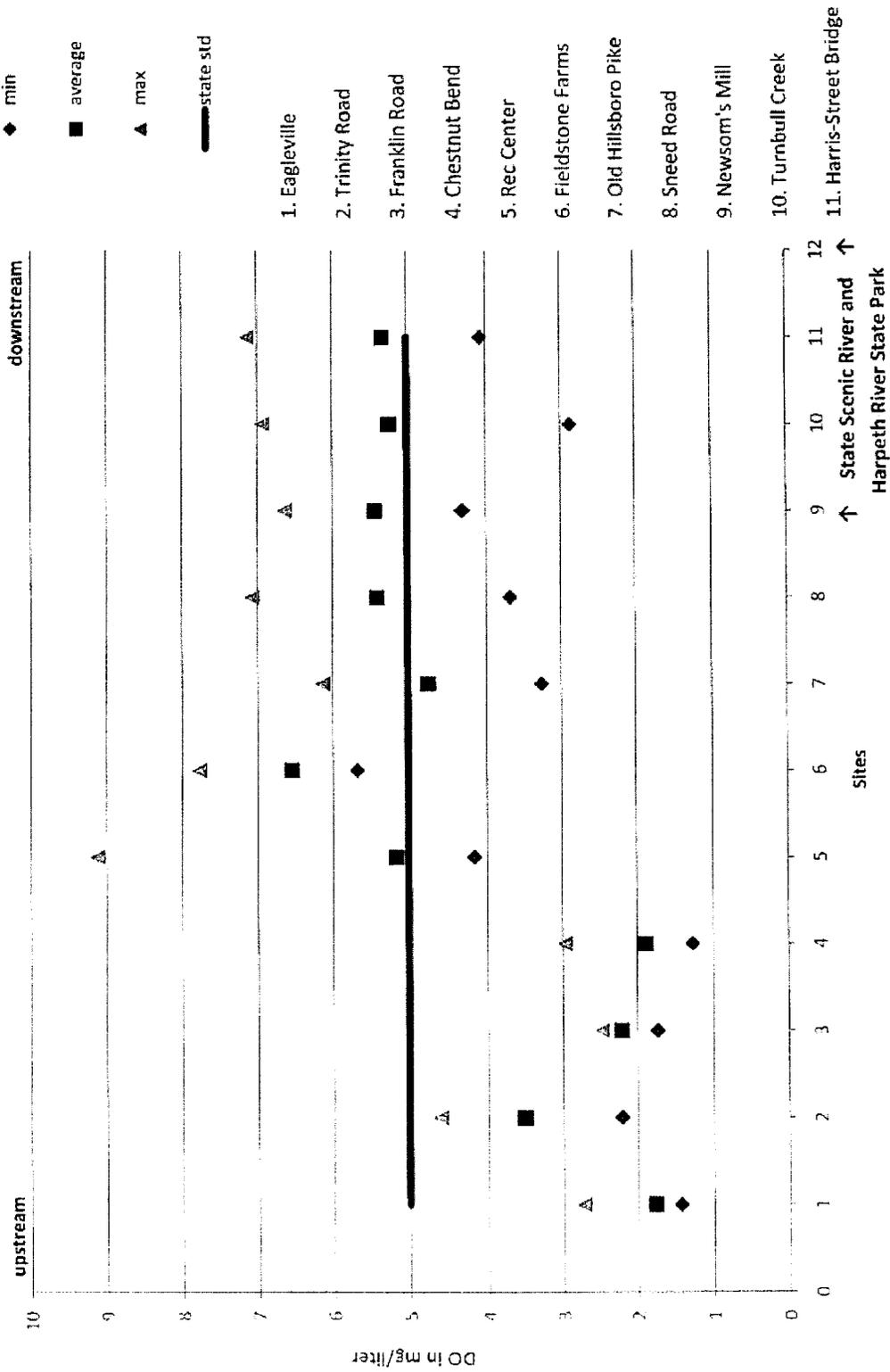
September 2006 Harpeth River Dissolved Oxygen Study



June-July 2007 Harpeth River Dissolved Oxygen Study



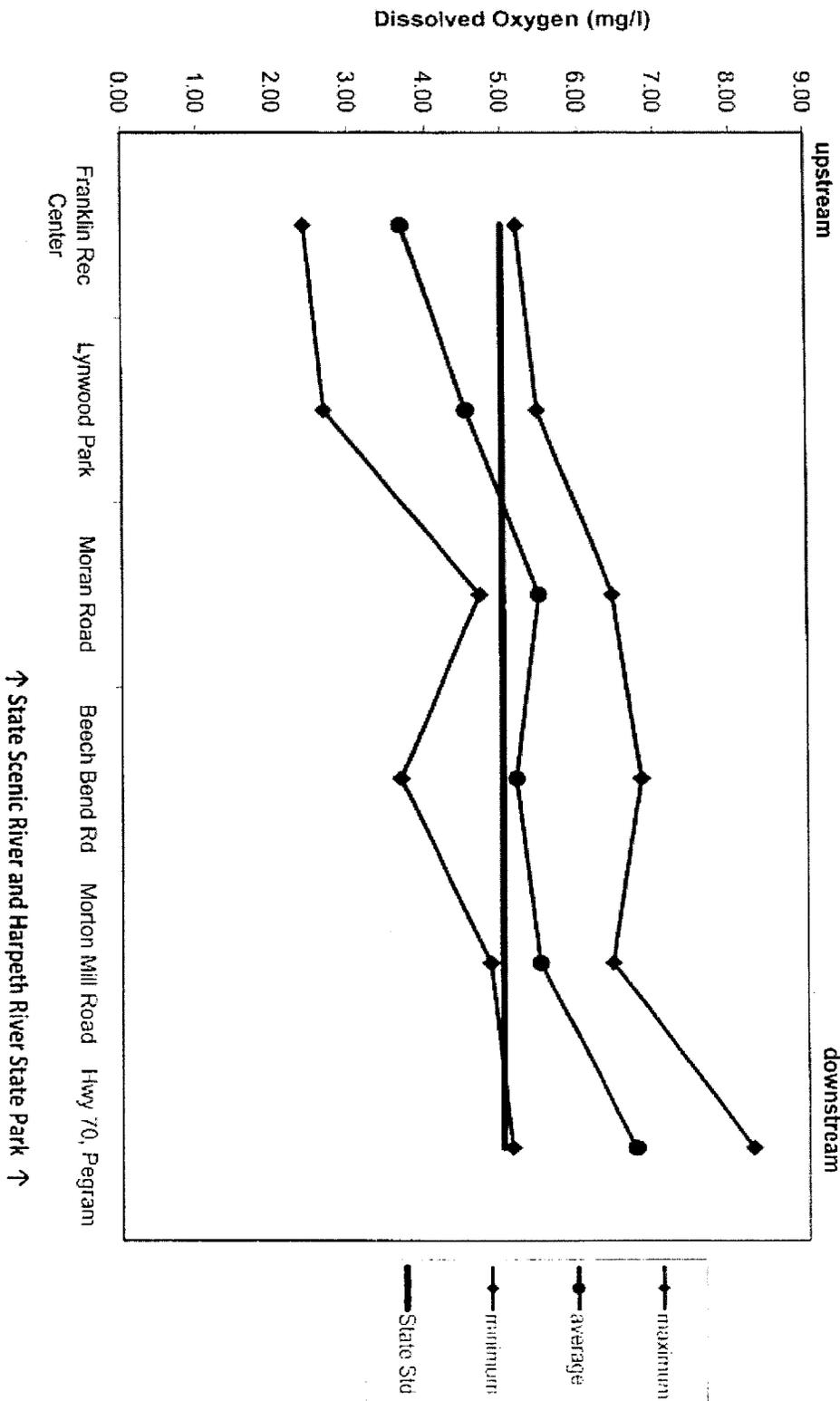
September 2007 Harpeth River Dissolved Oxygen Study





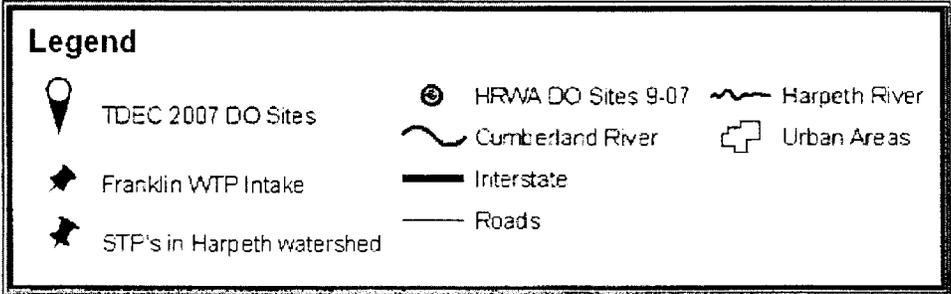
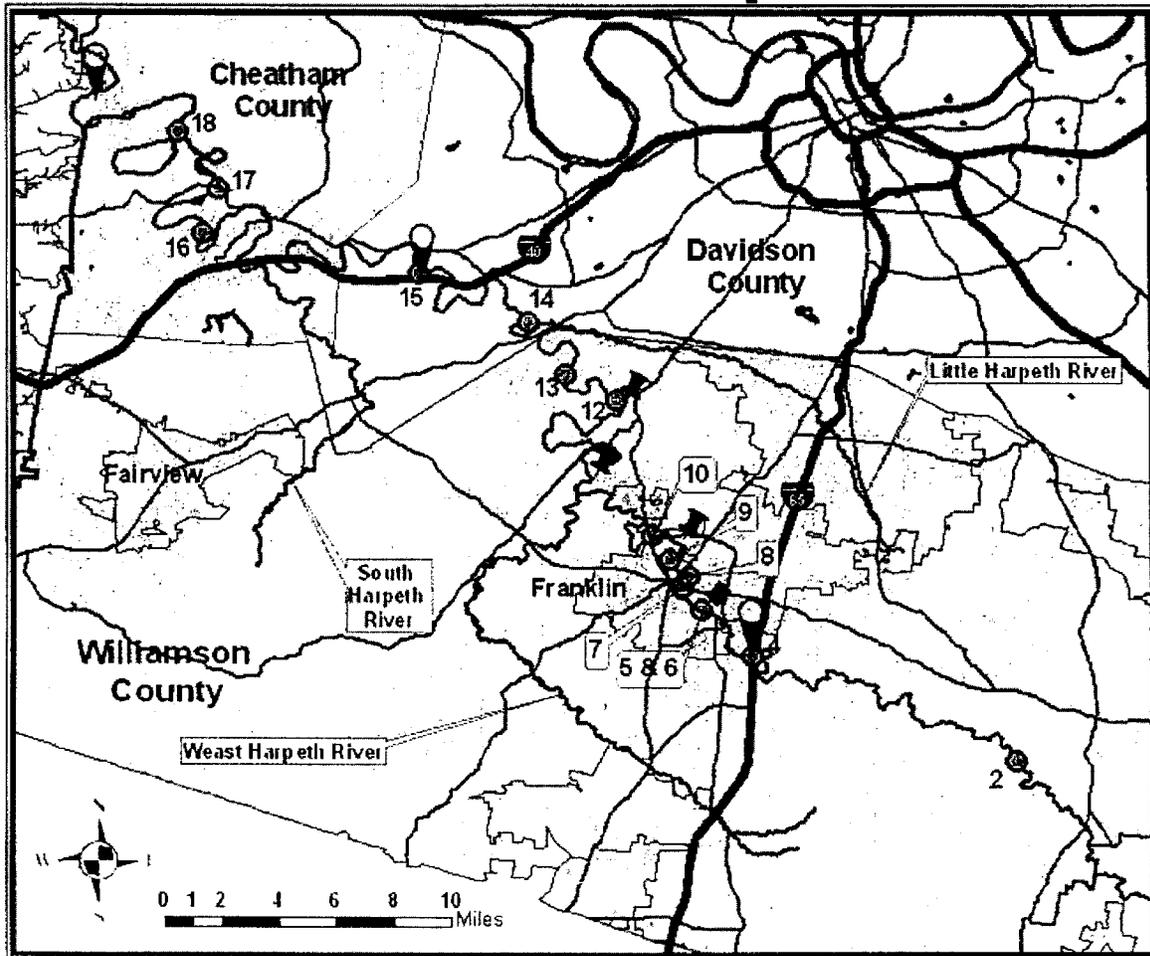
2008 Harpeth River Dissolved Oxygen Study

min - average - max in mg/liter



↕ State Scenic River and Harpeth River State Park ↕

Harpeth River Watershed Association Fall 2007 Dissolved Oxygen Study Site Map Overview Map



This map was created for HRWA by Michael Cain using ESRI software and data from InGIS.org and from data generated by HRWA & TDEC staff

Division's Response For HRWA's Public Hearing Written Comments

EPA's TMDL addressed the three permittee discharges and with distinct allocations to each. Instream diurnal monitoring requirements are included in Franklin STP final permit. The permittee may decide to provide the data real time on the web. Franklin STP's final permit includes the IWMP development/implementation. Within the context of providing the most useful data, the division would agree with additional instream monitoring stations for the IWMP investigations. The division expects non-point sources to also be considered during the IWMP evaluations and the defining of upgrade options.

The HRWA layout drawings and dissolved oxygen graphs provide useful information that will be further evaluated and supplemented pursuant to Franklin STP's finalized permit.

Other – Public Hearing Written Comments

Several individuals sent the division emails regarding water quality/recreational Harpeth River concerns.

Division's Response For "Other" Public Hearing Written Comments

The division has provided additional information for those making written comments, and the finalized permits will be emailed to all interested participants.