STATE OF TENNESSEE

Office of the Attorney General

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May 8, 2026

Chairman David Jones
c/o Ms. Tory Lawless, Docket Manager
Tennessee Public Utility Commission
502 Deaderick Street, 4th Floor
Nashville, Tennessee 37242-0001

In Re: TPUC Docket No. 24-00044 Limestone Rate Case; TPUC Docket No. 21-00053 Acquisition - The Grasslands

Dear Chairman Jones:

On April 30th, 2026, the Tennessee Department of Environment and Conservation ("TDEC") sent Limestone a Notice of Determination letter for the Grassland wastewater system (NPDES # TN0027278); On May 1,2026, TDEC sent a Permit modification for the same system. The Consumer Advocate Division of the Tennessee Attorney General's Office ("Consumer Advocate") has reviewed the letter and the permit modification. It is the Consumer Advocate's position that both documents should be filed with the Commission since it addresses the concerns of Grassland customers about a TPUC-regulated utility as well as the permit modifications that will be applied to the utility system.

The failing Grasslands wastewater system is the subject of multiple TPUC dockets. Limestone filed a copy of the permit in TPUC Docket Nos. 23-00036 and 24-00020. However, the Consumer Advocate respectfully requests that this letter and exhibit be filed in the two additional above-referenced TPUC Docket Nos: 24-00044 and 21-00053.

Sincerely,

Karen H Stachowski

Karen H. Stachowski
Deputy Attorney General

cc: Melvin Malone
Kelly Casham Grams, TPUC
David Foster, TPUC

NOTICE OF DETERMINATION

Limestone Water Utility Operating Company, LLC
Modification of NPDES Permit No. TN0027278
Permit Writer: Wade Murphy
Date: April 30, 2026

INTRODUCTION

This document provides the purpose of the permit action, identifies changes to the permit, summarizes public comments & responses, and summarizes the basis for the action.

PURPOSE OF THIS ACTION

This modified permit:

- Adds terms and conditions for operation and discharge from a new wastewater treatment plant with an increased design capacity to 0.45 MGD (from 0.25 MGD).
- It provides the permittee with a foundation to proceed with bidding and contract award for the construction of the new treatment process.
- It also provides an opportunity for aggrieved persons to appeal terms and conditions of the modified permit. Aggrieved persons are persons who have submitted a written comment during the public comment period on the permit, given testimony at a formal public hearing on the permit or attended a public hearing as an interested party as evidenced by signing the attendance record.

CHANGE TO THE PERMIT

The Division made one change to the permit in consideration of public participation content. The Division changed the narrative condition in Part 1.1.4 so that the permittee must provide TDEC with a copy of the daily operating recording format for monitoring process controls (ORP, DO, TSS, etc.) within 90 days of the modified permit effective date rather than at plant start-up. The operating record format will identify for the operator(s) the measurements and frequencies of measurement that they will use to supervise plant activities and performance of the Aerobic Granular Sludge (AGS) process. The Division makes this change so that the permittee has the time during the construction phase to finance, hire, and train the operating staff who will be integral to the successful operation of the new technology at initiation of its operation.

SUMMARY OF COMMENTS

The Division grouped comments and responses into the following subjects:

I. Neither a TDEC nor a Water Quality Concern
II. A TDEC Concern but not a Water Quality Concern
III. Permit Concerns

Note to Readers: In preparing this document, the Division summarizes comments. It is not the intent to overlook or misrepresent any comment. The Division has posted all comments and supplemental documents received in their unedited forms in the file record for this permit. These documents may be viewed in the Limestone Water Utility Operating Company, LLC permit file on the Division's Water Resources Permits Data Viewer:

Enter the permit number, TN0027278, in search field of the "Permits" tab on this webpage: https://dataviewers.tdec.tn.gov/dataviewers/f?p=2005:34001:10389916873135:::RIR:: Click on the permit number link when the query returns a result.

I. Neither a TDEC Nor a Water Quality Concern

Most of the public comments received were not on specific terms and conditions of the proposed permit. Additionally, the subject of many of the comments do not fall within TDEC's regulatory jurisdiction to regulate. However, this document summarizes and provides responses to the comments on the following subjects for the benefit it may provide to this public participation process:

1. Public Hearing Disappointment
2. Neighborhood Impacts
3. Protection of Neighborhood Interests
4. Mistreatment By The Utility
5. Utility Takeover
6. Manhole Locations
7. Maintenance of Recreation Road
8. Recreation Area Traffic
9. New Sewer Taps
10. Service Priority
11. Community Negotiation
12. Better Utility Communication
13. Construction Contingencies

1. Public Hearing Disappointment

We want it in public record that the utility dismissed us like we do not matter at all to them by leaving at the end of the informational session and not hearing our public comments at the public hearing. Many residents prepared thoughtful remarks and personal testimony, so departure demonstrated a troubling disregard for the very customers they serve.

The Division understands the displeasure and hereby includes this comment in the record. The permittee was not obliged to attend the public hearing or the informational session that preceded it. The purpose of the hearing was to receive comments on the terms and conditions of the draft permit and particularly on the limits established to protect the Harpeth River water quality.

2. Neighborhood Impacts

This new plant will be a huge impact on the neighborhood creating unwanted light, noise, smell, and visual pollution, and will undermine property values, neighborhood stability and public trust. What options are suggested for smell management? Will the same treatment chemicals be used? Can we expect the same smell level with the new plant? What noise decibel level shall we expect from the operation of the plant as a whole? Can sufficient landscaping or noise barriers be written into the permit to offset the size and scope of the new plant, such as placing the blowers in noise attenuating enclosures?

The Division does not have authority to regulate light, noise, odor, aesthetics, property values, neighborhood stability, or public trust, so the Division cannot defensibly address or regulate those factors in a water quality discharge permit. A water quality discharge permit issued pursuant to the Tennessee Water Quality Control Act (Act) is to maintain the quality of water in the receiving stream so that it remains suitable for designated uses like fish and aquatic life, swimming, and water supply. Noise abatement, sewage smell, facility height, and road damage are not related to water quality in the Harpeth River and cannot be addressed in the permit.

3. Protection of Neighborhood Interests

Protect our environment. Protect your constituents and their common interests.

It is on Limestone Water Utility Operating Company, LLC, (Limestone) a subsidiary of Central States Water Resources, to protect the environment by meeting the terms and conditions in its sewerage system operating/discharge permit issued by TDEC and by fulfilling the terms and conditions in its TDEC-issued enforcement orders. Beyond that, state law and Division regulation put the onus on the design engineer of record to protect public health and safety with the infrastructure design. The Division has ensured that the sewerage system is the responsibility of both an engineer and engineering firm licensed to do business in Tennessee. As a profession, engineers are regulated by the Board of Architectural and Engineering Examiners in the Department of Commerce and Insurance, not TDEC.

4. Mistreatment by the Utility

This community has been mistreated by a utility who took $700,000 of the community's money to address necessary improvements but who will now upgrade the facility to increase profits at a great disadvantage to the neighborhood. The utility told us they would fix our system when they bought it, and they have not, but did shamefully raise our rates and TDEC should be better. We are concerned about what appears to be the complete disregard to our community and lack of any real control over the plant and its owners.

Privately owned public utilities such as Limestone are regulated as a utility service provider by the Tennessee Public Utility Commission (TPUC). The Consumer Services Division (CSD) within the TPUC is responsible for balancing the interests of both consumers and regulated utility companies. The CSD mediates complaints filed against regulated utility companies and enforces the rules and regulations of the TPUC. The Division does not have the legal authority to investigate or address allegations of mistreatment of customers by companies.

5. Utility Takeover

TDEC should publicly take Limestone over or force Limestone to sell if they continue to show disregard for operating the sewer system.

Limestone is the owner of the sewerage system and TDEC does not have the jurisdiction to infringe on the company's right to own and to use its property. Property transfer happens through lawful agreements between buyers and sellers or by action in a court with jurisdiction over the matter.

6. Manhole Locations

Can there be a requirement in the permit for Limestone to identify their manhole locations and maintain a clear path?

A state water quality permit does not, and cannot, convey any rights or privileges related to property. Any action to identify manholes or maintain a clear path for access should be coordinated with the property owners.

7. Maintenance of Recreation Road

Require the operator to restore and maintain Recreation Road within the River Rest Subdivision to offset construction damage and avoid placing the repair burden on residents. Can something in the permit include maintaining a safe roadway during the construction phase of the project? We are reviewing options for long-term maintenance of the roads leading to the plant. We need assurance (with penalties for negligence) that the utility will maintain the road.

TDEC has no lawful authority to require a person to fix roads or the property belonging to others. Ultimately, transfer of property (in this case resources for repairs) is a civil matter for the court to decide if the parties cannot agree on a solution.

8. Recreational Area Traffic

We are worried about truck traffic through the neighborhood's children's play area. The new plant will be through 300 yards of HOA common ground via non-public access. The current access is via permission. I knew the original developer, Reese Smith, 40 years ago, and he said the plant was not intended to be expanded, which is why it is land locked by the River Rest Community and Harpeth River. If expansion had been intended, it would have been designed with a public access road.

Certainly, truck traffic through a public recreation area, and especially a kids play area, is a valid concern. However, it is beyond the scope of a water quality discharge permit to regulate road use. As in the previous answer, use of the HOA common ground is an issue for the property owner(s) to address with the utility.

9. New Sewer Taps

I would love to see an enlarged treatment plant that allows more taps. Will this expansion provide a tap for a parcel at 2400 McIntyre Court in the Sneed Forest Community?

The Division cannot know what properties will receive sewer taps because taps are issued by the utility based on property owners meeting utility requirements for a tap.

10. Service Priority

There needs to be capacity prioritization to ensure existing Grasslands residents are prioritized for service improvements and increased capacity of this plant before new development hookups are approved.

Pursuant to Rule 0400-40-05-.07(2)(e), this permit does not convey property rights of any sort, or any exclusive privilege. Capacity prioritization cannot be addressed in the permit.

11. Community Negotiation

The utility will not be held accountable, so we need government to step in and make sure the utility treats the community appropriately. Bring our neighborhood to the table and other concerned parties so that we can find a solution to this problem together. The expansion should be the same as the existing design with low profile, no lifting tower, no noisy generators, and no outside lighting.

The Division has no jurisdiction for, or expertise in, dispute resolution. The Division is tasked with implementing Rule 0400-40-02 which requires, pursuant to TCA Title 62, Chapter 2, that a professional engineer licensed in Tennessee plan, design, and inspect construction of treatment works that will discharge pollutants to waters for public health and safety. The Division therefore cannot condone citizens' planning of public utility infrastructure. The Division also may not dictate which professional engineer the utility hires to address the poor condition of the existing treatment plant that has outlived its useful life, nor dictate the terms of the professional agreement for services.

Engineers typically design treatment plants so that raw influent is pumped to the head of the plant at an elevation that enables gravity flow throughout the treatment units to avoid pumping costs. Also, remaining outside of the river floodplain can impact the design layout. Ultimately, the engineer of record is responsible for ensuring the integrity of the design within the project. As in any other profession, omissions, mistakes and malpractice are civil matters between the parties.

12. Better Utility Communication

We need details in the permit outlining how they plan to work with the HOA and beyond in communicating the compliance schedule, the sewer overflow response plan (SORP) and a public response guideline. We need better communication with this company.

The permit may only lawfully establish effluent limits and operating conditions that reduce the discharge of pollutants and protect the quality of the water in the Harpeth River.

13. Construction Contingencies

We want to ask that approval to begin construction be contingent on a formal agreement in place between River Rest HOA and CSWR-Limestone.

The construction of this facility is not being funded with public grant or loan funds, so TDEC has no authority to impose conditions in the construction contract. Even when construction is publicly funded, it is beyond the scope of TDEC's authority to require a grant recipient to engage in agreements desired by third parties.

The permit does not include a compliance schedule for building the facility nor does it specify actions to address chronic overflows now rather than wait for the new plant to be constructed.

The construction schedule will be between the utility and the construction contractor once a construction contract is awarded. The current NPDES permit prohibits overflows, so the treatment plant upgrade process does not exempt the utility from avoiding treatment plant bypasses or collection system overflows and releases.

II. A TDEC Concern but Not a Water Quality Concern

Because of the Division's broad statutory and regulatory responsibilities, many people did have comments that are under TDEC jurisdiction, but which cannot be addressed via this permit action. There are:

1. Permit Denial
2. Expanded Treatment Plant is Unnecessary
3. Corrective Actions
4. Increased Inspections
5. Engineering Design

1. Permit Denial

Deny this modification. Deny the permit as-is because the comparative evidence about CSWR across six states makes the case that failure is not just possible but predictable. A denial will direct Limestone to replace the treatment plant in the best way possible.

Division regulation establishes permit denial as an action that is to be public noticed by the Division to give the applicant due process to object. In this case, the Division public noticed the intent to modify this permit. Denial would require both another public notice and for the Division to have a defensible basis for such action. A defensible basis would relate to the permit not being able to comply with technology-based and water quality-based effluent standards including the antidegradation provision of the state water quality standards. It is the Division's determination that the permittee's application did not meet this threshold for denial.

2. Expanded Treatment Plant is Unnecessary

The narrative that we must accept this expansion to get a safe and functional plant is subject to disagreement. TDEC should not allow this now just because it failed to properly regulate past operators. The narrative that this expansion is necessary because the current plant is beyond capacity is also subject to disagreement because the problem is excess inflow and infiltration. If the I/I is addressed, the existing design flow rate should be able to serve 278 additional service connections.

The Division has determined via inspection that inflow and infiltration are only one of the system's problems. The Division issued Consent Order and Agreement WPC22-0086 to the Respondent on February 13, 2023, for failure to properly operate and maintain a wastewater treatment facility, failure to maintain laboratory equipment, and failure to properly perform laboratory procedures. Limestone received the order because it is the current owner of the facility, but not because Limestone neglected to maintain the facility over its 50-year life. The order required Limestone to submit a corrective action plan/engineering report describing all steps necessary to address the degraded conditions of the treatment structures. Limestone hired Goodwyn Mills Cawood, LLC (GMC) to evaluate alternatives and recommend solutions for the treatment plant infrastructure problems.

3. Corrective Actions

There needs to be a compliance schedule with defined corrective actions for current deficiencies and a detailed completion timeline, with periodic reporting to TDEC. There need to be enforceable deadlines that include measurable milestones and clear enforcement procedures for any missed deadlines.

Corrective actions, compliance schedules with periodic reporting, and penalties for missed deadlines are elements of enforcement actions. A discharge/operating permit is not an enforcement action. The National Pollutant Discharge Elimination Systems (NPDES) permit establishes effluent limits and other operating boundaries for the wastewater treatment plant and its discharge necessary to protect water quality.

There needs to be leak and overflow prevention that requires proactive maintenance, inspection, detection and emergency response plans to prevent future occurrences.

The proposed permit, like all permits issued by the Division to entities with collection systems, requires the permittee to operate its collection system to prevent overflow and release of raw sewage. All collection systems are different, however, so it is impossible for the Division to specify specific maintenance, inspection, detection, and emergency response requirements for each individual system. It is on owners and their design consultants to develop and implement such plans to comply with the bypass, overflow, and release prohibitions in the permit.

The permit primarily addresses the treatment component and does not fully account for deficiencies within the collection system. Treatment capacity alone does not resolve systemic issues within the broader collection system. Ensure that both the treatment facility and the full collection system are comprehensively evaluated and addressed as part of any approval process. Require demonstrated and independently verified sustained compliance and operational stability under existing permit capacity, clear demonstration that recent overflow events have been permanently resolved, confirmation that the facility is not subject to violations that would affect its ability to legally accept additional capacity, and a defined and enforceable plan to ensure environmental protection during any construction or system transition period.

It is true that the permit primarily addresses the treatment component rather than deficiencies in the collection system. The permit establishes effluent terms and conditions on the treatment plant and collection system on the basis that the infrastructure will be maintained to remove pollutants and to convey sewage without bypass, overflow, or release. The permit requires that the permittee operates the collection system to *prevent* overflow and releases. It is not the objective of the permit to imply that non-compliance is authorized by including terms and conditions for addressing and remedying non-compliance. The Act establishes several means of addressing non-compliance. Orders, such as the one under which Limestone has submitted the proposed corrective action plan for replacing its aged wastewater treatment plant, is one such means that includes a compliance schedule and periodic reporting to TDEC. It is beyond the scope of the permit to direct utility operations or to regulate to whom the utility provides its utility services.

4. *Increased Inspections*

Provide monthly or bi-weekly inspections due to Limestone's failures to self-report and their sloppy cleanup.

Division staff perform routine inspections of wastewater facilities state-wide per commitments made to the Environmental Protection Agency under Tennessee's federally delegated authority to implement water quality permitting in Tennessee. This permit cannot mandate changes to the inspection schedules or a reallocation of state resources for inspections.

The permit requires the permittee to report permit violations to TDEC, so non-reporting of known overflows and releases is a permit violation. The Act establishes remedies for non-compliance including violations of permit conditions. The Division is required to pursue such remedies in compliance with laws and regulations that establish procedures for due process of law. These processes take effort and time to defensibly document and implement.

5. *Engineering Design*

There needs to be engineering verification to ensure all design and capacity calculations are documented and demonstrate the system's ability to meet operational and effluent requirements.

Licensed professional engineers have a fiduciary responsibly to protect the public health and environment while implementing the scope of engineering services contracted with the client. The Act requires that engineering plans be submitted to TDEC for approval. The Act then specifically establishes that no such approvals of engineering plans by the state, "shall be construed as creating a presumption of correct operation nor as warranting by the commissioner that the approved facilities will reach the designated goals."

The pivotal requirement of Rule 0400-40-02 have not been met. Use of a computer program by the vendor to justify design requires calibration and satisfactory demonstration with real world systems. This is not provided. The commenter notes that the report indicates that the plant needs to be sized to meet a hydraulic flow of 0.60 MGD but then opts for a 0.45 MGD plant with no justification. The smaller plant is more vulnerable to treatment upset during high flows and the conversion of the existing treatment basin to an equalization basin provides even less protection against inadvertent plant bypassing. No remedy is discussed.

Again, the law requires the owner to document for the record that the sewerage system infrastructure has been designed by a Tennessee licensed professional engineer and exempts TDEC's approval from a presumption that the design will achieve intended goals. The state design criteria, *Design Criteria for Review of Sewage Works Construction Plans and Documents*, is a collection of accepted engineering practices but are not enforceable regulations or requirements. The Division does not have the authority to direct professional work product. The fiduciary responsibility for the treatment plant design and its operating plan is on the design engineer of record.

The preliminary engineering report explains that the 0.60 MGD is the maximum flow rate determined by multiplying the monthly average design flow rate of 0.45 MGD by the peak hourly flow rate of 1.35 (0.45 x 1.35 = 0.61). The preliminary engineering report says the 0.60 MGD is a hydraulic design flow. Hydraulic design flow, which refers to how much water can be pushed through the treatment units is different from the treatment design flow. The hydraulic flow rate is looking at only the water. The treatment design flow rate is looking at the quantity of pollutants in the flow that must be removed via treatment. A design engineer has to balance between these two rates in sizing the treatment basins so that pollutant removal is achieved without overflowing the basins.

Aerobic Granular Sludge (AGS) is advanced tech requiring chemical dosing, real-time multi-parameter monitoring, careful sludge management with backup haulers. It's better results when run correctly but demands significantly more skill and investment. This technology is unproven in Tennessee. Given the consistent failure of the utility to manage the facility, it is unrealistic to expect them to successfully implement a much larger system using technology that is unproven in the U.S. TDEC lacks the necessary trained staff to monitor this specific technology. The draft permit requiring the vendor to train TDEC personnel is a conflict of interest. A neighbor, Doug Turner, has found other technologies that would be much more efficient, effective and environmentally friendly.

The preliminary engineering report prepared by GMC says, "*While AGS reduces energy through microbial relationships, it does require frequent process testing to ensure treatment conditions are favorable for the reactions to take place. Additionally, AGS requires more operator interaction due to the plant operating in batches and requiring supervision and maintenance throughout the day to ensure the next run is successful. Compared to membrane systems where treatment is accomplished through filtration and the primary responsibility for operators is ensuring the membranes are cleaned and the blowers are serviced, AGS is more involved to operate.*" This is reason for the permit requiring that Limestone provide a daily operating recording format for monitoring process controls within 90 days of the permit effective date. The permittee can require the AGS vendor to either provide it or to help develop it. Limestone can then estimate and plan to have the resources available for operation at plant start-up.

More specifically, the permit requirement to obtain record-keeping training for the new system comes from Rule 0400-40-02, which prescribes roles for both the engineers and the Division. The rule requires that engineers licensed in Tennessee must assist in the start-up of and outline correct operating procedures for any new or altered wastewater treatment or water quality control facilities. It also says, "The Commissioner's representative shall instruct the person or the person's agent in the keeping of necessary records of operation and reports of analyses for the facilities and shall provide the person or his agent with a supply of official forms upon which such records shall be kept."

Regarding citizens devising solutions, it is unlawful pursuant to TCA § 62-2-101 for persons who are not registered to practice engineering in Tennessee to provide engineering consulting services or to provide consulting services. The Division therefore cannot condone citizens' planning of the future public utility infrastructure.

Mr. Cox stated at the information session that expansion and increased capacity was not for new development but to ensure functionality of the plant and this contradicts the design documents and

statements addressed to Serenity Hill and Nash Ridge developments. Has service to Tranquility Ridge been declined by Limestone?

The Division is not able to interpret statements made by Mr. Cox. Whether service to Tranquility Ridge has been declined by the utility is a question for the utility.

I have zero faith that a for-profit utility that has not taken care of existing problems and failures is ever going to act in good faith in operating a larger system that requires more resources to manage.

It is true that the need to 1) remain financially solvent and 2) to fund operation and maintenance can be competing demands in a for-profit company. Operation and maintenance are ultimately a function of financial resources. As a privately-owned public utility however, Limestone Grasslands is required by the Tennessee Public Utility Commission to impose user charges sufficient to cover the utility's operation and maintenance costs. For any utility, rates can be expected to increase over time due to inflation and increased operation and maintenance of aging equipment. The Division will be obligated to resort to future enforcement action if Limestone fails to comply with the modified permit via its new treatment system.

III. Permit Conditions

The Division received permit-related comments on the following:

1. Unreported Overflows
2. Overflows
3. Impact on the Harpeth River
4. Nutrients
5. Stricter Limits
6. Performance Review
7. SVI Limit
8. Mercury Limit
9. Certified Operator

1. Unreported Overflows

The utility has failed to notify neighborhood of overflows.

Limestone's sewer permit requires Limestone to notify TDEC within 24 hours of becoming aware of a violation that could pose a threat to human health or the environment. Overflows of raw sewage in public places poses such a threat but each incident is appropriately addressed on the case and site specifics. The permit does not require the permittee to notify the public. The permit also requires the permittee to take action to minimize adverse impact to waters resulting from permit violations and to post signs at chronic overflow locations. The Division refrains from additional overflow reporting. A water quality permit is not a device for communication between a utility and its customers, nor is it the vehicle to regulate communications between utility providers and their customers.

There have been six sewage overflows since December 2024 that have been documented and reported by residents that have not been self-reported by the permittee, and they are in the vicinity of the sewage treatment plant. What specifically has the utility replaced regarding the collection system and treatment facility?

The information is not readily available in Division files. Repair projects that do not alter the location or size of sewer lines or that are considered routine replacement of equipment do not have to be submitted to and approved by TDEC.

2. Overflows

What is the process required in the permit for communication of leaks and spills to the community?

The process imposed in the permit for communicating leaks and spills to the community is posting signs at chronic overflow or release locations. This permit prohibits overflows and releases. It is beyond the scope of the permit to prescribe responses for activities that are prohibited by the permit.

The draft permit does not have a specific description of continued assessment and rehabilitation of the sewer lines.

The Division's regulatory authority is to limit pollutants in the treated wastewater so that the water quality of the Harpeth River is not degraded, and to impose monitoring conditions so that Limestone can report proper operation of its sewage system. The Division has no authority to prescribe site-specific assessment and rehabilitation of sewerage system components.

Implement a true connection moratorium across the service area (or at least limit flow capacity to 0.25 MGD) until 1) targeted I/I rehabilitation is completed and verified, 2) twelve consecutive months of DMRs demonstrate sustained compliance, and 3) SSOs are eliminated systemwide - not merely reduced below the five events at the same location threshold.

This permit prohibits overflows. A discharge permit is not a mechanism for addressing non-compliance with the Act. Permit terms and conditions must have a defensible basis detailed in a fact sheet (rationale). Overflows have been documented, but their causes have not. Therefore, a moratorium on new connections associated with demonstrated rehabilitation and permit compliance will be more defensible in an enforcement mechanism that has documented causes and allowed Limestone the opportunity for due process of law. The Act requires a person to obtain a permit prior to discharge. Complying with the terms and conditions established in a permit to protect water quality is a separate consideration.

How are residents supposed to know when and if it is safe to use the woods and waterways?

The state does not have criteria for safe use of woods. The state does have criteria for recreation use of waterways, and the Division has assessed the receiving stream segment as not supporting of the recreation use due to *E. coli*. However, even when the Division has assessed a water as having quality to support recreation use, that assessment is a snapshot in time that may not represent the water quality on a subsequent day from the sampling. Persons have a responsibility to take into consideration whether signs of pollution might be present when recreating in public water.

The permit is self-contradicting. It cannot acknowledge I/I, ban new flows to overflow-prone systems and then authorize an 80% expansion designed to enable new flows.

Constructing a new treatment plant with increased design capacity is the selected corrective action plan to replace the existing wastewater infrastructure. That is a separate utility function from adding new customer taps. If Limestone has chronic overflow locations as defined in the permit, then Limestone will be obligated by the permit to refrain from issuing new connections that would contribute flow to the chronic overflow location.

3. *Impact on the Harpeth River*

This treatment plant has a direct impact on the Harpeth River. The Harpeth River is impaired by phosphorus and Tennessee cannot lawfully allow more phosphorus into the river. Complete the

pollution reduction plan for the Harpeth River. The hazardous effects of spills into waterways impact the whole community and not just the people living in close proximity to the sewage plant.

The Division agrees, which is why the permit requires Limestone to operate the sewerage system to prevent collection system overflow or release and bypass of treatment and to comply with the load limit established in the 2004 EPA TMDL.

The EPA 2004 TMDL is for organic enrichment/low DO (dissolved oxygen) and therefore does encompass wasteload allocations for point sources and load allocations for non-point sources of nutrients in Harpeth sub-watersheds to address the impacts of nutrients in the Harpeth River and its tributary streams. The TMDL considerations encompass the Limestone Grasslands treatment plant and only imposed a wasteload allocation on total nitrogen. The limit in the modified permit complies with that wasteload allocation. In its 2024 assessment of this Harpeth River segment, the Division removed Municipal Point Source as a source of impairment due to watershed nutrient loading analysis showing the point sources combined were not significant contributors in this segment between West Harpeth River and Turnbull Creek.

We are opposed to an enlarged treatment plant in the River Rest Subdivision because the original treatment plant was for the River Rest Subdivision and not the Grassland Community. We oppose the expansion to 0.45 MGD disagreeing that the impact will be de minimis given the track record of non-compliance. Granting a permit for an expansion in the face of documented negligence is a dereliction of your duty, wildly irresponsible and a betrayal of the public trust.

It is beyond TDEC's lawful authority to determine and enforce how Limestone uses its property. The Act requires persons to apply for a water quality permit based on intent to engage in activities, including intent to construct a sewerage system and to discharge to waters. Limestone Water Operating Company has expressed intent by submission of engineering plans and a permit application to modify and expand its treatment plant. The Division is obligated to impose permit conditions on the discharge sufficient to protect designated stream uses. TDEC does not regulate utility service areas.

It is true that non-compliance with permit conditions has potential to violate the applicant's argument that the increased discharge will cause an unmeasurable change in river water quality (de minimis degradation). Governing regulations make it the responsibility of licensed professional engineers to design sewage treatment plants. The Division cannot allege or assume that the proposed technology sealed by the engineer of record will not meet permit limits with proper operation. The Division can only issue a permit with conditions and limitations that, when complied with, are protective of the receiving stream. All wastewater treatment plant technology has potential for failure and non-compliance but operating and discharge permits are not issued based on the presumption of non-compliance.

4. Nutrients

The HOA opposes any increased nutrient loading. Add enforceable nutrient limits in both mass (lb/day) and concentration (mg/L) calibrated to drive measurable in-stream improvements in an

already-impaired Harpeth River segment, consistent with Tennessee's narrative nutrient criterion and antidegradation policy. Anti-backsliding and antidegradation mandates by capping nutrients loads at or below actual current performance. Argues antidegradation prohibition on addition loadings must encompass flow volume.

This proposed permit does not authorize an increase in discharge of nutrient loads consistent with the state's antidegradation policy. Measurable improvement in river water quality by point source discharges is impossible. The Division has removed point source discharges as a cause of nutrient impairment in its water quality assessment of the Harpeth River because the nutrient load from point sources is small compared to the loads from urban runoff, septic system failures, and agricultural activities. Nutrient loading limits in this permit were established to maintain previously set loads as required by antidegradation. Recalculating nutrient loading limits lower every permit cycle based on performance would only discourage permittees from voluntary optimization efforts.

There are no numeric nutrient water quality criteria established in Rule 0400-40-03. Loads are calculated from flow and concentration, so load limits at higher flows can indirectly reduce allowable concentrations, or indirectly regulate flow. Flow is typically not a limited parameter in discharge permits because flow, which is quantity of water per unit of time, is not a pollutant. State water quality standards for river water quality are set to be protective at low flow river conditions.

Require robust instream monitoring with monthly public reporting for nutrients and response indicators to verify progress during low-flow periods and to inform ongoing and future TMDL work.

Water quality assessment and TMDL development are beyond the scope of establishing limits in a discharge permit sufficient to protect receiving stream water quality.

WQBELs must prevent permittees from causing or contributing to violations of water quality standards, including narrative criteria for nutrients

When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority is required by federal law to use procedures that account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water. This describes the TMDL process. The nutrient limits in this permit comply with the limit in the 2004 TMDL for organic enrichment.

TDEC cannot fail for a decade to implement mandated pollution reductions via TMDLs while simultaneously authorizing capacity expansions that enable more sewage to generate in the impaired watershed.

The modified permit limits for the 0.45 MGD treatment process reduces the effluent concentrations of oxygen-demanding pollutants ($CBOD_5$ and ammonia) and nutrients so that there will not be

increased pollutant loads impacting dissolved oxygen and organic enrichment. This is consistent with the wasteload allocations in the current TMDL.

5. *Stricter Limits*

Limestone is downstream of Franklin, so cumulative impact should require stricter standards and proof of no measurable degradation prior to expansion approval.

The Division's reasonable potential procedures for evaluating cumulative effects consider wastewater treatment plant discharges that are within five river miles of each other. Limestone is 16 miles below Franklin's outfall and 9 miles below the Berry's Chapel outfall.

6. *Performance Review:*

The permit needs to allow review of performance after a year of operation to see what changes are needed to ensure operation complies with permit limits including making the SVI a permit limit accompanied by defined corrective actions.

The Division's regulatory authority is to limit pollutants in the treated wastewater so that the quality of the Harpeth River is not degraded and to impose monitoring conditions so that Limestone can report proper operation of its sewage system. The permit as drafted does not prohibit the owner/operator/consulting engineer from reviewing performance and making adjustments if needed to comply with permit limits.

7. *SVI Limit*

The permit should make SVI an enforceable limit coupled with defined corrective actions and timelines, include a startup/stabilization plan, vendor performance guarantees and contingency bypass/operate-in-conventional-mode provisions to prevent effluent noncompliance during upsets, and require a financial assurance mechanism sufficient to fund corrective measures in the event of persistent AGS under-performance.

This facility is required to meet minimum technology treatment standards applicable to publicly owned treatment works and any more stringent water quality standards necessary to protect water quality. Sludge volume index is neither a promulgated technology nor water-quality based standard, so there is no defensible basis to enforce a numerical limit. However, the statute does require monitoring and reporting sufficiently to demonstrate compliance with purposes of the Act.

Since Limestone is proposing a new technology whose proper operation will be demonstrated by converting waste organics into dense sludge that settles rapidly, this permit imposes monitoring and reporting of the sludge volume index to demonstrate to the state and the public that such sludge is being developed by the treatment process. Additionally, this process is designed to buffer peak flows by allowing raw influent into the bottom of a basin that is discharging treated effluent. Engineering does not identify when that process ceases to be full treatment and becomes bypass of treatment, so the monitoring and reporting sludge volume index is meant to ensure that full treatment is consistently occurring.

Financial assurance for this facility falls under the regulatory jurisdiction of the Tennessee Public Utility Commissison. State law stipulates that the financial assurance provided to comply with TPUC law and regulation satisfies the financial assurance requirement in the Act.

8. Mercury Limit

The permit's handling of mercury is incorrect. Limestone must prove they meet the standard before approval and not after implementing the plans.

An application for a modified permit to discharge from a new treatment technology is similar to an application for a new discharge that relies on estimates of pollutant parameters prior to construction and discharge. It is impossible to prove via actual effluent data that a treatment plant can comply with a standard before the treatment plant is even built.

9. Certified Operator

Permanent onsite facility operator who agrees to self-report issues immediately

It will be Limestone's decision on how to staff the facility. Technology today allows systems a combination of onsite and remote monitoring and operation. Limestone and its operators will be obligated to report non-compliance as prescribed in the permit.

BASIS FOR THIS ACTION

This permit modification results from applications and engineering documents submitted by Limestone and does not constitute permit reissue.

Limestone Water Utility Operating Company, LLC submitted application(s) for permit modification on March 28, June 19, and July 23, 2025. The permittee submitted the applications pursuant to the course of action identified in the Corrective Action Plan/Engineering Report submitted May 17, 2023, in response to Consent Order #WPC22-0086.

The Division received at least 60 requests for a public hearing between October 25, 2025, and November 17, 2025, in response to the Division's public notice on October 01, 2025, of its intent to modify the permit and the permittee's placement of a public notice sign in view of a public roadway on October 13, 2025.

In response to the requests for a public hearing, the Division held a public hearing on February 11, 2026, at 5:00 p.m. at the Williamson County Administrative Complex Auditorium, 1320 West Main St, Franklin, TN 37064.

The Division of Water Resources issues a slightly modified NPDES Permit #TN0027278 after consideration of the public comments received on the proposed permit action received during the public comment period which ran from October 01, 2025, through February 21, 2026.

Regarding permit term, this permit action modifies the permit issued for a five-year term on August 30, 2021. The cause for modification was the intent identified in engineering documents and updated application forms. The modification does not change the permit expiration date of November 30, 2026. An application for permit renewal is due by May 30, 2026, unless additional time for submission is granted by TDEC. The Division expects that the permit reissue later in 2026 will retain the modified terms and conditions of this permit. Still, that permit renewal process will open *all* permit terms and conditions for public comment and consideration rather than just the modified terms and conditions.

for April Grippo
Director

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STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Davy Crockett Tower, 9th Floor
500 James Robertson Pkwy
Nashville, Tennessee 37243

May 1, 2026

Mr. Josiah Cox
President
e-copy: jcox@cswrgroup.com
Central States Water Resources (CSWR)
500 Northwest Plaza Drive, Suite 500
St. Ann, MO 63074

Subject: **MODIFICATION NPDES Permit No. TN0027278**
Limestone Water Utility Operating Company, LLC
Franklin, Williamson County, Tennessee

Dear Mr. Cox:

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 Resources hereby issues the enclosed modified NPDES permit. Limits for the permit expansion are on Pages 5 through 11. The continuance and/or reissuance of this NPDES Permit is contingent upon your meeting the conditions and requirements as stated therein. The Division is issuing the Notice of Determination for this action as a separate document.

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 Technical Secretary of the Water Quality, Oil and Gas Board within thirty (30) days after public notice of the commissioner's decision to issue or deny the permit. A copy of the filing should also be sent to TDEC's Office of General Counsel.

TDEC has activated an email address to accept appeals electronically. If you wish to file an appeal, you may do so by emailing the appeal and any attachments to TDEC.Appeals@tn.gov. If you file an appeal electronically, you do not have to send a paper copy. Electronic filing is encouraged, but not required.

Note that this modified permit will expire on November 30, 2026, and that you are obligated to apply for reissue of this permit 180 days before it expires unless additional time has been granted for reapplying by the Division.

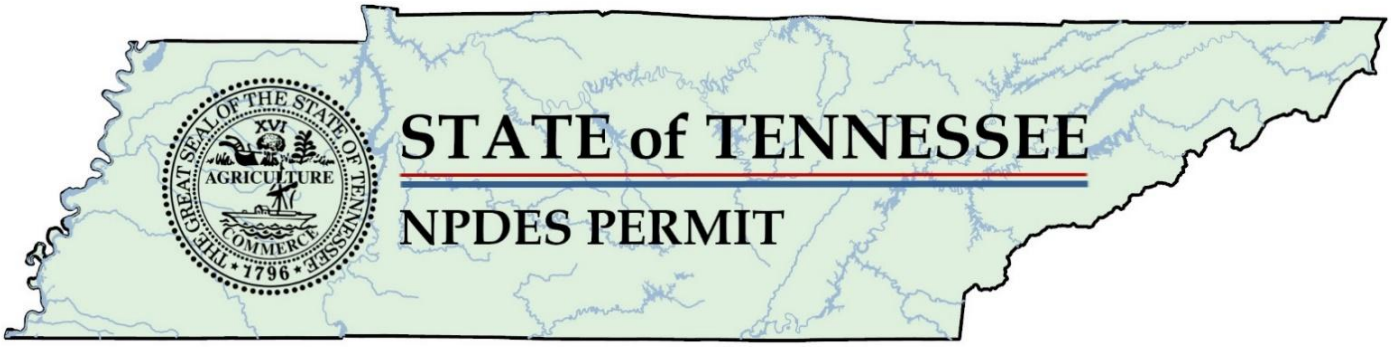
If you have questions, please contact the Nashville Environmental Field Office at 1-888-891-TDEC; or, at this office, please contact Mr. Wade Murphy at (615) 532-0666 or by E-mail at *Wade.Murphy@tn.gov*.

Sincerely,

Sarah Terpstra
Manager, Water-Based Systems

Enclosure

CC: Mr. Lynn Starrett, State Director, Clear Water Solutions, lynn.starrett@clearwatersolutions.com
Mr. Jacob Freeman, Engineering Director, Central States Water Resources (CSWR), jfreeman@cswrgroup.com
Mr.Kenneth Rollins, Wastewater Technician, ClearWater Solutions, kenneth.rollins@clearwatersolutions.com
Mr. Logan Dickinson, Project Manager, GMC, logan.dickinson@gmcnetwork.com
Mr. Hal Haywood, Pretreatment/Lab Supervisor, Columbia POTW, hhaywood@columbiatn.gov
NPDES Permit Section, EPA Region IV, r4npdespermits@epa.gov
Mr. Cole McCormick, Tennessee Public Utility Commission (TPUC), cole.mccormick@tn.gov
Honorable Barbara Sturgeon, County Commissioner, barb.sturgeon@williamsoncounty-tn.gov
Honorable Drew Torres, County Commissioner,
Public Hearing Interested Party List
TDEC-DWR-ESU, angela.jones@tn.gov, timothy.hill@tn.gov
TDEC-DWR-C&E Unit, Jessica.murphy@tn.gov, michael.lancaster@tn.gov
EFO-Nashville-DWR, tim.jennette@tn.gov, michaelp.murphy@tn.gov, Daniel.pleasant@tn.gov



Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES) Permit Number TN0027278

Issued by

Department of Environment and Conservation
Division of Water Resources
Davy Crockett Tower, 9th Floor
500 James Robertson Pkwy
Nashville, Tennessee 37243

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:	**Limestone Water Utility Operating Company, LLC** **Grassland STP**
is authorized to:	treated domestic wastewater from Outfall 001
from a facility located at:	River Rest Subdivision, Franklin, Williamson County, Tennessee
to receiving waters named:	Harpeth River at mile 68.8

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on:	**January 01, 2022 (modified 2/7/22 & 5/1/26)**
This permit shall expire on:	**November 30, 2026**
Issuance date:	**May 1, 2026**

for April Grippo
Director

Table of Contents

PART 1

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.1. NUMERIC AND NARRATIVE EFFLUENT LIMITATIONS

1.1.1. Numeric Limitations – 0.25 MGD Facility

These limits apply though the end of the month in which initiation of operation of the 0.45 MGD facility initiates operation. Limits for the discharge of 0.45 MGD begin on Page 5.

Limestone Water Utility Operating Company, LLC is authorized to discharge treated municipal wastewater from Outfall 001 to Harpeth River at mile 68.8 from a treatment facility with a design capacity of 0.25 MGD until the month following the month during which initiation of operation of the 0.45 MGD facility begins. Discharge from Outfall 001 shall be limited and monitored by the permittee as specified below:

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year, Limit Set Status : Active							
Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00300	Oxygen, dissolved (DO)	>=	6.0	mg/L	Grab	Five Per Week	Instantaneous Minimum
00400	pH	>=	6.0	SU	Grab	Five Per Week	Minimum
00400	pH	<=	9.0	SU	Grab	Five Per Week	Maximum
00530	Total Suspended Solids (TSS)	<=	30	mg/L	Composite	Three Per Week	Monthly Average
00530	Total Suspended Solids (TSS)	<=	40	mg/L	Composite	Three Per Week	Weekly Average
00530	Total Suspended Solids (TSS)	<=	45	mg/L	Composite	Three Per Week	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	63	lb/d	Composite	Three Per Week	Monthly Average
00530	Total Suspended Solids (TSS)	<=	83	lb/d	Composite	Three Per Week	Weekly Average
00545	Settleable Solids	<=	1.0	mL/L	Grab	Five Per Week	Daily Maximum
00600	Nitrogen, total (as N)	Report	-	mg/L	Composite	Twice Per Month	Monthly Average
00600	Nitrogen, total (as N)	Report	-	mg/L	Composite	Twice Per Month	Daily Maximum

00600	Nitrogen, total (as N)	Report	-	lb/d	Composite	Twice Per Month	Monthly Average
00600	Nitrogen, total (as N)	Report	-	lb/d	Composite	Twice Per Month	Daily Maximum
00600	Nitrogen, total (as N)	<=	15	lb/d	Calculated	Monthly	Annual Average
00665	Phosphorus, total (as P)	Report	-	mg/L	Composite	Twice Per Month	Monthly Average
00665	Phosphorus, total (as P)	Report	-	mg/L	Composite	Twice Per Month	Daily Maximum
00665	Phosphorus, total (as P)	Report	-	lb/d	Composite	Twice Per Month	Monthly Average
00665	Phosphorus, total (as P)	Report	-	lb/d	Composite	Twice Per Month	Daily Maximum
00665	Phosphorus, total (as P)	<=	5.0	lb/d	Calculated	Monthly	Annual Average
50050	Flow	Report	-	MGD	Continuous	Daily	Monthly Average
50050	Flow	Report	-	MGD	Continuous	Daily	Daily Maximum
50060	Chlorine, total residual (TRC)	<=	0.16	mg/L	Grab	Fiver Per Week	Monthly Average
50060	Chlorine, total residual (TRC)	<=	0.28	mg/L	Grab	Five Per Week	Daily Maximum
51040	E. coli	<=	126	#/100mL	Grab	Three Per Week	Monthly Geometric Mean
51040	E. coli	<=	941	#/100mL	Grab	Three Per Week	Daily Maximum

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Summer, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00610	Nitrogen, Ammonia total (as N)	<=	2	mg/L	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	3	mg/L	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	4	mg/L	Composite	Three Per Week	Daily Maximum
00610	Nitrogen, Ammonia total (as N)	<=	4	lb/d	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	6	lb/d	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	5	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	7.5	mg/L	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	10	mg/L	Composite	Three Per Week	Daily Maximum

80082	CBOD, 5-day, 20 C	<=	10	lb/d	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	15	lb/d	Composite	Three Per Week	Weekly Average

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Winter, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00610	Nitrogen, Ammonia total (as N)	<=	5	mg/L	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	7.5	mg/L	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	10	mg/L	Composite	Three Per Week	Daily Maximum
00610	Nitrogen, Ammonia total (as N)	<=	10	lb/d	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	16	lb/d	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	10	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	15	mg/L	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	20	mg/L	Composite	Three Per Week	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	21	lb/d	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	31	lb/d	Composite	Three Per Week	Weekly Average

Description : External Outfall, Number : 001, Monitoring : Percent Removal, Season : All Year, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
80358	CBOD, 5-day, 20 C, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average
80358	CBOD, 5-day, 20 C, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum
81011	TSS, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average
81011	TSS, % removal	>=	40	%	Calculated	Three Per Week	Daily Minimum

Description : Influent Structure, Number : INF1, Monitoring : Raw Sewage Influent, Season : All Year, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Monthly Average

00530	Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
50050	Flow	Report	-	MGD	Continuous	Daily	Monthly Average
50050	Flow	Report	-	MGD	Continuous	Daily	Daily Maximum
80082	CBOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Daily Maximum

General MyTDEC Forms Report Requirements*	
Bypass of Treatment Facility	See Section 1.3.5.1. and 2.3.5.
Anticipated Bypass of Treatment Facility	See Section 1.3.5.1. and 2.3.5.
Five-day Follow-up Noncompliance Report	See Sections 1.3.5.1. and 2.3.1.a.
Scheduled Reporting	See Section 2.3.1.b.

* Each event shall be reported via MyTDEC Forms.

Notes:

The permittee shall achieve 85 % removal of $CBOD_5$ and TSS on a monthly average basis. The permittee shall report all instances of releases, overflows and/or bypasses. See **Part 2.3.2(a)** for the definition of overflow and **Part 1.3.5** for reporting requirements.

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

Unless elsewhere specified, summer months are May through October; winter months are November through April.

See **Part 1.2.3** for test procedures.

See below for percent removal calculations.

The permittee may collect more samples than specified as the monitoring frequency in the permit. 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 1 per 100 mL shall be considered as having a concentration of 1 per 100 mL. In addition, the concentration of the *E. coli* group in any individual sample shall not exceed a specified maximum amount.

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 § 136 as amended, so long as the requirements of Tennessee Rule 0400-40-03-.05(8) are met. The method detection limit (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 MDL and have it available for review upon request. In cases where the permit limit is less that the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit.

or $CBOD_5$ 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:

$$\left(1 - \frac{average\ of\ daily\ effluent\ concentrations}{average\ of\ daily\ influent\ concentrations}\right) * 100\% = \%\ removal$$

This treatment facility will also demonstrate 40% daily minimum removal of $CBOD_5$ and TSS based on each daily composite sample. The formula for this calculation is as follows:

$$\left(1 - \frac{daily\ effluent\ concentration}{daily\ influent\ concentration}\right) * 100\% = \%\ removal$$

Each daily load is calculated by multiplying the day's sample concentration (mg/L) by the effluent flow rate (MGD) for the day the sample was collected and the conversion factor 8.34 lbs/gal.

$$Load = \left(\begin{matrix}Effluent\\Concentration\end{matrix}\right) * \left(\begin{matrix}Effluent\ flow\ for\ the\ day\ the\\day\ the\ sample\ was\ collected\end{matrix}\right) * (8.34)$$

The average pound per day is the mathematical average where the sum of all the calculated loads during the current month and previous 11 months is divided by the number of calculated loads.

$$Average\ Pounds\ per\ Day = \left(\begin{matrix}Sum\ of\ All\ Loads\ in\ \frac{lbs}{day}\ During\ the\\Current\ Month\ and\ the\ Previous\ 11\ Months\\Total\ Number\ of\ Loads\ Calculated\ During\\the\ Current\ Month\ and\ Previous\ 11\ Months\end{matrix}\right)$$

1.1.2. Numeric Limitations – 0.45 MGD Facility

These limits apply beginning the first day of the month following the month in which initiation of operation of the 0.45 MGD facility.

Limestone Water Utility Operating Company, LLC is authorized to discharge treated municipal wastewater from Outfall 001 to Harpeth River at mile 68.8 from a treatment facility with a design capacity of 0.45 MGD after initiation of operation of the aerobic granular sludge (AGS) facility. Discharge from Outfall 001 shall be limited and monitored by the permittee as specified below:

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : All Year, Limit Set Status : Active							
Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00165	Sludge Volume Index, SVI – Alert Level	<=	50	Svol index (mL/g)	Grab	Weekly	Daily Maximum
00300	Oxygen, dissolved (DO)	>=	6.0	mg/L	Grab	Five Per Week	Instantaneous Minimum

00400	pH	>=	6.0	SU	Grab	Five Per Week	Minimum
00400	pH	<=	9.0	SU	Grab	Five Per Week	Maximum
00530	Total Suspended Solids (TSS)	<=	17	mg/L	Composite	Three Per Week	Monthly Average
00530	Total Suspended Solids (TSS)	<=	22	mg/L	Composite	Three Per Week	Weekly Average
00530	Total Suspended Solids (TSS)	<=	25	mg/L	Composite	Three Per Week	Daily Maximum
00530	Total Suspended Solids (TSS)	<=	63	lb/d	Composite	Three Per Week	Monthly Average
00530	Total Suspended Solids (TSS)	<=	83	lb/d	Composite	Three Per Week	Weekly Average
00530	Total Suspended Solids (TSS)	<=	94	lb/d	Composite	Three Per Week	Daily Maximum
00545	Settleable Solids	<=	1.0	mL/L	Grab	Five Per Week	Daily Maximum
00600	Nitrogen, total (as N)	Report	-	mg/L	Composite	Twice Per Month	Monthly Average
00600	Nitrogen, total (as N)	Report	-	mg/L	Composite	Twice Per Month	Daily Maximum
00600	Nitrogen, total (as N)	Report	-	lb/d	Composite	Twice Per Month	Monthly Average
00600	Nitrogen, total (as N)	Report	-	lb/d	Composite	Twice Per Month	Daily Maximum
00600	Nitrogen, total (as N)	<=	15	lb/d	Calculated	Monthly	Rolling 12-Month Average
00665	Phosphorus, total (as P)	Report	-	mg/L	Composite	Twice Per Month	Monthly Average
00665	Phosphorus, total (as P)	Report	-	mg/L	Composite	Twice Per Month	Daily Maximum
00665	Phosphorus, total (as P)	Report	-	lb/d	Composite	Twice Per Month	Monthly Average
00665	Phosphorus, total (as P)	Report	-	lb/d	Composite	Twice Per Month	Daily Maximum
00665	Phosphorus, total (as P)	<=	5.0	lb/d	Calculated	Monthly	Rolling 12-Month Average
50050	Flow	Report	-	MGD	Continuous	Daily	Monthly Average

50050	Flow	Report	-	MGD	Continuous	Daily	Daily Maximum
51040	E. coli	<=	126	#/100mL	Grab	Three Per Week	Monthly Geometric Mean
51040	E. coli	<=	410	#/100mL	Grab	Three Per Week	Daily Maximum
51504	UV Light Working	Report		Pass = 0; Fail = 1	Visual	Three Per Week	Value (VA)
51947	Monthly Certification Statement	Report		Pass = 0; Fail = 1	Certification (CT)	Monthly	Value (VA)
71900	Mercury, total (as Hg)	<=	0.0001376	mg/L	Per Method	Monthly	Monthly Average

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Summer, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00610	Nitrogen, Ammonia total (as N)	<=	1.1	mg/L	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	1.7	mg/L	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	2.2	mg/L	Composite	Three Per Week	Daily Maximum
00610	Nitrogen, Ammonia total (as N)	<=	4	lb/d	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	6	lb/d	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	8	lb/d	Composite	Three Per Week	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	2.8	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	4.2	mg/L	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	5.6	mg/L	Composite	Three Per Week	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	10	lb/d	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	16	lb/d	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	21	lb/d	Composite	Three Per Week	Daily Maximum

Description : External Outfall, Number : 001, Monitoring : Effluent Gross, Season : Winter, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00610	Nitrogen, Ammonia total (as N)	<=	2.8	mg/L	Composite	Three Per Week	Monthly Average

00610	Nitrogen, Ammonia total (as N)	<=	4.2	mg/L	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	5.6	mg/L	Composite	Three Per Week	Daily Maximum
00610	Nitrogen, Ammonia total (as N)	<=	10	lb/d	Composite	Three Per Week	Monthly Average
00610	Nitrogen, Ammonia total (as N)	<=	16	lb/d	Composite	Three Per Week	Weekly Average
00610	Nitrogen, Ammonia total (as N)	<=	21	lb/d	Composite	Three Per Week	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	6	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	8	mg/L	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	11	mg/L	Composite	Three Per Week	Daily Maximum
80082	CBOD, 5-day, 20 C	<=	21	lb/d	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	<=	31	lb/d	Composite	Three Per Week	Weekly Average
80082	CBOD, 5-day, 20 C	<=	42	lb/d	Composite	Three Per Week	Daily Maximum

Description : External Outfall, Number : 001, Monitoring : Percent Removal, Season : All Year, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
80358	CBOD, 5-day, 20 C, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average
81011	TSS, % removal	>=	85	%	Calculated	Three Per Week	Monthly Average

Description : Influent Structure, Number : INF1, Monitoring : Raw Sewage Influent, Season : All Year, Limit Set Status : Active

Code	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Monthly Average
00530	Total Suspended Solids (TSS)	Report	-	mg/L	Composite	Three Per Week	Daily Maximum
50050	Flow	Report	-	MGD	Continuous	Daily	Monthly Average
50050	Flow	Report	-	MGD	Continuous	Daily	Daily Maximum
80082	CBOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Monthly Average
80082	CBOD, 5-day, 20 C	Report	-	mg/L	Composite	Three Per Week	Daily Maximum

General MyTDEC Forms Report Requirements*	
Bypass of Treatment Facility	See Section 1.3.5.1. and 2.3.5.
Anticipated Bypass of Treatment Facility	See Section 1.3.5.1. and 2.3.5.
Five-day Follow-up Noncompliance Report	See Sections 1.3.5.1. and 2.3.1.a.
Scheduled Reporting	See Section 2.3.1.b.

* Each event shall be reported via MyTDEC Forms.

Notes:

Each month, the permittee shall certify on its DMR that, for the reporting month, the 1) AGS process control monitoring record and 2) waste activated sludge hauling and hauler/receiver redundancy records are complete and on file and available for inspection at the facility. The permittee shall report 0 for parameter code 51947 if the records are complete (pass) and 1 if they are not (fail). **Parameters monitored and recorded only for supervising and optimizing process control are not subject to Part 1.2.3.**

The sludge volume index value is an alert value rather than an enforceable limit.

All sampling for total mercury (application, pretreatment, etc.) shall use Methods 1631, 245.7 or any additional method in 40 CFR § 136 with a maximum detection limit of 5 ng/L.

The permittee shall achieve 85 % removal of $CBOD_5$ and TSS on a monthly average basis. The permittee shall report all instances of releases, overflows and/or bypasses. See **Part 2.3.2(a)** for the definition of overflow and **Part 1.3.5** for reporting requirements.

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

Unless elsewhere specified, summer months are May through October; winter months are November through April.

See **Part 1.2.3** for test procedures.

See below for percent removal calculations.

The permittee may collect more samples than specified as the monitoring frequency in the permit. 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 1 per 100 mL shall be considered as having a concentration of 1 per 100 mL. In addition, the concentration of the *E. coli* group in any individual sample shall not exceed a specified maximum amount.

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 § 136 as amended, so long as the requirements of Tennessee Rule 0400-40-03-.05(8) are met. The method detection limit (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 MDL and have it available for review upon request. In cases

where the permit limit is less that the MDL, the reporting of TRC at less than the MDL shall be interpreted to constitute compliance with the permit.

or $CBOD_5$ 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:

$$\left(1 - \frac{average\ of\ daily\ effluent\ concentrations}{average\ of\ daily\ influent\ concentrations}\right) * 100\% = \%\ removal$$

Each daily load is calculated by multiplying the day's sample concentration (mg/L) by the effluent flow rate (MGD) for the day the sample was collected and the conversion factor 8.34 lbs/gal.

$$Load = \left(\begin{matrix} Effluent \\ Concentration \end{matrix}\right) * \left(\begin{matrix} Effluent\ flow\ for\ the\ day\ the \\ day\ the\ sample\ was\ collected \end{matrix}\right) * (8.34)$$

The average pound per day is the mathematical average where the sum of all the calculated loads during the current month and previous 11 months is divided by the number of calculated loads.

$$Average\ Pounds\ per\ Day = \left(\begin{matrix} Sum\ of\ All\ Loads\ in \frac{lbs}{day}\ During\ the \\ \underline{Current\ Month\ and\ the\ Previous\ 11\ Months} \\ Total\ Number\ of\ Loads\ Calculated\ During \\ the\ Current\ Month\ and\ Previous\ 11\ Months \end{matrix}\right)$$

1.1.3. Collection System Requirements

Limestone Water Utility Operating Company, LLC is authorized to operate a sewage collection system. Operation and discharges from the collection system shall be limited and monitored by the permittee as specified below:

Code	Monitoring	Parameter	Qualifier	Value	Unit	Sample Type	Monitoring Frequency	Statistical Base
51925	Dry Weather	SSO, Dry Weather	<=	0	occur/mo	Occurrences	Continuous	Monthly Total
51926	Wet Weather	SSO, Wet Weather	<=	0	occur/mo	Occurrences	Continuous	Monthly Total

Report via NetDMR. See sections **1.3.1.** and **1.3.5.2.**

Collection System MyTDEC Forms Report Requirements*	
Sanitary Sewer Overflow (SSO, Dry Weather)	See Section 1.3.5.1.
Sanitary Sewer Overflow (SSO, Wet Weather)	See Section 1.3.5.1.
Release (Dry Weather)	See Section 1.3.5.1.
Release (Wet Weather)	See Section 1.3.5.1.
Five-day Follow-up Noncompliance Report	See Sections 1.3.5.1. and 2.3.1.

* Each event shall be reported via MyTDEC Forms.

1.1.4. Narrative Conditions

The following narrative condition applies to the 0.45 MGD facility:

Within 90 days of the modified permit issue date, the permittee shall provide TDEC with a copy of the daily operating recording format for monitoring process controls (ORP, DO, TSS, etc.) that the operator will use to supervise plant activities and performance of the AGS process. Additionally, at startup, the permittee will provide TDEC with a copy of an operating record for recording the quantity of waste activated sludge hauled away for disposal, the dates of hauling, the company hauling, and the receiving entity. The waste activated sludge record will also provide evidence that backup hauler(s) and receiver(s) are arranged and on standby. This report(s) format shall be prepared for record keeping by calendar month and may be either paper or electronic.

The following narrative conditions apply to both the 0.25 and 0.45 MGD facilities:

The authorized discharge shall not:

- Result in distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits, or sludge banks of such size or character as may be detrimental to fish and aquatic life.
- Result in total suspended solids, turbidity, or color in such amounts or character that will result in any objectionable appearance to the receiving water, considering the nature and location of the water.
- 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, Tennessee Code Annotated (Tenn. Code Ann.) §68-31-101 et seq. and the Tennessee Hazardous Waste Management Act, Tenn. Code Ann. §68-46-101 et. seq.

1.2. MONITORING PROCEDURES

1.2.1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified herein shall be representative of the volume and nature

of the monitored discharge and shall be taken after treatment and prior to mixing with uncontaminated stormwater runoff or the receiving stream. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed and calibrated by a qualified source at least once every 12 months[1], and maintained to ensure 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 plus or minus 10% from the true discharge rates throughout the range of expected discharge volumes.

Composite samples must be proportioned by flow at the time of sampling. Aliquots may be collected manually or automatically. The sample aliquots must be maintained at ≤ 6°C during the compositing period, or as otherwise specified in 40 CFR §136 or in the method.

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 changes. Specifically:

a) 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.

b) Samples for *E. coli* can be collected at any point between completion of disinfection and the actual discharge.

c) The dissolved oxygen (DO) can drop in the outfall line; therefore, DO measurements are required at the discharge end of outfall lines greater than

[1] The Division expects for permittees to meet EPA's guidance on proper operation and maintenance of flow measurement devices, as stated in the NPDES Compliance Inspection Manual.

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, DO must be measured after this step and as close to the end of the outfall line as possible.

d) Total suspended solids (TSS) and settleable solids can be collected at any point after the final clarifier.

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

1.2.2. Sampling Frequency

The permittee should report "No Discharge" on Discharge Monitoring Reports (DMRs) only if a permitted outfall does not discharge at any time during the monitoring period. If the outfall discharges effluent at any time during the monitoring period, the permittee must provide at least one sampling result from the effluent of that outfall.

If the required monitoring frequency is once per month or 1/month, the monitoring period is one month. If the discharge occurs during only one day in that period, 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 using sufficiently sensitive methods in Title 40 CFR § 136, as amended, and promulgated pursuant to Section 304 (h) of the Act. The chosen methods must be sufficiently sensitive as required in state rule 0400-40-03-.05(8).

c) If the ML for all methods available in accordance with 40 CFR § 136 are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest ML shall be used.

d) Where the analytical results are below the method detection limit (MDL), the permittee shall report the actual laboratory MDL and ML values. See **Section 1.3.6.** for instructions regarding reporting less than detection.

e) When there is no analytical method that has been approved under 40 CFR §136 or required under 40 CFR chapter I, subchapter N or O, and a specific method is not otherwise required by the Director, the permittee may use any suitable method but shall provide a description of the method. When selecting a suitable method, factors such as a method's precision, accuracy, or resolution must be considered when assessing the performance of the method.

f) All sampling for total mercury (application, pretreatment, etc.) shall use Methods 1631, 245.7 or any additional method in 40 CFR § 136 with a maximum detection limit of 5 ng/L.

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:

i. The date, exact place, and time of sampling or measurements;
ii. The individual(s) who performed the sampling or measurements;
iii. The date analyses were performed;
iv. The individual(s) who performed the analyses;
v. The laboratory where the analyses were performed;
vi. The analytical techniques or methods used; and
vii. The results of such analyses.

1.2.5. Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

1.3. REPORTING

1.3.1. Monitoring Results

Monitoring results shall be recorded monthly and submitted monthly on Discharge Monitoring Reports (DMRs) using EPA's NetDMR website. The first DMR is due on the 15th of the month following permit effectiveness. Subsequent DMRs shall be submitted through NetDMR no later than 15 days after the completion of the reporting period. In compliance with the Federal NPDES Electronic Reporting Rule, DMRs may not be submitted via email under any circumstances.

Discharge Monitoring Reports and any other information or report must be signed and certified by a responsible corporate officer as defined in Tennessee Rules, Chapter 0400-40-05-.07(2)(i), a general partner or proprietor, a principal municipal executive officer or ranking elected official, or his or her duly authorized representative. Such authorization must be submitted in writing and must explain the duties and responsibilities of the authorized representative.

In the event that electronic reporting is unavailable, the permittee shall comply with reporting conditions provided in **Section 1.7**.

1.3.2. Additional Monitoring by Permittee

If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR § 136, or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or other reporting form specified by the Commissioner. Such increased frequency shall also be indicated.

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 § 69-3-115 of the Tennessee Water Quality Control Act.

1.3.4. Monthly Report of Operation

Monthly Operational Reports (MORs) shall be submitted by the 15th day of the month following data collection. Reports shall be submitted by one of the following methods, presented below in order of preference:

1) Using MyTDEC Forms, if available.

2) Submitting both a signed and certified copy in pdf format, uploaded as an attachment to NetDMR, *and* a copy of the native format spreadsheet file emailed to DWRWW.Report@tn.gov and TDEC.Nashville.EFO@tn.gov.

3) Submitting signed and certified forms to the EFO at the following address:

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
Nashville Environmental Field Office
711 R.S. Gass Boulevard
Nashville, Tennessee 37216

1.3.5. Overflow, Release, and Bypass Reporting

1.3.5.1. Event Report Requirements

For the purpose of this section, "events" are known as instances of sanitary sewer overflows, releases, upsets, and bypasses. These events shall be reported through MyTDEC Forms according to the following conditions:

a) Events that are not a threat to human health and the environment shall be reported using MyTDEC Forms no later than 15 days following the completion of the DMR reporting period.

b) Events that could cause a threat to human health or the environment, as defined in **Section 2.3.1.a**., shall be reported using MyTDEC Forms no later than 5 days after becoming aware of the non-compliance.

In both cases, the event report must contain the following:

i. Start date;
ii. Estimated duration in hours;
iii. Estimated volume in gallons;
iv. Type of event;
v. Type of structure (e.g., manhole);
vi. Types of human health and environmental impacts~~;~~
vii. Location (i.e., latitude and longitude);
viii. The name of receiving water (if applicable);
ix. Description of the cause;
x. The steps being taken to correct, reduce, eliminate, and prevent recurrence of the noncompliance; and
xi. The next downstream pump/lift station using the permittee's naming conventions.

In the event that MyTDEC Forms is not functioning, the permittee shall comply with reporting conditions provided in **Section 1.7**.

1.3.5.2. DMR Report Requirements

On the DMR, the permittee must separately report:

i. The total number of sanitary sewer overflows for the reporting month; and
ii. The total number of dry-weather sanitary sewer overflows for the reporting month.

On the DMR, sanitary sewer overflows are coded "SSO, Dry Weather" and "SSO, Wet Weather". Each discrete location of a sanitary sewer overflow shall be reported as a separate value.

1.3.6. Reporting Less Than Detection; Reporting Significant Figures

For the purpose of evaluating compliance with the permit limits established herein, where certain limits are below the minimum level (ML) of 40 CFR § 136 approved analytical methods, compliance will be demonstrated when a non-detect result is obtained using the most sensitive method available. The results of non-detect analyses, in this case, shall be reported as Below Detection Limit (BDL) or "NODI = B" in NetDMR. Reporting examples are provided below.

Reporting Example 1: If the permit limit is 0.02 mg/L with a method detection limit (MDL) of 0.05 mg/L and no detection is shown, the permittee must report "BDL" or "NODI = B" on DMRs in NetDMR. Whenever "BDL" or "NODI = B" is reported, the actual MDL must be reported in the DMR comments or in an attachment submitted in NetDMR.

Reporting Example 2: If the permit limit is 0.02 mg/L with an MDL of 0.05 mg/L and detection is shown, the actual detected value must be reported.

Reporting Example 3: If the permit limit is 0.02 mg/L with an MDL of 0.01 mg/L and no detection is shown, the permittee must report less than MDL (<0.01 mg/L in this case).

In instances where an average must be calculated with a mix of numerical and BDL results, the permittee shall calculate the average using the MDL value for BDL results.

Reported results are to correspond to the number of significant figures (decimal places) set forth in the permit conditions. The permittee shall round values, if allowed by the method of sample analysis, using a uniform rounding convention adopted by the permittee.

1.3.7. Outlier Data

Outlier data include analytical results that are probably false. The validity of results is based on operational knowledge and a properly implemented quality assurance program. False results may include laboratory artifacts, potential sample tampering, broken or suspect sample containers, sample contamination or similar demonstrated quality control flaw.

Outlier data are identified through a properly implemented quality assurance program, and according to ASTM standards (e.g. Grubbs Test, 'h' and 'k' statistics). Furthermore, outliers should be verified, corrected, or removed based on further inquiries into the matter. If an outlier was verified (through repeated testing and/or analysis), it should remain in the preliminary data set. If an outlier resulted from a transcription or similar clerical error, it should be corrected and subsequently reported.

Therefore, only if an outlier was associated with problems in the collection or analysis of the samples and as such does not conform with the Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR §136), can it be removed from the data set and not reported on DMRs. Otherwise, all results (including monitoring of pollutants more frequently than required at the location(s) designated, using approved analytical methods as specified in the permit) should be included in the calculation and reporting of the values required in the DMR form. The permittee should use the "comment" section in NetDMR to explain any potential outliers or dubious results.

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.

This permit may be modified during its term, per public notice procedures, to include terms and conditions imposed by a total maximum daily load (TMDL) allocation, approved by the EPA to replace the 2004 dissolved oxygen TMDL

1.6. SCHEDULE OF COMPLIANCE

Full compliance and operational levels shall be attained from the effective date of this permit.

1.7. ELECTRONIC REPORTING

This permit requires the submission of forms developed by the Director in order for a person to comply with certain requirements, including, but not limited to, making reports, submitting monitoring results, and applying for permits. The Director may make these forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40. Electronic submission is required when available unless waived by the Commissioner in accordance with 40 C.F.R. § 127.15.

In the event of large-scale emergencies and/or prolonged electronic reporting system outages, an episodic electronic reporting waiver may be granted by the Commissioner in accordance with 40 CFR § 127.15. A request for a deadline extension or episodic electronic reporting waiver should be submitted to DWRWater.Compliance@tn.gov, in compliance with the Federal NPDES Electronic Reporting Rule.

If an episodic electronic reporting waiver is granted, reports with wet-ink original signatures shall be mailed to the following address:

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER RESOURCES
COMPLIANCE & ENFORCEMENT UNIT
Davy Crockett Tower, 9th Floor
500 James Robertson Pkwy
Nashville, Tennessee 37243

For purposes of determining compliance with this permit, data provided to the Division electronically is legally equivalent to data submitted on signed and certified forms. A copy must be retained for the permittee's files.

PART 2

2. GENERAL PERMIT REQUIREMENTS

2.1. GENERAL PROVISIONS

2.1.1. Duty to Comply

The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Water Quality Control Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

2.1.2. Duty to Reapply

The 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 Division Director no later than 180 days prior to the expiration date. Such forms shall be properly signed and certified.

2.1.3. 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, or other technology based effluent limitations such as those established in Tennessee Rule 0400-40-05-.09.

2.1.4. Duty to Provide Information

The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

2.1.5. 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, to:

a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records shall be kept under the conditions of this permit;

b) Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this permit;

c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d) Sample or monitor at reasonable times for the purposes of assuring permit compliance or as otherwise authorized by the Director.

2.1.6. 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 Division's offices or via the Department's dataviewer webpage. As required by the Federal Act, effluent data shall not be considered confidential.

2.1.7. 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.

2.1.8. 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.

2.1.9. 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.

2.1.10. 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 as defined in Rule 0400-40-05-.02;

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); or

c) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices.

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. Causes for such permit action include but are not limited to the following:

i. Violation of any terms or conditions of the permit;
ii. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; and
iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

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.

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 for 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

Except as provided in Tennessee Rule Chapter 0400-40-05-.06(5)(a) or (b), 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 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 permittee shall provide the following information to the Director in their formal notice of intent to transfer ownership:

i. The permit number of the subject permit;
ii. The effective date of the proposed transfer;
iii. The name, address, and contact information of the transferor;
iv. The name, address, and contact information of the transferee;

v. The names of the responsible parties for both the transferor and transferee;
vi. A statement that the transferee assumes responsibility for the subject permit;
vii. A statement that the transferor relinquishes responsibility for the subject permit;
viii. The signatures of the responsible parties for both the transferor and transferee pursuant to the signatory requirements of subparagraph (i) of Rule 0400-40-05-.07(2); and
ix. 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. 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 Resources in the appropriate EFO within 24 hours from the time the permittee becomes aware of the circumstances. The EFO should be contacted for names and phone numbers of the environmental response team.

A written submission must be provided via MyTDEC Forms 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 do not cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the permittee shall report the noncompliance on the DMR. 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.

2.3.2. Overflows and Releases

a) Sanitary sewer overflows, including dry-weather overflows, are prohibited.

b) The permittee shall operate the collection, transmission, and treatment system so as to avoid sanitary sewer overflows and releases due to improper operation or maintenance. A "release" may be due to improper operation or maintenance of the collection system or may be due to other cause(s). Releases caused by improper operation or maintenance of the permittee's collection, transmission, and treatment system are prohibited.

c) The permittee shall take all reasonable steps to minimize any adverse impact associated with overflows and releases.

d) No new or additional flows shall be added upstream of any point in the collection, transmission, or treatment system that experiences greater than 5 sanitary sewer overflows and/or releases per year[2] or would otherwise overload any portion of the system. 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 or release point are less than or proportional to the amount of inflow and infiltration removal documented upstream from that point.

[2] This includes dry weather overflows, wet weather overflows, dry weather releases and wet weather releases.

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 the permittee's DMR and uploaded to NetDMR. The data measurement period shall be sufficient to account for seasonal rainfall patterns and seasonal groundwater table elevations.

e) In the event that chronic sanitary sewer overflows or releases have occurred from a single point in the collection system for reasons that may not warrant the self-imposed moratorium of the actions identified in this paragraph, the permittee may request a meeting with Division EFO staff to petition for a waiver based on mitigating evidence.

f) Unpermitted discharges from the collection or treatment system of industrial facilities are prohibited.

2.3.3. Upset

a) "*Upset*" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations due to 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".

2.3.4. 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.

2.3.5. Bypass

a) "*Bypass*" means 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 the following 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 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; and
   iii. For anticipated bypass, the permittee submits prior notice, if possible at least ten days before the date of the bypass, or for unanticipated bypass, the permittee submits notice of an unanticipated bypass within 24 hours from the time that the permittee becomes aware of the bypass.

c) Bypasses that do not cause effluent limitations to be exceeded may be allowed only if the bypass is necessary for essential maintenance to assure efficient operation and are not subject to the reporting requirements of part b) iii. above.

2.3.6. 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 decreases due to solids wasting to the sludge disposal system. A washout can be caused by improper operation or from peak flows due to inflow and infiltration.

b) A washout is prohibited. If a washout occurs the permittee must report the incident to the Division in the appropriate EFO within 24 hours by telephone. A written submission must be provided within five days. The washout must be noted on that month's DMR. 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 "*Bypass*" (**Section 2.3.5**), "*Overflows and Releases*" (**Section 2.3.2**), and "*Upset*" (**Section 2.3.3**), 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.

PART 3

3. PERMIT SPECIFIC REQUIREMENTS

3.1. CERTIFIED OPERATOR

The waste treatment facilities shall be operated under the supervision of a certified wastewater treatment operator, and the collection system shall be operated under the supervision of a 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 shall submit the results of an Industrial Waste Survey (IWS) in accordance with Rule 0400-40-14-.08-(6)(b)1, including any industrial users (IU) covered under Section 301(i)(2) of the Act. As much information as possible must be obtained relative to the character and volume of pollutants contributed to the POTW by the IUs. This information will be submitted to the Division of Water Resources, Pretreatment Section within one hundred twenty (120) days of the effective date of this permit, unless such a survey has been submitted within 3 years of the effective date. Development of a pretreatment program may be required after completion of the industrial user review. All requirements and conditions of the pretreatment program are enforceable through the NPDES permit.

b) The permittee shall enforce Rule 0400-40-14-.05, "prohibited discharges". Pollutants introduced into the POTW by a non-domestic source shall not cause pass through or interference as defined in Rule 0400-40-14-.03. 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 into the POTW:

i. Pollutants which create a fire or explosion hazard in the POTW, including, but not limited to, wastestreams with a closed cup flashpoint

of less than 140°F or 60°C using the test methods specified in 40 CFR § 261.21

ii. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0 unless the system is specifically designed to accommodate such discharges;

iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW 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 POTW;

v. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40°C (104°F) unless the Division, upon request of the POTW, approves alternate temperature limits;

vi. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

vii. 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; or

viii. Any trucked or hauled pollutants, except at discharge points designated by the POTW.

c) The permittee shall notify the Division 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; or

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 this permit is issued.

This notice will include information on the quantity and quality of the wastewater introduced by the new source into the POTW, 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 Resources gives final authorization.

i. 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 every 12 months;

ii. A list of industries in significant non-compliance as published in local newspapers in accordance with the requirements set forth in Rule 0400-40-14-.08(6)(b)8;

iii. 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; and

iv. A summary of the 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 every twelve months.

3.3. BIOSOLIDS MANAGEMENT PRACTICES

All sludge and/or biosolids use or disposal must comply with 40 CFR § 503 *et seq*. Biosolids shall be sampled and analyzed at a frequency dependent on the amount used annually.

Any facility that land applies non-exceptional quality biosolids must obtain an appropriate permit from the Division in accordance with Chapter 0400-40-15.

a) 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.

b) 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. The current method of sludge disposal is to a municipal solid waste landfill (or co-composting facility). This method of disposal is controlled by the rules of the Tennessee Division of Solid Waste Management (DSWM) and Federal Regulations at 40 CFR § 258.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF SOLID WASTE MANAGEMENT
Nashville Environmental Field Office
711 R.S. Gass Boulevard
Nashville, Tennessee 37216
(615)687-7000

If the permittee anticipates changing its disposal practices to either land application or surface disposal, the Division of Water Resources shall be notified prior to the change. A copy of any 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 Resources.

3.4. PLACEMENT OF SIGNS

Within 60 days of the effective date of this permit, the permittee shall place and maintain a sign at each outfall and any overflow/release point in the collection system or the nearest publicly accessible location. For the purposes of this requirement, any point that has had a total of 5 or more overflows plus releases in the previous 12 months 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 Resources. The following are given as examples of the minimal amount of information that must be included on the signs:

NPDES Permitted Municipal/Sanitary Outfall:

TREATED MUNICIPAL/SANITARY WASTEWATER
Limestone Water Utility Operating Company, LLC
Grassland STP
(615) 714-7868
NPDES Permit NO. TN0027278
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

Unpermitted release/overflow point:

UNTREATED WASTEWATER DISCHARGE POINT
Limestone Water Utility Operating Company, LLC
Grassland STP
(615) 714-7868
NPDES Permit No. TN0027278
TENNESSEE DIVISION OF WATER RESOURCES
1-888-891-8332 ENVIRONMENTAL FIELD OFFICE - Nashville

The permittee may request the removal of signs for unpermitted release/overflows points only. This request should be sent to Division EFO staff detailing the work that has been completed to rectify the cause(s) contributing to overflows and releases at that location. In no case will approval to remove the signs be granted if either an overflow or release has occurred at that location in the previous 12 months.

PART 4

4. DEFINITIONS AND ACRONYMS

4.1. DEFINITIONS

For the purposes of this permit, ***annually*** is defined as a monitoring frequency of once every 12 months beginning with the effective date of this permit, so long as the following set of measurements for a given 12 month period are made approximately 12 months subsequent to that time.

Biosolids are treated sewage sludge that have contaminant concentrations less than or equal to the contaminant concentrations listed in Table 1 of subparagraph (3)(b) of Rule 0400-40-15-.02, meet any one of the ten vector attraction reduction options listed in part (4)(b)1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 of Rule 0400-40-15-.04, and meet either one of the six pathogen reduction alternatives for Class A listed in part (3)(a)3, 4, 5, 6, 7, or 8, or one of the three pathogen reduction alternatives for Class B listed in part (3)(b)2, 3, or 4 of Rule 0400- 40-15-.04.

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 amount*** is a limitation, measured in units of weight per time (*e.g.* pounds per day), on the total amount of any pollutant in the discharge during any calendar day.

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, withdrawal of water, or removal of habitat, except those alterations of a short duration.

De Minimis is degradation of a small magnitude, as provided in this paragraph:

(a) Discharges and withdrawals:
   1. Subject to the limitation in part 3 of this subparagraph, a single discharge other than those from new domestic wastewater sources will be considered de minimis if it uses less than five percent of the available assimilative capacity for the substance being discharged.
   2. Subject to the limitation in part 3 of this subparagraph, a single water withdrawal will be considered de minimis if it removes less than five percent of the 7Q10 flow of the stream.
   3. If more than one activity described in part 1 or 2 of this subparagraph has been authorized in a segment and the total of the authorized and proposed impacts uses no more than 10% of the assimilative capacity, or 7Q10 low flow, they are presumed to be de minimis. Where the total of the authorized and proposed impacts uses 10% of the assimilative capacity, or 7Q10 low flow, additional degradation may only be treated as de minimis if the Division finds on a scientific basis that the additional degradation has an insignificant effect on the resource.

(b) Habitat alterations authorized by an Aquatic Resource Alteration Permit (ARAP) are de minimis if the Division finds that the impacts, individually and cumulatively, are offset by impact minimization and/or in-system mitigation, provided however, in Outstanding National Resource Waters (ONRWs) the mitigation must occur within the ONRW.

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 maximum concentration, in units of mass per volume (*e.g.* 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 units of mass per volume (*e.g.* 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*** is the arithmetic mean of all the measured daily discharges by weight during the calendar month when the measurements were made.

The ***monthly average concentration***, a limitation on the discharge concentration in units of mass per volume, of any pollutant, other than 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 weekly average 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 the 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 ***release*** is the flow of sewage from any portion of the collection, transmission, or treatment system owned or operated by the permittee other than through permitted outfalls that does not add pollutants to waters. In addition, a release includes a backup into a building or private property that is caused by blockages, flow conditions, or other malfunctions originating in the collection and transmission system owned or operated by the permittee. A "release" does not include backups into a building or private property caused by blockages or other malfunctions originating in a private lateral.

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

The term ***semi-annually,*** for the purposes of this permit, means the same as once every 6 months. Measurements of the limited effluent parameters may be made any time during a 6 month period beginning from the effective date of this permit, so long as the second set of measurements for a given 12 month period are made approximately 6 months subsequent to that time, if feasible.

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, 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. 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.

Sludge or ***sewage sludge*** is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

A ***subecoregion*** 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 domestic wastewater 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*** is the sum 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 highest arithmetic mean of all the composite samples collected in a one-week period in a month.

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 limit
BOD_5 – five-day biochemical oxygen demand
BPT – best practicable control technology currently available
$CBOD_5$ – 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*
EPA – Environmental Protection Agency
EFO – environmental field office
GPM – gallons per minute
IC_{25} – inhibition concentration causing 25% reduction in survival, reproduction, and growth of the test organisms
IU – industrial user
IWS – industrial waste survey
LB (lb) – pound
LC_{50} – acute test causing 50% lethality
MDL – method detection limit
MGD – million gallons per day
mg/L – milligrams per liter
ML – minimum level of quantification
mL – milliliter
MLSS – mixed liquor suspended solids
MOR – monthly operating report
NODI – no discharge code in NetDMR
NPDES – national pollutant discharge elimination system
PL – permit limit
POTW – publicly owned treatment works

SAR – semi-annual report [pretreatment program]
SIU – significant industrial user
SSO – sanitary sewer overflow
STP – sewage treatment plant
TBEL – technology-based effluent limit
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

4.3. RESOURCES, HYPERLINKS, AND WEB PAGES

Clean Water Act NPDES Electronic Reporting (eReporting) Information
https://www.epa.gov/compliance/npdes-ereporting

Electronic Code of Federal Regulations (eCFR), Title 40 (40 CFR § 1 through § 1099)
https://www.ecfr.gov/cgi-bin/text-idx?SID=75202eb5d09974cab585afeea981220b&mc=true&tpl=/ecfrbrowse/Title40/40chaptI.tpl

Electronic Reporting (NetDMR) Waiver Request
https://www.tn.gov/content/dam/tn/environment/water/documents/wr_ereporting_waiver.pdf

Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers (EPA)
https://www.epa.gov/sites/production/files/2018-11/documents/low_flow_stats_tools_handbook.pdf

Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA)
https://www.epa.gov/sites/production/files/2015-08/documents/acute-freshwater-and-marine-wet-manual_2002.pdf

NetDMR Login
https://cdxnodengn.epa.gov/net-netdmr/

NetDMR, MyTDEC Forms, & Electronic Reporting Information
https://www.tn.gov/environment/program-areas/wr-water-resources/netdmr-and-electronic-reporting.html

NPDES Compliance Inspection Manual (EPA)
https://www.epa.gov/sites/production/files/2017-01/documents/npdesinspect.pdf

NPDES Electronic Reporting Rule
https://www.federalregister.gov/documents/2015/10/22/2015-24954/national-pollutant-discharge-elimination-system-npdes-electronic-reporting-rule

Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys (QSSOP)
https://www.tn.gov/content/dam/tn/environment/water/documents/DWR-PAS-P-01-Quality_System_SOP_for_Macroinvertebrate_Stream_Surveys-081117.pdf

Rules of the TN Department of Environment and Conservation, Chapter 0400-40
https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40.htm

Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA)
https://www.epa.gov/sites/production/files/2015-08/documents/short-term-chronic-freshwater-wet-manual_2002.pdf

TDEC Water Quality Rules, Reports, and Publications
https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-quality-reports---publications.html

Technical Support Document for Water Quality-based Toxics Control (EPA)
https://www3.epa.gov/npdes/pubs/owm0264.pdf

Tennessee Nutrient Reduction Framework
https://www.tn.gov/content/dam/tn/environment/water/tmdl-program/wr-ws_tennessee-draft-nutrient-reduction-framework_030315.pdf

Tennessee Plant Optimization Program (TNPOP)
https://www.tn.gov/environment/program-areas/wr-water-resources/tn-plant-optimization-programs/tnpop.html

Tennessee Water Resources Data and Map Viewers
https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-resources-data-map-viewers.html

USGS StreamStats
https://www.usgs.gov/mission-areas/water-resources/science/streamstats-streamflow-statistics-and-spatial-analysis-tools?qt-science_center_objects=0#qt-science_center_objects

USGS SWToolbox
https://www.usgs.gov/software/swtoolbox-software-information

ADDENDUM TO RATIONALE AT PERMIT MODIFICATION

Limestone Water Utility Operating Company, LLC Grassland STP
NPDES Permit No. TN0027278
Date: March 30, 2026
Permit Writer: Wade Murphy

The Division makes one change at issue of this permit modification pursuant to the public notice on October 01, 2025, and comments received during the public comment period ending February 21, 2026, following a public hearing on February 11, 2026. The Division provides full consideration and response to comments in a separate Notice of Determination document distributed with this final modified permit.

At permit issue, the Division changed the narrative condition in Part 1.1.4 so that the permittee shall provide TDEC with a copy of the daily operating recording format for monitoring process controls (ORP, DO, TSS, etc.) that the operator will use to supervise plant activities and performance of the AGS process **within 90 days of the modified permit effective date rather than at plant start-up**. The Division makes this change so that the permittee has the time during construction to hire, train, and fund the operating staff that will be necessary for the proper operation of the new technology.

Regarding permit renewal, this action only modifies the permit originally issued on August 30, 2021, and effective January 01, 2022, for a five-year term based on intent identified in engineering documents and updated application forms. This modification does not change the permit expiration date of November 30, 2026. Issue of this modification allows persons with standing to appeal terms and conditions of the modification.

For permit renewal, the permittee must resubmit updated application forms no later than May 30, 2026, unless additional time for submission is granted pursuant to permit regulations. It may be beneficial for the permittee to request an extension so that the application for permit renewal can reflect the construction schedule and scope that may result from the construction bidding process.

MODIFICATION RATIONALE (FOR EXPANSION)

Limestone Water Utility Operating Company, LLC
Grassland STP
NPDES Permit No. TN0027278
Date: 10/01/25
Permit Writer: Wade Murphy

This draft permit modification proposes terms and conditions for a proposed new wastewater treatment plant at 1006 Treatment Plant Road, Franklin, TN, 37069, that will include expansion of the design treatment capacity from 0.25 MGD to 0.45 MGD. See the next page for proposed permit changes.

As provided under Rule 0400-40-05-.06, this permit allows 30 days for public comment on the proposed permit. The 30-day public comment period begins the date this permit is placed on public notice. The public notice document for this permit can be found at the Division's Water Notices and Hearings website under "Permit Public Notices".

Public Notice Date:	September 30, 2025
Comment Period Ends:	October 30, 2025

Those wishing to make a formal comment on the proposed permit may submit comments electronically to Water.Permits@tn.gov, or by mail to:

Division of Water Resources - Water Based Systems Unit
Davy Crockett Tower, 9th Floor
500 James Robertson Parkway
Nashville, TN 37243

The public may also request a public hearing on a proposed permit by submitting such a request in writing during the public comment period specified above. The request should indicate the interest of the party filing it and the reasons why a hearing is warranted. A request for public hearing should be submitted as soon as practicable to the addresses provided above. Questions regarding the draft permit may be directed to 1-888-891-TDEC.

This modification rationale:

- Provides background for the proposed permit action.
- Summarizes the antidegradation analysis
- Identifies the proposed permit changes.
- Provides rationale for the proposed changes.
- Reevaluates potential for ammonia toxicity
- Reevaluates the wastewater operation certification grade

Background

The applicant, via its engineering design consultant, Goodwyn Mills Cawood, LLC (GMC), proposes to replace and expand the current municipal wastewater treatment plant to provide continued wastewater treatment for existing sewer customers and to new customers through additions to the service area.

The existing treatment facility has reached the end of its useful life at an estimated 50 years old. The facility experiences operational problems due to the condition of the aged facility and due to a large volume of extraneous water that enters the treatment plant via the municipal collection system (inflow and infiltration).

The permittee is working with the Tennessee Public Utility Commission (TPUC) to amend its service area to serve additional service areas called the Nash Ridge and Adley Subdivisions (TPUC Docket Numbers 23-00036 and 24-00020 respectively).

The following engineering, planning and permit documents support this proposed permit modification:

Document·Description¤	Related·Date*¤	Project·Number¤
Consent·Order·to·Comply·with·NPDES·Permit¤	13-FEB-2023¤	WPC22-0086¤
Corrective· Action· Plan/Engineering· Report·(CAP/ER)¤	17-MAY-2023¤	WPN23.0259¤
Nash·Ridge·Subdivision·Sewer·Plans¤	18-AUG-2023¤	WPN23.0446¤
Preliminary·Project·Discussion¤	29-AUG-2023¤	WPN23.0470¤
Preliminary·Engineering·Report¤	28-FEB-2024¤	WPN24.0154¤
Application·for·NPDES·Permit·Modification¤	28-MAR-2025¤	TN0027278¤
De·minimis·Antidegradation·Analysis;·Amended·Application·for·NPDES·Permit·Modification¤	19-JUN-2025¤	TN0027278¤
Basis·of·Design·Report·(Engineering·Report)¤	17-JAN-2025¤	WPN25.0038¤
Construction·Plans·and·Specifications¤	05-AUG-2025¤	WPN25.0545¤

*Effective date for the consent order and the initial received date for other documents. Incomplete and resubmittal dates are not listed.

Antidegradation Analysis

Stream determinations for this permit action are associated with the waterbody segment identified by the Division as segment ID# TN05130204009_3000.

The Division has made a water quality assessment of the receiving waters associated with the subject discharge(s) and has found the receiving stream to be neither an exceptional nor outstanding national resource water. Additionally, the division assesses this water as not having quality to support its recreation designated use due to pathogens (*E. coli*) or its fish and aquatic life designated use due to nutrients. The Division's reassessment on the water quality segment in May 2024 concluded that nutrients are generally elevated downstream at river mile 65.6 based on monthly chemical data collected in 2021-2022. The Harpeth River Conservancy collected numerous *E. coli* samples from 2020-2023 at RM 68.4 that showed criteria violations for pathogens. The City of Franklin conducted annual continuous monitoring in 2019, 2020, & 2021. Sampling showed temperatures over criteria in two summers, and for two days ambient dissolved oxygen (D.O.) just briefly below the D.O. criteria in 2020. All other D.O. readings were above 5.0. Monthly samples from the last three cycles (n=37) showed all D.O. discreet samples above criteria. Based on all dissolved oxygen data, the Division is delisting low dissolved oxygen as a cause of impairment in this segment.

Total Maximum Daily Loads (TMDLs) have been developed and approved for this waterbody segment on the following parameters and dates:

Parameter:	TMDL Approval Date:
Dissolved Oxygen	September 2004

The applicant provided its antidegradation analysis on June 19, 2025, with its application for permit modification. The applicant states, *To improve treatment and ensure downstream water quality does not decline, Central States Water Sources (CSWR) is dedicated to incorporating advanced wastewater technology at Grassland STP. As a result, CSWR takes the position that improvements to Grassland STP will result in de minimis degradation to the receiving stream.*

More specifically, the applicant's analysis demonstrates that:

- Projected effluent will not result in pollution by exceeding any applicable water quality criterion based on three effluent scans for metals.
- Oxygen-demanding pollutants ($CBOD_5$ and ammonia) will not increase.

Below are the scan results reported by the applicant:

Table 0.3. *Results of Heavy Metal Scans*

Date	Arsenic [mg/L]	Barium [mg/L]	Cadmium [mg/L]	Chromium [mg/L]	Lead [mg/L]	Mercury [mg/L]	Selenium [mg/L]	Silver [mg/L]
8/5/2024	0.001	0.044	0.0001	0.001	0.003	0.0001	0.001	0.0002
8/12/2024	0.001	0.035	0.0001	0.002	0.001	0.0001	0.001	0.0001
8/19/2024	0.001	0.032	0.0001	0.001	0.001	0.0001	0.001	0.0001
Criterion Maximum Concentration (CMC)	**0.340**	**2.000**	**0.0018**	**0.570**	**0.065**	**0.0014**	**0.02**	**0.0032**

The applicant's evaluation above shows that the applicant's projected effluent concentrations will not violate water quality standards. Additionally, the Division used the results of these effluent scans to evaluate whether the proposed new discharge at 0.45 MGD, in combination with impacts of upstream discharges, will constitute less than de minimis degradation. The evaluation shows that all the parameters except mercury are projected below de minimis levels. Below is a summary of the Division's evaluation.

The antidegradation regulation defines de minimis as 10% of available assimilative capacity when there are multiple discharges into a stream segment. This evaluation uses the 10% allocation in consideration that Berry's Chapel Utility, Inc., is authorized to discharge 0.4 MGD to the Harpeth at RM 77.9. Therefore, the spreadsheets below calculate allowable amounts using the currently authorized flow rate of Grasslands (0.25 MGD) combined with Berry's Chapel (0.4 MGD).

In this calculation, the Division assumes that the river background concentration is already at ½ the most stringent, applicable, water quality criterion. This segment of the river is designated for fish & aquatic life, recreation, irrigation, livestock water & wildlife uses, domestic water supply and industrial water supply. Therefore, the most stringent criteria in columns 5, 6, 9, 10 and 11 of the tables below apply.

The Division also uses a lower stream flow in the analysis than it used in the permit issued in August 2021. That permit used a flow rate calculated using a United States Geological Survey (USGS) tool that uses regression equations and hydrology factors to estimate stream flow from watershed runoff. This evaluation uses the statistical low flow measured from 1988 through 2025 at flow gage #03432400 downstream from Franklin's POTW outfall and upstream of Limestone Grasslands at the Highway 431 bridge.

Calculated allowable concentrations to uphold designated stream uses (prevent pollution) are highlighted yellow.

2019 WQC

WATER QUALITY CALCULATIONS FOR METALS AND OTHER TOXIC SUBSTANCES
WATER QUALITY BASED EFFLUENT CALCULATIONS
OUTFALL 001

FACILITY: Grasslands **PERMIT #: TN0027278** **DATE: 22 SEP 2025** **CALC BY: WDM**

non-regulated stream worksheet (7Q10)

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
2.49	**3.46**	**0.65**	**19**	**224**	**100**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Stream	Fish/Aqua. Life (F & AL) WQC			F & AL- instream allowable		**Calc. Effluent Concentration**		Human Health Water Quality Criteria *					
	Bckgrnd.	lab conditions		Fraction	ambient conditions (Tot)		based on F & AL		In-Stream Criteria			**Calc. Effluent Concentration ****		
	Conc.	Chronic	Acute	Dissolved	Chronic	Acute	Chronic	Acute	Organisms	Water/Orgs	DWS	Organisms	Water/Orgs	DWS
PARAMETER	[ug/l]	[ug/l]	[ug/l]	[Fraction]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]	[ug/l]
Chromium III	367.581	143.468	1102.929	0.195	735.162	5651.640	**2143.28**	**25893.65**	N/A	N/A	N/A	**N/A**	N/A	N/A
Chromium VI	5.500	11.000	16.000	1.000	11.000	16.000	**32.07**	**56.22**	N/A	N/A	N/A	**N/A**	N/A	N/A
Chromium, Total	50.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100.0	**N/A**	N/A	366.15
Barium	1000.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2000.0	**N/A**	N/A	7323.08
Cadmium (a,b)	2.449	1.316	3.828	0.269	4.899	14.248	**14.28**	**59.45**	N/A	N/A	5.0	**N/A**	N/A	18.58
Lead (a,b)	2.500	5.982	153.506	0.165	36.164	928.030	**165.12**	**4473.52**	N/A	N/A	5.0	**N/A**	N/A	18.31
Mercury (T) (c)	0.025	0.770	1.400	1.000	0.770	1.400	**3.62**	**6.67**	0.051	0.05	2.0	**0.19**	0.18	12.51
Silver (a,b,e)	6.439	N/A	12.878	1.000	N/A	12.878	N/A	**37.54**	N/A	N/A	N/A	**N/A**	N/A	N/A

2019 WQC

WATER QUALITY BASED EFFLUENT CALCULATIONS
OUTFALL 001

FACILITY: Limestone Grasslands
PERMIT: TN0027278
DATE: 22 SEP 2025

Stream (7Q10) [MGD]	Stream (30Q5) [MGD]	Waste Flow [MGD]	Ttl. Susp. Solids [mg/l]	Hardness (as CaCO3) [mg/l]	Margin of Safety [%]
2.49	**3.46**	**0.65**	**19**	**224**	**100**

	1	2	3	5		6	7		8	9	10	11	12	13	14
	Stream	Dectection Levels		Fish/Aqua. Life			**Calculated Effluent Concentration**			Human Health Water Quality Criteria (30Q5)					
	Bckgrnd.	Scan	WQC RDL	Water Quality Criteria						In-Stream Criteria			**Calculated Effluent Concentration**		
	Conc.	MDL	*EPA MDL	Chronic		Acute	Chronic		Acute	Organisms	Water/Org	DWS	Organisms	Water/Org	DWS
PARAMETER	[µg/l]	[µg/l]	[µg/l]	[µg/l]		[µg/l]	[µg/l]		[µg/l]	[µg/l]	[µg/l]	[µg/l]	[µg/l]	[µg/l]	[µg/l]
Arsenic	5	1.0	1.0	150.0		340.0	**705.5**		**1623.3**	10.0	10.0	10.0	**36.6**	**36.6**	**36.6**
Selenium (f)	0.75	5.0	2.0	1.5	3.1	20.0	**4.4**	**12.1**	**93.7**	4200.0	170.0	50.0	**26552.9**	**1070.9**	**312.2**

The following table converts these allowable concentrations into allowable loads for 0.65 MGD, calculates the de minimis load (10%) and then compares that to the calculated increase in load by an additional 0.2 MGD using the highest value from the applicant's heavy metal scans. All the projected load increases except for mercury are below the 10% load:

Parameter	Calculated Allowable Concentration	Calculated Available Load	10% Load	Maximum Antidegradation Concentration	Projected Increase in Load	Projected Less Than De minimis
	ug/L	lb/d	lb/d	mg/L	lb/d	
Arsenic	36.6	0.1984086	0.01984086	0.001	0.001668	Yes
Cadmium	14.28	0.0774119	0.007741188	0.0001	0.000167	Yes
Chromium, Total	366.15	1.9848992	0.198489915	0.002	0.003336	Yes
Chromium VI	32.07	0.1738515	0.017385147	0.002	0.003336	Yes
Barium	7323.08	39.698417	3.969841668	0.044	0.073392	Yes
Lead	18.31	0.0992585	0.009925851	0.003	0.005004	Yes
Mercury	0.18	0.0009758	0.000097578	0.0001	0.000167	No
Selenium	4.4	0.0238524	0.00238524	0.001	0.001668	Yes
Silver	37.54	0.2035043	0.020350434	0.0002	0.000334	Yes

However, it is not reasonable to assume that treated domestic wastewater from either Limestone Grasslands or Berry's Chapel are sources of mercury.

The reported mercury value in the metals scans is likely a function of the applicant using a test method whose minimum detection level is not low enough to demonstrate compliance with de minimis in this scenario. For many years, EPA's approved test method for mercury could reliably test down to 0.0002 mg/L of which 0.0001 is ½ the detection level. In recent years, EPA approved additional test methods for mercury in treated wastewater whose minimum detection level is 5 ng/L or 0.000005 mg/L. Until the applicant/permittee demonstrates de minimis levels of mercury, de minimis can be maintained via a permit limit.

Summary of Proposed Permit Changes by Pages

Permit Page	Description of Change
5	Addition of Sludge Volume Index (SVI) alert level
6	Reduced concentrations for effluent TSS (mg/L)
6	Addition of TSS daily maximum load limit (lb/d)
6	Elimination of chlorine limits
7	Addition of UV system monitoring
7	Revised daily maximum *E. coli* limit
7	Addition of monthly certification statement parameter
7	Addition of mercury monthly average effluent limit
7-8	Reduced concentrations for ammonia and CBOD5 (mg/L)
7-8	Addition of ammonia and CBOD5 daily maximum load limits (lb/d)
8	Elimination of TSS and CBOD5 minimum 40% removal requirement
9	Added notes about the monthly certification statement, SVI and Hg
11	Added a narrative report requirement applicable at start-up
14	Added narrative regarding MDL of mercury analyses
NA	Changes wastewater operation certification grade from III to IV

Rationale for Proposed Permit Changes

Page 5 - Addition of Sludge Volume Index (SVI) alert level

Measuring the sludge volume index is a means to confirm the quality of the mixed liquor suspended solids in the reactor tanks and the effectiveness of the pollutant removal process.

The permittee proposes to replace its old, extended aeration activated sludge treatment plant technology with an expanded treatment processing using a technology known as Aerobic Granular Sludge or AGS. This technology provides both treatment and settling in the same basin saving on infrastructure costs. The process uses chemical addition and process control probes to create and

maintain an environment in the reactor tanks where the treated sewage creates dense solids that settle rapidly for removal of pollutants out of the system. Sludge volume index (SVI) is the typical measure of this settleability in biological treatment plants. Data submitted with the engineering documents for the proposed new treatment process say that the AGS process proposed generally achieves a SVI that is less than or equal to 50 mL/g.

Therefore, this permit proposes to impose weekly monitoring and reporting of SVI with 50 mL/g being an alert value rather than a limit. The monitoring keeps the operator informed of the effectiveness of the process control and reporting the results to the state provides demonstration to the public that the facility process performs technologically as designed.

Achieving the outcome and successfully removing pollutants is necessary for the permittee to meet its goal of no measurable increase in pollutants from the added 0.20 MGD in treatment plant capacity (de minimis increase in pollutants to the Harpeth River.) This permit does not propose any specific follow up requirement whenever the 50 mL/g value is not achieved and leaves the operator the discretion to incorporate the feedback into its process control as appropriate.

Pages 6-8 - Reduced concentrations for effluent TSS, ammonia as nitrogen and $CBOD_5$ (mg/L)

This permit reduces the concentration limits for TSS, ammonia as nitrogen and $CBOD_5$ for two reasons: 1) To maintain de minimis degradation (unmeasurable movement of water quality toward impairment by the addition of pollutants) when the facility expands from 0.25 to 0.45 MGD and 2) To maintain the wasteload allocation for oxygen demanding pollutants established by the 2004 dissolved oxygen TMDL developed by the Environmental Protection Agency (EPA).

To maintain existing pollutant loading to the river authorized for the 0.25 MGD treatment facility, effluent concentrations must be reduced by the relationship: lb/d = mg/L x MGD x 8.34. The following table compares existing and future loadings for these three parameters:

TSS			Ammonia Summer			CBOD5 Summer			Ammonia Winter			CBOD5 Winter		
0.25 conc.	Load	0.45 conc.	0.25 conc.	Load	0.45 conc.	0.25 conc.	Load	0.45 conc.	0.25 conc.	Load	0.45 conc.	0.25 conc.	Load	0.45 conc.
30	63	17	2	4	1.1	5	10	2.8	5	10	2.8	10	21	6
40	83	22	3	6	1.7	7.5	15.6	4.2	7.5	16	4.2	15	31	8
45	94	25	4	8	2.2	10	21	5.6	10	21	5.6	20	42	11

Highlighted values are proposed new limits for the 0.45 MGD design flow.

Pages 6-8 - Addition of Daily Maximum Loads for TSS, Ammonia as Nitrogen and $CBOD_5$

Daily load limits cap the amount of water hydraulically passed through the plant in excess of the pollutant removal capability of the treatment plant.

This facility, like many other municipal and domestic wastewater treatment plants, experiences inflow and infiltration into the sewer system during rain events and/or high groundwater tables. Federal regulation requires that concentration-based effluent limits be paired with load limits, but the Division typically applies a 40% daily minimum removal rate as an equivalent measure to daily maximum loading. However, the proposed AGS design will allow for peak flows to enter the reactor basins during decant as a normal function of operation. It is not clear in the basis of design documents where this mode of operation ceases to be treatment and becomes pass-through of dilute inflow and infiltration. Load limits are a function of flow rate. Therefore, the Division imposes daily effluent load limits on TSS, ammonia and $CBOD_5$ to focus operations on organic pollutant removal and not masking of infiltration and inflow.

Pages 6-7 - Elimination of Chlorine Limits and Addition of UV System Monitoring/Reporting

These changes to the permit reflect the proposed change in disinfecting method.

Chlorination

The new treatment facility proposes to disinfect using ultraviolet light radiation eliminating the use of chlorine. Elimination of chlorine and dechlorinating agents from the treated effluent is consistent with applicant's intent to cause no measurable degradation with the upgrade. Therefore, the Division does not include limits on effluent total residual chlorine in the limit set for the 0.45 MGD design.

In consideration that the final construction plans for the proposed new treatment system are not approved nor bid, for construction the Division calculates the allowable amount below for planning purposes:

$$\frac{0.019\ (Qd + Qs)}{Qd} = Limit\ (mg/L) = \frac{0.019(0.45 + 2.49)}{0.45} = 0.124\,mg/L \approx 0.12\,mg/L$$

Where:

0.019 mg/L	=	acute instream protection value
2.49	=	Qs – Updated 7Q10 flow of receiving stream (MGD)
0.45	=	Qd – design flow of new AGS STP (MGD)

Ultraviolet Light Radiation

An Ultraviolet (UV) disinfection system transfers electromagnetic energy from a specially designed lamp to an organism's genetic material (DNA and RNA). When UV radiation penetrates the cell wall of an organism, it destroys the cell's ability to reproduce. (EPA 832-F-99-064)

This type of disinfection generally does not have the potential to contribute to pollutants in the effluent. However, the lamps or bulbs must be properly operated and maintained. Maintenance often entails cleaning algae growth off the surface of the UV bulbs. As such, the limit table includes a reportable limit to ensure that the UV lamps/bulbs are functional. This limit is a pass/fail.

Page 7 - Revised *E.coli* Daily Maximum Limit

A reduced daily maximum *E. coli* limit applies due to a change in Tennessee state water quality standards.

In November 2022, the Tennessee Board of Water Quality, Oil, and Gas adopted a new maximum criterion to align with U.S. Environmental Protection Agency national recommended criteria. That criterion will apply to Tennessee waters to protect the recreation use designation effective March 17, 2024. EPA established a statistical relationship between number of colony forming units and percent of time when such numbers were observed in any 30-day period. The new criterion of 410 cfu/100 mL corresponds to no exceedances in more than 10% of samples during any 30-day interval for all receiving waters.

Tennessee has historically applied water quality standards for pathogens at the outfall of POTWs so that a discharger can demonstrate that it is not contributing to any violation of the criterion in the receiving waterbody. The Division therefore proposes to apply the new criterion as a daily maximum of 410 cfu/100 mL in accordance with EPA guidance and retains the monthly geometric mean for E. coli of 126 cfu/100 mL.

For the purposes of this permit modification (i.e. public comment, construction plans approval), this new daily maximum limit only applies to the 0.45 MGD facility. (Revisions to limits for the 0.25 MGD design will happen at permit renewal.) Units for E. coli have been standardized to #/100 mL, which is functionally equivalent to colony forming units.

Page 7 - Addition of Monthly Certification Statement Parameter

To use an analogy, the AGS process is set up to run on autopilot, but the control systems must still be supervised for successful piloting through dynamic operating conditions that present. Waiting to review data recorded in the "black

box" computer system after the system "crashes and burns" is not acceptable operation and maintenance to protect water quality in the Harpeth River and to maintain de minimis degradation.

The AGS vendor will supply various types of probes that will self-regulate the reactor basins through four phases identified as anaerobic fill, react, settle and filled decant. The process needs specific conditions for the bacteria in the reactors to form the granules capable of pollutant removal with quick settling. These conditions will be subject to the dynamics of inflow and infiltration and the addition of acetic acid (carbon source) and alum (coagulant) by the operator.

With the implementation of the federal electronic reporting rule, Monthly Operating Reports (MORs) forms serve as tools to calculate results reported on monthly Discharge Monitoring Reports (DMRs). These reports only serve to demonstrate compliance with technology-based and/or water-quality based effluent limits. They are insufficient for supervising process control.

Process control records are appropriately maintained onsite. The purpose of this parameter is for the operator to certify monthly on its DMR that the reporting month's process control record is complete and available for inspection.

Page 7 – Addition of a Mercury Effluent Limit

This permit imposes a limit on mercury so the discharge will result in only de minimis degradation as intended by the applicant. This limit may be considered for removal from the permit based on new information.

As described above in the antidegradation discussion, the inability by the applicant's antidegradation analysis to show that mercury is de minimis appears to be a function of the test method used for analyzing mercury in the sample. Using an EPA approved method with a method detection level of 5 ng/L, equivalent to 0.005 ug/L, or 0.000005 mg/L, will have the potential to demonstrate that the level of mercury in the proposed discharge of 0.45 MGD will constitute de minimis degradation.

This modified permit will expire November 30, 2026. The applicant is welcome to recharacterize mercury with its renewal application due by June 01, 2026, for reconsideration of the need to impose the mercury limit at permit renewal.

There are two discharges into the receiving stream segment so the de minimis degradation for mercury, 10% of available assimilative capacity, must be allocated between the two dischargers. The proportioning uses the following factors:

0.0009758 lb/d = allowable de minimis load (from Table on MOD-5)
0.45 MGD = Design flow rate of Limestone Grasslands, TN0027278
0.40 MGD = Design flow rate of Berry's Chapel Utility; TN0029718

Proportioning the load yields the load to Limestone Grasslands:

$$\frac{0.45}{(0.45+0.40)} \times \frac{0.0009758\ lb/d}{} = \frac{0.0005166\ lb/d}{}$$

Converting the load into a concentration limit yields:

$$\frac{0.0005166 \frac{lb}{d}}{(0.45\ MGD)(8.34)} = \ 0.0001376 \frac{mg}{L} or\ 0.1376 \frac{ug}{L}$$

The permit imposes the limit as a monthly average with a monthly monitoring frequency. The applicant may sample for mercury more than once per month at its discretion to meet the average.

The water quality criterion for mercury is a human health criterion protective of a lifetime of exposure via domestic water supply and recreational exposure such as eating fish. Therefore, it applies as a monthly average.

Page 8 – Removal of 40% Minimum Removal Rate for TSS and $CBOD_5$

Minimum daily removal rates for TSS and $CBOD_5$ have been removed from the percent removal rate table on Page 8 because the Division replaces this parameter with daily maximum load limits for TSS and $CBOD_5$. The Division considers daily load limits and daily minimum percent removal rates to both represent technology removal daily and does not intend to enable the possibility of double permit violations. As stated previously, the Division is imposing the daily load limits (versus minimum percent removal) to limit the ability of the proposed technology to blend unlimited inflow and infiltration during the filled decant portion of the AGS cycle.

Page 9 – Notes For Monthly Certification, SVI and Mercury Sampling

The Division adds notes under the limit tables applicable to the 0.45 MGD facility regarding the monthly certification statement, SVI and mercury parameters.

Page 11 – Added Narrative Start-up Requirement

This permit adds an enforceable requirement for the permittee to provide the Division a reporting format for supervising process control and waste activated sludge disposal at start-up of the new treatment facility.

Rule 0400-40-02-.10 requires the submission of records and reports to ascertain the continuous and satisfactory operation of the works in such manner as to insure the protection of water quality. The Division establishes parameters on monthly discharge monitoring reports (DMRs) and monthly operating reports (MORs) to demonstrate in the public record that the discharge complies with minimum technology treatment standards and any more stringent water quality standards, including antidegradation, that apply. Such DMRs/MORs are neither designed nor suggested as the supervisory control of the AGS process.

When Limestone's engineering consultant evaluated alternatives to replace the existing treatment process in the document, *Preliminary Engineering Report, Grassland STP Improvements for Central States Water Resources, September 2024, by Goodwyn Mills Cawood, LLC, GMC Project Number CNAS230028*, tracked as WPN 24.0154, it says this about the AGS process:

> AGS offers simultaneous removal of carbon, nitrogen, phosphorus, and other wastewater constituents through a fast-settling biological process that reduces residence time. This allows the biological process to have shorter cycles, reduction in oxygen demand, and a smaller footprint, which reduces energy requirements. While AGS reduces energy through microbial relationships, it does require frequent process testing to ensure treatment conditions are favorable for the reactions to take place. Additionally, AGS requires more operator interaction due to the plant operating in batches and requiring supervision and maintenance throughout the day to ensure the next run is successful. Compared to membrane systems where treatment is accomplished through filtration and the primary responsibility for operators is ensuring the membranes are cleaned and the blowers are serviced, AGS is more involved to operate. However, membranes incur larger power costs due to the energy-intensive solid-liquid separation phase.

Prior to start-up then, the engineering design consultant, in cooperation with the technology vendor, are being required to develop for the operator, the plan for supervising and maintaining favorable treatment conditions in each batch of wastewater treated throughout the day. The permit is requiring that the evidence of this process control supervision be documented monthly in an on-site file record and for the permittee to record on its DMR that this record is complete and on file.

Similarly, per the engineering *basis of design* document, tracked as WPN25.0038, the engineering design consultant reports that favorable pollutant removal conditions are a function of wasting mixed liquor suspended solids (MLSS). This

permit refers to that wasted product as waste activated sludge (WAS). The basis of design report says that it is necessary to waste MLSS during the react step (surface wasting) to select favorable conditions for the formation of granules that settle rapidly. The report estimates needing to waste up to 4,868 gallons per day. The report says that due to on-site limitations for managing waste solids, the permittee must plan on hauling 2 trucks of waste solids per day, five days per week. The permittee currently has a commitment by the City of Columbia to accept these loads as well as a septage hauler to transport them to Columbia. Neither the receiver nor the hauler have presented commitments for the life of this process. This permit is requiring that the on-site process control log also records what happens to the waste activated sludge daily as well as to document that the permittee continually identifies redundant receivers and haulers to keep the AGS process operating properly.

Page 14 – Mercury Sampling Method

The Division repeats the note added to Page 9 that requires mercury be sampled and analyzed via a method with a method detection limit of 5 ng/L or less in Part 1.2.3 of the permit. Part 1.2.3 of the permit is the usual place that the Division ads this requirement into NPDES permits. The Division includes it redundantly for the convenience of persons who will inspect this facility in the future for permit compliance.

Recheck for Ammonia Toxicity

This proposed permit modification uses a reduced stream low flow based on flow measurements at the USGS gaging station below the City of Franklin and upstream of Limestone Grassland's STP. Therefore, it is necessary to double check that the permit's antidegradation-based effluent limits for ammonia will not result in ammonia toxicity. The below calculation shows that the antidegradation based limits for ammonia of 1.1 mg/L summer and 2.8 mg/L winter, to protect dissolved oxygen and meet the dissolved oxygen TMDL, are more stringent than those calculated to prevent toxicity to fish and aquatic life. Therefore, no reduction in the ammonia limits is necessary for toxicity.

CCC Calculation: Chronic Limits

	Winter			Summer
Temp (°C)=	17		Temp (°C)=	27
pH=	8		pH=	8
MAX Expression	17.0000		MAX Expression	27.0000
Winter CCC=	**0.94**		Summer CCC=	**0.49**

CCC - Continuous Chronic Criterion Allowable instream NH3 concentration [mg/l]

$$CCC = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) x\left(2.126 \times 10^{0.028\times(20-MAX\ (T,7))}\right)$$

where:	2.49	Critical Low Flow [MGD] (7Q10 value)
	0.1	Background Ammonia Concentration [mg/L] *
	0.45	WWTP Design Flow or long-term average flow [MGD]

$$Effluent\ Concentration = \frac{CCC\ X\ ([Background\ Ammonia\ Concentration] + [Design\ Flow]) - ([Critical\ Low\ Flow] * [Background\ Ammonia\ Concentration])}{Design\ Flow}$$

Therefore, the Allowable **Effluent Concentrations** and corresponding **Amounts** in winter and summer are:

Winter		Summer	
5.61	Concentration [mg/L]	**2.680**	Concentration [mg/L]
21.0	Amount [lb/day]	**10.1**	Amount [lb/day]

* In the absence of measured data, an assumed background concentration of 0.1 mg/L is used based on an Agreed Wasteload Allocation Modeling Methodology between the EPA and State of TN

Reevaluate Required Wastewater Operator Certification Level

Operator grades are rated by the Division of Water Resources pursuant to Rule 0400-49-01, on behalf of the Water & Wastewater Operators Certification Board. The Division identifies ratings in the permit file record and in permit fact sheets but not permits so that the Water & Wastewater Operators Certification Board and operators can negotiate changes to a POTW's rating without having to modify the NPDES permit.

In this case, designers at Goodwyn Mills Cawood (GMC) rated the new treatment plant using a spreadsheet provided by the Division that sums points for the proposed new treatment processes and other plant operation factors. Based on the evaluation of the proposed new treatment plant design, the wastewater operation certification of the operator in charge will be increasing from Grade III to Grade IV.

See the rating sheet on the next page:

Department of Environment & Conservation

State of Tennessee
Department of Environment and Conservation -Division of Water Resources
Wastewater System Operator Grade Calculation Sheet for Grades II, III, IV
Wastewater Plants with a design flow of less than 0.075 MGD are Grade I
1/6/2017

Instructions:
1. Complete only boxes with red background. All other values are standard or calculated.
2. Fill in red boxes in Section 1.
3. Fill in red box with number of connections in collection system.
4. In "Variation Raw Wastewater" Section place a "Y" in one of the four options provided in list.
5. In "Effluent/Permit Characteristics" input CBOD/BOD and NH3 limits from NPDES permit
6. In "Receiving Stream Sensitivity" section place a "Y" in one of the six options provided in list.
7. In the "Treatment Processes", "Sludge Treatment and Handling", and "Laboratory Control" sections place a "Y" in all processes that are applicable to this plant.
8. The table to the left will calculate total points and place Section 2 table.

Section 1			
Facility Name	Grassland STP	NPDES Number	TN0027278
Facility Contact	Micah Franklin	Phone Number	816-317-4755
Form Completed By	Logan Dickinson	Date	8/26/2025
Design Flow (MGD)	0.45		

Section2			
Wastewater Plant Total Points	86	Wastewater Plant Grade	4
# of Connections for Collection System	566	Collection System Grade	1

Section 3					
Variation Raw Wastewater (flow, BOD, or SS use ratio of peak to average) Select only one box.			Effluent/Permit Characteristics	CBOD/BOD	2.7
				NH3	1.1
Less than 100 percent	0		Design Flow Points (30 max.) (Qd X 2)	2	
100-200 percent	2		Receiving Stream Sensitivity (Select only one box)		
More than 200 percent	4	Y	Secondary (STP limits: BOD≥30 and no NH3)	1	
Subject to toxic wastes	6		Adv. Sec. (BOD = 10-29 and any NH3)	3	
			Tertiary (BOD<10 and any NH3)	5	Y
			Direct Reuse	7	
			Land Disposal, evaporation	2	
			Subsurface discharge	4	

Treatment Processes					
Manually cleaned screens	2		Two-stage activated sludge	10	
Mechanically cleaned screens	3		Polishing pond or effluent flow equal	2	Y
Preareation	2		Land application of treated effluent	5	
Comminutor, barminutor, grinders, etc.	3		Chemical treatment removal	6	
Grit removal	3	Y	Denitrification	10	Y
Raw sewage pumping (on-site)	3	Y	Sand or mixed media filters	8	Y
Flow equalization basin (aerated)	5	Y	Activated carbon beds	10	
Flow equalization basin (unaerated)	3		Nitrification required by permit		
Fine screens (preliminary treatment)	3	Y	By activated sludge	6	Y
Pre-chlorination	3		By other processes	5	
Primary clarifiers	5		Disinfection		
Primary clarifiers with chemical settling aid	7		Chlorination/PAA	5	
Swirl system	3		Dechlorination	5	
Secondary clarifiers	5		Ozonation	10	
Flocculation with or without chemical aid	7	Y	Ultraviolet	5	Y
Trickling filter with or without chemical aid	6				
Trickling filter with recirulation	8				
Activated Sludge					
Oxidation ditch	8				
Mechanical aeration	9				
Diffused or dispersed aeration	10				
Batch treatment (SBR, ICEAS, etc.)	10	Y			
Pure oxygen	15				

Sludge Treatment and Handling					
Anaerobic digestion (check either unheated or heated)			Solids reduction (incinerator, wet oxidation, etc.)	15	
Unheated	5		Chemical stabilization with lime	8	
Heated	10		All other dewatering units including wedgewire and vacuum beds, both with polymers	5	
Aerobic digestion	7		Composting:in vessel	10	
Drying beds	3		Composting:static pile	5	
Sand bed with polymer added	5		Land application	5	
Gravity thickener	5	Y	Sludge lagoon	3	
Dissolved air flotation thickener	8		Sludge disposal (Landfill, land application, etc.)	Y	
Vacuum filter	8				
Centrifuge	8				
Belt press, plate & frame filter press	8				

Laboratory Control (Check all that apply)					
Bacteriological			Chemical/Physical		
Lab work done outside the plant	0	Y	Lab work done outside the plant	0	Y
Membrane filter procedures	3		Push-button or visual methods for simple tests such as pH,	3	Y
Use of fermentation tubes or any dilution method	5		Test such as DO, COD, BOD, titrations, gas analysis, volatile content	5	Y
Biological identification	7		Specific nutrients, total oils, phenols, etc.	7	
			A/A or GC/MS	10	

Point system taken from operator rules. (TN Rule 0400-49-01-.08 CLASSIFICATION OF WASTEWATER TREATMENT PLANTS AND WASTEWATER COLLECTION SYSTEMS)

In summary, the Division proposes the following changes in the modified permit:

Permit Page	Description of Change
5	Addition of Sludge Volume Index (SVI) alert level
6	Reduced concentrations for effluent TSS (mg/L)
6	Addition of TSS daily maximum load limit (lb/d)
6	Elimination of chlorine limits
7	Addition of UV system monitoring
7	Revised daily maximum *E. coli* limit
7	Addition of monthly certification statement parameter
7	Addition of mercury monthly average effluent limit
7-8	Reduced concentrations for ammonia and CBOD5 (mg/L)
7-8	Addition of ammonia and CBOD5 daily maximum load limits (lb/d)
8	Elimination of TSS and CBOD5 minimum 40% removal requirement
9	Added notes about the monthly certification statement, SVI and Hg
11	Added a narrative report requirement applicable at start-up
14	Added narrative regarding MDL of mercury analyses
NA	Changes wastewater operation certification grade from III to IV

MINOR MODIFICATION RATIONALE

Limestone Water Utility Operating Company, LLC
Grassland STP
NPDES Permit No. TN0027278
Date: 02/06/22
Permit Writer: Wade Murphy

This minor modification transfers the NPDES permit to Limestone Water Utility Operating Company, LLC from Cartwright Creek, LLC. Permit regulation allows that a permit transfer due to change in ownership is a minor modification not requiring public notice. (Rule 0400-40-05-0.06(5)(b)).

On January 25, 2022, the Division received written notification from Josiah Cox, President, Limestone Water Utility Operating Company, LLC, dated December 27, 2021, notifying the Division that Limestone Water Utility Operating Company, LLC had acquired the sewerage treatment plant assets from Cartwright Creek Utility, LLC, effective December 21, 2021.

Limestone Water Utility Operating Company, LLC has an active business filing with the Tennessee Secretary of State, Control # 000997814.

Further, Limestone Water Utility Operating Company, LLC, applied for and obtained a Certificate of Public Convenience and Necessity (CCN) from the Tennessee Public Utility Commission (TPUC) to provide sewer utility service as a privately-owned public utility. The TPUC granted the CCN on January 24, 2022, via Docket #2100053.

For discharge and monthly operating monitoring and reporting purposes, this minor modification is retroactively effective on January 01, 2022.

References to Cartwright Creek, LLC in the original fact sheet dated 7/28/21 and its addendum at permit issue dated 8/30/21 remain unchanged. The division published those documents prior to the asset transfer. However, the rationale within those documents for permit limits and conditions are the basis for the minor modified permit issued to Limestone Water Utility Operating Company, LLC.

ADDENDUM TO RATIONALE AT PERMIT ISSUE

Cartwright Creek, LLC
Grassland STP
NPDES Permit No. TN0027278
Date: 8/30/21
Permit Writer: Wade Murphy

On August 3, 2021, Bruce Meyer sent comment on the draft permit rationale on behalf of Cartwright Creek, LLC. The permittee wished to affirm success of the inflow and infiltration work on the collection system referenced in the "Previous Permit Term Review" in Section 5.0 of the rationale on R-3 and R-4. The Division is happy to relay the clarification because successful inflow and infiltration rehabilitation is noteworthy.

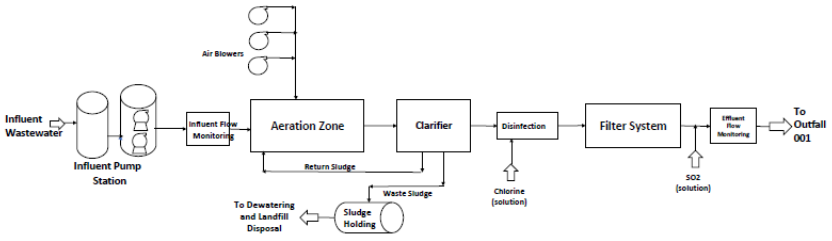
Mr. Meyers relayed that the influent flows decreased in 2020 and 2021, and the influent concentrations increased because Cartwright Creek repaired parts of the collection system in 2019 and 2020. The repairs were completed in a service area identified through engineering studies as having by far the highest I&I. In-line flow monitoring conducted after the repairs showed that the average dry weather flow substantially decreased. The reduction in flow has helped the performance of the treatment system. The repair work mentioned in the rationale dated July 28, 2021, was completed and impactful.

RATIONALE

Cartwright Creek, LLC
Grassland STP
NPDES Permit No. TN0027278
Date: 7/28/2021
Permit Writer: Wade Murphy

1. FACILITY INFORMATION

Permittee Name:	**Cartwright Creek, LLC**
Project Name:	**Grassland STP**
Location:	River Rest Subdivision, Franklin, Williamson County, Tennessee
Contact:	Mr. Bruce Meyer - Operations Manager (615) 714-7868 bruce@cartwrightcreek.com
Design Flow Rate:	0.25 MGD
Percentage Industrial Flow:	Zero %
Certified Operator Grades:	STP: III; CS: I; Date Rated: 04/01/99
Treatment Description:	Extended aeration activated sludge, tertiary filtration and treated effluent chlorination/dechlorination



Cartwright Creek, LLC - Grasslands Wastewater Treatment Facility
Process Flow

2. RECEIVING STREAM INFORMATION

Receiving Waterbody:	**Harpeth River at mile 68.8**
Watershed Group:	Harpeth
Hydrocode:	05130204
Low Flow:	7Q10 = 3.4 MGD (5.27 CFS)
Low Flow Reference:	USGS Streamstats, Version 4.3.8

Stream Designated Uses:

Domestic Water Supply	*Industrial*	*Fish & Aquatic Life*	*Recreation*
	X	**X**	**X**
Livestock & Wildlife	*Irrigation*	*Navigation*	*Trout*
X	**X**		

Low flows on unregulated streams are estimated using guidance from the EPA document *Low Flow Statistics Tools: A How-To Handbook for NPDES Permit Writers*. When sufficient and representative USGS gage data is available, USGS SWToolbox is used to analyze the flow data and calculate 7Q10 and 30Q5 values. Using these low flow values at the gage, the permit writer then determines the flow at the point of discharge using the following equation:

$$Q_{outfall} = Q_{gage} \times \frac{A_{outfall}}{A_{gage}}$$

Where:

$Q_{outfall}$ = Low flow statistic at outfall location
Q_{gage} = Low flow statistic at gage location
$A_{outfall}$ = Area draining to outfall
A_{gage} = Area draining to gage

In the absence of sufficient gage data, the Division relies on USGS Streamstats to calculate low flows statistics. In this permit, no sufficient gage data is available to characterize the receiving stream. Thus, USGS Streamstats was used to delineate the critical low flow at the point of discharge. Appendix 3 shows the Streamstats output used for this estimation.

3. CURRENT PERMIT STATUS

Permit Type:	Municipal
Classification:	Minor
Issuance Date:	31-DEC-19
Expiration Date:	30-NOV-21
Effective Date:	01-FEB-20

4. NEW PERMIT LIMITATIONS AND COMPLIANCE SCHEDULE SUMMARY

a) The units for *E. coli* have been standardized to number per 100 mL (#/100 mL). Previously, the Division used either MPN/100 mL or CFU/100 mL. The identification of one of these two units indirectly created a requirement for a specific type of testing methodology. By utilizing #/100 mL unit, permittees are provided the flexibility to select the 40 CFR § 136 method that is most suitable for their operations. The limit value (number) will remain the same as the limit units are functionally equivalent.

Language throughout the permit has been updated to reflect the eReporting phase 2 requirements in 40 CFR § 127. This includes (but is not limited to) detailing specific data elements that are required to be reported for overflows, releases and bypasses as well as pretreatment program information.

This permit includes a monthly average limit on total residual chlorine derived from the applicable water quality criterion. The monthly average limit protects against chronic exposure to chlorine. See **Section 6.5**.

b) Compliance Schedule Summary

Description of Report to be Submitted	Reference Section in Permit
Monthly Discharge Monitoring Reports	1.3.1.
Monthly Operational Reports	1.3.4.
Bypass and Overflow and Release Report	1.3.5.1.

c) For comparison, this rationale contains a table depicting the previous permit limits and effluent monitoring requirements in Appendix 1.

5. PREVIOUS PERMIT TERM REVIEW

A review of the permittee's Discharge Monitoring Reports (DMRs) from September 2017 through June 2021 reveals that the permittee generally met permit requirements with occasional violations of various $CBOD_5$ limits and TSS percent removal requirements. There have been no violations reported for the past 12 months. For the reporting period, the permittee reported only two sanitary sewer overflows due to causes not related to wet weather. The summary also reflects variable influent concentrations of both $CBOD_5$ and TSS with very weak influent (<100 mg/L) at times. However, the data appears to show a trend toward less weak

influent in 2020 and 2021. A summary of data reported on DMRs during the previous permit term is located in Appendix 2.

During the previous permit term, Division personnel from the Nashville Environmental Field Office performed a Compliance Sampling Inspection (CSI) of the permittee's facility. The CSI was performed by Virginia Lawrence and Lilia Sewell on May 20-23, 2019. The permittee was found to be out of compliance in part due to the deteriorated state of the treatment system which has outlived its useful life. The resulting Notice of Violation dated July 17, 2019, describes no screening at the headworks, no bottom rake on the primary clarifier, a collapsed digestor wall, severe corrosion of metal components including metal walkways, and use of surface injection of chlorine.

The permittee's response dated August 15, 2019, admitted the 50-year old facility needs to be replaced but attributed effluent violations to the impact of inflow and infiltration on treatment rather than on the condition of the facility. The letter detailed plans for some collection system rehabilitation work scheduled for 2019 and 2020.

6. PROPOSED EFFLUENT LIMITS AND RATIONALE

PARAMETERS	MONTHLY AVERAGE CONCENTRATION (MG/L)	MONTHLY AVERAGE AMOUNT (LB/DAY)	WEEKLY AVERAGE CONCENTRATION (MG/L)	WEEKLY AVERAGE AMOUNT (LB/DAY)	DAILY MAXIMUM CONCENTRATION (MG/L)	DAILY MINIMUM PERCENT REMOVAL	RATIONALE
$CBOD_5$ (summer)	5	10	7.5	15	10	40	D.O. protection, Refer to 6.1 below
$CBOD_5$ (winter)	10	21	15	31	20	40	D.O. protection, Refer to 6.1 below
NH_3-N (summer)	2	4	3	6	4	—	D.O. protection, Refer to 6.4 below
NH_3-N (winter)	5	10	7.5	16	10	—	D.O. protection, Refer to 6.4 below
Total Suspended Solids	30	63	40	83	45	40	Rule 0400-40-05-.09
Dissolved Oxygen	6.0 (daily minimum) instantaneous	—	—	—	—	—	D.O. protection, Refer to 6.1 below
Total Chlorine Residual	0.16	—	—	—	0.28	—	Refer to 6.5 below
Total Nitrogen	Report	Report	—	—	Report	Report (lb/d)	Refer to 6.6 below
	15 lb/d as a 12-month rolling average, calculated monthly						Refer to 7.7 below
Total Phosphorus	Report	Report	—	—	Report	Report (lb/d)	Refer to 6.6 below
	5.0 lb/d as a 12-month rolling average, calculated monthly						Refer to 7.7 below
E. coli (#/100mL)	126/100 mL	—	—	—	941/100 mL	—	Rule 0400-40-03-.03, Refer to 6.7 below
Settleable Solids (mL/L)		—	—	—	1.0	—	Rule 0400-40-05-.09
pH (standard units)	6.0 -9.0	—	—	—	—	—	Rule 0400-40-03-.03
Flow (MGD):							
Influent	Report	—	—	—	Report	—	Used to quantify pollutant load
Effluent	Report	—	—	—	Report	—	Used to quantify pollutant load

	Monthly Total		Refer to 6.11 below
Dry Weather	Overflows	0	Refer to 6.11 below
Wet Weather	Overflows	0	Refer to 6.11 below

Note: Weekly limitations on $CBOD_5$ 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 $CBOD_5$ and TSS limitations are authorized by T.C.A. 0400-40-05-.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 $CBOD_5$ 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.

6.1. CONVENTIONAL PARAMETERS

6.1.1. $CBOD_5$ and Dissolved Oxygen

Biochemical oxygen demand, or BOD, is a measure of the oxygen used when biological processes break down organic pollutants in wastewater. The amount of oxygen used is more specifically referred to as the five-day biochemical oxygen demand, or BOD_5. This parameter is used in the wastewater industry to measure both the strength of wastewater and the performance of wastewater treatment processes.

Limits on the oxygen demand remaining in the treated wastewater is often necessary to prevent pollutants in the wastewater from driving oxygen in the receiving stream down below the levels necessary to support fish and aquatic life. Additionally, the breakdown of ammonia into other forms of nitrogen also requires oxygen and therefore exerts an oxygen demand on receiving wastewaters.

EPA completed extensive computer modeling for developing its 2004 total maximum daily load (TMDL) for addressing organic enrichment and low dissolved oxygen conditions within the receiving stream. The TMDL incorporated the previously established CBOD5, ammonia and dissolved oxygen limits for this facility. In order to consistently achieve an instream dissolved oxygen concentration at or above the required minimum of 5.0 mg/l, the TMDL also imposed an average annual total nitrogen mass loading of < 15 lb/day for the permittee's Outfall 001 discharge. All of these limits are retained in this permit.

6.1.2. Total Suspended Solids (TSS)

Total Suspended Solids is a general indicator of the quality of a wastewater and will be limited in this permit. The technology-based TSS limit for conventional treatment plants is provided in Tennessee Rule 0400-40-05-.09(1)(a).

TSS - Conventional Secondary Treatment Plants			
Monthly Average	*Weekly Average*	*Daily Maximum*	*Monthly Average*
30 mg/L	40 mg/L	45 mg/L	85 % Removal

6.1.3. Percent Removal

The treatment facility is required to remove 85 % of the $CBOD_5$ 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 (CFR) 40 § 133.102. The reasons stated by the EPA for these requirements are to achieve these two basic objectives:

i. To encourage municipalities to correct excessive inflow and infiltration (I/I) problems in their sanitary sewer systems; and
ii. To help prevent intentional dilution of the influent wastewater as a means of meeting permit limits.

The treatment facility is required to remove 40 % of the $CBOD_5$ and TSS that enter the facility on a daily basis. This percent removal will be calculated three times per week and recorded on the Monthly Operation Report. The number of excursions (days when $CBOD_5$ and/or TSS removal is less than 40%) will be reported on the Discharge Monitoring Report.

6.1.4. Settleable Solids

The settleable solids limit of 1.0 ml/L is a technology-based limit established in Rule 0400-40-05-.09.

6.2. FLOW

Monitoring of flow quantifies the load of pollutants to the stream. Flow shall be reported in million gallons per day (MGD) and monitored at the time of sample collection.

6.3. PH

According to the State of Tennessee Water Quality Standards [Chapter 0400-40-03-.03(3) (b)], the pH for the protection of Fish and Aquatic Life shall not fluctuate more than 1.0 unit over a period of 24 hours and shall not be outside the following ranges: 6.0 – 9.0 standard units (SU) in wadeable streams and 6.5 – 9.0 SU in larger rivers, lakes, reservoirs, and wetlands. Considering that the receiving stream will provide some buffering capacity, effluent limitation for pH will be retained in a range 6.0 to 9.0. The sample type will be grab.

6.4. AMMONIA (NH_3-N)

To assess ammonia toxicity impacts, the state utilizes Tennessee Rules, Chapter 0400-40-03-.03-3(3)(j), dated September 11, 2019, to derive allowable instream protection values protective of chronic and acute exposures to a

continuous discharge. A mass balance equation with the treatment facility, stream flows, and these allowable values determines the monthly average and daily maximum permit limits.

The temperature used in calculations is determined based on measured ambient instream temperature or is estimated according to Tennessee's Three Grand Divisions as follows: East (winter 15°C, summer 25°C), Middle (winter 17°C, summer 27°C), and West (winter 20°C, summer 30°C). A pH value of 8 is used because ambient monitoring shows ambient pH is sometimes as high as 8, and because this assumption is more conservative.

Using temperature and pH values, the criterion continuous concentration (CCC) and criterion maximum concentration (CMC) values are calculated using the following equations:

$$CCC = 0.8876 * \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) * \left(2.126 * 10^{0.028*(20-MAX(T,7))}\right)$$

and

$$CMC = MIN\left\{\begin{array}{c}\left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}\right), \\ \left(0.7249 * \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) * \left(23.12 * 10^{0.036*(20-T)}\right)\right)\end{array}\right\}$$

The determined CCC and CMC values are then used in the mass balance equation as follows:

$$CCC = \frac{Q_s C_s + Q_{STP} C_{STP}}{Q_s + Q_{STP}} \quad \text{or} \quad C"STP" = \frac{CCC(Q"S" + Q"STP") - (Q"S"\ C"S")}{Q} "STP"$$

where:

CCC	=	Criteria continuous concentration (mg/L)
Q_S	=	7Q10 flow of receiving stream (MGD)
Q_{STP}	=	Design flow of STP (MGD)
C_S	=	Assumed/Measured instream NH_3 (mg/L)
C_{STP}	=	Allowable STP discharge of NH_3 (mg/L)

See below for calculations:

Ammonia as Nitrogen Calculations

The State utilizes the Water Quality Criteria and the EPA document, EPA Ambient Water Quality Criteria for Ammonia (https://www.epa.gov/wqc/aquatic-life-criteria-ammonia). A mass balance with plant and stream flows and this allowable value determines the monthly average permit limit. Seasonal limits may also be allowed due to ambient temperature variations between the summer and winter seasons.

East TN- 25°C, 15°C
Middle TN- 27°C, 17°C
West TN- 30°C, 20°C

A pH value of 8 (instead of historically used 7.5) was chosen for two reasons: 1.) ambient monitoring in west TN showed that a pH often exceeds 7.5, and is up to 8 sometimes 2.) this assumption is more conservative.

	Winter		Summer
Temp (°C)=	17	Temp (°C)=	27
pH=	8	pH=	8
MAX Expression	17.0000	MAX Expression	27.0000

$$CCC = 0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right) x\left(2.126 \times 10^{0.028\times(20-MAX(T,7))}\right)$$

Winter CCC=	**0.94**	Summer CCC=	**0.49**

CCC - Continuous Chronic Criterion Allowable instream NH3 concentration [mg/l]

$$CCC = \frac{\text{(Critical Low Flow [MGD] * Background Ammonia [mg/L]) + (Design Flow [MGD] * } \mathbf{\text{Effluent Concentration}} \text{ [mg/L])}}{\text{(Critical Low Flow [MGD] + (Design Flow [MGD])}}$$

where:	3.4	Critical Low Flow [MGD] (7Q10 value)
	0.1	Background Ammonia Concentration [mg/L]
	0.25	WWTP Design Flow or long-term average flow [MGD]

Therefore, the Allowable **Effluent Concentrations** and corresponding **Amounts** in winter and summer are:

Winter		Summer	
12.41	Concentration [mg/L]	**5.864**	Concentration [mg/L]
25.9	Amount [lb/day]	**12.2**	Amount [lb/day]

The calculated acute and chronic toxicity values above are compared to ammonia limits previously imposed to prevent ammonia toxicity or calculated to protect ambient dissolved oxygen levels. The permit imposes the most stringent values in the analysis. The analysis compares the calculated chronic ammonia value (CCC) with a monthly average limit previously imposed to protect dissolved oxygen or to prevent toxicity. The analysis compares the calculated acute ammonia value (CMC) with the previously imposed daily maximum value to protect dissolved oxygen or to prevent toxicity. Generally, water quality models have predicted the monthly average ammonia limit to protect dissolved oxygen. The Division has historically developed a companion daily maximum value to protect dissolved oxygen by multiplying the monthly average limit by two. Empirical data supports the factor of two developed in consideration of the natural variation in biological pollutant removal and the design basis for treatment unit sizing.

Because the NH_3-N concentration limits calculated to protect dissolved oxygen are more restrictive than the toxicity limits calculated above, the monthly average limits for NH_3-N (2 mg/L summer, 5 mg/L winter) are applied to the permit.

6.5. CHLORINATION

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

$$\frac{0.019\ (Qd + Qs)}{Qd} = Limit\ (mg/L) = \frac{0.019(0.25 + 3.4)}{0.25} = 0.2774\,mg/L \approx 0.28\,mg/L$$

Where:

0.019 mg/L	=	acute instream protection value
3.4	=	Qs – 7Q10 flow of receiving stream (MGD)
0.25	=	Qd – design flow of STP (MGD)

Similarly, the chronic instream protection value of 0.011 mg/L for fish and aquatic life is applied to the mass balance formula to determine the monthly average limit for TRC. Previous permits do not contain rationale for omitting this limit and may have utilized the belief that chlorine's reactivity with other compounds will ensure it does not remain in solution long enough to result in chronic exposure to fish and aquatic life. The best way to reflect chronic exposure to chlorine in harmful quantities is not occurring is reporting successful operation of the de-chlorination technology in compliance with the monthly average limit. This added limit does not entail additional sampling but rather calculation of a monthly average value based on the sampling results in consideration of the method detection level of the test method.

$$\frac{0.011\ (Qd + Qs)}{Qd} = Limit\ (mg/L) = \frac{0.011(0.25 + 3.4)}{0.25} = 0.1606\,mg/L \approx 0.16\,mg/L$$

6.6. TOTAL NITROGEN AND TOTAL PHOSPHORUS

Nutrients are naturally occurring and essential components of healthy aquatic systems. Excessive amounts of nutrients, however, can impact water quality. The enrichment of a waterbody with nutrients, called eutrophication, can result in dense, rapidly multiplying growths, or blooms, of algal species and other nuisance aquatic plants. These have potential for negatively impacting the habitat for fish and aquatic life and degrading the water quality for drinking water supply and recreation uses. These impacts can present both locally from an individual activity and much further downstream from the cumulative impact of multiple activities. The Division has therefore developed and begun to implement a strategy to accomplish long-term nutrient reduction in Tennessee waters. The strategy, referred to as the Tennessee Nutrient Reduction Framework (NRF), contains

proposed rationale and the methodology for implementing the strategy within a watershed area. Consequently, the Framework considers impacts from both point and non-point sources of nutrients and recommends possible reduction goals for both point and non-point sources. The NRF approach to nutrient reduction is intended to utilize an adaptive management approach in consideration of the facts presenting within a watershed and reevaluation of the effectiveness of progress being made. Regular reassessments of goals and action plans will be conducted by reviewing monitoring data, modeling results and other measures of success. As additional data becomes available (such as WWTP effluent characterization and instream water quality data), model results can be re-evaluated.

Therefore, for purposes of implementing this strategy, the Division is imposing a minimum of quarterly effluent characterization for total nitrogen and total phosphorus on all discharges of treated domestic wastewater. This permit retains the twice monthly monitoring and nutrient limits from the previous permit. See Section 7.7 below for additional detail.

In coordination with the NRF and in recognition that meeting nutrient limits may require changes in plant operations, the Division has created the Tennessee Plant Optimization Program (TNPOP), which is a free program created to provide technical assistance and other resources to participating wastewater treatment plants. TNPOP can help wastewater treatment plants optimize energy use and nutrient removal, which can result in cost and energy savings. Interested facilities should visit the Division's TNPOP website for a program description, frequently asked questions, and information on how to apply.

6.7. *E. COLI*

Disinfection of wastewater is required to protect the receiving stream from pathogenic microorganisms. *E. coli* is used as an indicator organism as a measure of the bacteriological health of a receiving stream and the effectiveness of disinfection. Both the geometric mean and daily maximum are limited for *E. coli* in accordance with Rule 0400-40-03-.03. The *E. coli* daily maximum limit of 487 colony forming units per 100 mL applies to lakes and exceptional Tennessee waters. A maximum daily limit of 941 colony forming units per 100 mL applies to all other recreational waters. The units for *E. coli* have been standardized to #/100 mL, which is functionally equivalent to colony forming units.

6.8. BIOMONITORING

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 may demonstrate reasonable potential to exceed this criterion:

i. Toxicity is suspected or demonstrated;
ii. A pretreatment program is required; or
iii. The design capacity of the facility is greater than 1.0 MGD.

This facility does not meet any of these criteria.

6.9. COLLECTION SYSTEM

For the purposes of demonstrating proper operation of the collection, transmission and treatment system, the permit treats releases separately from overflows and bypass. State regulations at 0400-40-05-.07(2) establish "standard conditions". These standard conditions include 0400-40-05-.07(2)(n) that sets forth specific language prohibiting sanitary sewer overflows (defined in the regulations as a "discharge") and standard conditions in 0400-40-05-.07(2)(l) and (m) pertaining to bypass. While the regulations prohibit sanitary sewer overflow (*i.e.*, discharges that reach or are likely to reach receiving waters) it does not prohibit "releases" that do not reach or are not likely to reach receiving waters. However, releases that do not reach receiving waters may be indicative of other problems, such as improper operation and maintenance of the sewer system. Whether another violation occurs or whether, for example, there is an unavoidable accident (see, e.g., § 69-3-114(a)), will involve case-specific evaluations. Regardless, the permit assures, without waiving rights to pursue other violations associated with a release, as applicable, that the permittee would, at a minimum be reporting and responding to releases. Any release potentially warrants permittee mitigation of human health risks via direct or indirect contact and may demonstrate a hydraulic problem in the system that warrants permittee consideration as part of proper operation and maintenance of the system.

Proper operation and maintenance of the collection system may include, but is not limited to:

1. A comprehensive collection system map showing all drainage areas, manholes, pump stations (number and size of pumps), flow meters, chronic overflow and release locations, miles of collection system, material and diameter of construction, and other relevant system elements.
2. Rainfall data at location(s) using method(s) representative of precipitation within the collection system area.

3. Flow meters at locations in the collection system that would enable drainage area analysis and prioritization based on the amount of inflow and infiltration (I/I) observed.
4. A collection system hydraulic model that predicts I/I problems in response to rainfall events and the effects of new conditions.

When determining if a location experiences chronic sanitary sewer overflows or releases, the term "event(s)" includes dry weather overflows, wet weather overflows, dry weather releases and wet weather releases.

7. OTHER PERMIT REQUIREMENTS AND CONDITIONS

7.1. CERTIFIED WASTEWATER TREATMENT OPERATOR

The waste treatment facilities shall be operated under the supervision of a Grade III certified wastewater treatment operator in accordance with the Water Environmental Health Act of 1984. Operator grades are under jurisdiction of the Water and Wastewater Operators Certification Board. This NPDES permit is under jurisdiction of the Tennessee Board of Water Quality, Oil and Gas. Operator grades are rated and recommended by the Division of Water Resources pursuant to Rule 0400-49-01 and are included in this fact sheet for reference. The grades are intentionally not specified in the permit so that the operation certification board can authorize changes in grade without conflicting with this permit.

7.2. COLLECTION SYSTEM CERTIFIED OPERATOR

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

7.3. PRETREATMENT PROGRAM

The Cartwright Creek, LLC has received an exemption from development of a pretreatment program due to the lack of any significant industrial users.

The permittee submitted an updated Industrial User Survey to the Division dated April 20, 2020. The survey is in the permittee's electronic file record.

7.4. BIOSOLIDS MANAGEMENT PRACTICES

The Clean Water Act (CWA) requires that any NPDES permit issued to a publicly owned treatment works or any other treatment works treating domestic sewage shall comply with 40 CFR § 503, the federal regulation governing the use and

disposal of sewage sludge. It is important to note that "biosolids" are sewage sludge that have been treated to a level so that they can be land applied.

The language in **section 3.3.** of the permit, relative to biosolids management, a CWA requirement, allows the "permitting authority" under 40 CFR § 503.9(p) to be able to enforce the provisions of § 503. The "permitting authority" relative to Part 503 is either a state that has been delegated biosolids management authority or the applicable EPA Region; for Tennessee it is EPA Region 4.

Tennessee regulates the land application of non-exceptional quality biosolids under state rules, Chapter 0400-40-15. The state rules became effective on June 30, 2013. Under these state rules, all facilities that land apply non-exceptional quality biosolids must obtain a biosolids permit from the division. The land application of non-exceptional quality biosolids under state rules is regulated through either a general permit or by an individual permit. Questions about the division's biosolids regulations and permitting program should be directed to the State Biosolids Coordinator at:

Division of Water Resources
State Biosolids Coordinator
William R. Snodgrass - Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243-1102
615-532-0625

7.5. PERMIT TERM

In order to meet the target reissuance date for the Harpeth watershed and following the directives for the Watershed Management Program initiated in January 1996, the permit will be issued to expire in 2026.

7.6. ELECTRONIC REPORTING

The NPDES Electronic Reporting Rule (eRule), which became effective on December 21, 2016, replaces most paper-based reporting requirements with electronic reporting requirements. NetDMR allows NPDES permittees to submit DMRs electronically to EPA through a secure internet application and has been approved by Tennessee as the official electronic reporting tool for DMRs.

Monitoring results shall be recorded monthly and submitted monthly using Discharge Monitoring Reports (DMRs) based on the effluent limits in **section 1.1** of the permit. DMRs and DMR attachments, including laboratory data and overflow reports, shall be submitted electronically in NetDMR or other electronic reporting tool approved by the State, no later than the 15th of the month following

the end of the monitoring period. All NPDES program reports must be signed and certified by a responsible official or a duly authorized representative, as defined in 40 CFR § 122.22.

According to 40 CFR § 127.15, states have the flexibility to grant temporary or episodic waivers from electronic reporting to NPDES permittees who are unable to meet the electronic reporting requirements. To obtain an electronic reporting waiver, an electronic reporting waiver request must be submitted by email to DWRwater.compliance@tn.gov or by mail to the following address:

Division of Water Resources
Compliance and Enforcement Unit – NetDMR Waivers
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

For contact and training information about NetDMR electronic reporting, visit the Division's website here.

The permit language has been modified to accommodate the implementation of the MyTDEC Forms electronic reporting tool. For more information, visit EPA's website on eReporting requirements.

7.7. ANTIDEGRADATION STATEMENT / WATER QUALITY STATUS

Tennessee's Antidegradation Statement is found in the Rules of the Tennessee Department of Environment and Conservation, Chapter 0400-40-03-.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# TN05130204009_3000.

The Division has made a water quality assessment of the receiving waters associated with the subject discharge(s) and has found the receiving stream to be neither an exceptional nor outstanding national resource water. Additionally, the division assesses this water as not having quality to support(s) designated uses due to low dissolved oxygen and elevated phosphorus attributed to municipal point source discharges and the discharges from urbanized high-density areas.

Total Maximum Daily Loads (TMDLs) have been developed and approved for this waterbody segment on the following parameters and dates:

Parameter:
Dissolved Oxygen

TMDL Approval Date:
September 2004

The proposed terms and conditions of this permit comply with the wasteload allocations of these TMDLs.

In summary, this permit imposes in Part 1.1 of permit the nitrogen load (15 lb/d) established in the 2004 EPA TMDL to protect ambient dissolved oxygen along with a reopener clause in Part 1.5 of the permit to allow for including conditions consistent with the revised TMDL being developed by Tennessee with the assistance of EPA and cooperation of permittees and local environmental groups. This permit retains a phosphorus load limit to cap the discharges of phosphorus at their current levels in support of the anti-degradation provision of state water quality standards. The division developed the phosphorus limit in the previous permit based on the 2-year average phosphorus load from the facility as an average of the monthly averages. The 5.0 lb/d limit is equivalent to a concentration of 2.4 mg/L at the design flow rate of 0.25 MGD. Both limits are set as annual (12-month) rolling averages consistent with the division's draft, statewide nutrient reduction framework. The facility is reporting the following total nitrogen and phosphorus in its effluent:

Mo/Year	Total N	Total P
02/29/2020	17.99	4.31
03/31/2020	17.14	4.39
04/30/2020	16.43	4.06
05/31/2020	16.56	3.96
06/30/2020	18.09	4.04
07/31/2020	17.94	4.14
08/31/2020	17.08	4.22
09/30/2020	16.91	4.45
10/31/2020	16.03	4.57
11/30/2020	14.51	4.47
12/31/2020	13.02	3
01/31/2021	13.04	3.14
02/28/2021	14.18	3.26
03/31/2021	14.21	3.38
04/30/2021	13.89	3.42
05/31/2021	13.6	3.45
06/30/2021	13.06	3.37
Eff. Limit:	15	5

APPENDIX 1 –
PREVIOUS PERMIT LIMITS

PARAMETERS	MONTHLY AVERAGE CONCENTRATION (MG/L)	MONTHLY AVERAGE AMOUNT (LB/DAY)	WEEKLY AVERAGE CONCENTRATION (MG/L)	WEEKLY AVERAGE AMOUNT (LB/DAY)	DAILY MAXIMUM CONCENTRATION (MG/L)	DAILY MINIMUM PERCENT REMOVAL	MEASUREMENT FREQUENCY
$CBOD_5$ (May 1- Oct. 31)	5	10	7.5	15	10	40	3/week
$CBOD_5$ (Nov. 1- April 30)	10	21	15	31	20	40	3/week
NH_3-N (May 1- Oct. 31)	2	4	3	6	4	—	3/week
NH_3-N (Nov. 1- April 30)	5	10	7.5	16	10	—	3/week
Total Suspended Solids	30	63	40	83	45		3/week
Dissolved Oxygen (mg/L)	6.0 (daily minimum) instantaneous	—	—	—	—	—	5/week
Total Chlorine Residual (mg/L)	—	—	—	—	0.28 (daily maximum)	—	5/week
Total Nitrogen	Report	Report	—	—	Report	Report (lb/d)	2/month
Total Nitrogen	15 lb/d as a 12-month rolling average, calculated monthly						1/month
Total Phosphorus	Report	Report	—	—	Report	Report (lb/d)	2/month
Total Phosphorus	5.0 lb/d as a 12-month rolling average, calculated monthly						1/month
E. coli (MPN/100ml)	126/100 ml	—	—	—	941/100 ml	—	3/week
Settleable Solids (ml/l)		—	—	—	1.0 (daily maximum)	—	5/week
pH (standard units)	6.0-9.0	—	—	—	—	—	5/week
Flow (MGD):							
Influent	Report	—	—	—	Report	—	7/week
Effluent	Report	—	—	—	Report	—	7/week
Sanitary Sewer Overflows, Total Occurrences, gal/mo., Cum total	Report						continuous
Dry Weather Overflows, Total Occurrences, gal/mo., Cum total	Report						continuous
Wet Weather Releases, Total Occurrences, gal/mo	Report						Continuous
Dry Weather Releases, Total Occurrences, gal/mo	Report						Continuous
Bypass of Treatment, Total Occurrences	Report						continuous

APPENDIX 2 – DMR SUMMARY

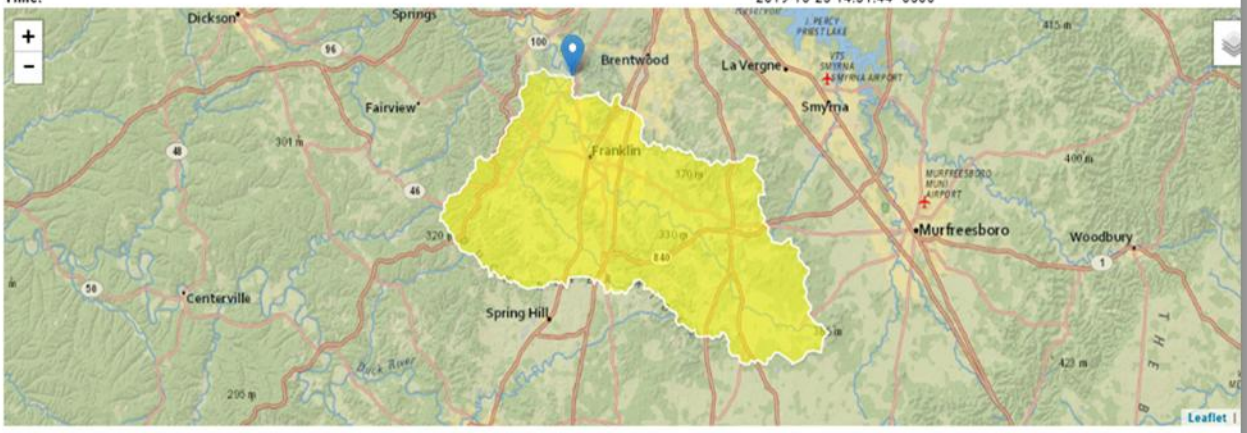
	Flow (MGD)		Biochemical Oxygen Demand				Suspended Solids				Effluent (mg/l)									Overflow and Bypass
			Influent	Effluent (mg/l)		%	Influent	Effluent (mg/l)		%	Settleable	pH		Cl_2	Ammonia		D.O.	E. coli		
	Monthly Average	Daily Max	(mg/l)	Monthly Average	Daily Max	Removal	(mg/l)	Monthly Average	Daily Max	Removal	Solids (ml/l)	(std. units) Min	Max	Daily Max	Monthly Average	Daily Max	Daily Min	Monthly Average	Daily Max	
Limits	Report	Report	Report			85	Report			85	1.0	6.0	9.0				6.0	126	941	
Summer				5	10			30	45					0.28	2.0	4.0				
Winter				10	20			30	45					0.28	5.0	10.0				
Average	0.376	0.788	106	5	17	93	80.6	4	8	93	0.2	7.2	7.6	0.11	0.5	1.7	6.8	15	76	
Maximum	1.035	1.664	251.4	25	170	99	169.3	10	20	98	1.0	7.4	7.9	0.24	2.1	7.4	7.5	35	161	
Minimum	0.130	0.181	37.3	2	2	51	8.9	2	3	74	0.1	6.8	7.4	0.04	0.1	0.1	6.0	2	4	
+ = Exceedence				5	11	5				3						1				2

Date																				
Sep/17	0.365	1.495	61	2	2	95.9	63.8	4	7	93.8	1.0	7.3	7.6	0.07	1.20	4.10 +	6.3	12.1	88	
Oct/17	0.297	0.668	62.4	2.1	2	96.4	65.6	4	12	93.5	0.1	7.3	7.7	0.06	0.64	3.60	6.6	18.1	101	
Nov/17	0.464	1.619	47.2	2.5	5	94.1	41.4	4	8	89.9	0.1	7.3	7.7	0.06	0.40	1.90	7.1	14.4	109	
Dec/17	0.541	1.567	53.2	25 +	100 +	50.8 +	65.9	10	13	84.8 +	0.2	7.2	7.6	0.11	0.65	1.60	6.9	14.1	91	
Jan/18	0.390	0.532	69.9	5	37 +	89.3	78.4	7	12	90.8	0.1	7.0	7.7	0.08	0.25	0.75	7.0	18.1	85	
Feb/18	1.035	1.664	47	19 +	170 +	76.4 +	33.6	9	11	73.9 +	0.1	7.1	7.6	0.10	0.11	0.36	6.8	34.5	87	
Mar/18	0.654	1.603	64.3	8	24 +	86.3	55.9	8	11	86.1	0.1	7.2	7.7	0.09	0.20	1.30	6.7	17.3	58	
Apr/18	0.651	1.084	40.9	17 +	88 +	54.6 +	52.1	8	16	85.3	0.1	7.3	7.6	0.12	0.37	1.50	6.8	20.2	110	
May/18	0.356	1.260	53.6	13 +	42 +	63.9 +	46.9	3	5	92.9	0.1	7.1	7.6	0.12	0.75	1.80	6.3	8.4	78	
Jun/18	0.260	0.601	122.3	20 +	53 +	82.5 +	62.9	2	4	96.8	0.1	7.1	7.6	0.04	0.47	1.30	6.4	19.8	48	
Jul/18	0.171	0.294	87.3	5	16 +	93.8	74.5	4	8	94.7	0.1	7.2	7.6	0.15	0.23	0.73	6.9	15.1	85	
Aug/18	0.162	0.307	173.4	2	5	98.4	118.4	4	7	97	0.1	6.8	7.6	0.21	0.31	0.96	6.5	17.8	89	
Sep/18	0.215	0.628	120.6	2	3	97.5	95.5	4	10	95.9	0.2	7.1	7.7	0.14	0.20	0.44	6.4	22.4	60	
Oct/18	0.361	0.622	72.3	2	4	96.8	63.6	3	6	95.1	0.4	7.3	7.8	0.07	0.22	1.07	7.2	28.6	101	
Nov/18	0.493	0.783	77.6	4	22 +	92.4	55.1	3	3	95.3	0.1	7.3	7.6	0.17	0.73	2.22	6.7	18.5	84	
Dec/18	0.610	0.843	67.7	5	16	91.5	39.1	5	11	86.6	0.6	7.3	7.5	0.19	0.75	1.69	7.5	30.1	148	
Jan/19	0.799	1.529	43.6	3	5	91.5	31.6	6	15	80.9 +	0.8	7.1	7.5	0.20	0.73	1.67	7.5	35.2	154	
Feb/19	0.754	1.083	37.3	3	7	90.8	39.3	4	11	89.2	0.4	7.1	7.5	0.06	0.44	1.65	7.2	23.6	137	
Mar/19	0.557	0.970	78.8	3	5	96	57.2	4	7	93.2	0.3	7.1	7.6	0.11	0.59	1.84	7.1	23.6	161	1
Apr/19	0.626	1.551	76.6	3	6	92.3	60.7	5	14	91.3	0.5	7.2	7.6	0.11	0.96	2.70	6.9	35	127	
May/19	0.273	0.408	144.7	3	8	97.8	132.7	3	6	97.9	0.1	7.2	7.6	0.05	1.01	1.95	6.8	17.2	50	
Jun/19	0.289	0.509	136	3	5	97.9	95.3	4	10	96	0.1	7.3	7.7	0.06	0.54	1.78	6.4	22.4	133	
Jul/19	0.265	0.560	131.6	2	3	98.1	113.9	3	5	97.4	0.1	7.4	7.8	0.12	0.34	0.81	7.2	9.7	61	
Aug/19	0.301	0.794	117.4	2	3	97.9	78.7	3	4	96.6	0.1	7.3	7.7	0.24	0.48	1.72	6.7	15.2	55	
Sep/19	0.130	0.181	179.5	4	8	97.5	127.2	4	6	96.8	0.1	7.1	7.6	0.12	0.66	1.30	6.1	7.8	91	
Oct/19	0.300	0.722	128.1	3	9	97	90.9	3	6	96.5	0.1	7.0	7.7	0.12	0.33	1.09	6.1	10.4	117	
Nov/19	0.577	1.164	86.3	3	6	96.3	83.5	3	4	96.3	0.1	7.3	7.7	0.05	0.16	0.38	6.9	18.1	111	
Dec/19	0.393	0.823	80.2	6	39 +	93.1	68.9	4	6	94.7	0.1	7.2	7.9	0.14	0.32	1.07	7.1	13.6	66	
Jan/20	0.429	0.747	89.1	3	5	97	72.5	4	5	95.1	0.1	7.3	7.7	0.11	0.11	0.13	7.1	7.7	28	
Feb/20	0.415	0.839	116.6	3	7	97	92.9	5	12	94.7	0.1	7.3	7.7	0.15	0.22	0.57	6.8	9.9	48	
Mar/20	0.323	0.672	126.2	4	6	96.6	76.2	6	9	90.3	0.1	7.4	7.7	0.13	0.14	0.31	7.4	13.6	59	
Apr/20	0.288	0.676	110.2	3	9	96.9	73.9	6	12	89.4	0.2	7.3	7.7	0.14	0.23	0.40	7.0	19	46	1
May/20	0.160	0.270	130	5	15 +	95	8.88	3	5	96.7	0.1	7.1	7.4	0.11	0.64	1.22	6.4	12.3	104	
Jun/20	0.146	0.233	165.7	3	6	98.1	131.5	3	3	98	0.1	7.0	7.5	0.08	0.67	1.63	6.1	4.1	5.4	
Jul/20	0.155	0.312	251.4	3	7	98.1	124	3	3	97.7	0.1	6.9	7.6	0.15	0.42	0.85	6.1	7.9	78	
Aug/20	0.223	0.510	131.6	2	4	98.3	106.7	3	5	97.5	0.1	7.4	7.8	0.08	0.21	0.34	6.5	9.9	4.3	
Sep/20	0.280	0.656	127.8	2	2	98	120	3	4	97.5	0.1	7.4	7.7	0.09	0.31	0.72	6.8	12.4	56	
Oct/20	0.237	0.371	129.6	2	5	98.1	102.5	3	5	96.9	0.1	7.4	7.7	0.10	0.55	2.75	6.4	6.6	54	
Nov/20	0.197	0.297	182.9	2	2	98.5	84.7	3	3	96.7	0.1	7.4	7.6	0.08	1.25	7.40	7.1	2.6	8.5	
Dec/20	0.311	0.479	101.6	2	4	97.6	85.7	3	5	96.6	0.1	7.3	7.6	0.12	0.40	1.05	7.4	6	24	
Jan/21	0.316	0.663	137.8	3	7	97.6	88.8	3	3	96.7	0.1	7.3	7.7	0.09	0.38	1.56	7.4	5	34	
Feb/21	0.342	0.635	99.7	3	6	96.7	76.3	4	8	94.5	0.1	7.3	7.6	0.12	0.87	4.90	7.4	7	24	
Mar/21	0.483	1.177	81.1	3	5	94.5	63.3	6	13	88.5	0.1	7.1	7.7	0.11	0.41	1.19	6.8	14.1	87	
Apr/21	0.275	0.780	197.8	3	8	98.5	169.3	4	20	97.4	0.1	7.1	7.6	0.13	2.11	4.65	6.6	4.9	75	
May/21	0.246	0.629	112.2	2	2	98	121.1	3	3	97.6	0.1	7.3	7.5	0.08	1.18	3.37	6.0	4.6	44	
Jun/21	0.187	0.446	135.4	2	3	98.4	115.2	3	9	97.1	0.1	7.4	7.6	0.09	0.81	1.64	6.2	2.4	11	

APPENDIX 3 –
RECEIVING STREAM LOW FLOW DETERMINATION

StreamStats Report

Region ID: TN
Workspace ID: TN20191025193127666000
Clicked Point (Latitude, Longitude): 36.01038, -86.89598
Time: 2019-10-25 14:31:44 -0500



Low-Flow Statistics Parameters[Low Flow Central and East Regions 2009 5159]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	350.73	square miles	1.3	14441
RECESS	Recession Index	40	days per log cycle	32	175
CLIMFAC2YR	Tennessee Climate Factor 2 Year	2.334	dimensionless	2.056	2.46
SOILPERM	Average Soil Permeability	1.499	inches per hour	0.45	9.72
PERMGTE2IN	Percent permeability gte 2 in per hr	44.727	percent	2	100

Low-Flow Statistics Flow Report[Low Flow Central and East Regions 2009 5159]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
7 Day 10 Year Low Flow	5.27	ft^3/s	89
30 Day 5 Year Low Flow	10.9	ft^3/s	70.2

Low-Flow Statistics Citations

Law, G.S., Tasker, G.D., and Ladd, D.E.,2009, Streamflow-characteristic estimation methods for unregulated streams of Tennessee: U.S. Geological Survey Scientific Investigations Report 2009–5159, 212 p., 1 pl.