

STATE OF TENNESSEE

Office of the Attorney General



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July 9, 2024

Jeff Ridsen
General Counsel
Tennessee Wastewater Systems, Inc.
851 Aviation Parkway
Smyrna, TN 37167
Jeff.Ridsen@adenus.com

**Electronically Filed in TPUC Docket
Room on July 9, 2024 at 1:09 p.m.**

Re: Tennessee Public Utility Commission ("TPUC" or the "Commission"), Docket No. 24-00037, *Petition of Tennessee Wastewater Systems, Inc. to Amend Its Certificate of Convenience and Necessity to Include the Burns Subdivision in Williamson County Tennessee*

Dear Mr. Ridsen:

The Consumer Advocate has reviewed the Petition filed by Tennessee Wastewater Systems, Inc. ("TWSI") in the above-referenced docket. The Petition requests that the Commission expand TWSI's Certificate of Convenience and Necessity to include the Burns Subdivision in Williamson County. Accordingly, the Consumer Advocate has reviewed TWSI's compliance with the minimum filing requirements set forth in TPUC Rule 1220-04-01-.13.

The Consumer Advocate appreciates the time and effort that TWSI put into compiling the Petition. However, the Consumer Advocate could not locate, and thus seeks clarification on, the items set forth in Attachment A hereto, relating to compliance with TPUC Rule 1220-04-01-.13. Please note that this is not a discovery request by the Consumer Advocate, but a review of TWSI's compliance with TPUC's minimum filing requirements.

The Consumer Advocate would like to thank TWSI in advance for its attention to the Consumer Advocate's requests. If you have questions regarding this request, please contact me at (615) 741-2375.

Sincerely,

A handwritten signature in blue ink that reads "Karen H. Stachowski".

Karen H. Stachowski
Deputy Attorney General

cc: Kelly Cashman-Grams, TPUC

ATTACHMENT A

Page 1 of 1

Rule 1220-04-13-.17(2)(a) General Information

1. *Rule 1220-04-13-.17(2)(a)(3)*. The rule requires a utility to “[l]ist of owners, members and officers of utility. Provide address, telephone number, and percentage of ownership of each individual. If different, list the names of owners, members and officers located in TN.” The Consumer Advocate could not find the telephone numbers for the owners, members and officers of the utility.

Rule 1220-04-13-.17(2)(d) Sufficient Technical Ability

1. *Rule 1220-04-13-.17(2)(d)(4)*. The rule requires the utility to provide a “list of any complaint(s), notices of violation or administrative action filed with or issued by a regulatory agency. Identify the nature of the complaint notices of violation or administrative action, which agency is involved, and how the issue was or is being resolved.” TWSI did not address or provide a list of any complaint(s), notices of violation or administrative action filed with or issued by a regulatory agency. However, the Consumer Advocate reviewed the TDEC Division of Water Resources Dataviewer and found “memos to the files” to multiple systems of missing Monthly Operational Reports (“MORs”) for multiple time periods. Attached are copies of these TDEC memos, collectively, as “24-00037 MFR-Attachment A_CA Exhibit 1.” The Consumer Advocate reached out to Jeff Ridsen with TWSI. He explained that the TDEC staff person who received and loaded the MORs into TDEC’s database left his position. So, the emails containing TWSI’s MORs were not loaded into the system and the emails from TWSI were lost. TDEC reached out to TWSI for copies of the missing MORs, and TWSI is compiling the information.

During this dataviewer search, the Consumer Advocate also found comments of concern from the Harpeth Conservancy on multiple TWSI draft State Operating Permits. Attached is a copy of the Harpeth Conservancy comments as “24-00037 MFR-Attachment A_CA Exhibit 2.”

Rule 1220-04-13-.17(2)(e) Sufficient Financial Ability

1. *Rule 1220-04-13-.17(2)(e)(10) & (11)*. Part (10) of the rule requires a description of bonding requirements of local government. TWSI explained that “Williamson County requires a performance bond from the developer prior to the commencement of any construction on the system.” Part (11) of the Rule requires the utility to demonstrate it has acquired a performance bond of the developer or builder of the system. TWSI stated that it will file a copy of the performance bond before commencement of the construction project as required by Williamson County.



MEMORANDUM

DATE: 6/12/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc – Falling Waters
SOP-02023
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Falling Waters, for the following reporting periods since June 2020:

- 2020: eMOR's submitted
- 2021: January through December
- 2022: January through June
- 2023: eMOR's submitted
- 2024: eMOR's submitted

eMOR submissions are currently not available on the public data viewer. Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's and to make the eMOR submissions available for public viewing. MOR's will be uploaded to the public data viewer as they are obtained by DWR.



MEMORANDUM

DATE: 6/13/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc. – Legacy Mountain East
SOP-04004
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Legacy Mountain East for the following reporting periods since June 2020:

- 2020: eMOR's submitted
- 2021: January through December
- 2022: January through June
- 2023: eMOR's submitted
- 2024: eMOR's submitted

eMOR submissions are currently not available on the public data viewer. Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's and to make the eMOR submissions available for public viewing. MOR's will be uploaded to the public data viewer as they are obtained by DWR.



MEMORANDUM

DATE: 6/13/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc. – Smoky Village Subdivision
SOP-05033
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Smoky Village Subdivision for the following reporting periods since June 2020:

- 2020: eMOR's submitted
- 2021: January through December
- 2022: 1st quarter and 3rd quarter
- 2023: eMOR's submitted
- 2024: eMOR's submitted

eMOR submissions are currently not available on the public data viewer. Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's and to make the eMOR submissions available for public viewing. MOR's will be uploaded to the public data viewer as they are obtained by DWR.



MEMORANDUM

DATE: 6/13/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc. – Norton Creek – Hickory Gap STP
SOP-07021
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Norton Creek – Hickory Gap STP for the following reporting periods since June 2020:

- 2020: June through December
- 2021: January through December
- 2022: January through December
- 2023: January through December
- 2024: January through June

Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's. MOR's will be uploaded to the public data viewer as they are obtained by DWR.



MEMORANDUM

DATE: 6/13/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc. – Fairway Vistas Subdivision
SOP-08014
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Fairway Vistas Subdivision for the following reporting periods since June 2020:

- 2020: eMOR's submitted
- 2021: January through December
- 2022: 1st quarter
- 2023: eMOR's submitted
- 2024: eMOR's submitted

eMOR submissions are currently not available on the public data viewer. Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's and to make the eMOR submissions available for public viewing. MOR's will be uploaded to the public data viewer as they are obtained by DWR.



MEMORANDUM

DATE: 6/13/2024

TO: WaterLog File

FROM: Brad Antone, DWR-KEFO

SUBJECT: Tennessee Wastewater Systems, Inc. – Fairway Vistas Subdivision
SOP-08014
Missing Monthly Operations Reports

The Tennessee Department of Environment and Conservation, Division of Water Resources (DWR) does not have monthly operations reports (MOR's) for Tennessee Wastewater Systems, Inc. – Fairway Vistas Subdivision for the following reporting periods since June 2020:

- 2020: eMOR's submitted
- 2021: January through December
- 2022: 1st quarter
- 2023: eMOR's submitted
- 2024: eMOR's submitted

eMOR submissions are currently not available on the public data viewer. Personnel from DWR in the Knoxville Environmental Field Office are working with TDEC's Land Based unit in Nashville, as well as the subject system to obtain these MOR's and to make the eMOR submissions available for public viewing. MOR's will be uploaded to the public data viewer as they are obtained by DWR.

Piney Bay Subdivision - SOP-06053 Missing MORs

Jennifer Dulin <Jennifer.Dulin@tn.gov>

Mon 6/17/2024 11:00 AM

To: Jenny Nichols <jenny.nichols@adenus.com>

Cc: Cali Calderwood <Cali.Calderwood@tn.gov>; Jennifer Innes <Jennifer.Innes@tn.gov>

Hi Jenny,

If available, please submit the following missing MORs for Piney Bay Subdivision - SOP-06053:

2021 Q2, Q3

2019 Q1, Q2, Q3

I appreciate your time and assistance with this matter. Let me know if you have nay questions.

Best regards,



Jennifer K. Dulin, P.G. | Environmental Consultant I

Division of Water Resources

Chattanooga Environmental Field Office

1301 Riverfront Parkway, Chattanooga, TN 37402

(423) 298-3233

Email: jennifer.dulin@tn.gov

www.tn.gov/environment

[TDEC Water Well Web Page](#)

[Water Well Web Application](#)

[TN Driller & Installer List & Driller Report Search](#)

[TDEC Division of Water Resources GIS HUB](#)

[Water Well Rules and regulations \(PDF Download\)](#)

Individual TN Drinking Water System information is available at Drinking Water Watch:

<https://dataviewers.tdec.tn.gov/DWW/>

From: [Anne Passino](#)
To: [Water Permits](#)
Cc: [Dorie Bolze](#)
Subject: [EXTERNAL] Comments of the Harpeth Conservancy on draft SOPs
Date: Thursday, May 23, 2024 6:33:40 PM

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Please find comments from the Harpeth Conservancy on draft State Operating Permits (SOPs) Nos. SOP-04040, SOP-05033, SOP-08014, SOP-04004, SOP-17001, SOP-02023, SOP-04051, SOP-24006, SOP-19020, SOP-07021, and please let us know if you have any questions.



May 23, 2024

SENT VIA EMAIL to Water.Permits@tn.gov
Attention: Public Notice Coordinator

Brad Harris
Manager, Land-Based Systems
Tennessee Department of Environment and Conservation
Davy Crockett Tower, 9th Floor
500 James Robertson Parkway
Nashville, TN 37234

Re: Comments on Draft State Operating Permits (SOPs) Nos. SOP-04040, SOP-05033, SOP-08014, SOP-04004, SOP-17001, SOP-02023, SOP-04051, SOP-24006, SOP-19020, SOP-07021

Dear Mr. Harris:

The Harpeth Conservancy is pleased to submit these comments in response to TDEC'S request for public feedback on a series of draft State Operating Permits that the agency proposes to issue to Tennessee Wastewater Systems, Inc. (also known as Adenus). HC is a science-based public interest conservation organization. Its mission is to restore and protect clean water and healthy ecosystems for rivers in Tennessee by employing scientific and policy expertise and collaborative relationships to develop, promote, and support broad community stewardship and action. Our team has extensive experience working on issues related to wastewater, including decentralized land application systems.

Specifically, these comments respond to the following draft SOPs, which have the potential to impact groundwater and surface water resources in Tennessee:

April 23, 2024, Public Notice¹

1. The Highlands Treatment Facility in Fentress County (SOP-04040)
2. The Smoky Village Subdivision in Sevier County (SOP-05033)
3. The Fairway Vistas in Blount County (SOP-08014)
4. Legacy Mountain East in Sevier County (SOP-04004)

¹ TDEC, Division of Water Resources Public Participation Opportunity, Notice MMXXIV-016 (Apr. 23, 2024), https://www.tn.gov/content/dam/tn/environment/water/water-public-notice/ppo_water_2024-04-23-npdes-mmxxiv-016.pdf.

May 7, 2024, Public Notice²

5. Cox Ladd Treatment Facility for Arrington Ridge Pine Creek Fiddlers Glenn and Burns Ridge Subdivisions in Williamson County (SOP-17001)

April 16, 2024, Public Notice³

6. Falling Waters in Sevier County (SOP-02023)
7. Huffines Treatment Facility in Robertson County (SOP-04051)
8. Chesterfield Farms in Bedford County (SOP-24006)
9. Daventry Subdivision in Williamson County (SOP-19020)
10. Norton Creek – Hickory Gap STP in Sevier County (SOP-07021)

Tennessee Wastewater Systems operates many more decentralized wastewater facilities according to an “O&M Inspection Frequency” report it submitted to TDEC in May 2023.⁴ Indeed, on TDEC’s DataViewer, Tennessee Wastewater Systems, Inc. is listed as the permittee for 110 SOPs, including 87 with a “Reissuance” status.

Our review of just the ten draft SOPs up for public comment right now identified some concerning patterns. Such patterns may speak to issues facing decentralized wastewater systems across Tennessee more generally. Namely, records suggest there is infrequent oversight; when problems are identified, it’s not clear when/if they were solved. More specifically, we noticed that:

- These draft SOPs allow operation and maintenance inspections to be conducted less frequently than the default 14-day period established by TDEC, if the *permittee* so chooses.
- Few of these SOPs’ public-facing permit files on the DataViewer have records describing TDEC site inspections. Where records of inspections do exist, they sometimes describe situations that need to be fixed, but there are even fewer records describing whether solutions were implemented.
- None of the draft permit rationales explain how the facilities operated during previous permit term(s) which could potentially justify fewer inspections.

² TDEC, Division of Water Resources Public Participation Opportunity, Notice MMXXIV-018 (May 7, 2024), https://www.tn.gov/content/dam/tn/environment/water/water-public-notice/ppo_water_2024-05-07-npdes-mmxxiv-018.pdf.

³ TDEC, Division of Water Resources Public Participation Opportunity, Notice MMXXIV-015 (Apr. 16, 2024), https://www.tn.gov/content/dam/tn/environment/water/water-public-notice/ppo_water_2024-04-16-npdes-mmxxiv-015.pdf. The comment period for these SOPs closed on May 16, 2024, but these permits are included in this letter because many of these permits have DataViewer document dates and draft permit cover letters that post-date the notice requesting public comment, suggesting the 30-day period since the permits were made public has not lapsed.

⁴ See Attachment 2: SOP-04040, Report “RECV VIA EMAIL 01-MAY-23: report re: updated inspection frequency from Jenny Nichols,” (TDEC DataViewer Document Date May 1, 2023), https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::34051:P34051_PERMIT_NUMBER:SOP-04040.

It is important that frequent, documented inspections be made public when draft permits are provided for public comment. Right now, the public can look at the DataViewer or go to a field office. There are hopefully many more records at TDEC's field offices than are on the DataViwer. Practically speaking, though, it is burdensome to make so many records only available at the field offices. After all, even the limited set of Tennessee Wastewater's SOPs discussed in this letter include facilities overseen by the Nashville, Columbia, Cookeville, and Knoxville EFOs.

In addition to making inspection and operation materials available for the public, it's important that TDEC permit writers—and reviewing Central Office managers—have all of the necessary information to make reasoned assessments about whether to re-authorize SOPs. SOPs expire after five years unless the permittee reapplies and TDEC determines that re-issuance is appropriate.⁵ This duration limit is “intended to ensure that [TDEC] can conduct a meaningful, regular review to ensure on-going compliance.”⁶ Right now, it's unclear whether TDEC staff have the necessary information to conduct a meaningful review because the draft permit rationales include very little site-specific considerations.

I. TDEC's efforts to implement standards for decentralized wastewater systems have faced challenges, but state regulations still contain many critical requirements to protect Tennessee's waters.

A. A brief history of the standards governing decentralized wastewater systems in Tennessee.

Decentralized wastewater systems that use “land application” as part of their treatment process are nothing new. As explained by TDEC, “Utilizing soil to treat domestic strength wastewater and return the treated water to the environment has been practiced for centuries”⁷ In general terms, here's how this type of waste treatment works:

A portion of the wastewater applied to a land application area will migrate downward, eventually encountering the water table. A water table exists at some depth below any land application area. Water below the water table represents groundwater and as such may be withdrawn for drinking water purposes; therefore, the wastewater must be adequately treated when it gets

⁵ State Operating Permit Rules, Tenn. Comp. R. & Regs. 0400-40-04-.12 (May 2022), <https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40-06.20220515.pdf> [hereafter “SOP Rules”].

⁶ Tennessee Board of Water Quality, Oil and Gas, Signed Rulemaking Amendment Chapter 0400-40-06, at pp. 45-46 (Apr. 20, 2021), https://www.tn.gov/content/dam/tn/environment/boards/documents/wqog/2021-meetings/april/wqog_0400-40-06_finalized-approved-signed-copy_apr-20-2021.pdf [Hereafter “2021 TDEC Rulemaking”].

⁷ Preface, Chapter 17 of TDEC's Design Criteria for Sewage Works, Design Guidelines for Wastewater Disposal Using Drip Dispersal, p. 1 (Oct. 18, 2023), https://www.tn.gov/content/dam/tn/environment/water/documents/wr-wq_pub_design-criteria-ch17.pdf [hereafter “Chapter 17”].

to the water table. Furthermore, water tables generally slope toward topographic lows and eventually intersect the ground surface whereby the groundwater becomes surface water. **If the groundwater has not been adequately treated when it becomes surface water, then the water represents a public health threat in that it may be consumed or used for recreation.**⁸

About thirty years ago, “TDEC began permitting soil-based treatment and dispersal systems in support of multi-home developments ranging from just a few homes per system to hundreds.”⁹ Most of these larger systems use “drip irrigation technology to apply the effluent to an identified area of soil.”¹⁰

To protect public health and the environment, it’s important to set standards for these systems. For example, as explained in the context of an Agreed Order involving Tennessee Wastewater Systems, “Effluent standards and access restrictions on drip fields of permitted waste water drip irrigation systems are necessary because:

- harmful bacteria may be present in the wastewater;
- drip fields are often near residential development;
- the protection of unsuspecting children require these measures;
- buried lines are close to the surface and bodily contact with harmful wastewater is possible;
- prudence and public confidence require it.”¹¹

Setting standards also helps ratepayers. When there are failures at decentralized wastewater facilities, the expenses incurred to fix them are often borne by the customer base and, potentially, ratepayers from adjacent systems.¹²

In 2018, TDEC began working on rules for decentralized wastewater systems; the following year, TDEC proposed updated rules and minimum design standards to address

⁸ 2021 TDEC Rulemaking, at p. 26 (emphasis added).

⁹ Chapter 17, at p. 1.

¹⁰ *Id.*

¹¹ TDEC DataViewer, SOP-04004, “AGREED ORDER DRIP CLASSIFICATION,” p. 4 (DataViewer Document Date Sept. 30, 2014), https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051::NO:34051:P34051_PERMIT_NUMBER:SOP-04004.

¹² See February 2021 TDEC Proposed Rules, at p. 5 (“Reserve land application area is a form of insurance in the event additional land application area is needed. Examples of expenditures born by the customer base of a wastewater utility that is obligated to remedy multiple noncompliant land application areas is available in the docket history maintained by the Tennessee Public Utility Commission. Unfortunately, the need to remedy these systems and the expenses incurred with those remedies is usually realized long after the developer is out of the picture.”); *id.* at p. 81.

“situations that threaten public health and water quality.”¹³ That is, TDEC “observed a number of compliance issues with land application systems across the state,” which in some cases, “resulted in discharges of wastes to surface water and/or groundwater,” so “TDEC advised the Board of Water Quality, Oil, and Gas (the “Board”) that more specific performance standards and operating parameters are necessary to ensure that land application systems are properly operated and do not cause pollution.”¹⁴ To support this assessment, TDEC pointed to the degree of disparity between similar systems (in areas with similar soil types that used the same technology) in adjacent counties.¹⁵ One county’s systems were operating successfully and the other’s weren’t. The primary source of disparity appeared to be that the successful county had adopted minimum design standards and other requirements in addition to TDEC’s regulations.¹⁶

The Southern Environmental Law Center, Obed Watershed Community Association, Protect Our Aquifer, Tennessee Chapter Sierra Club, Tennessee Clean Water Network, Tennessee Conservation Voters, and Tennessee Environmental Council, submitted comments to TDEC regarding the proposed rule changes to 0400-40-06 (State Operating Permits).¹⁷ In part, these organizations highlighted the importance of properly designed and maintained systems for public health and water quality given that wastewater “can contain pathogens (such as E. coli, norovirus, and protozoans like giardia) and . . . many other non-conventional contaminants (contaminants of emerging concern), such as hormones, pharmaceuticals, and per- and polyfluoroalkyl substances (PFAS).”¹⁸ To ensure that groundwater and surface water resources are protected, these groups also suggested that TDEC should (1) require stricter minimum soil depth above the water table, especially in areas with karst or unusual soil conditions, (2) require stricter and more consistent effluent limits for each type of discharger, (3) clarify that, in addition to a prohibition on ponding, land application is not appropriate when the site is frozen, snow-covered, or flooded, (4) require year-round vegetative cover, (5) require more reserve land, (6) require more detailed soil suitability and hydrogeological analysis, and (7) require groundwater monitoring to ensure compliance.¹⁹

¹³ Travis Loller, Associated Press, *Bill Could Limit Oversight of Some Private Sewer Systems* (Mar. 14, 2020), <https://www.usnews.com/news/best-states/tennessee/articles/2020-03-14/bill-could-limit-oversight-of-some-private-sewer-systems> [hereafter “*Bill Could Limit Oversight*”].

¹⁴ 2021 TDEC Rulemaking, at p. 19.

¹⁵ See Tennessee Board of Water Quality, Oil and Gas, Draft Rulemaking Amending Chapter 0400-40-06, at p. 79 (with Appendix and proposed language for 0400-40-06.06 Land Application), available as **Attachment 1** [hereafter “February 2021 TDEC Proposed Rules”].

¹⁶ *Id.* at pp. 79-81.

¹⁷ Letter re: Proposed Changes to Chapters 0400-40-05 (Permits, Effluent Limitations and Standards), 0400-40-10 (National Pollutant Discharge Elimination System General Permits) and 0400-40-06 (State Operating Permits) (July 25, 2019) [hereafter “2019 Comments”], https://www.tn.gov/content/dam/tn/environment/water/rules/2019-08-05-rulemaking-comments-0400-40-05_06_10-southern-environmental-law-center-apassino.pdf.

¹⁸ 2019 Comments, p. 11.

¹⁹ *Id.* at pp. 11-21.

In 2020 and 2021, legislation was proposed to exempt “construction, installation or modification of a land application” for alternative sewer discharge systems from permitting and TDEC approval.²⁰ A presentation by TDEC before the Senate Energy, Agriculture & Natural Resource Committee explained the Department’s position that (1) decentralized wastewater treatment technology has a bright future “provided we recognize and account for the limited capacity of the soil, and make sure we don’t generate more wastewater than the land application area can manage” and (2) the proposed rulemaking “is a beneficial and necessary first step.”²¹

Although the legislation was not enacted, it affected the scope of TDEC’s rulemaking. “Th[e] bill was tabled once TDEC committed to removing the proposed land application standards from the version presented to the Board for approval.”²²

In 2021, “The Board of Water Quality, Oil and Gas (Board) formally approved a new SOP regulation . . . but that regulation did not include standards for land application discharges that have been problematic across the State.”²³ “Based on comments received and further internal consideration,” the Board explained, “the rule has been reserved for future rulemaking.”²⁴

B. Current standards authorize TDEC to impose meaningful monitoring and reporting requirements.

HC believes that lessons learned from Williamson County would benefit the entire state: requiring design standards, reserve capacity, and early consultation are key to maximizing the chances of long-term, successful treatment.

For now, though, there are other ways to determine whether decentralized systems are successfully treating wastewater. For example, under current regulations, SOPs “shall impose” monitoring, reporting, and inspection requirements deemed necessary to assure adequate treatment.²⁵ The Tennessee Board of Water Quality Oil & Gas has explained that it “considers monitoring, recording, reporting, and inspection requirements to be critical toward the determination of the effectiveness of the permitted systems”; because “there

²⁰ *Bill Could Limit Oversight*; SB 1043 (proposing to amend Tenn. Code Ann. § 69-3-108(b)(2) to state that “no permit is required for the construction, installation, or modification of a land application system authorized pursuant to 69-3-105(l)”). “In 2020 and 2021, legislation was introduced to limit the Board’s authority with respect to several of the proposed regulatory standards.” 2021 TDEC Rulemaking, p. 19.

²¹ Video (starting at approx. minute 19), Tennessee Senate Energy, Agriculture and Natural Resources Committee (Mar. 3, 2021), https://tnga.granicus.com/player/clip/24058?view_id=623&redirect=true&h=5d09a26ce48c3bc4686404acc3f500e.

²² Mark Quarles, PG, *Risky Business – Alternative Wastewater Disposal In Tennessee* (May 4, 2021), <https://www.bbjgroup.com/blog/risky-business-alternative-wastewater-disposal-in-tennessee>.

²³ *Id.*

²⁴ 2021 TDEC Rulemaking, at p. 31.

²⁵ SOP Rules, Tenn. Comp. R. & Regs. 0400-40-06-.05(2).

are a wide range” of scenarios relevant to these requirements, the Board “intends for TDEC to specify the site- and system-specific details pertaining to monitoring, recording, reporting, and inspection in permits rather than attempt to include all possible scenarios in the rule.”²⁶ Relevant factors include the “compliance history, proximity to waters of the state, and system design.”²⁷

Permits that expire and must be renewed also help ensure facilities are operating properly. Every five years, when a permit is up for renewal, TDEC must prepare a “rationale to be published with the draft permit” that includes or considers, as appropriate: (1) the type and quantity of waste, (2) a summary of the basis for draft permit conditions, (3) the location, (4) the tentative determination, and (5) contact details for additional information.²⁸

II. To protect public health and the environment, we request more frequent inspections and improved public disclosure about facilities’ operations.

The draft permits discussed in this comment letter, like virtually all SOPs, have a re-issuance term of five years. As noted earlier, the reason that permits authorizing activities with the potential to negatively impact public health and the environment expire is so that TDEC can consider a facility’s performance when acting on a request for re-authorization. Here, records of these facilities’ performance on TDEC’s DataViewer are incomplete but appear to suggest that the 5-year cycle of ensuring compliance is not fully serving its purpose.

Therefore, so that Tennesseans can have confidence that our state’s waterways are being protected, we request that TDEC:

- *Provide a summary in the permits’ rationales of each facility’s performance over the past permit period, including a summary of permittees’ inspections, whether the results were satisfactory (or whether the results of any necessary follow-up were satisfactory), whether annual fees have been paid, and any results of inspections by TDEC staff.*
- *Post copies of the agency’s inspections of each facility on the DataViewer, not just a short summary of some inspections.*
- *Post copies of the operators’ inspection and monitoring reports on the DataViewer, not just make them available for in-person inspection at a field office. For example, the SOPs provide that monitoring results may be submitted electronically if not postmarked within 15 days after each reporting period, but the DataViewer pages for the SOPs do not include monitoring or sampling results.*

²⁶ 2021 TDEC Rulemaking, at p. 28.

²⁷ *Id.*

²⁸ SOP Rules, Tenn. Comp. R. & Regs. 0400-40-06-.04(2).

- *Remove the permit term that allows—at a permittee’s discretion—a permittee to reduce the frequency of inspections. Inspections should be conducted at least every 14 days.*
- *Require the permittee to specify whether the inspections are conducted in-person or remotely.*

Some of these suggestions mirror standard practice for NPDES permits. Although NPDES permits for sewage treatment plants are for discharging systems, it’s important not to forget that both are handling wastewater with the potential to impact public health and the environment.

1. Highlands Treatment Facility (Fentress County)²⁹

The Highlands Treatment Facility is a 50,000 gallon-per-day (0.5 MGD) drip irrigation system that serves a 166-home subdivision and operates under the terms of SOP-04040.

In 2019, when this SOP was most recently re-issued, it contained the following provision, which allowed the permittee to reduce the frequency of inspections from the default 14-day period:

The site shall be inspected by the certified operator or his/her designee, at a minimum, once per fourteen days (default) OR in accordance with an operating and maintenance inspection schedule in the permit administrative file record. The default inspection frequency will apply if an operating and maintenance inspection schedule is not submitted to be a part of the permit administrative file record. The operating and maintenance inspection schedule shall at a minimum evaluate the following via onsite visits or telemetry monitoring or a combination of the two:

- the condition of the treatment facility security controls (doors, fencing, gates, etc.),
- the condition of the drip area security controls (doors, fencing, gates, etc.),
- the condition of the site signage,
- the operational status of the mechanical parts of the treatment system (pumps, filters, telemetry equipment, etc.)
- the condition of the UV bulbs (if applicable)
- the condition of the land application area including the location of any ponding
- the name of the inspector
- the description of any corrective actions

SOP-04040 (2019), p. 2. The Highland Treatment Facilities’ contract operator filed an operation and maintenance (O&M) schedule that reduced the inspection schedule to monthly and/or quarterly, depending on the parameter.³⁰ (It appears that none of their facilities have been scheduled for a 14-day inspection period.)

²⁹

TDEC

DataViewer,

SOP-04040,

https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::34051:P34051_PERMIT_NUMBER:SOP-04040.

³⁰ Attachment 2.

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The inspection schedule for the Highlands Treatment Facility show that it will be receiving quarterly visits. The permittee's chart seems to distinguish between facilities getting monthly visits and those getting quarterly visits based on whether there is more or less than "5k/day." It's not clear what this means, but if the permittee is setting visit frequencies based on whether there is greater than 5,000 gallons per day of flow, it's not clear why the Highlands Treatment Facility will only be inspected quarterly.

Permit Number	Permittee Name	County	EFO Office	Monthly Visit >5k/day	Quarterly Visit <5 K/day
SOP-04040	Tennessee Wastewater Systems, Inc. - The Highlands	Fentress	Cookeville		x

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Although there is limited information about the operation of the Highlands Treatment Facility on TDEC's DataViewer, two of the three inspections are reported to have been "Out of Compliance." First, in March 2019, there was an issue with apparent effluent "outcropping" from the base of the lagoon, so TDEC recommended a dye trace or "bac t" tests to determine whether the holding pond was leaking or the outcropping was due to groundwater."³² Later, in November 2019, the facility was again deemed "Out of Compliance" because "Slopes of lagoon are still eroding and lagoon is still seeping."³³ It's unclear whether any dye tests were done in 2019. There is no follow-up information on the DataViewer about these 2019 inspections. A September 2023 inspection indicates that the compliance status is "pending."³⁴

The "outcropping" and "seeping" issues in 2019 were not the first time TDEC suggested dye tracing. Five years earlier, in 2014, a TDEC inspection stated, "Some seepage was observed near the base of the lagoon dam. The origin of the seepage could not be determined. A dye test may be needed to determine if the seepage is actually from the lagoon."³⁵

Given the recurring issues at this facility, it is surprising that (1) TDEC issued a draft permit so quickly after the permittee re-applied and (2) did so without explaining in the rationale whether the previous issues had been resolved and/or why the permittee is once again being allowed to reduce inspection frequency.³⁶

³¹ Attachment 2, p. 3

³² Inspection No. 67321 for SOP-04040 (Mar. 21, 2019), https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34201::::34201:P34201_INSPECTNUMBER:67321.

³³ Inspection No. 80191 for SOP-04040 (Nov. 14, 2019), https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34201::::34201:P34201_INSPECTNUMBER:80191.

³⁴ Inspection No. 110488 for SOP-04040 (Sept. 12, 2023), https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34201::::34201:P34201_INSPECTNUMBER:110488.

³⁵ Inspection Report for SOP-04040 (Feb. 27, 2014).

³⁶ See Draft SOP-04040 (Rationale, pp. 1-2); DWR-SOP-04040-Report-20230501-2366.pdf, p. 2.

2. Fairway Vistas³⁷

The Fairway Vistas Facility has a 5,700 gallon-per-day (0.0057 MGD) design flow and a 0.65-acre drip field serving a subdivision of 19 homes near Townsend in Blount County.

As with the other SOPs discussed in this letter, the rationale does not contain specific information about this system's performance, reporting, or fees.

This draft permit also contains the provision that, "The site shall be inspected by the certified operator or his/her designee, at a minimum, once per fourteen days (default) OR in accordance with an operating and maintenance inspection schedule in the permit administrative file record. The default inspection frequency will apply if an operating and maintenance inspection schedule is not submitted to be a part of the permit administrative file record." (Permit, p. 3). Unlike some of the other SOPs referenced in this letter, the DataViewer does not contain a copy of an adjusted monitoring schedule for the Fairway Vistas Facility. Nor is "Fairway Vistas" or SOP-08014 among the facilities on Adenus's list of adjusted schedules.

The earliest documents from this facility are from 2012, but over the last dozen years, the only inspection report on the DataViewer is from 2014.³⁸

3. Smoky Village Facility³⁹

The Smoky Village Facility is 5,600 gallon-per-day (0.0056 MGD) STEP/STEG system discharging to a 0.76-acre drip field to serve 28 homes.

The draft permit contains the same provision to allow less frequent inspections. (Permit, p. 3). The permittee has opted to inspect the facility monthly.⁴⁰

This facility has a short rationale like the other SOPs with no mention there of the system's performance or payment of permit fees. However, there are older records on the DataViewer describing non-compliance (e.g., "The site appears to be in a state of constant violation.")⁴¹ and notices of violation without follow-up records showing that the facility came into compliance.

³⁷ TDEC DataViewer, SOP-08014
https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-08014.

³⁸ *Id.* Memo "SOP-08014 UIC Field Trip" (Aug. 6, 2014).

³⁹ TDEC DataViewer, SOP-05033,
https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-05033.

⁴⁰ Attachment 2, p. 5.

⁴¹ See *id.* Notice of Violation "NOV" (Sept. 18, 2015) (describing 2014 inspection).

The DataViewer's most recent TDEC inspection for this facility is from October 2019. Records mention a ditch previously seen on the site (i.e., "told me they had removed 3 chambers from each ditch and filled in with dirt to stop the effluent from reaching the disturbed area that been the ditch running off the property"),⁴² but it is not clear why the facility would have had a ditch.

In 2015, TDEC commented on the facility's expansion plans, noting that, "Soils in the new area were similar to the existing field . . . with noted clay content as shallow as 7"-9" continuing to 35"+ in depth. A Division of Water Resources inspection of the site on July 9, 2013, revealed that the pits dug for the evaluation for the soil texture and structure were full of water."⁴³

Other examples of issues that might justify bi-weekly inspections rather than monthly inspections exist in Smoky Village's records. In December 2013, for example, a deficiency was noted that, "Ponded water in the drip field indicate poor percolation, and vector attraction problems will persist."⁴⁴ In 2012, in response to a citizen complaint, TDEC "sampled a spring-like flow of water emerging down gradient from the Smoky Village wastewater treatment plant and drip field."⁴⁵ Or, if these issues have been fully remedied, that would be helpful information to include in the draft rationale.

4. Legacy Mountain East⁴⁶

The Legacy Mountain Facility is a 40,000 gallon-per-day (0.04 MGD) STEP/STEG collection system, recirculating media filter and drip irrigation system that serves a 160-chalet and 30-lodge room subdivision and operates under the terms of SOP-04004 in Sevier County.

The Rationale says nothing about performance over the 5-year period of the expiring permit, inspections by TDEC, inspections or monitoring by the permittee, or if the \$350 annual permit fees have been paid.

The permittee set the inspection frequency for this facility to be monthly.⁴⁷

The only TDEC inspection shown on DataViewer under the "inspections" tab was in April 2009. Its status was "NOV" [Notice of Violation], and the explanatory notes say, "The CSI revealed drip lines placed on the ground, and no fencing around the drip field. There is

⁴² *Id.* Inspection Report "Inspection Report Gabe Davis" (Oct. 18, 2019).

⁴³ *Id.* Letter "151102_Smoky Village Recommendations_ltr SOP-05033" (Oct. 26, 2015).

⁴⁴ *Id.* Minor Deficiency Noted, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34201:::34201:P34201_INSPECTNUMBER:41669.

⁴⁵ *Id.* Letter "Letter to Bob Pickney on spring emerging from base of Smoky Village" (Nov. 1, 2012).

⁴⁶ TDEC DataViewer, SOP-04004, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-04004

⁴⁷ Attachment 2, p. 5.

one sign posted at the field entrance. Early sampling results show an E. coli violation, but the NOV cannot be issued until all sampling results are returned.”⁴⁸ This problem may have been corrected many years ago, but it’s not possible to tell that from the DataViewer.

There was also a NOV issued in 2014 for sampling violations related to E. coli. Ultimately, the permittee responded that they “have installed a fence around the drip area” and “will submit a permit modification requesting the elimination of the E-Coli requirement.”⁴⁹ Significantly, this issue, which was easily resolvable, was only daylighted for agency staff because of two compliance inspections in April and August 2014, one of which referenced “[s]everal areas of ponding due to broken/chewed pipes.”⁵⁰ It’s fair to say that TDEC does not have the resources to inspect each SOP facility multiple times a year, making it even more important for the permittee to conduct frequent inspections.

5. Cox Ladd Treatment Facility for Arrington Ridge Pine Creek Fiddlers Glenn and Burns Ridge Subdivisions (SOP-17001)⁵¹

The Cox Ladd Treatment Facility is a 164,100 gallon-per-day (0.1641 MGD) RMF drip dispersal system to serve a 540-home subdivision, operating under the terms of SOP-17001 in Williamson County.

According to a 2021 inspection by TDEC, “The effluent appeared to be clear and was free of solids. There was no discernible odor. The drop field appeared to be in good condition. There were not observable wet spots or ponding water, or other indicators of issues with the system.”⁵²

In HC’s experience, because Williamson County has its own standards for drip fields (e.g., extra land for backup treatment, limits on slopes, requirements for keeping distance from streams), there have been far fewer issues with malfunctioning decentralized wastewater systems.⁵³ TDEC has commented on the value of reserve systems to counties in Tennessee that have the most experience with this treatment method:

While a reserve area is required in support of a permit for construction of a septic system, the need for additional area is not unique to septic systems. Four local governing bodies in Tennessee, representing four of the six counties

⁴⁸ Inspection 19339, SOP-04004, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34201:::34201:P34201_INSPECTNUMBER:19339.

⁴⁹ TDEC DataViewer, SOP-04004, “NOV for Sampling Violations” and “TWS NOV Response.” (Document Dates 2014).

⁵⁰ *Id.* “TWS Inspections/Legacy Mtn East” (May 20, 2014).

⁵¹ TDEC DataViewer, SOP-17001, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-17001; https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34031:::34031:P34031_SITE_ID:112616.

⁵² *Id.* “2021 CEI letter” (DataViewer Document Date Oct. 12, 2021).

⁵³ In 2023, Williamson County amended its septic regulations. See <https://www.williamsoncounty-tn.gov/2088/35282/Amendments-to-Septic-Regulations?activeLiveTab=widgets>.

that are the location of the majority of these systems, already enforce this standard. Two of these four governing bodies mandated a reserve area requirement early on in their use of land application sites, and the two others have adopted a reserve area requirement because of the difficulty in addressing some of their issues of noncompliance at their existing systems. However, the reserve area requirement has been removed from the final rule and will be addressed through guidance.⁵⁴

Here, even if the Cox Ladd Treatment Facility is a well-functioning system due to robust state and local standards, we again highlight that the draft permit rationale contains the same limited information as the previously discussed SOPs.

6. Falling Waters in Sevier County (SOP-02023)⁵⁵

The Falling Waters Facility is a 0.0065 MGD system that serves 14 log cabins and operates under the terms of SOP-02023 in Sevier County using septic tanks, an effluent collection system, AdvanTex recirculating textile media filter, and drip irrigation.

The draft permit contains the same provision allowing less frequent inspections. (Permit, p. 3). The permittee has opted to inspect the facility monthly.⁵⁶

The draft rationale says nothing about performance over the 5-year period of the expiring permit, inspections by TDEC, inspections or monitoring by the permittee, or if the \$350 annual permit fees have been paid.

Available summaries of inspections on the DataViewer are from 2010 (NOV issued) and 2012 (referencing deficiencies that need follow-up). There are also inspection reports from 2013 and 2014. One concerning comment on the 2013 inspection report states, in part, “The system has been modified with two additional drip zones installed since my last inspection. No application for modification has been filed and site suitability has not been established. Two wells were observed down gradient of one of these additions at [location.] These wells are the water source for the rental cabins.”⁵⁷ It’s unclear from the DataViewer or the 2013 permit how that issue was resolved, though a 2014 inspection report notes that there had been modifications done in 2012 and the system appeared to be functioning properly.⁵⁸

⁵⁴ Attachment 1, p. 49.

⁵⁵ The draft permit for Falling Waters has a cover letter dated April 29, 2024, and the draft permit has a DataViewer “Document Date” of April 22, 2024. See TDEC DataViewer SOP-02023, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34031:::34031:P34031_SITE_ID:1968.

⁵⁶ Attachment 2, p. 5.

⁵⁷ *Id.* “RECD VIA EMAIL 23-MAY-13: report re: SFDS Inspection Report by Allen Rather” (DataViewer Document Date May 23, 2013).

⁵⁸ *Id.* “TWS Inspections\Falling Water” (DataViewer Document Date May 20, 2014).

7. Huffines Treatment Facility in Robertson County (SOP-04051)⁵⁹

The Huffines Facility is a 0.014 MGD system that serves 45 homes and operates under the terms of SOP-04051 in Robertson County.

The draft permit contains the same provision to allow less frequent inspections. (Permit, p. 6). The permittee has opted to inspect the facility monthly.⁶⁰

The draft rationale says nothing about performance over the 5-year period of the expiring permit, inspections by TDEC, inspections or monitoring by the permittee, or if the \$350 annual permit fees have been paid.

The most recent compliance history on the DataViewer is a 2018 inspection report, which concluded that the site was operating well.

8. Chesterfield Farms in Bedford County (SOP-24006)⁶¹

The Chesterfield Farms Facility is a 0.0225 MGD drip dispersal system that serves a 75 homes and operates under the terms of SOP-24006 in Bedford County.

The draft permit contains the same provision to allow less frequent inspections. (Permit, p. 3).

9. Daventry Subdivision in Williamson County (SOP-19020)⁶²

The Daventry Subdivision Facility is a 0.0297 MGD drip dispersal system that serves a 99-home subdivision and operates under the terms of SOP-19020 in Williamson County.

The draft permit contains the same provision to allow less frequent inspections. (Permit, p. 3). The permittee has opted to inspect monthly.⁶³ The initial permit appears to have been issued in 2019, but the DataViewer contains no SOP inspections or compliance reports.

⁵⁹ The draft permit for Huffines has a cover letter dated May 10, 2024 and a DataViewer “Document Date” of April 30, 2024. See TDEC DataViewer SOP-04051, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-04051;https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34031:::34031:P34031_SITE_ID:19791.

⁶⁰ Attachment 2, p. 3.

⁶¹ See TDEC DataViewer SOP-24006, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34031:::34031:P34031_SITE_ID:180075.

⁶² The draft permit for Daventry has a cover letter dated April 29, 2024, and the draft permit has a “Document Date” on the DataViewer of April 22, 2024, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-19020.

⁶³ Attachment 2, p. 5.

10. Norton Creek – Hickory Gap STP in Sevier County (SOP-07021)⁶⁴

The Norton Creek-Hickory Gap Facility is a 0.06 MGD drip irrigation system that serves 200 homes and operates under the terms of SOP-07021 in Sevier County.

The draft permit contains the same provision to allow less frequent inspections. (Permit, p. 2). The permittee has opted to inspect monthly.⁶⁵

The draft rationale says nothing about performance over the 5-year period of the expiring permit, inspections by TDEC, inspections or monitoring by the permittee, or if the \$350 annual permit fees have been paid.

Attachment 1 to the 2014 draft and final permit for this facility consists of an inspection report from 2013. It states, “The system consists of an RBC with drip, no disinfection. The site has surface drip without a fence. A sign is located at the unit. The lines are not on contour and are less than 25 feet from a drain. Several sections of pipe have been chewed and broken, these will be repaired. No ponding/overflow was observed at this time. Several rock outcrops were noted in the drip fields.”⁶⁶ It is unclear how these issues were resolved because there aren’t other inspection reports on the DataViewer besides the 2010 drip field classification memo.

III. Conclusion

These SOPs are issued pursuant to the authority and standards set forth in Tenn. Code Ann. § 69-3-103 and TDEC regulations.⁶⁷ In relevant part, TDEC’s regulations provide that, as part of the permit application process, TDEC “may subsequently request additional reasonable information as required to make the permit decision.” Tenn. Comp. R. & Regs. 0400-40-06-.03(2). *See also id.* (providing that a requirement for TDEC to notify the applicant that the application is complete, “does not preclude [TDEC] from later requesting additional information that after the notice of completeness is issued, is determined to be necessary for permit processing.”).

We request that TDEC respond to our concerns outlined in this letter. For example, it would be reasonable for TDEC to conclude that systems with continuing issues under consideration for permit reissuance must have frequent inspections and, as appropriate, compliance schedules. We also request that TDEC post information about the operational

⁶⁴ The draft permit for Norton Creek has a cover letter dated May 10, 2024 and a TDEC DataViewer “Document Date” of April 30, 2024, https://dataviewers.tdec.tn.gov/dataviewers/f?p=9034:34051:::NO:34051:P34051_PERMIT_NUMBER:SOP-07021.

⁶⁵ Attachment 2, p. 5.

⁶⁶ TDEC DataViewer, Draft Permit “SOP-07021 Norton Creek-Hickory Gap Drip Irrigation Permit 2014,” p. 14 (June 24, 2014).

⁶⁷ E.g., SOP Rules, Chapter 0400-40-06; Construction Rules Chapter 0400-40-02 (December 2013), <https://publications.tnsosfiles.com/rules/0400/0400-40/0400-40-02.20131216.pdf>.

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and compliance history for these facilities sufficient to support the re-issuance of the permits; if additional information is needed, we request TDEC exercise its authority to request that information before finalizing these permits.

Thank you for considering our comments, questions, and suggestions.

Sincerely,
Anne Passino
Dorene Bolze
Harpeth Conservancy

Attachment 1: Tennessee Board of Water Quality, Oil and Gas, Draft Rulemaking Amending Chapter 0400-40-06, at p. 79 (with Appendix and proposed language for 0400-40-06.06 Land Application).

Attachment 2: SOP-04040, Report "RECV VIA EMAIL 01-MAY-23: report re: updated inspection frequency from Jenny Nichols," (TDEC DataViewer Entry May 1, 2023).

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Effective Date: _____

Rulemaking Hearing Rule(s) Filing Form

Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).

Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).

Agency/Board/Commission:	Board of Water Quality, Oil and Gas
Division:	Water Resources
Contact Person:	Britton Dotson
Address:	William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 11th Floor Nashville, Tennessee
Zip:	37243
Phone:	(615) 532-0774
Email:	Britton.Dotson@tn.gov

Revision Type (check all that apply):

☐ Amendment
☒ New
☐ Repeal

Rule(s) (ALL chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please make sure that **ALL** new rule and repealed rule numbers are listed in the chart below. Please enter only **ONE** Rule Number/Rule Title per row)

Chapter Number	Chapter Title
0400-40-06	State Operating Permits
Rule Number	Rule Title
0400-40-06-.01	Purpose
0400-40-06-.02	Definitions
0400-40-06-.03	Permit Application, Issuance
0400-40-06-.04	Notice and Public Participation
0400-40-06-.05	General Terms and Conditions
0400-40-06-.06	Land Application
0400-40-06-.07	Animal Feeding Operations
0400-40-06-.08	Reserved
0400-40-06-.09	Collection Systems
0400-40-06-.10	Non-Potable Reuse
0400-40-06-.11	Bonds
0400-40-06-.12	Duration and Reissuance of Permits
0400-40-06-.13	Appeals

24-00037 MFR_Attachment A_CA Exhibit 2

Place substance of rules and other info here. Please be sure to include a detailed explanation of the changes being made to the listed rule(s). Statutory authority must be given for each rule change. For information on formatting rules go to

<https://sos.tn.gov/products/division-publications/rulemaking-guidelines>.

New Rules

Chapter 0400-40-06 State Operating Permits

Table of Contents

0400-40-06-.01 Purpose	0400-40-06-.08 Reserved
0400-40-06-.02 Definitions	0400-40-06-.09 Collection Systems
0400-40-06-.03 Permit Application, Issuance	0400-40-06-.10 Non-Potable Reuse
0400-40-06-.04 Notice and Public Participation	0400-40-06-.11 Bonds
0400-40-06-.05 General Terms and Conditions	0400-40-06-.12 Duration and Reissuance of Permits
0400-40-06-.06 Land Application	0400-40-06-.13 Appeals
0400-40-06-.07 Animal Feeding Operations	

0400-40-06-.01 Purpose.

State Operating Permits (SOPs) authorize the operation of non-discharging sewerage systems in compliance with permit conditions. SOPs issued pursuant to this chapter impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to prevent pollution of waters from the operation of non-discharging wastewater systems, including but not limited to: land application; animal feeding operations; pumping and hauling; collection and conveyance; and non-potable reuse of reclaimed wastewater. SOPs are not required for the use of a septic tank connected only to a subsurface drainfield subject to regulation under Chapter 0400-48-01. SOPs do not authorize discharges to waters or alterations of the properties of waters. In addition to any standards imposed by this chapter, construction of SOP facilities that collect and treat wastewater are governed by Chapter 0400-40-02.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.02 Definitions.

All terminology not specifically defined herein shall be defined in accordance with the Water Quality Control Act, T.C.A. §§ 69-3-101 through -148. When used in this chapter and in permits issued pursuant to this chapter, the following terms have the meanings given below unless otherwise specified:

The “Act” means the Water Quality Control Act (TWQCA), T.C.A. Title 69, Chapter 3, Part 1.

“Agricultural reuse for food crops” is the non-potable reuse of reclaimed wastewater to irrigate food crops that are intended for human consumption.

“Agricultural reuse for processing food crops and non-food crops” is the non-potable reuse of reclaimed wastewater to irrigate crops that are processed by humans before human consumption.

“Agronomic application rate” (with respect to categories of Urban or Agricultural Reuse) as used in this chapter: the application of reclaimed wastewater to meet nutrient or hydraulic uptake needs of food crops, feed crops, fiber crops, cover crops or vegetation grown on land, the latter category including but not limited to athletic fields and ornamental landscaping. Agronomic application rates vary with the type and density of the crops, the seasonal and ambient weather conditions, shade coverage, and characteristics of the reclaimed wastewater.

An “animal feeding operation” or “AFO” is a facility that (1) stables, confines, and feeds or maintains animals (other than aquatic animals) for a total of 45 days or more in any 12-month period, and (2) does not sustain crops, vegetation, forage growth, or post-harvest residues in the normal growing season over any portion of the facility. Two or more AFOs under common ownership are considered to be a single

24-00037 MFR_Attachment A_CA Exhibit 2

AFO for the purposes of determining the number of animals at an operation, if they adjoin each other or if they use a common area or system for the disposal of wastes.

“Complete hydraulic infiltration within the soil profile” means the movement of all applied, partially treated effluent into and through the soil.

“Continuous monitoring” means collection of samples using a probe and a recorder with at least one data point per dosing cycle.

“Discharge of a pollutant,” “discharge of pollutants,” and “discharge” when used without qualification, each refer to the addition of pollutants to waters from a source.

“Dry-weather intermittent effluent ponding” is ponding that occurs at least 24 hours after a ½ inch or greater rain event, results from dosing by drip hose or spray irrigation, and does not last longer than the rest period between dosing cycles.

“Dry-weather persistent effluent ponding” is ponding that occurs at least 24 hours after a ½ inch or greater rain event, results from drip hose or spray irrigation, and lasts longer than the rest period between dosing cycles.

“Effluent ponding” means liquid containing wastewater effluent standing on the surface of the ground.

The “end user of reclaimed wastewater” is the recipient and user of reclaimed wastewater from a permitted provider at the end of a distribution network who is engaging in beneficial reuse. Any individual who engages in the sale or resale of reclaimed wastewater is not an end user.

“Environmental reuse” is the non-potable reuse of reclaimed wastewater that is such quality that it could be reused to create, enhance, sustain, or augment water bodies including wetlands, aquatic habitats, or stream flow.

“Feed crops” are crops produced primarily for consumption by animals.

“Fiber crops” are crops produced primarily for harvesting fibers such as flax or cotton.

“Food crops” are crops produced primarily for consumption by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

“Full utilization of the land application area” means proper spatial distribution of partially treated effluent such that it is dispersed uniformly throughout the disposal area to maximize the use of the available soil profile.

A “grab sample” is a single sample collected at a particular time.

“Groundwater recharge for non-potable reuse” is the non-potable reuse of reclaimed wastewater of such quality that it is suitable to recharge aquifers that are not used as potable water sources.

“Industrial reuse” is the non-potable reuse of reclaimed wastewater of such quality that it is acceptable for specific industrial purposes such as power production or extraction of fossil fuels.

“Irrigation” is the beneficial application of reclaimed wastewater to land or soil to assist with the growing of agricultural crops and maintenance of landscapes during periods of insufficient rainfall.

“Land application” means the intentional disposal of treated wastewater into a soil matrix having depth and structure sufficient to assimilate the designed hydraulic load and provide additional treatment.

“Land application area” means an area of suitable soil used for the application of treated wastewater for the purpose of maximizing the disposal of partially treated wastewater.

“Land application area for AFOs” means the land under the control of an AFO owner or operator to which manure, litter, or process wastewater from the AFO production area is, or may be, applied.

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"Monthly average concentration" is the arithmetic mean of all samples collected in a calendar-month, expressed in units of mass per volume, for any pollutant.

"Non-potable reuse of reclaimed wastewater" is the planned and intentional reuse of reclaimed wastewater that does not involve direct production of potable water.

"NPDES" means National Pollutant Discharge Elimination System.

"Pasture" is the land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or clover.

"Ponding" means standing liquid on the surface of the ground.

"Potable reuse of reclaimed wastewater" is the planned augmentation of a drinking water source with reclaimed wastewater.

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

"Reclaimed wastewater" is wastewater that has been treated to meet minimum criteria with the intent of being used for non-potable purposes in a non-discharging wastewater system.

"Restricted urban reuse" is the non-potable reuse of reclaimed wastewater in municipal or suburban settings and of such quality that public access is controlled or restricted by physical or institutional barriers, such as fencing, advisory signage, and/or temporal access restrictions.

"Reuse in impoundments with restricted access" is the non-potable reuse of reclaimed wastewater in an impoundment that is of such quality that bodily contact is restricted.

"Reuse in impoundments with unrestricted access" is the non-potable reuse of reclaimed wastewater in an impoundment that is of such quality that there are no limitations imposed on bodily contact for recreational activities.

"Reuse of reclaimed wastewater" is the application of reclaimed wastewater of sufficient quality to be reused in a non-discharging wastewater system in a manner protective of human health and the environment.

"Setback" means a specified distance from surface waters, potential conduits to surface waters, property lines, public use areas, or other specific features as established by the Commissioner.

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

"STEG" means septic tank effluent gravity.

"STEP" means septic tank effluent pump.

"Surface impoundment" or "impoundment" means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well.

"Surface saturation" means the condition in which voids in the soil immediately below the surface of a drip disposal area are saturated.

"Unrestricted urban reuse" is the non-potable reuse of reclaimed wastewater in municipal or suburban settings and of such quality that public access is not restricted, such as irrigation for athletic fields, landscaping, or other approved "purple pipe" residential uses.

"Wastewater" means "sewage" as defined in T.C.A. § 69-3-103.

"Wastewater reclamation" is the treatment of wastewater or effluent to produce reclaimed wastewater such that it is acceptable for reuse that would not otherwise occur.

"Waters" means any and all water, public or private, on or beneath the surface of the ground, that 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 that do not combine or effect a junction with natural surface or underground waters.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.03 Permit Application, Issuance.

- (1) Any person who plans to operate a non-discharging wastewater system, other than an exempt septic system discharging only to a subsurface drain field, shall apply in writing for a state operating permit on forms provided by the Commissioner and secure such a permit prior to operation or expiration of an existing permit. The Commissioner may make these application forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40. Completed applications shall be submitted no later than 180 days in advance of the date on which a new or expanded activity will begin operation or the date of expiration of an existing permit for an ongoing activity.
- (2) Applicants shall complete and submit standard application forms supplied by the Commissioner together with such engineering reports, plans, and specifications as are required. The Commissioner may subsequently request additional reasonable information as required to make the permit decision. Processing of the application shall not be completed until all requested information has been submitted. Within 30 days of receipt of the application, the Commissioner will notify the applicant of any deficiencies or that the application is complete. This provision does not preclude the Commissioner from later requesting additional information that subsequent to the notice of completeness is determined to be necessary for permit processing.
- (3) Non-discharging large AFOs, as defined by TABLE 0400-40-05-.14.1 of Rule 0400-40-05-.14, which utilize liquid waste management systems, shall seek and obtain coverage under a SOP prior to commencing operation. Other non-discharging AFOs may seek and obtain coverage under a SOP. All AFOs seeking to obtain permit coverage shall submit an application to the Commissioner. All AFOs seeking to obtain permit coverage shall submit a nutrient management plan as outlined in subparagraphs (10)(a) and (b) of Rule 0400-40-05-.14.
- (4) Applications shall be submitted in accordance with the following:
 - (a) For a corporation:
 1. By a responsible corporate officer, i.e., a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation;
 2. By a manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility to assure long term environmental compliance with environmental laws and regulations; or
 3. By a person in a corporate position to which signatory authority has been delegated by a corporate officer.
 - (b) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively.
 - (c) For a municipality, state, federal, or other public agency:

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1. By a principal executive officer (i.e., the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency); or
 2. By a ranking elected official.
- (5) The Commissioner will not authorize the construction, installation, or modification of a sewerage system, or part thereof, or any extension or addition thereto, until after the end of the public comment period as outlined in Rule 0400-40-06-.04.
 - (6) The Commissioner shall issue permits only to a person or persons. Corporations, limited liability companies, or limited liability partnerships must be in good standing with the Tennessee Secretary of State to be eligible for permit coverage. Out-of-state corporations, limited liability companies, or limited liability partnerships must be registered with the Tennessee Secretary of State to be eligible for permit coverage.
 - (7) The Commissioner shall not issue a permit or a renewal of a permit to an applicant unless all fees required by T.C.A. Title 68, Chapter 203 have been paid in full.
 - (8) Public sewerage system applicants shall be a municipality, a public utility, a wastewater authority, or a privately owned public utility (having a Certificate of Convenience and Necessity from the Tennessee Public Utility Commission), or another public agency.
 - (9) No land application system shall be approved or certified by the Commissioner which proposes to use land having a water table at an elevation which would preclude adequate treatment of the wastewater and which may result in surface or groundwater pollution. This rule does not apply to land application systems associated with AFOs.
 - (10) This chapter requires the submission of forms developed by the Commissioner to comply with certain requirements, including, but not limited to, making reports, submitting monitoring results, and applying for permits. The Commissioner may make these forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.04 Notice and Public Participation.

- (1) Each completed permit application shall be evaluated and a tentative determination of whether to issue or deny a permit shall be made. If a tentative determination is made to issue a permit, then a draft permit shall be prepared for public notice that includes the proposed conditions.
- (2) For each application for which a tentative determination is made to issue a permit, the Commissioner shall prepare a rationale to be published with the draft permit that includes or considers as appropriate:
 - (a) The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, conveyed, pumped and hauled, land applied, or used;
 - (b) A brief summary of the basis for the draft permit conditions;
 - (c) The location of the activity or activities described in the application;
 - (d) The tentative determination regarding the proposed activity; and
 - (e) Name, telephone number, and electronic mail address of a person to contact for additional information.
- (3) No public notice is required:

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- (a) When a request for permit modification, revocation and reissuance, or termination is denied based on the Commissioner's determination that the request was not justified (written notice of that denial shall be given to the requester and to the permittee); or
 - (b) For minor permit modifications, which include corrections of typographical errors, requiring more frequent monitoring or reporting, changing an interim compliance date, or allowing a change of ownership.
- (4) Public notices may describe more than one permit or permit actions.
- (5) Public notice of a draft permit (including a notice of intent to deny a permit application for a new or expanded activity) required under this rule shall allow at least 30 days for public comment.
- (6) Public notice of a public hearing shall be given at least 30 days before the hearing. Public notice of the hearing may be given at the same time as public notice of the draft permit, and the two notices may be combined.
- (7) To inform interested and potentially interested persons of the proposed activity and of the tentative determinations regarding it, public notice shall be circulated within the geographical area of the proposed discharge by the following means:
 - (a) By mailing (either electronically and/or physically) a copy of the notice to the following persons:
 - 1. The applicant;
 - 2. Any other agency which the Commissioner knows has issued, or is required to issue, other permits for the same facility or activity;
 - 3. Persons on a mailing list for permit actions developed by:
 - (i) Including those who request in writing to be on the list; and
 - (ii) Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press, newsletters, environmental bulletins, or state law journals. The Commissioner may update the mailing list from time to time by requesting written indication of continued interest from those listed. The Commissioner may delete from the list the name of any person who fails to respond to such a request;
 - 4. To any unit of local government having jurisdiction over the area where the facility is proposed to be located; and
 - 5. To each state agency having any authority under state law with respect to the construction or operation of such facility.
 - (b) The applicant shall post a sign within view of a public road in the vicinity of the proposed SOP activity as specified by the Commissioner. The sign shall contain those provisions as specified by the Commissioner. The sign shall be of such size that it is readily visible from the public road. Also, the sign shall be maintained for at least 30 days following distribution of the approved public notice.
 - (c) If determined necessary by the Commissioner, any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases, website postings, or any other forum or medium to elicit public participation, may be utilized.
- (8) Public notice of applications shall include the following:
 - (a) Name, address, and phone number of the Division;

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- (b) Name and location address of each applicant;
 - (c) Brief description of each applicant's wastewater activities or operations;
 - (d) Name of any surface waters adjacent to, or within 0.25 miles of, the proposed activity;
 - (e) A statement of the tentative determination to issue or deny a permit for the activity described in the application;
 - (f) A brief description of the procedures for the formulation of final determinations, including the minimum 30-day comment period required by this rule and any other means by which interested persons may influence or comment upon those determinations;
 - (g) Instructions for finding additional information online;
 - (h) Address and phone number of the premises at which interested persons may obtain further information, request a copy of the draft permit, request a copy of the rationale and inspect and copy forms and related documents; and
 - (i) Any other information that the Commissioner deems necessary.
- (9) Interested persons may submit written comments on the tentative determinations within either 30 days of public notice or such greater period as the Commissioner allows in writing. All written comments submitted shall be retained and considered in the final determination.
- (10) Interested persons may request in writing that the Commissioner hold a public hearing on any application. The request shall be filed as soon as practicable within the period allowed for public comment and shall indicate the interest of the party filing it and the water quality reasons why a hearing is warranted. If there is a significant public interest in having a hearing to address water quality concerns or other requirements of the Tennessee Water Quality Act, the Commissioner shall hold a hearing in the geographical area of the proposed activity. Instances of doubt should be resolved in favor of holding the hearing.
- (11) Special provisions regarding public notices for public hearings.
- (a) In addition to the public notice procedures of paragraph (7) of this rule, notice of public hearing shall be sent to all persons who received a copy of the notice or rationale for the application, any person who submitted comments on the draft permit action, all persons who requested the public hearing, and any person who specifically requests a copy of the notice of hearing.
 - (b) Each notice of a public hearing shall include at least the following contents:
 - 1. Name, address, and phone number of the Division;
 - 2. Name and address of each applicant whose application will be considered at the hearing;
 - 3. Name of, and approximate distance to, the nearest stream;
 - 4. A brief reference to the public notice issued for each application, including identification number and date of issuance;
 - 5. Information regarding the time and location for the hearing;
 - 6. The purpose of the hearing;
 - 7. A concise statement of the issues raised by the persons requesting the hearing;
 - 8. Address and phone number of premises at which interested persons may obtain further information, request a copy of each draft permit, request a copy of each fact sheet, and inspect and copy forms and related documents;

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9. A brief description of the nature of the hearing, including the rules and procedures to be followed; and
10. Any other information deemed necessary by the Commissioner.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.05 General Terms and Conditions.

- (1) When a permit is granted, the permit shall be subject to the provisions of the Act, these rules, and any special terms or conditions the Commissioner determines are necessary to fulfill the purposes, or enforce the provisions, of the Act. The Commissioner may impose conditions concerning the quality of treated wastewater other than those specified herein as needed based on the quality of the raw wastewater.
- (2) Permits shall impose monitoring, recording, reporting, and inspection requirements as determined necessary by the Commissioner to assure adequate treatment of wastewater and proper operation of the sewerage system to meet the requirements of the Act and of this chapter. All monitoring conducted pursuant to permits issued under this chapter shall be representative of the wastewater being sampled. The Commissioner may make monitoring, recording, reporting, and inspection forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40.
- (3) Permits may require best management practices to carry out the purposes and intent of the Act.
- (4) The following terms and conditions shall apply to all state operating permits:
 - (a) The standard conditions established by paragraph (2) of Rule 0400-40-05-.07, as applicable.
 - (b) There shall be no discharge to any surface waters or to any location where it is likely to enter surface waters, except as separately authorized by an NPDES permit.
 - (c) There shall be no discharge of wastewater to groundwater, except as separately authorized by an underground injection control permit.
 - (d) The system shall be operated in a manner preventing the creation of a health hazard or a nuisance.
 - (e) 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.
 - (f) 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 or federal law.
 - (g) The permittee may not add wasteloads to the permitted system in a quantity or quality not currently permitted without prior notice to, and written approval from, the Commissioner.
 - (h) The permittee shall own the sewerage system, including treatment works, collection systems, and land application areas, including any parts thereof and extensions thereto, as applicable. A recorded perpetual easement in a form approved by the Commissioner may be provided in lieu of fee title. Evidence of such ownership or access rights must be provided to, and approved by, the Commissioner prior to commencement of operation. This provision does not apply to land application areas for AFOs.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.06 Land Application.

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- (1) Except for land application areas for AFOs, in addition to any applicable general conditions identified in Rule 0400-40-06-.05, the following special conditions apply to permits authorizing land application of treated wastewater:

(a) Treatment.

1. Domestic and/or municipal wastewater disposed of by land application using drip dispersal shall achieve the following effluent quality, or better, prior to land application:

Parameter	Permit Limit
BOD ₅ or CBOD ₅	45 or 40 (mg/L) respectively
TSS	45 (mg/L)
Total Nitrogen (TN)*	35 (mg/L) (annual average) 45 (mg/L) (daily maximum)
Ammonia as Nitrogen (NH ₃ -N)*	20 (mg/L)
pH	6-8 pH units
Influent flow**	Report (MGD)
Effluent flow	Report (MGD)
E. coli	941 CFU/100 ml***

* The sum of nitrate-N + nitrite-N + ammonia-N can be substituted for TN and compared to the annual average and daily maximum limits for TN in the table.

** The Commissioner may require influent flow meters capable of driving composite samplers if seasonal or variable flow or constituents are suspected to be served by the treatment system.

*** This limitation applies if subsurface drip dispersal is utilized and the land application area is not protected from public access.

2. Domestic and/or municipal wastewater disposed of by land application using spray irrigation or surface drip dispersal where the land application area is not protected from public access shall achieve the effluent quality established in subparagraph (3)(c) of Rule 0400-40-06-.10, or better, prior to land application. If the land application area is protected from public access, the limits in part 1 of this subparagraph, other than E. coli, apply. This part will apply to permits issued after the effective date of this rule.
3. Industrial facilities, and municipal facilities with industrial users, using land application shall comply with the limitations of part 1 of this subparagraph and any other limitations established by the Division through best professional judgment. Those facilities that treat domestic waste shall also comply with the limitations of part 2 of this subparagraph.

(b) Ponding.

1. Land application systems shall be operated and maintained to ensure complete hydraulic infiltration within the soil profile such that there are no instances of dry weather persistent effluent ponding.
2. Instances of dry weather persistent effluent ponding as a result of system operation are prohibited. Instances of dry weather persistent effluent ponding shall be promptly investigated and noted on the Monthly Operations Report. The report shall include details regarding location(s), determined cause(s), action(s) taken to eliminate the issue, and the date the corrective actions were made. Any instances of dry weather persistent effluent ponding not corrected within three days of discovery shall be reported to the local Environmental Field Office at that time for investigation.

(c) Enclosure and Signage.

All spray fields and dripfields shall be designed and operated to prevent unauthorized entry that

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could expose persons to wastes that have not been disinfected in accordance with the E. coli limits established in part (1)(a)1 of this rule, or that could impair the operation of the land application area.

The permittee shall place a sign at the entrance to the land application area and at regularly spaced intervals not to exceed 400 feet surrounding the land application area. The sign shall include, at a minimum, the words "Sewerage System Land Application Area," and the operating utility name and contact phone number. The sign should be made of durable and waterproof material.

(d) Inspections.

The sewerage system, including but not limited to the land application area, shall be inspected by a certified operator or his/her designee at least once per 14 days unless a site-specific alternative monitoring schedule has been submitted to the Division and approved in writing by the Commissioner on or before the effective date of the permit. However, in no case shall the physical inspection frequency be less than once per 30 days. The inspection report shall identify the name of the inspector and address the condition of fencing and signage, operational status of the mechanical parts of the treatment system, and the condition of the land application area including the location of any ponding if applicable.

(2) Land Application Area.

This paragraph (2) shall apply to new land application facilities approved after the effective date of this rule. The land application area shall contain suitable soils area(s) of sufficient size to accommodate at least 100% of the daily design flow. Soil suitability shall be demonstrated through an extra high-intensity soils map as defined in Rule 0400-48-01-.02 and supported by soil pedon descriptions prepared in accordance with the Soils Handbook of Tennessee or equivalent soil pedon description development practice as approved by the Commissioner.

(a) The soil profile shall be described to a minimum depth of 36 inches or to rock or fragipan. There shall be a minimum of two pedon descriptions per acre with at least one description in any soil unit intended for use, unless a different frequency is specified by the Commissioner.

(b) Application rates or soil area loading rates shall be such that long-term acceptance of treated wastewater is achieved and aerobic status of the soil column is maintained.

1. The maximum design loading rate cannot exceed the maximum hydraulic loading rate from the table below. For municipal wastewater, the maximum nutrient loading rate is based on the limits in the table in part (1)(a)1 of this rule to ensure groundwater concentrations of nitrate do not exceed 10 mg/L. For industrial wastewater, additional constituents may need to be addressed as applicable.

2. The following table should be used to determine the maximum hydraulic loading rate.

Maximum Hydraulic Loading Rates			
TEXTURE	STRUCTURE		HYDRAULIC LOADING RATE (GPD/ft ²)
	SHAPE	GRADE	
Coarse Sand, Loamy Coarse Sand	NA	NA	NA*
Sand	NA	NA	NA*
Loamy Sand, Fine Sand, Loamy Fine Sand,	Single Grain	Moderate, Strong	0.50
		Massive, Weak	0.40

Very Fine Sand, Loamy Very Fine Sand			
Coarse Sandy Loam, Sandy Loam	Massive	Structureless	0.30
	Platy	Weak	0.20
		Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.40
Loam	Blocky, Granular	Moderate, Strong	0.50
	Massive	Structureless	0.20
	Platy	Weak, Moderate, Strong	Not Used
Silt Loam	Blocky, Granular	Weak	0.30
		Moderate, Strong	0.40
	Massive	Structureless	0.20
	Platy	Weak, Moderate, Strong	Not Used
	Blocky, Granular	Weak	0.20
		Moderate, Strong	0.30
	Massive	Structureless	NA*
	Platy	Weak, Moderate, Strong	Not Used
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Blocky, Granular	Weak	0.20
		Moderate, Strong	0.20
	Massive	Structureless	Not Used
	Platy	Weak, Moderate, Strong	Not Used
Sandy Clay, Clay, Silty Clay	Blocky, Granular	Weak	0.075
		Moderate, Strong	0.10
	Massive	Structureless	Not Used
	Platy	Weak, Moderate, Strong	Not Used

* Requires a special site investigation

- (c) There shall be a minimum soil depth of 20 inches above the restrictive horizon or seasonal water table.

(3) Construction of Subsurface Drip Dispersal.

For new land application facilities utilizing subsurface drip dispersal approved after the effective date of this rule, the following construction standards shall apply:

- (a) Drip disposal lines shall be installed at a depth of six to ten inches below the natural soil surface.
- (b) Drip lines shall be installed at an elevation conforming to the natural ground surface contour of the site.
- (c) All components of the system shall be suited for the purpose of managing wastewater.

(4) Design Basis.

For new land application facilities approved after the effective date of this rule, the following design standards shall apply:

- (a) Design flows for residential developments shall be based on the highest of 300 GPD per single family dwelling unit for developments with one to 15 units; 250 GPD for 16-30 units; 225 GPD for over 30 units; or 65 GPD per person. For vacation rental units the design flow shall be based on 65 GPD per person for the maximum number of occupants. For other uses, design flow shall be

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based on the Division's design criteria or other accepted engineering practice.

- (b) Land application shall be designed and installed such that the area of influence of the drip emitters or spray pattern accomplishes full utilization of the land application area.
- (c) Adequate storage must be provided to allow for crop management (if applicable), system operation, emergency storage, and routine maintenance.
- (d) The following setbacks apply in the determination of available land application area.

Land Application Area Setback (Feet)			
Feature	Spray		Drip
	Open	Forested	
Property Line or Easement Boundary	300	150	10
Gullies, Ravines, Blue Line Streams, Drains Drainways, Cutbanks > 2 feet, and Sinkholes	150	75	25
Residences or Public Use Areas	300	150	10
Wells and Springs	150	75	50
Underground Utilities	10	10	10

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.07 Animal Feeding Operations.

In addition to the general conditions identified in Rule 0400-40-06-.05, the following special conditions apply to permits authorizing the operation of wastewater systems for animal feeding operations:

- (1) The permittee shall develop, submit, obtain the Commissioner's approval for, and keep on-site a current site-specific nutrient management plan consistent with the requirements of subparagraphs (10)(a) and (b) of Rule 0400-40-05-.14.
- (2) When the AFO owner or operator makes changes to the AFO's nutrient management plan previously submitted to the Commissioner:
 - (a) The AFO owner or operator shall provide the Commissioner with the most current version of the AFO's nutrient management plan and identify changes from the previous version.
 - (b) The Commissioner shall review the revised nutrient management plan to ensure that it meets the requirements of this paragraph and any applicable standards and shall determine whether the changes to the nutrient management plan include revisions to the terms of the nutrient management plan as set forth in subparagraph (10)(b) of Rule 0400-40-05-.14. The Commissioner shall advise the AFO owner or operator whether the changes meet the requirements of subparagraphs (10)(a) and (b) of Rule 0400-40-05-.14 and applicable standards. Upon such notification, the AFO owner or operator shall either make further revisions to the nutrient management plan or implement the revised nutrient management plan.
 - (c) Operational changes that require nutrient management plan revision, resubmittal, and Commissioner approval include:
 - 1. The addition of confinement buildings, settling basins, lagoons, holding ponds, holding pits, or other agricultural waste containment/treatment structures or handling systems;

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2. The addition of new land application areas for AFOs, or the removal of existing land application areas for AFOs;
 3. A substantial increase in the amount of manure produced by the operation such that the current nutrient management plan does not adequately account for the increase;
 4. Utilization of alternative crops that were not mentioned in the previous nutrient management plan; and
 5. Increases in field-specific annual land application rates for a linear plan, or increases in the total amount of nitrogen and phosphorus for each crop for a narrative plan.
- (3) Permitted facilities placed into operation after April 13, 2006, must be designed, constructed, operated, and maintained in accordance with final design plans and specifications which meet or exceed standards in the USDA-NRCS Agricultural Waste Management Field Handbook (April 1992), the USDA-NRCS National Engineering Handbook (May 2014), or other defensible methodology approved by the Commissioner. At a minimum, such plans shall include the following:
- (a) Any new or additional confinement buildings, waste/wastewater handling systems, waste/wastewater transport structures, waste/wastewater treatment structures, settling basins, lagoons, holding ponds, sumps, pits, and other agricultural waste containment/treatment structures constructed after April 13, 2006, shall be located in accordance with USDA-NRCS Conservation Practice Standard 313 (August 2018).
 - (b) Information to be used in the design of the open manure storage structure including, but not limited to, minimum storage for rainy seasons, minimum capacity for chronic rainfall events, the prohibition of land application to frozen, saturated, or snow-covered ground, the dewatering schedules set in the AFO's Nutrient Management Plan, additional storage capacity for any manure intended to be transferred to another recipient at a later time, and any other factors that would affect the sizing of the open manure storage structure.
 - (c) The design of the open manure storage structure as determined by the most current version of USDA-NRCS's Animal Waste Management (AWM) software or equivalent design software or procedures as approved in writing by the Commissioner.
 - (d) All inputs used in the open manure storage structure design, including actual climate data for the previous 30 years consisting of historical average monthly precipitation and evaporation values, the number and types of animals, anticipated animal sizes or weights, any added water and bedding, any other process wastewater, and the size and condition of outside areas exposed to rainfall and contributing runoff to the open manure storage structure.
 - (e) The planning minimum period of storage in months including, but not limited to, the factors for designing an open manure storage structure listed in subparagraph (b) of this paragraph. Alternatively, the AFO owner or operator may determine the minimum period of storage by specifying times the storage pond will be emptied consistent with the AFO's Nutrient Management Plan.
 - (f) A subsurface investigation for earthen holding pond, pit, sump, treatment lagoon, or other earthen storage/containment structure suitability and liner requirements shall be a component of the system design. The subsurface investigation will include a detailed soils investigation with special attention to the water table depth and seepage potential. The investigation shall evaluate soils to a depth of two feet below the planned bottom grade of the storage structure. Deeper investigations may be required in karst regions. A soils/geologic investigation shall be performed by a soil scientist as described in Rule 0400-48-01-.18 and a qualified geologist. A qualified geologist is a Registered Professional Geologist licensed by the State of Tennessee or an individual who meets the requirements for the title of Certified Professional Geologist as defined by the American Institute of Professional Geologists. Unless relevant information is available to the contrary, compliance with this provision during design and construction of the facility will normally demonstrate that the hydrologic connection does not exceed a maximum allowable

hydraulic conductivity of 0.0028 ft/day (1×10^{-6} cm/sec).

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.08 Reserved.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.09 Collection Systems.

- (1) Collection system components, including septic tank effluent gravity (STEG) tanks, which are designed to collect, treat, or convey sewage to a treatment process shall be designed in accordance with accepted engineering practice pursuant to Chapter 0400-40-02.
- (2) Where lift pumps and lift stations, including low pressure grinder pumps and tanks, vacuum pumps and tanks, and septic tank effluent pumps (STEP) and tanks, are integral to the treatment and conveyance of sewage, the pumps and tanks shall be part of the public sewerage system.
- (3) Collection system components regulated by this chapter shall be owned by a municipality, other body of government, public utility district, or a privately-owned public utility demonstrating lawful jurisdiction over the service area. In limited circumstances, a corporation with a demonstrated capacity to provide the managerial and operational resources necessary to maintain its sewerage system may be permitted to operate a collection system to support a business activity (e.g., a resort).

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.10 Non-Potable Reuse.

- (1) Scope.
 - (a) T.C.A. § 69-3-108(e) requires applicants for a new or expanded wastewater discharge to surface waters to consider alternatives to discharge, including land application and beneficial reuse of treated wastewater. This rule governs non-potable reuse of reclaimed wastewater, which may be authorized in a stand-alone SOP, an amendment to an existing SOP, or in an NPDES permit. Non-potable reuse is a conservation activity that replaces the use of more highly treated water, especially potable drinking water with wastewater treated to a lesser, but sufficient, degree for safe and efficacious reuse. Reclaimed wastewater reused for irrigation shall not be applied in excess of the evaporation rate plus the uptake rate of vegetation in the immediate distribution area to ensure there is no unpermitted discharge. Reclaimed wastewater reused as flushing water in residential neighborhoods shall be provided in distribution systems separate from those for potable water and returned to the appropriate wastewater collection system.
 - (b) The following activities do not constitute reuse of reclaimed wastewater within the scope of this rule:
 1. Land application that uses the soil as a means of additional treatment of the wastewater produced by a treatment system authorized pursuant to Rule 0400-40-06-.06;
 2. Reclamation and reuse of harvested rainwater or stormwater;
 3. Reclaimed wastewater produced and utilized on-site by the same treatment system (e.g., wastewater treatment plant-water system); and
 4. Industrial effluent created prior to final treatment and used for water re-circulation for step-washing or other processes or reuse systems located on the same property as the industrial facility.
 5. Potable reuse of reclaimed wastewater;

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6. The reuse of reclaimed wastewater to fill residential or public swimming pools, hot tubs, wading pools, or splash pads;
 7. The reuse of reclaimed wastewater for food preparation or incorporation as an ingredient in food or beverages for human consumption;
 8. The resale or delivery of reclaimed wastewater to another entity without initial prior approval from the Commissioner by modification of the NPDES permit or SOP authorizing reclaimed water sales and the subsequent contracting with other end-users without execution of the approved permit;
 9. Non-potable reuse in impoundments with restricted access or with unrestricted access, environmental reuse, and groundwater recharge for non-potable reuse. Impoundments intended for temporary storage of reclaimed water as part of the delivery system are not subject to regulation under this rule; and
 10. Agriculture reuse for food crops or for processed food crops and non-food crops.
- (c) Excess utilization of reclaimed wastewater resulting in ponding, a nuisance to adjacent properties, or discharge to waters of the state is prohibited.

(2) Application and Review.

- (a) Engineering reports, plans and specifications.

An applicant seeking authorization for the new or expanded reuse of reclaimed wastewater shall comply with the requirements of Chapter 0400-40-02 for submission and fee requirements. Generation, submittal, approval, and use of standard specifications are required. In addition, the following minimum design requirements apply:

1. Any pipe conveying reclaimed wastewater for reuse must be clearly distinguished from potable water distribution systems, wastewater collection systems and stormwater conveyance systems. The use of magenta, "purple pipe," or similar painting scheme of fittings, valves, hydrants, and other appurtenances is an acceptable method, but other methods may be used if approved by the Commissioner. It is the responsibility of the utility delivering reclaimed water to ensure affected persons are aware of the system distinctions.
2. Reclaimed and potable water systems should be located at least 10 feet horizontally, or at least 18 inches vertically, apart from each other if practicable. However, if reclaimed wastewater and potable water systems are located within 10 feet horizontally and 18 inches vertically of each other, the non-potable reclaimed wastewater system shall be treated as if it were conveying wastewater that does not meet the treatment requirements of subparagraph (4)(c) of this rule.

- (b) Reclaimed Wastewater Management Plan.

An applicant seeking authorization for the new or expanded reuse of reclaimed wastewater shall submit a Reclaimed Wastewater Management Plan (RWMP) with its permit application. An applicant for renewal of a permit for reuse of reclaimed wastewater shall submit an updated RWMP if there is a material change in end user requirements from the prior submission. Material changes include changes to water quality, delivery pressure, or delivery location, and whenever the end user becomes a purveyor of reclaimed wastewater. At a minimum, the RWMP shall address:

1. Describe the proposed treatment for reclaimed wastewater and the proposed treatment for wastewater to be treated under an NPDES permit or land application permit;
2. Storage and distribution of the reclaimed wastewater for reuse;

3. Schematic process flow diagrams and map of service areas;
4. Processes for approval of system expansion;
5. Procedures to meter reuse wastewater delivered to each end user;
6. Procedures for monitoring and reporting end user compliance;
7. Components of an education program for end users to contribute to the safe use of the system as well as program requirements to meet cross-connection and backflow prevention requirements;
8. Contingency plan for the disposition of treated wastewater in the event that reuse opportunities are not available at some point in the future; and
9. Standard specifications and plans for the reclaimed wastewater distribution system.

(c) End User Service Agreements.

The application shall include the proposed form of end user service agreements between the provider of reclaimed wastewater for reuse and the end user for each metered recipient. The end user service agreement shall establish:

1. End user control over rates of delivery of reclaimed wastewater for reuse, including the minimum and maximum delivery rates and any applicable conditions for determining such rates;
2. Standards of water quality for the reclaimed wastewater to be delivered to the end user, including the monitoring location and the frequency of sampling and analysis;
3. Acknowledgment by the end user of its responsibilities with respect to the appropriate and legal use of the reclaimed wastewater;
4. Service agreement termination provisions; and
5. If an end user becomes a provider of reclaimed water to a follow-on end user, the first end user must follow all provisions of this section as a purveyor of reclaimed water, including but not limited to obtaining an SOP, submission of the RWMP, and issuing follow-on end user service agreements between the end user and the customer.

(d) Demonstrated Availability of Alternatives to Reuse.

1. Only demonstrated, consistent, year-round reuse demands can be counted toward wasteload commitments to reduce the amount of wastewater subject to discharge or land application permits. Only those reuse demands satisfying the reclaimed water purveyor's requirements and under its ownership or subject to a long-term contract that equals or exceeds the permit term may be considered as meeting wasteload commitments. The Commissioner may require documentation of five years of demonstrated year-round irrigation to demonstrate consistent reuse demands.
2. New or expanded reuse of reclaimed wastewater will not be permitted unless the applicant demonstrates that sufficient alternatives are available in case the permitted reuse activity becomes unavailable during the permit term. Wasteload commitments based on reuse shall not exceed 25% of the total wasteload commitments, unless a contingency plan has been approved by the Commissioner to adequately address wastewater disposal needs in case the reuse option is not available in the future. Such alternative plans include, but are not limited to, land application permitted by a SOP and/or a NPDES-permitted discharge to surface waters. Conservation measures may be used on a temporary basis until an alternative can be implemented.

(3) Special Conditions for Reuse of Reclaimed Wastewater.

- (a) The reclaimed wastewater for reuse must be fit for use by the end user, as defined by the end user service agreement.
- (b) The permittee shall implement the Commissioner-approved RWMP. If there are any material changes in end user requirements during the permit term, the permittee shall update the RWMP and submit it to the Division for review. Upon approval, the permittee shall implement the updated RWMP.
- (c) Notwithstanding any less stringent provisions established in the end user service agreement, the permittee shall comply with the following minimum standards and monitoring frequency:

	Urban Unrestricted Reuse		Urban Restricted Reuse	
Parameter	Daily Limit	Monitoring Frequency See Note 1	Daily Limit	Monitoring Frequency See Note 1
pH	6.0-9.0	Weekly See Note 2	6.0-9.0	Weekly See Note 2
CBOD ₅ or NH ₃ -N	10 mg/L or 5 mg/L	Weekly See Note 2	30 mg/L or 10 mg/L	Weekly See Note 2
NTU or TSS	5 NTU 5 TSS mg/L	Continuous Daily See Note 2	30 mg/L	Weekly See Note 2
E. coli	23 cfu/100 mL	See Note 3	200 cfu/100 mL	See Note 3
Chlorine residual	Minimum of 1 mg/L	See Note 3	Minimum of 1 mg/L	See Note 3

Note 1: The monitoring frequency may be increased due to special circumstances in the NPDES permit or SOP, as agreed upon in end user agreement, or as agreed by reclaimed wastewater provider.

Note 2: pH, CBOD₅/NH₃-N, NTU/TSS values shall be measured at the effluent sampling point of the pump station into the reclaimed water distribution system or as otherwise indicated in the SOP or NPDES permit.

Note 3: Chlorine residual limits apply only upon failure to comply with E. coli limits more than 10% of the time for the previous month after there is a demonstration that the system can meet the delivery standards. The minimum chlorine residual and E. coli shall be measured at the point of release from the reclamation system (i.e., the delivery meter) to ensure it is maintained within the distribution system. Chlorine and E. coli minimum frequency of measurement is based on weekly applications the previous month:

<= 100,000 gal per week	Once per week when activated
>= 100,000 gal per week	Twice per week when activated
>= 1,000,000 gal per week	Daily when activated

(d) Monitoring and Reporting.

1. Monthly Operating Reports.

The permittee shall submit electronic monthly operating reports no later than the 15th day of the following month, including:

- (i) Results for all parameters per subparagraph (4)(c) of this rule;
- (ii) The volume of reclaimed wastewater delivered to each end user and overall total reuse to their own system or sites; and
- (iii) Any discharges or releases of reclaimed wastewater from the transmission system including date, location, estimated volume, and response actions.

2. The permittee shall report to the DWR Environmental Field Office whenever it becomes aware of an end user in violation of the end user agreement.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.11 Bonds.

- (1) Except as provided in paragraph (2) of this rule, no person shall construct, operate or hold out to the public as proposing to construct or operate a sewerage system unless such person first provides a bond or other financial security established by the Commissioner in accordance with the provisions of this rule.
- (2) The requirements of this rule do not apply to the following:
 1. Facilities owned or operated by a governmental entity or agency;
 2. Facilities in operation prior to May 25, 1984; or
 3. In accordance with T.C.A. § 65-4-201(e)(1), facilities that are bonded as required by Rule 1220-04-13-.07.
- (3) Performance security amounts pursuant to T.C.A. § 69-3-122 shall be established by the Commissioner primarily based on the ability of a sewerage system to control the flow of sewage in the event of sewage system failure. If the sewerage system is capable of ceasing production or altering its business activity to prevent inadequate treatment of sewage, the Commissioner may waive the bond requirement. If a sewerage system provides sewerage treatment service to residential units or to other persons (including businesses) via lease or other contract agreement, then the security shall be set at \$75,000.00 unless the sewerage system owner provides sufficient documentation of a basis for reducing the amount to the Commissioner. Acceptable bases for reducing the amount will consider the cost of installing alternatives that provide treatment or lawfully conveys sewage to another sewerage treatment system.
- (4) For new permits, evidence that an acceptable security can be provided by the person who will own the assets during the permit term shall be provided to the Commissioner prior to permit issuance. The permittee shall provide acceptable security to the Commissioner prior to commencing operation pursuant to the permit.
- (5) For reissued permits or for permits modified to reflect new ownership of the assets, the permittee shall provide an acceptable security to the Commissioner prior to issuance or transfer of the permit.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.12 Duration and Reissuance of Permits.

- (1) Each permit shall have a fixed term not to exceed 5 years. The expiration date shall be stated in the permit.
- (2) Any permittee who wishes to continue to operate after the expiration date of the permit shall apply for reissuance in accordance with the provisions of Rule 0400-40-06-.03. Timely receipt of a completed application for an SOP is necessary for permit continuance. However, the Commissioner, at the Commissioner's discretion, may accept alternative submittal materials.
- (3) The Commissioner shall review the permit and other available information to ensure:
 - (a) The permittee is in compliance with or has substantially complied with all terms, conditions, requirements, and schedules of compliance of the expiring or expired permit;
 - (b) The Commissioner has up-to-date information on the permittee's production levels, permittee's waste treatment practices, nature, contents, and frequency of permittee's permitted activities, pursuant to monitoring records and reports submitted to the Commissioner by the permittee; and

- (c) The activity is consistent with applicable permit requirements.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

0400-40-06-.13 Appeals.

- (1) Permittees, applicants for permits, and aggrieved persons meeting the criteria of paragraph (3) of this rule who disagree with the denial, terms, or conditions of a permit may seek review of the Commissioner's decision pursuant to T.C.A. §§ 69-3-105(i) and 69-3-110.
- (2) All petitioners shall specify the basis for their appeal, and state a claim for relief based on an alleged violation of the Act or the rules promulgated thereunder. Permittees and applicants for permits shall specify what terms or conditions they are appealing in their petition. Only those terms or conditions specified in the petition will be considered subject to appeal. For permit modifications, only those terms that were the subject of the modification may be appealed. Aggrieved persons shall specify facts sufficient to establish that they have satisfied the criteria of paragraph (3) of this rule and otherwise have standing to appeal.
- (3) To be entitled to a review of the Commissioner's permit decision, aggrieved persons shall:
 - (a) Have submitted a written comment during the public comment period on the permit;
 - (b) Given testimony at a formal public hearing on the permit; or
 - (c) Attended a public hearing as evidenced by completion of a Department of Environment and Conservation Record of Attendance Card or other method as determined by the Commissioner.
- (4) The basis for the appeal for aggrieved persons may only include issues that:
 - (a) Were provided to the Commissioner in writing during the public comment period;
 - (b) Were provided in testimony at a formal public hearing on the permit; or
 - (c) Arise from 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.
- (5) All petitions for permit appeal shall be received within 30 days after the date that public notice of the permit issuance, denial, or modification is given by way of posting the notice on the Division's website.

Authority: T.C.A. §§ 69-3-101 et seq. and 4-5-201 et seq.

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* If a roll-call vote was necessary, the vote by the Agency on these rulemaking hearing rules was as follows:

Board Member	Aye	No	Abstain	Absent	Signature (if required)
Dr. Gary G. Bible (Oil and Gas Industry)					
Elaine Boyd (Commissioner's Designee, Department of Environment and Conservation)					
James W. Cameron III (Small Generator of Water Pollution representing Automotive Interests)					
Mayor Kevin C. Davis (Counties)					
Dodd Galbreath (Environmental Interests)					
Brent Galloway Oil or Gas Property Owner					
Charlie R. Johnson (Public-at-large)					
Judy Manners (Commissioner's Designee, Department of Health)					
John McClurkan (Commissioner's Designee, Department of Agriculture)					
Frank McGinley (Agricultural Interests)					
D. Anthony Robinson (Manufacturing Industry)					
Terry Wimberley (Municipalities)					

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Board of Water Quality, Oil and Gas on 02/16/2021, and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: (05/02/19)

Rulemaking Hearing(s) Conducted on: (add more dates). (07/15/19)

Date: _____

Signature: _____

Name of Officer: _____

Title of Officer: _____

Agency/Board/Commission: Board of Water Quality, Oil and Gas

Rule Chapter Number(s): Chapter 0400-40-06

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

Herbert H. Slatery III
Attorney General and Reporter

Date

Department of State Use Only

Filed with the Department of State on: _____

Effective on: _____

Tre Hargett
Secretary of State

Public Hearing Comments

One copy of a document that satisfies T.C.A. § 4-5-222 must accompany the filing.

**Rule Chapter 0400-40-06
State Operating Permits
Concise Statement of the Principal Reasons for Rulemaking**

In accordance with Tennessee Code Annotated section 4-5-205(b), and in response to requests from commenters, the Board of Water Quality, Oil and Gas (Board) is providing this concise statement of the principal reasons for its adoption of Rule Chapter 0400-40-06.

The Department of Environment and Conservation (TDEC) has issued state operating permits (SOPs) for a wide variety of non-discharging wastewater activities for several decades. The Tennessee Water Quality Control Act of 1977 requires permits for the “operation of any treatment works, or part thereof, or any extension or addition thereto.” Tenn. Code Ann. § 69-3-108(b)(2). Similarly, the Act requires permits for the operation of a sewerage system. Tenn. Code Ann. § 69-3-108(c). Finally, the Act authorizes SOPs for liquid waste management systems at animal feeding operations. Tenn. Code Ann. § 69-3-108(b)(7). The activities governed by SOPs include land application of wastewater, animal feeding operations, pumping and hauling, collection systems, and non-potable reuse.

Although no discharges are authorized by these permits, these have been regulated through Rule Chapter 0400-40-05, which was drafted to comply with federal regulations for national pollutant discharge elimination system permits. This resulted in SOPs lacking an appropriate regulatory framework, both because many provisions for discharge permits do not apply to non-discharging systems and because there were almost no rules specific to the operation of these non-discharging wastewater facilities.

TDEC has observed a number of compliance issues with land application systems across the state, which are summarized in the Appendix. In some cases, these issues have resulted in discharges of wastes to surface water and/or groundwater. Accordingly, TDEC advised the Board of Water Quality, Oil, and Gas (the “Board”) that more specific performance standards and operating parameters are necessary to ensure that land application systems are properly operated and do not cause pollution.

TDEC engaged in a series of meetings with land application stakeholders who expressed that the proposed rule was too prescriptive and would be too costly. Several stakeholders requested that some of these provisions be adopted through guidance instead of rule, and also asserted that the design engineer should be responsible for the selection of design standards. In 2020, legislation was introduced to limit the Board’s authority with respect to several of the proposed regulatory standards. The final rule removes the provisions that were addressed in that legislation. Instead, TDEC will address those issues through guidance.

The SOP rules for non-discharging animal feeding operations were developed to comply with recent legislation. Tenn. Code Ann. § 69-3-108(b)(7).

In this final action, the Board has reserved pump and haul rules for future rulemaking to allow for additional refinement. Since the time this rulemaking began, it has become apparent that additional consideration is necessary to better address a variety of potential pump and haul scenarios.

The SOP rules for operation of collection systems refer to the applicable discharge permit rules for the same type of facilities. SOPs govern “satellite” collection systems operated by someone other than the municipal discharger. Although these collection systems are non-discharging, they are a component of a sewerage system and must be properly operated and maintained to prevent overflows, releases, and excessive inflow and infiltration.

The SOP rules for non-potable reuse of reclaimed wastewater are intended to facilitate development of reclaimed wastewater facilities to conserve water and reduce the discharge of pollutants to waters of the state, including both surface water and groundwater. These rules are based on well-established and widely adopted EPA guidance for best practices for non-potable reuse. In this final rulemaking, the rules have been modified to provide more clarity for the reclaimed wastewater community and flexibility for emerging reuse concepts.

Response to Comments

The Board appreciates that numerous commenters expressed interest in this rulemaking and submitted detailed comments. Every comment letter has been closely reviewed and duly considered. The specific verbiage of every comment is not included in this document, and comments have been edited for brevity, clarity, and formatting consistency. Many comments present similar recommendations and/or observations. Comments addressing the same substantive issue have been rephrased and/or grouped together for the sake of brevity.

0400-40-06-.01 Purpose

Comment 1: Multiple comments were received regarding the statement in the proposed rule pertaining to discharges to waters or alterations of the properties of waters. Commenters indicated that SOPs only prohibit discharge to surface water, not to groundwater.

Response: SOPs involving land application areas do not authorize any discharges – not to surface water and not to groundwater. Any discharges to groundwater would require authorization through the underground injection control (UIC) program. Tenn. Code Ann. § 69-3-108(b)(8); Rule Chapter 0400-45-06.

Any water discharged through a drip dispersal system that is not used by plants or evaporated will eventually become either groundwater or surface water. However, if the system performs as intended, the soil profile acts as a buffer such that the dispersal through the soil is neither a discharge of pollutants to groundwater nor surface water. If the benefit of the soil profile is negated by the flow coming to the surface and flowing to surface waters, or if the flow bypasses the soil profile through some feature in the soil providing direct passage of effluent to the groundwater table, the SOP would not be the appropriate permitting mechanism: a UIC permit would be necessary. Large subsurface fluid distribution systems such as drip dispersal systems are considered Class V injection wells and are authorized by rule. However, these systems are only authorized by rule if they are operating as permitted. If dispersal through these systems is bypassing the soil profile, the system would no longer be authorized by rule and would have to be authorized by an individual UIC permit. An SOP for a drip dispersal system is not a *de facto* authorization to discharge to groundwater.

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Comment 2: Multiple comments were received regarding the usage of the terms “treatment works” and “sewerage systems” and requested that they be defined in this Chapter. Other commenters suggest universal replacement of “treatment works” in the proposed rule with “sewerage system.”

Response: The Board agrees with this proposed change for the sake of clarity. The definition of “sewerage system” has been added to the proposed rule and the use of the phrase “treatment works” has been replaced in the proposed rule with the phrase “sewerage system.” However, this change in no way indicates that treatment works are excluded from this rule: pursuant to Tennessee Code Annotated section 69-3-108(b)(2), permits are required for the operation of treatment works. However, treatment works are a component of a sewerage system.

Comment 3: Commenter recommends the first sentence of 0400-40-06-.01 be reworded to “State Operating Permits (SOPs) authorize the operation of non-discharging sewerage systems in compliance with permit conditions.”

Response: This recommendation has been incorporated into the final rule.

Comment 4: A Commenter recommended replacing the second sentence of this section with the following sentence: “The SOPs issued pursuant to these regulations impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to prevent pollution of waters from the operation of the following non-discharging wastewater systems: land application; animal feeding operations; pumping and hauling; collection and conveyance; and non-potable reuse.”

Response: A version of this recommendation has been incorporated into the proposed rule.

0400-40-06-.02 Definitions

Comment 5: A Commenter requested that the addition of the definition of waters per T.C.A. § 69-3-103 be added to this proposed rule.

Response: This recommendation has been incorporated into the final rule.

Comment 6: A commenter requested clarification regarding the word “complete” in the definition of “complete hydraulic infiltration.”

Response: “Complete hydraulic infiltration” is intended to describe a condition where the effluent does not return to the surface of the ground in fluid form following its dispersal. “Through” the soil indicates the effluent continues into the soil from the point of dispersal. Treated effluent that is not lost to evapotranspiration will eventually move through the soil profile and become groundwater.

Comment 7: A Commenter requested that definitions for “direct potable reuse” and “indirect potable reuse” be added to the proposed rule.

Response: It is premature to define any type of potable reuse without further stakeholder involvement. No section for potable reuse is included in this version of Rule 0400-40-06.

Comment 8: A Commenter requested that language in the “dry-weather intermittent ponding” and “dry-weather persistent ponding” definitions be changed to “more than” 24 hours instead of “less.”

Response: The recommended wording changes have not been incorporated into the proposed rule. The definitions refer to “at least 24 hours after,” which means the same thing as “more than.” It is not the intent of the Board or TDEC to take issue with situations of ponding when a rainfall event of ½ inch or greater has

occurred in the previous 24 hours. Therefore, these terms would only have application if more than 24 hours had elapsed following such an event.

Comment 9: A Commenter requested that a “major precipitation event” be defined as an event “greater than ½ inch” rather than “a two-inch or greater” precipitation event as currently proposed.

Response: The defined term “major precipitation event” is not used in the proposed rule, and therefore it will be removed.

Comment 10: A Commenter requested that the definition of “nonpotable reuse” be changed to “...all water reuse applications that do not involve potable reuse.”

Response: A variation of the recommended wording change has been incorporated in the final rule.

Comment 11: A Commenter requested that the definition of “ponding” be changed to mean “a measurable amount of wastewater that has not achieved designed hydraulic infiltration on the surface of the ground within 48 hours of a ½ inch or less rain.”

Response: “Ponding” is a physical condition and in its simplest form means standing water on the surface of the ground. Instances of “ponding” must be further evaluated to assess the nature of the fluid, whether its presence on the surface of the ground is related to a precipitation event or the land application of wastewater effluent, and the duration of the condition. The definition of “ponding” remains as proposed. However, the Board understands the concern expressed by the commenter. While “ponding” is a physical condition, the condition of concern to this subject is “effluent ponding” which is a condition indicative of an overloaded land application area.

The Board has modified the definition of “ponding” to “means standing liquid on the surface of the ground” and add a definition of “effluent ponding” to “means standing wastewater effluent on the surface of the ground.” Additionally, the “dry-weather intermittent ponding” definition will be renamed as “dry-weather intermittent effluent ponding” and the “dry-weather persistent ponding” definition will be renamed as “dry-weather persistent effluent ponding.” All uses of these terms in the rules have been modified to include the word “effluent.”

Comment 12: A commenter requested the definition of “ponding” be reworded to: “ponding” means standing water on the ground surface.

Response: Please see Response to Comment 11.

Comment 13: A Commenter requested a definition for “reclaimed water” be included as “the wastewater that has been treated to meet specific water quality criteria with the intent of being used for a range of purposes. The term recycled water is synonymous with reclaimed water.”

Response: A variation of the recommended wording change has been incorporated in the final rule.

Comment 14: A Commenter requested that the definition of “surface saturation” be amended by including the words “with wastewater” after the word “saturated.”

Response: Surface saturation is a physical condition that is not specific to wastewater. Instances of “surface saturation” must be further evaluated to assess the nature of the fluid, whether the saturation is related to a precipitation event or the land application of wastewater effluent, and the duration of the condition. The definition of “Surface saturation” remains as proposed.

Comment 15: A Commenter requested the deletion of the definition of “Reuse of reclaimed wastewater” and replace with “‘Water reuse’ is the use of treated wastewater to make it acceptable for reuse.” The definition should be modified to include all legitimate reuse of the highly treated wastewater suitable for re-use.

Response: A variation of the recommended wording change has been incorporated in the final rule.

Comment 16: A Commenter requested clarification for “wastewater facility,” specifically regarding systems that either allow or require homeowners to take care of the tank. The Commenter is concerned that, as it is written, it forces the utility to assume ownership. Another Commenter requested deletion of the definition for “Wastewater facility” and any reference to “Wastewater facility” be replaced with “Sewerage system”.

Response: “Wastewater facility” has been removed from the definitions and is no longer utilized in the rule.

Comment 17: A Commenter expressed concern with the definition and use of the term “surface saturation” and suggests that it should be used to indicate that the maximum hydraulic use of the soil column and will promote maximum denitrification so long as the soil column is anaerobic during some part of the dosing cycle.

Response: Anaerobic conditions can and may exist in some portions of the soil profile and at micro sites around soil particles at different times for different reasons and offer some denitrification potential.¹ However, in order to maintain the infiltrative capacity of the soil, protect against pathogen transport, and breakdown residual organic matter, aerobic conditions should form the basis of design for the disposal field. Research suggests that degradation of the soil’s hydraulic conductivity can occur in a relatively short period of time of 60 to 120 days under saturated conditions with secondary treated effluent.² Denitrification in the soil profile can occur in anaerobic environments at microsites in the soil or in the area of the groundwater interface if available carbon is present to support the activity. It is impossible to accurately or reliably predict the amount of denitrification that will take place in the soil profile. Likewise, land application design must ensure long term hydraulic performance of the soil profile while accomplishing nutrient reductions primarily through treatment system design and vegetative uptake.

Comment 18: A Commenter expressed concern that the definition of “agronomic application rate” as defined in this proposed rule in support of the reuse of treated wastewater could be misinterpreted to apply to animal feeding operations and the land application of manure.

Response: An application rate less than the “agronomic application rate” is applicable to arid areas where water is scarce, and vegetation requires irrigation to sustain yield or growth. In Tennessee this unnecessarily limits the application of highly treated reclaimed wastewater. The “agronomic application rate” ignores the additional application that can be accommodated by the “luxury uptake” rate of plants.

Comment 19: A commenter requested that “reuse” be defined.

Response: “Reuse of reclaimed wastewater” is the application of treated wastewater as defined in Tennessee Code Annotated section 69-3-103, including effluent from a sewage treatment system, of sufficient quality for additional use and distributed in a manner protective of the environment and human health.

¹ EPA/625/R-06/016 Land Treatment of Municipal Wastewater Effluents

² Change in microstructure of clogged soil in soil wastewater treatment under prolonged submergence, Jiang & Matsumoto

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Comment 20: A Commenter expressed concern that the definition of “land application area” as defined in this proposed rule could be misinterpreted to apply to animal feeding operations and the land application of manure.

Response: This definition does not apply to animal feeding operations. “Land Application Area for AFOs” is the definition that is specific to animal feeding operations.

Comment 21: A Commenter requested that the definitions be numbered to be consistent with the numbering in 0400-40-05.

Response: The words and phrases that are defined in Rule Chapter 0400-40-06 will not be the same population as those in Rule Chapter 0400-40-05, therefore maintaining the same numbering sequence is not possible.

Comment 22: A Commenter requested the inclusion of a definition of “discharge” to mean “the addition of pollutants to waters from a source.”

Response: A definition of “discharge” exists in Tennessee Code Annotated section 69-3-103. This definition is included in the final rule.

Comment 23: A Commenter requested the definition for “Dry-weather intermittent ponding” be deleted since it is not referenced in the regulation.

Response: The definition for “dry-weather intermittent ponding” describes a condition that, while not desirable, does not constitute a condition of non-compliance as compared to “dry-weather persistent ponding” which is a condition prohibited by the final rule. While the term is not used in the text of the final rule, it is considered appropriate to include the term in the definitions. TDEC proposes to insert the word “effluent” prior to the word “ponding” as a universal change to the rule.

Comment 24: A Commenter requested the definition for “full utilization of the land application area” be deleted since it is not referenced in the regulation.

Response: Use of the phrase “full utilization of the land application area” has been added to language found at subparagraph (4)(b) of Rule 0400-40-06-.06. The first sentence of this subparagraph now reads: “Land application shall be designed and installed such that the area of influence of the drip emitters or spray pattern accomplishes full utilization of the land application area.”

Comment 25: A Commenter requested that the definition of “land application” be modified to more clearly reflect that, for the purposes of this regulation, the soil matrix is part of the treatment system. The commenter proposes: “‘Land application’ means the intentional disposal of treated wastewater into a soil matrix having depth and structure sufficient to assimilate the designed hydraulic load and provide additional treatment.”

Response: The Board concurs with this proposed change and has incorporated it into the rule.

Comment 26: A Commenter requested that the definition of “land application area” be modified to: “an area of suitable soil used for the application of treated wastewater for the purpose of maximizing the disposal of wastewater that receives full biological treatment as well as wastewater that is partially treated in the case of large community septic systems.”

Response: The Board has removed part (1)(a)2 of Rule 0400-40-06-.06 pertaining to large community septic systems. Rule Chapter 0400-48-01 governs these systems.

Comment 27: A Commenter proposed the following revision to the definition of “Non-potable reuse of reclaimed wastewater:

- a. “Non-potable reuse of reclaimed wastewater” is the planned and intentional reuse of reclaimed wastewater that does not involve direct production of potable water and includes the following:
 - (a) Unrestricted Urban Reuse. The use of reclaimed wastewater for non-potable applications in municipal settings where public access is not restricted.
 - (b) Restricted Urban Reuse. The use of reclaimed wastewater for non-potable applications in municipal settings where public access is controlled or restricted by physical or institutional barriers, such as fencing, advisory signage, or temporal access restrictions.
 - (c) Agricultural Reuse for Food Crops. The use of reclaimed wastewater to irrigate food crops that are intended for human consumption; in addition to this chapter, US Department of Agriculture and other rules may apply.
 - (d) Agricultural Reuse for Processed Food Crops and Non-Food Crops. The use of reclaimed wastewater to irrigate crops that are either processed before human consumption or not consumed by humans; in addition to these rules, US Department of Agriculture and other rules may apply.
 - (e) Reuse in Impoundments with Unrestricted Access. The use of reclaimed wastewater in an impoundment in which no limitations are imposed on body-contact water recreational activities.
 - (f) Reuse in impoundments with Restricted Access. The use of reclaimed wastewater in an impoundment where body contact is restricted.
 - (g) Environmental Reuse. The use of reclaimed wastewater to create, enhance, sustain or augment water bodies including wetlands, aquatic habitats, or stream flow.
 - (h) Industrial Reuse. The use of reclaimed wastewater in industrial applications and facilities, power production, and extraction of fossil fuels.
 - (i) Groundwater Recharge for Non-potable Reuse. The use of reclaimed wastewater to recharge aquifers that are not used as a potable water source.
- b. Note that reuse as defined in (e), (f) and (g) may also require NPDES permitting through 400-40-05 in addition to these regulations.

Response: The Board has relocated, with additional changes as a result of other comments, the classifications of reuse, adopted from the 2012 EPA Handbook, to Rule 0400-40-06-.02 (Definitions) from Rule 0400-40-06-.10. The Board agrees that reuse as defined in (e), (f) and (g) would likely require NPDES permitting.

Comment 28: A Commenter requested the following definition for “reclaimed wastewater” be added to the proposed rule: “‘Reclaimed wastewater’ means wastewater that has been treated to levels suitable for reuse purposes, which at a minimum are established in 0400-40- 06-.10 (4) (c).”

Response: The term “Reclaimed wastewater” has been added to the definitions as follows: “‘Reclaimed wastewater’ is wastewater that has been treated to meet minimum criteria with the intent of being used for non in a non-discharging wastewater system.” (See categories defined under “Non-potable reuse of reclaimed wastewater” above.) Categorical standards are established in subparagraph (4)(c) of Rule 0400-40-06-.10. Standards for “industrial reuse” may be specifically “fit for purpose” within that category. The term “recycled water” is synonymous with “reclaimed water” within the context of this Rule. “Recycled water” could refer to

water exempt from the reuse Rule if it is internally recirculated within a process such as in a wastewater treatment or an industrial plant.

0400-40-06-.03 Permit Application, Issuance

0400-40-06-.03(1)

Comment 29: A Commenter requested replacing “wastewater system” with “sewerage system” in the proposed rule.

Response: The Board agrees that consistent use of the term “sewerage system” is clearer, and has made this change.

Comment 30: A Commenter questions the proposed rule to allow TDEC an additional 30 days in which to respond to an application.

Response: The rule does not increase the period of time in which TDEC provides a notice of completeness determination. The language is the same as in paragraph (2) of Rule 0400-40-05-.05, which has applied to SOPs until now, with the exception of the language pertaining to impact statements relating to federal regulation.

0400-40-06-.03(3)

Comment 31: A Commenter requested the phrase “to the Commissioner” be added after the word “application.” Furthermore, the Commenter suggests the inclusion of the “Tennessee Department of Agriculture” to be consistent with an existing Memorandum of Agreement.

Response: The phrase “to the Commissioner” has been added as requested. The Tennessee Department of Agriculture has not been added as requested because the permitting authority rests solely with TDEC.

Comment 32: A Commenter requested that consideration be given to adding language to explicitly allow AFOs to voluntarily apply for a state operating permit.

Response: Yes, the Board agrees and has added clarifying language in the final rule.

Comment 33: A Commenter expressed concern regarding paragraph (3) of Rule 0400-40-06 requiring non-discharging Large AFOs to submit a nutrient management plan as outlined in 0400-40-05-.14(10)(a) and (b). The Commenter provides “This is contrary to TCA 69-3-108 (b)(7)(A)-(C). This statute specifies that the permit is only enforceable in regard to a nutrient management plan. The intent of this requirement in state law was to mirror the requirements on the federal level regarding Large, unpermitted CAFOs. In order for the land application area of a Large, unpermitted CAFO to qualify as agriculture stormwater exempt from permit requirements, the CAFO must operate according to nutrient management practices as specified in 40 CFR part 122.42(e)(1)(vi)-(ix). This proposal would require submittal of a plan that includes many other requirements than a simple nutrient management plan ensuring wastes are applied at agronomic rates. 0400-40-05-.14(9)(a)-(b) requires much more than the federal requirements for non-discharge facilities. We believe this was the intent of the General Assembly in passing Public Chapter 523.”

Response: The Board has revised Rule Chapter 0400-40-05-.14 and developed Rule 0400-40-06-.07 to be consistent with what is stated in Public Chapter 523. However, Public Chapter 523 is not specific regarding the information required to be contained within a nutrient management plan (NMP). Therefore, paragraph (3) of Rule 0400-40-06-.03 references the NMP requirements that were already in place and established within the

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previously existing rule. The NMP requirements found in 0400-40-05-.14(10)(a) and (b) do essentially mirror the full requirements that are noted in 40 C.F.R. § 122.42(e)(1)(vi)-(ix), except that division rules elaborate further on the specifics regarding buffers during land application, as well as manure sampling and soil sampling requirements.

Further, 40 C.F.R. § 122.42(e)(1)(vi)-(ix) does not alleviate the responsibility of accounting for the production area within an NMP. Specifically, 40 C.F.R. § 122.42(e)(1)(ix) states the following: “Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section.” This statement ties back in the full scope of federal NMP requirements in order to claim an agricultural stormwater exemption, the first requirement of which is the following “Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities.”

0400-40-06-.03(5)

Comment 34: A Commenter recommended replacing “treatment works” with “sewerage system.”

Response: The Board has made this change in the final rule.

0400-40-06-.03(6)

Comment 35: A Commenter indicates that paragraph (6) of Rule 0400-40-06-.03 is confusing and suggests eliminating the first sentence.

Response: The first sentence has been retained. It is included because the Department can only issue permits to a “person.” Tenn. Code Ann. § 69-3-108. A “person” is defined as “any and all persons, including individuals, firms, partnerships, associations, public or private institutions, state and federal agencies, municipalities or political subdivisions, or officers thereof, departments, agencies, or instrumentalities, or public or private corporations or officers thereof, organized or existing under the laws of this or any other state or country.” Tenn. Code Ann. § 69-3-103(26). If a corporate entity is not properly organized or existing, then the Department cannot issue a permit to that entity.

Comment 36: Another Commenter recommends paragraph (6) of Rule 0400-40-06-.03 be revised to read: “The Commissioner shall issue permits only to a person or persons subject to the following limitations on corporations, limited liability companies or limited liability partnerships: (a) Corporations, limited liability companies, or limited liability partnerships must be in good standing with the Tennessee Secretary of State in order to be eligible for permit coverage and (b) Out-of-state corporations, limited liability companies, or limited liability partnerships must be registered with the Tennessee Secretary of State in order to be eligible for permit coverage.”

Response: The Commenter’s proposed language better reflects the intent of the rule. The final rule adopts the recommendation with modifications.

0400-40-06-.03(9)

Comment 37: A Commenter posed multiple questions pertaining to this paragraph including what depth of soil is required to remove waste constituents, if the depth changes with soil texture, and what measure of what constituents will determine adequate treatment of wastewater.

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Response: The origin of this paragraph is Tennessee Code Annotated section 68-221-102(a)(4) and it pertains to TDEC's responsibility to supervise the construction of water supply and sewerage systems; specifically, public sewerage systems with land application. Design and operation of systems with land application in accordance with this rule is considered appropriate toward the treatment of the wastewater and the prevention of pollution of surface or groundwater by pollutants of concern originating from wastewater.

Comment 38: A Commenter questioned whether this rule can override the requirement that there be a minimum soil depth of 20 inches above the restrictive horizon or seasonal water table as proposed in Rule 0400-40-06-.06(2)(c).

Response: The minimum 20-inch depth of soil above a restrictive horizon or seasonal water table is considered adequate to achieve the requirement of this paragraph.

Comment 39: A Commenter questioned what is meant by "surfacing of ground water pollution."

Response: The statutory language was mistakenly transcribed into the draft rule using the phrase "surfacing of" instead of the correct phrase "surface or." This has been corrected in the final rule.

The Board's interpretation of Tennessee Code Annotated section 68-221-102(a)(4) is based on the following logic. Pollutants in untreated wastewater represent a threat to public health and the environment. Treatment, both on the surface and in the soil, can reduce the level of pollutants in the wastewater such that public health and the environment are not threatened. A portion of the wastewater applied to a land application area will migrate downward, eventually encountering the water table. A water table exists at some depth below any land application area. Water below the water table represents groundwater and as such may be withdrawn for drinking water purposes; therefore, the wastewater must be adequately treated when it gets to the water table. Furthermore, water tables generally slope toward topographic lows and eventually intersect the ground surface whereby the groundwater becomes surface water. If the groundwater has not been adequately treated when it becomes surface water, then the water represents a public health threat in that it may be consumed or used for recreation. The Board does not consider this law to pertain directly to wastewater runoff from an overloaded land application area.

Comment 40: A Commenter asked how the elevation of the water table will be determined and what is meant by surfacing of pollution.

Response: Soil mapping will be the primary means of determining the presence of saturated conditions in the soil profile. Soil discoloration, mottling and concretions provide an indication of saturated conditions. "Surfacing of pollution" is addressed in response to Comment 39.

Comment 41: A Commenter suggested that the provision pertaining to the water table be moved to the land application section of the rules.

Response: The Board considers that the language, as correctly transcribed, is appropriately retained here.

Comment 42: Commenters indicate there is no requirement that plans or other documents be certified by a licensed professional.

Response: Rule 0400-40-06-.01 identifies that construction of SOP facilities are also subject to Rule Chapter 0400-40-02 (Regulations for Plans, Submittal, and Approval; Control of Construction; Control of Operation). Rule Chapter 0400-40-02 mandates that plans be submitted by a registered engineer.

Comment 43: A Commenter indicates that paragraph (9) 0400-40-06-.03 should not apply to land application systems associated with animal feeding operations.

Response: It is not the Board's intent for this paragraph to apply to land application systems associated with AFOs. The Board has clarified this point in the final rule.

Comment 44: Commenters indicate that the phrase "...preclude adequate treatment of the wastewater" is vague and suggest that the phrase is related to the differences noted between land application and land treatment; and furthermore, suggest it be included in the section pertaining to ponding limitations.

Response: The origin of this paragraph is Tennessee Code Annotated section 68-221-102(a)(4), and this provision pertains to TDEC's responsibility to supervise the construction of water supply and sewerage systems; specifically, public sewerage systems with land application. Design and operation of systems with land application in accordance with this rule is considered appropriate toward the treatment of the wastewater and the prevention of pollution of surface or groundwater by pollutants of concern originating from wastewater. This rule is not synonymous with the issue of ponding. The Board considers that the language, as correctly transcribed, is appropriately included at this location.

Comment 45: A commenter requests the following language be added relating to electronic reporting: "This chapter requires the submission of forms developed by the Commissioner 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 Commissioner may make these forms available electronically and, if submitted electronically, then that electronic submission shall comply with the requirements of Chapter 0400-01-40."

Response: A version of the proposed language has been added to the rule as 0400-40-06-.03(10).

0400-40-06-.04 Notice and Public Participation

Comment 46: A Commenter is concerned that AFO permits would be subject to public notice and public participation requirements when they have historically been subject to general permits.

Response: It is the Board's intent for TDEC to maintain general state operating permits for these activities as authorized by Tennessee Code Annotated section 69-3-108(l). Once developed, this general SOP will be subject to a public notice period and public hearing to receive public comments. Provided the general permit becomes effective, applicants applying for coverage will not be subject to additional public notice requirements.

0400-40-06-.04(7)

Comment 47: A Commenter indicates that mailing lists for public notices about SOPs should include people on "area lists" as is the case for NPDES permits.

Response: The Board declines to make this change. Area lists are cumbersome to develop and maintain, and the benefit of adding area lists would be marginal. Unlike NPDES permits, SOPs have not tended to generate a great deal of public interest, likely because they do not involve discharges. However, anyone who is interested in a particular permitted facility can request to be included on a public notice list for that facility.

0400-40-06-.04(8)

Comment 48: A Commenter indicates that permit applicants should still be required to disclose any surface waters near the permit activity, because those waters are at risk for unauthorized discharges.

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Response: Although it is the Board's intention to prevent unauthorized discharges, it agrees that this additional information is potentially valuable to members of the public, and will add the following subparagraph to Rule 0400-40-06-.04(8):

(d) Name of any surface waters adjacent to, or within 0.25 miles of, the proposed activity.

The remaining subparagraphs have been appropriately renumbered.

0400-40-06-.04(10)

Comment 49: A Commenter requested that hearings should not be limited to water quality concerns.

Response: TDEC's authority in these permitting cases is limited to protection of water quality and assurance of proper operation and maintenance of sewerage facilities. Suggesting that the public hearings be open to concerns other than water quality would provide a false indication to any commenter that their concerns were being expressed in the correct venue.

Comment 50: A Commenter suggests rewording this provision as follows: "Interested persons may request in writing that the Commissioner hold a public hearing on any application. The request shall be filed as soon as practicable within the period allowed for public comment and shall indicate the interest of the party filing it and the water quality reasons why a hearing is warranted. If there is a significant public interest in having a hearing to address water quality concerns or Tennessee Water Quality Control Act requirements, the Commissioner shall hold a hearing in the geographical area of the proposed activity. Instances of doubt should be resolved in favor of holding the hearing."

Response: A version of the requested change has been made to avoid repetition.

Comment 51: A Commenter states that "as soon as practicable" is not sufficiently specific to provide guidance to the public.

Response: The phrase has been retained. The same provision was included in Rule Chapter 0400-40-07 (2019). In practice, "as soon as practicable" means the earliest date when the requestor knows they want to seek a public hearing. The purpose of this provision is to address the practice of deliberately waiting until the last possible moment to file a request for a hearing with the purpose of delaying a project.

0400-40-06-.05 General Terms and Conditions

0400-40-06-.05(2)

Comment 52: A Commenter inquires as to the factors used to determine when monitoring is required or necessary.

Response: The Board considers monitoring, recording, reporting, and inspection requirements to be critical toward the determination of the effectiveness of the permitted systems; however, there are a wide range of monitoring, recording, reporting, and inspection scenarios. Accordingly, the Board intends for TDEC to specify the site- and system-specific details pertaining to monitoring, recording, reporting, and inspection in permits rather than attempt to include all possible scenarios in the rule. Factors to be considered include, but are not limited to, type of effluent, volume of effluent, compliance history, proximity to waters of the state, and system design.

Comment 53: A Commenter requested that the phrase “to assure treatment of wastewater and operation of the wastewater facility to meet the requirements of this Chapter” be added to the end of the first sentence.

Response: The first sentence of paragraph 0400-40-06-.05(2) has been amended to provide:

“Permits shall impose monitoring, recording, reporting, and inspection requirements as determined necessary by the Commissioner to assure adequate treatment of wastewater and proper operation of the sewerage system to meet the requirements of the Act and of this chapter.” This language correctly describes the purpose of monitoring requirements.

0400-40-06-.05(3)

Comment 54: Multiple Commenters question the objective of stating that “Permits may require best management practices to carry out the purposes and intent of the Act.”

Response: This language was also contained in Rule Chapter 0400-40-05, and has been applicable to SOPs for many years. The Board has retained this language to continue to allow SOPs to impose narrative requirements in the form of BMPs.

0400-40-06.05(4)

Comment 55: A Commenter inquires whether the phrase “as applicable” in Rule 0400-40-06-.05(4)(a) is appropriate in a paragraph that begins with “the following terms and conditions apply to all state operating permits.” Furthermore, the commenter is not clear as to whether this “term and condition” applies to 0400-40-06-.07 pertaining to Animal Feeding Operations.

Response: The phrase “as applicable” has been retained. This is consistent with Rule Chapter 0400-40-05, and is necessary because not all facilities to be regulated through this chapter include components that are subject to all general conditions. For example, a collection system that does not include a treatment works is not subject to the bypass provision and a sewerage system that does not include a collection system is not subject to overflow provisions.

Some, but not all, of the standard conditions of paragraph (2) of Rule 0400-40-05-.07 would apply to AFOs. For example, administrative conditions related to transfers, inspection and entry, property rights, and other generalized permit terms would apply. However, those conditions related to discharges, including effluent limitations, would not apply to non-discharging AFOs covered by an SOP.

Comment 56: A Commenter proposes modified language as a replacement: “(b) There shall be no discharge to any surface waters except as separately authorized by an NPDES permit.”

Response: The requested change is inconsistent with the Act and will not be made. Specifically, Tennessee Code Annotated sections 69-3-108(b)(6) and -114(a) both prohibit the placement of wastes in a location where they are likely to enter surface waters. The rule language reflects these statutory provisions. This prohibition is further supported by the recent U.S. Supreme Court decision in the *County of Maui* case.

Comment 57: A Commenter expressed concern regarding the UIC language and “discharge of wastewater to groundwater” in Rule 0400-40-06-.05(4)(c).

Response: Large subsurface fluid distribution systems such as drip dispersal systems are considered Class V injection wells and are authorized by the UIC rules. However, they are only authorized by rule if they are

functioning as permitted. If effluent dispersed through these systems is bypassing the soil profile, the system would be directly discharging to groundwater, would no longer be authorized by rule, and instead, would have to be covered by an individual UIC permit. An SOP for a drip dispersal system is not a de facto authorization to discharge to groundwater.

Comment 58: A Commenter proposes alternate language for Rule 0400-40-06-.05(4)(c): “Activities subject to this regulation that introduce fluids to groundwater must also obtain an authorization under the Underground Injection Control permit program.”

Response: Subsurface fluid distribution systems with the capacity to serve more than 20 persons per day are considered Class V injection wells and are authorized by UIC rules – provided the effluent is subject to the treatment accomplished by placement in the soil profile. However, discharge directly to groundwater without the benefit of treatment in the soil is not authorized by rule and would be subject to obtaining an individual UIC permit specific to that system. The fact that these systems are authorized by rule does not mean that impact to groundwater quality has been authorized. The Board is confident that introduction of treated wastewater into the soil profile through an appropriately permitted, constructed, and operated subsurface fluid distribution system represents minimal threat to groundwater quality and, as such, only requires information relative to the location and ownership of these systems. The Board does not consider the discharge of treated wastewater through a functioning subsurface fluid distribution system to be a discharge directly to groundwater. The discharge is to a subsurface fluid distribution system where the effluent is further treated. Eventually, a portion of the fluid (that which is not lost to evapotranspiration) will become groundwater. Based on this position, the language in the rule has not been changed.

Comment 59: A Commenter requested that this subparagraph 0400-40-06-.05(4)(d) be deleted, as it is unnecessary for a rule and there is no definition of what constitutes either a health hazard or a nuisance.

Response: The provision has been retained in the final rule. Nuisance is defined through common law.

Comment 60: A Commenter indicates that this subparagraph is subjective and does not apply to water quality with respect to its potential effect on animal feeding operations.

Response: Please see response to Comment 59.

Comment 61: A Commenter requested that this subparagraph 0400-40-06-.05(4)(e) be deleted, as it is unnecessary for a rule. Commenter suggests that language could be introduced at this location to indicate that compliance with the terms and conditions of the SOP constitutes a valid defense to all statutory and common law claims regarding the operation of wastewater facilities (Permit Shield).

Response: The language will be retained as-is. Civil or criminal penalties for noncompliance are authorized by Tennessee Code Annotated sections 69-3-109, -115, and -116. Damages to the state are authorized by Tennessee Code Annotated section 69-3-116. SOPs do not authorize discharges, so any discharge from a system operating under an SOP is unpermitted and therefore could not be covered by a permit shield. Finally, if there were a permit shield, it could only extend to citizen enforcement of the Act and not to all statutory and common law claims.

Comment 62: A Commenter requested that subparagraph 0400-40-06-.05(4)(f) be deleted, as it is unnecessary for a rule. Commenter suggests that language could be introduced at this location to indicate that compliance with the terms and conditions of the SOP constitutes a valid defense to all statutory and common law claims regarding the operation of wastewater facilities (Permit Shield).

Response: The language will be retained as-is. Compliance with an SOP could only ensure compliance with the applicable provisions of the Act, and would not necessarily ensure compliance with other applicable state or federal laws. Therefore, if there were a permit shield, it could only extend to citizen enforcement of the Act and not to liabilities under other state or federal law.

Comment 63: A Commenter supports subparagraph 0400-40-06-.05(4)(h) and suggests that the rule should include language that instructs the permittees to obtain legal easements to the on-lot portions of the sewerage system.

Response: The final rule includes new language regarding easements. The Board does not propose to dictate what on-lot portions of the sewerage system are owned or are accessible to the operating utility. If the plans identify the sewerage system as including on-lot features (septic tank, pump tank) then appropriate ownership or easement access must be demonstrated.

Comment 64: A Commenter expressed concern that the phrase “including any parts thereof and extensions thereto, as applicable” was too broad and could be construed to apply to pumper trucks.

Response: The proposed language is being retained based on comparable language in Tennessee Code Annotated section 69-3-108(b)(2).

Comment 65: A Commenter is concerned that subparagraph 0400-40-06-.05(4)(h) is not practical for animal feeding operations and the resulting land application of manure.

Response: This provision does not apply to AFOs. Clarification has been provided in the final rule.

Comment 66: A Commenter requested subparagraph (4)(h) be reworded to remove the term “treatment works.”

Response: For the sake of clarity and consistency, use of the phrase “treatment works” has been replaced with “sewerage system.” The final rule has clarified that treatment works are part of a sewerage system.

0400-40-06-.06 Land Application

General Land Application Comments

Comment 67: A commenter inquired as to whether TDEC considered the proposed rules to be in accordance with the Agency’s mission of “enhance[ing] the quality of life for citizens of Tennessee,” “protecting and improving the quality of Tennessee’s...water through a responsible regulatory system”, and “protect[] and promote[] human health and safety?”

Response: It is the opinion of TDEC that the rules are in accordance its mission. SOPs do not authorize the discharge of pollutants. Non-discharging systems authorized through the SOP program are designed to protect waters of the state from the potential pollution. These rules enhance the SOP program to fulfill this goal.

Comment 68: A commenter requested information pertaining to the compliance issues referenced in the “Additional Hearing Information” section of the proposed rule package.

Response: A summary of compliance and enforcement related to land application SOPs is included in the Appendix. Additional information relative to compliance is publicly available on the Department’s enforcement dataviewer:

http://environment-online.tn.gov:8080/pls/enf_reports/f?p=9001:610:0::NO::P610_SELECT_SEARCH:1.

Comment 69: Several comments were received that recommended the State only provide “suggestions” or “guidance” related to the design of land application areas.

Response: The final rule has deleted several key design standards that were addressed in proposed legislation in 2020. These will be incorporated into design standards as guidance.

Comment 70: Several commenters asserted that some of the proposed rules regarding land application systems would intrude on the designer’s job.

Response: The requirement of a licensed engineer in support of system design remains in place. The final rule has eliminated specific design requirements addressed in proposed legislation. TDEC will adopt guidance for these standards.

Comment 71: One commenter indicated that the engineer has liability to both his/her client and to the community in the event the system does not perform.

Response: While such liability may exist, in the State’s experience, utilities, ratepayers, and homeowners are the ones who typically end up paying to repair faulty systems.

Comment 72: The Tennessee Public Utility Commission (TPUC) is frequently faced with dilemmas similar to TDEC with respect to the performance of decentralized wastewater systems and the customers they serve. Excerpts from TPUC’s comments are as follows:

“While TDEC and the Commission each have distinct jurisdiction as it relates to entities that build, own, operate, and provide wastewater services, we each regulate the industry for the purpose of ensuring the health, safety, and welfare of the public. To carry out this charge effectively, it is imperative that certain minimum qualifications and standards are established and enforced.”

“In our experience, the costs to ratepayers due to deferred maintenance, unplanned but necessary repairs and improvements, and expansion of treatment facilities can be significant. In fact, in an effort to prevent recurrence of known issues and clarify its regulatory requirements, the Commission [TPUC] recently amended and substantially revised its rules for wastewater utilities.”

“[TPUC] files these comments in support of TDEC’s proposed rule chapter governing state operating permits establishing conditions and standards for the construction and operation of the numerous existing decentralized wastewater systems located across the state and all such future systems. Upon review, we find the rules proposed by TDEC to be complimentary to our own wastewater rules and necessary for the longevity of the systems and the health, safety, and welfare of the serviced public.”

Response: The Board appreciates and agrees with these comments. Although some key elements of the proposed rule have been removed, these issues will be addressed through guidance.

Comment 73: A number of Commenters reference the “septic system program,” arguing that any standard or practice of that program should not be used for land application of treated wastewater.

Response: There are certainly differences in the two programs; however, both programs rely on the soil environment to treat wastewater and to provide a means to return the treated water to the environment. Both programs are burdened with the fact that the ability of an area of soil to accept and treat a volume of

wastewater, while ensuring it stays in the soil profile and does not result in a discharge to waters of the state, is limited. The burden is in approving designs or issuing permits for systems with the confidence that the homeowners' or utilities' interests, as well as water quality, are adequately served in perpetuity – while at the same time not placing an undue burden on the developer or operating utility.

Comment 74: A Commenter states that wastewater designated for land application must be adequately pre-treated and applied at the correct rate, in the correct way, at the correct time, and at the correct site, in order to prevent these pollutants from harming Tennessee's citizens or its waters.

Response: The Board appreciates and agrees with this statement.

Comment 75: A number of Commenters asserted that the proposed rule was not based on science.

Response: The rules and future guidance are based on science and engineering, with due consideration to other governments' examples and industry recommendations, not personal preference or intent to model the septic system program. The Appendix provides citations to authority.

Comment 76: A number of Commenters expressed their concern that the added expense of system installation would serve to limit or stop development in certain areas.

Response: Decentralized systems authorized by SOPs enable development in areas of the state where it would not otherwise be possible due to the absence of traditional "big pipe" public sewer. Not all areas of the state possess the characteristics of soil, slope, and other conditions that enable large-scale development even with decentralized systems. To date, some practices have resulted in systems with chronic noncompliance, pollution of waters, and additional costs to ratepayers across the state; those costs should have been incurred at the time of development, or fewer homes should have been established based on the available supporting land application area.

Comment 77: A Commenter supports TDEC's decision to issue regulations to govern permitting, rather than solely relying on guidance documents. Furthermore, the commenter indicates that regulations create minimum standards that permits must adhere to, and allow for greater levels of transparency and uniformity, as well as providing additional avenues for public participation that can contribute to protecting our clean water for the benefit of all Tennesseans.

Response: The Board agrees that clear, transparent, and defensible standards are the bedrock of effective permitting. The final rule balances the need for regulation with that of providing flexibility. Several elements of the proposed rule will be moved to guidance documents.

Comment 78: A Commenter states that the maintenance of a vegetative cover should be required year-round.

Response: The Board agrees with this statement and addresses the operation and maintenance of these systems in site-specific permits.

Comment 79: A Commenter states that more monitoring should be required to ensure water quality is not being compromised.

Response: The Board considers monitoring, recording, reporting, and inspection requirements to be critical toward the determination of the effectiveness of the permitted systems; however, there are a wide range of monitoring, recording, reporting, and inspection scenarios. TDEC intends to specify the site- and system-specific details pertaining to monitoring, recording, reporting, and inspection in the permits.

Comment 80: Eight Commenters recommended that the State withdraw or delay the proposed rule change and provide additional time for stakeholder input.

Response: The rulemaking process was delayed allowing for additional stakeholder engagement. TDEC hosted two additional stakeholder sessions in response to requests for extended consideration. These sessions specifically targeted the population of commenters from whom comments had been received by the public comment deadline. The first session was conducted on September 12, 2019, and began with a presentation of the logic and resources utilized for each of the proposed “contentious” standards. Following the presentation, time was provided for discussion. The second session was conducted on October 22, 2019, and was specifically designed to allow stakeholders to put forth alternative standards along with any data they utilized to support their alternate standard proposal.

Many of the comments received during the formal public comment period and the additional stakeholder engagement process did not contain recommendations for specific standards that were different than the standards proposed by the State; instead, most commenters indicated that the State should simply not establish standards in rule and, furthermore, if the system does not work then the State should correct the issue through its compliance/enforcement process.

Comment 81: A Commenter indicates that monitoring wells should be utilized to monitor impact to groundwater quality and that the wastewater should be regularly tested.

Response: The quality of the wastewater will be routinely monitored at the outfall of the secondary treatment unit/system. At this time, the Board does not consider the installation and sampling of groundwater monitoring wells to be necessary. Dispersal and treatment of pre-treated wastewater in the soil profile has proven to be consistent and reliable, provided the appropriate types of soils are utilized and the soils are utilized or dosed such that alternating aerobic and anaerobic conditions are maintained. Standards of soil suitability, loading, and area utilization in this rule are appropriately protective of groundwater quality.

Comment 82: One Commenter reasoned that since only a “de minimis” number of systems have failed requiring additional drip area to be added later, that all of these cases have been successfully resolved using existing TDEC compliance processes, and that we should eliminate this rule or make it guidance only.

Response: As summarized in the Appendix, TDEC has a multitude of documented, verified complaints from property owners and homeowner’s associations in developments with dysfunctional land application systems and, as such, does not agree that sufficient protection can be obtained by eliminating this rule or making it guidance only. Any instance of a failed land application area is serious – particularly for the residents and visitors to these developments, and the utility rate payers that end up paying for the remedy.

Furthermore, existing TDEC compliance and enforcement processes have yet not proven to be timely toward addressing issues of noncompliance. TDEC addresses each identified violation in an appropriate Notice of Violation and moves forward with Director’s and Commissioner’s orders when these notices are not effective at securing compliance. Almost without exception, the enforcement orders are appealed by the utility and the appeal process drags on for years while the problem persists.

Comment 83: A Commenter indicates that the proposed rule should include consequences if groundwater monitoring indicates problems.

Response: Failure to comply with the provisions of the rule or provisions of an operating permit will result in consequences to the permittee in accordance with the provisions of the Act.

Comment 84: A Commenter indicates that the proposed rule provides no “special conditions” for other uses of wastewater besides land application or explanation of why special conditions are not required for such other uses and requested that TDEC provide such explanations.

Response: This rule chapter applies to land application, animal feeding operations, pumping and hauling, collection and conveyance, and non-potable urban reuse, and includes special conditions applicable to each of these activities.

Comment 85: A Commenter is concerned that this section could be misconstrued to apply to animal feeding operations and asks that language be included in the opening paragraph to clarify that animal feeding operations are not required to comply with this subsection.

Response: This section does not apply to AFOs. Paragraph (1) of the rule has been amended to read as follows: “[Except for land application areas for AFOs, in](#) addition to any applicable general conditions identified in Rule 0400-40-06-.05, the following special conditions apply to permits authorizing land application of treated wastewater.”

Comment 86: A Commenter expresses concern that alternative analysis for reuse is required based on potential reductions in 7Q10 in this rule proposal, but the same type of alternative analysis is not proposed in the event land application of wastewater results in diversion of water from a receiving stream.

Response: The proposed requirement for alternatives analyses for reuse based on the 7Q10 of the receiving stream has been deleted from the final rule. Accordingly, there are not different requirements for land application and reuse in this regard.

0400-40-06-.06(1)(a) Treatment

Comment 87: Commenters requested the chart with values at part (1)(a)1 of Rule 0400-40-06-06 be deleted.

Response: The Board does not agree this chart should be deleted. Successful land application of treated wastewater includes complementary treatment by a monitored treatment facility or plant followed by in-soil treatment.³ The presence of the Table emphasizes the complementary nature of the total system (plant + soils) and has been retained with modifications. Research of significant engineering and agricultural research has indicated that land application systems should consider the following principles:

1. BOD5/CBOD5 and TSS are not the limiting parameters for land application. With appropriate soils, adequate design, and appropriate operation and maintenance, they are removed efficiently and pose little threat to contamination of adjacent surface or of groundwater.
2. Nitrogenous compounds are the limiting constituent in situ soil treatment to protect groundwater, especially the nitrate component which is the most mobile compound in the soil matrix and the constituent of concern for groundwater protection.
3. Ammonia testing is a good indicator of both the removal of BOD5/CBOD5 and is easily done on the site with immediate results rather than waiting for BOD4/CBOD5 analysis results in excess of 7 days. Most ammonia is oxidized to nitrate and then reduced to nitrogen gas in properly alternating aerobic and anaerobic zones of the soil column.
4. Total nitrogen (TN) (organic + ammonia + nitrite + nitrate nitrogen) concentrations as high as 60 mg/L TN have been shown to be reduced to less than 10 mg/L in properly selected and dosed soil columns

³ EPA/625/R-06/016 Land Treatment of Municipal Wastewater Effluents

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prior to entering the water table. The maximum values in the rule represent loadings approximately 50% of that value and are realistically attainable by present decentralized and small conventional plants used in Tennessee for pre-land application treatment.

For the purposes of maintaining EPA defined “secondary treatment” standards, the BOD5/CBOD5 and TSS standards have been retained. Rule 0400-40-06-.06(1)(a) has been modified accordingly.

Comment 88: A Commenter indicates that since the proposed rule includes large community systems the last sentence should also refer to 0400-48-01.

Response: Part 0400-40-06-.06(1)(a)2 pertaining to large community septic systems has been removed from the final rules. Rules pertaining to these systems are appropriately promulgated through Rule Chapter 0400-48-01.

Comment 89: A Commenter indicates that an annual BOD of 45 and a NH3-N quarterly report are currently required and there is no reason to add extra sampling.

Response: As is the case for NPDES permits, the frequency of monitoring will be established on a permit-by-permit basis and not in the rules. Land application systems depend most heavily on the proper selection, design, and operation of the soils disposal areas. Please see Response to Comment 87.

Comment 90: A Commenter indicates that TSS is not a necessary test for effluent that is land applied.

Response: The Board agrees that the tertiary filtration currently employed provides significant protection against fouling of dispersal components. However, excessive suspended solids complicate maintenance of both spray nozzles and drip emitter hose distribution systems. It is anticipated that TSS will be monitored downstream of tertiary filtration systems.

Comment 91: A Commenter indicates that pH is not a necessary test for effluent that is land applied.

Response: The Board does not agree, because pH is a critical parameter for effective nitrification and hence the follow-on denitrification. Sampling for pH can be easily performed on site and/or monitored by instrumentation remotely.

Comment 92: A Commenter indicates that NH3-N is the only test that should be necessary for effluent that is land applied.

Response: The Board acknowledges that NH3-N is the easiest component to monitor and provides the best indicator of most decentralized systems. NH3-N and pH should be the most frequently specified parameters for permit monitoring. However, NH3-N monitoring alone does not ensure that adequate nitrification-denitrification will occur to meet EPA’s guidance for land application effluent to predict achievement of drinking water standards after soil treatment; operation of the land disposal system without extended periods of inundation or ponding and the maintenance of alternating aerobic and anaerobic zones in the soil is the most important factor in protecting groundwater water from nitrate.

Comment 93: A Commenter indicates that TDEC is utilizing “septic parameters” in the proposed rule.

Response: The Board does not agree that “septic parameters” are being utilized in the rule. The limitations are based on the constituents of concern present in typical domestic wastewater.

Comment 94: A Commenter requested that “domestic and/or municipal wastewater,” “large community septic systems,” and “industrial dischargers” be clearly defined.

Response: The Board is removing reference to “large community septic systems” in the final rule.

Comment 95: Commenters indicate that the proposed limits are inadequately protective of human health and water quality and should be strengthened.

Response: The limits in this section are to be achieved prior to land application and represent a significant reduction in pollutants of concern from septic tank effluent. However, these limits are not representative of acceptable pollutant levels for direct discharge to groundwater. Tertiary treatment is accomplished within the soil profile, provided the soil is of the appropriate type, the load is appropriately distributed, and alternating aerobic and anaerobic conditions are maintained by appropriately sequenced dosing patterns. These practices have been an acceptable means of renovating wastewater and returning the flow to the environment for more than a century.

Comment 96: A Commenter indicates there should also be limits on pathogens.

Response: The Board agrees that in situations where public access is allowed, a limit on E. coli, Tennessee's indicator organism for pathogens, is appropriate. The highest risk for public exposure to pathogens exists in the spray application of treated wastewater, and a limit of 23 colony forming units (CFU)/100 ml (the reuse standard) is applied as in current permits. Subsurface application without surfacing of effluent is not considered a threat and research data indicates that pathogens have short lives in the soil, so a limit of 941 CFU/100 ml is imposed for these systems when public access is allowed. The E. coli limits do not apply to land application where public access is protected by barriers to prevent public access.

Comment 97: A Commenter requested that more specificity be provided for treatment limitations for industrial dischargers and large community septic systems because of best professional judgment.

Response: The Board is removing reference to "large community septic systems" in this rule. Industrial wastewater is always characterized to identify potential harmful constituents. For industrial wastewater, appropriate treatment limitations will be determined on a case-by-case basis to ensure protection of water quality and proper functioning of the land application system. Pretreatment prior to receipt by a public treatment works may be required. In addition, the Commissioner has the option of tailoring monitoring requirements and frequency and setting additional limits. The constituents listed in the table of 0400-40-06-.06(1)(a)1 represent minimum standards for common domestic and commercial wastewater to protect groundwater.

Comment 98: A Commenter indicates that all land application effluent be analyzed and characterized to determine pollutants of concern and to establish limits.

Response: Domestic, commercial, and/or municipal wastewater without industrial sources has been extensively characterized and pollutant levels are remarkably consistent. Therefore no specific wastewater characterization will be required for these wastestreams. Industrial wastewater will be appropriately characterized prior to determining treatment limits.

Comment 99: A Commenter requested that TDEC explain why there are no limits on nitrogen and phosphorus in wastewater to be land applied.

Response: Limits on nitrogen have been applied. Extensive data on phosphorus reduction in the soil exists and indicates it is effectively treated to < 1 mg/L out of the soil column of an appropriately selected, designed and operated disposal site.

References:

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1. *Process Design Manual – Land Treatment of Municipal Wastewater Effluents*, EP/625/R-06/016 of September 2006; Chapter 2
2. *Land Treatment Systems for Municipal and Industrial Wastes*, R.W. Crites, S.C. Reed, R.K. Bastian, McGraw Hill 2000, Chapter 3
3. WEF (Water Environment Federation) 2001. Manual of Practice 8. 4th Edition

Comment 100: A Commenter requested the inclusion of the following language: “Domestic and/or municipal wastewater disposed of by land application shall achieve, as a minimum, the following effluent quality prior to land application.”

Response: The Board agrees with this intent of this proposed addition. However, to avoid confusion with the maximum concentration limits in the table, the term “or better” has been added.

Comment 101: A Commenter indicates that the limits for BOD/CBOD and TSS should be the same as those established in 0400-40-05-.09(1)(a) and (b).

Response: The comment refers to technology-based effluent limitations (TBELs) established for NPDES permits. The Board does not agree at this time that these TBELs apply to land application, because the effluent limitations were developed to apply to discharging systems and their underlying economic analysis is based on that type of operation.

Comment 102: A Commenter inquires as to the basis for the ammonia limit of 22 mg/l and how it relates to the loading requirements established in (2)(b)(1).

Response: The 22 mg/L of NH₃-N in the proposed rule was inaccurately intended to represent 23 mg/L of total nitrogen as calculated by the Tennessee’s extrapolation of the concepts in the EPA *Process Design Manual – Land Treatment of Municipal Wastewater Effluents*, EP/625/R-06/016 of September 2006; Chapter 8. The correct value of 20 mg/l for NH₃-N has been applied in the final rule.

Comment 103: An ammonia effluent standard of 20 mg/L has been selected as the most frequently analyzed effluent constituent because it is an excellent measurement of both BOD₅/CBOD₅ removal and nitrification of the influent and can be accomplished with a hand-held analyzer in the field with standardized results available immediately or via a probe. Nitrification is important to support denitrification in the soil column in order to reduce nitrate reaching the water table.

Response: The final rule adopts this ammonia effluent standard.

Comment 104: A Commenter inquires as to whether the application rates for septic tank effluent are the same as for treated domestic and/or municipal wastewater.

Response: The application rates for septic tank effluent and secondary treated wastewater are not directly comparable. However, the following qualified comparison is provided.

Per Appendix II of Rule Chapter 0400-48-01, a 60 mpi soil requires 2.9 ft² of trench bottom per gallon of septic tank effluent. To manage 1,000 gallons of septic tank effluent per day would necessitate 2,900 ft² of trench bottom. Considering a standard 3-foot wide absorption trench, 967 linear feet of 3-foot wide trench would be required. Six feet of separation are required between trenches resulting in a center to center distance of 9 feet. Multiplying 9 feet times the required 967 linear feet of trench results in a minimum land application area of 8,703 ft².

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A soil that was identified as a 60 mpi soil in support of a septic system would likely be given a loading rate of 0.2 gallons per ft² per day in support of secondary treated wastewater. Therefore, a system designed to manage 1,000 gallons of effluent per day would require a minimum of 5,000 ft² of land application area.

Given this comparison the application rates, as measured by land application area, to support a given volume of secondary treated wastewater would be 43% less than required for septic tank effluent. However, there are several distinct differences in the two methodologies that minimize the applicability of a direct comparison.

0400-40-06-.06(1)(b) Ponding

Comment 105: A Commenter expresses concern that the proposed rule does not adequately separate surface water (from a storm event) from surfacing effluent.

Response: The Board has no desire to deem a land application area out of compliance based on a rainfall event, and TDEC staff are very conscientious regarding making note of any preceding rainfall events during inspections. Furthermore, if there is any indication that the observed ponding is a result of a rainfall event, TDEC staff will return to the site at a later date to ensure the accuracy of our observations.

The Board has modified the definition of “ponding” to “means standing liquid on the surface of the ground” and added a definition for “effluent ponding” to “means liquid containing wastewater effluent standing on the surface of the ground.”

Unfortunately, many determinations of ponded conditions that TDEC considers to be reflective of an area overloaded with applied wastewater are contested as being rainfall related. The rule’s standard establishes a reasonable protocol to be utilized by staff to make these determinations.

Ponded conditions in a land application area are one of the clearest signs of land application overload and serves as one of the primary indicators of poor land application area performance. However, in making these estimations of performance, appropriate consideration must be given to all relevant factors.

Comment 106: A Commenter suggests that all references to “ponding” be removed and instead provide guidance to field staff on how to determine when a system has an issue with surfacing effluent.

Response: In the final rule, the Board has made it clear that ponding of effluent is prohibited, not ponding of water. TDEC field staff is well-versed regarding land application area performance and the cause of ponded conditions – whether the conditions are a result of the land application of wastewater or otherwise. Unfortunately, without having standards established in rule, their knowledge base alone has proven ineffective toward resolving issues of noncompliance.

Comment 107: A Commenter indicates that saying any water on the surface is ponding is ridiculous.

Response: “Ponding” is a physical condition and in its simplest form means standing liquid on the surface of the ground. However, the definition has been changed to refer to liquid rather than water. Instances of “Ponding” must be further evaluated to assess the nature of the liquid, whether its presence on the surface of the ground is related to a precipitation event or the land application of wastewater effluent, and the duration of the condition.

Comment 108: A Commenter suggests that “dry weather ponding” should just be effluent ponding (with ammonia in it) showing up when it has not rained in at least a couple of weeks.

Response: The Board has amended the phrases “dry weather persistent ponding,” and “dry weather intermittent ponding” to add the word “effluent” preceding the word “ponding.” The Board does not consider up to two weeks as an appropriate period of time to attribute ponding conditions in a land application area to precipitation. If this is the case it is very likely that the soil was not suitable for land application.

Comment 109: A Commenter suggests the addition of the following language after the term “Dry weather persistent ponding”... “that results in discharge to surface waters or off the site.” Furthermore, this commenter indicates that wastewater that is properly disinfected should not create any health hazards.

Response: The requested change has not been made. SOPs are issued to non-discharging systems. Any discharge to surface waters or off the site is not allowed by SOPs irrespective of disinfection. Moreover, the Act prohibits the placement of wastes in a location where it may move into waters. Finally, the Board considers dry weather persistent effluent ponding to be indicative of inadequate treatment in the soil profile.

Comment 110: Multiple commenters suggest that there is no problem with land application unless the water leaves the treatment site.

Response: The Board concludes that “leaving the treatment site” is not a prudent measure of performance and, that “keeping the wastewater effluent in an aerobic soil profile” is a more appropriate measure of performance. Treatment and dispersal must be sufficient to assure protection of groundwater, not merely the prevention of a discharge to surface waters.

Comment 111: A Commenter indicates that the ponding prohibitions are necessary to protect water quality and they should be expanded to prohibit land application when the site is frozen, snow-covered, or flooded.

Response: For subsurface drip dispersal, the lines are in the top 6 to 10 inches of the soil profile. This depth should not preclude adequate distribution into the soil profile during otherwise frozen or snow-covered conditions. Most areas subject to frequent or persistent flooding will exhibit indicators in the soil profile that will preclude their use in support of land application of wastewater. Infrequent flooding of an otherwise suitable soil area is not considered problematic provided the wastewater effluent is in the soil profile. Land application systems using spray irrigation or surface drip may be subject to prohibitions or limitations on use under adverse weather conditions.

Comment 112: A Commenter indicates the ponding prohibition is appropriate and references standards in North Carolina and South Carolina. Commenter states that ponding may lead to discharges to surface water, particularly on steeper slopes, and is symptomatic of land application of wastewater above the capacity of the soil to process it.

Response: The Board agrees with this comment.

Comment 113: A Commenter asks if there is a concern with subsurface systems ponding during wet weather.

Response: “Subsurface” systems should in fact be subsurface. Infrequent ponding due to precipitation events within the land application area is not generally concerning, provided the wastewater remains in the subsurface. However, if the land application area is “ponding” as a result of over-application of wastewater there is a distinct concern that the ponding will result in flow leaving the permitted land application area either as a result of its own volume or carried away during a precipitation event. Also, this condition indicates incomplete treatment in the soil profile.

Comment 114: A Commenter recommends the rule be rewritten to make clear that no applied effluent discharge from the treatment site to adjacent surface waters is permitted unless those discharges meet established effluent criteria.

Response: The requested change has not been made. SOPs authorize non-discharging systems. Only NPDES permits can authorize discharges to surface waters. SOPs cannot include provisions that authorize discharge to surface waters.

0400-40-06-.06(1)(c) Fencing and Signage

Comment 115: A Commenter indicates that this proposed rule will preclude all reuse operations in parks and golf courses.

Response: Rule 0400-40-06-.06(1)(c) does not apply to reuse. Rule 0400-40-06-.10 (Non-Potable Reuse) addresses reuse.

Comment 116: A Commenter indicates that there is no reason to put a 2x2 sign every 200 feet along with new 6' fence requirements.

Response: The standard of sign placement in the May 2, 2019, proposed rule has been modified. The standard regarding sign placement now reads: "The permittee shall place a sign at the entrance to the land application area, and on each directional side of the land application area at intervals not to exceed 400 feet surrounding the land application area. The sign shall include, at a minimum, the words "Sewerage System Land Application Area," and the operating utility name and contact phone number. The sign should be made of durable and waterproof material."

The Board has changed the title of Rule 0400-40-06-.06(1)(c) to "Enclosure and Signage." Furthermore, the Board has modified the first sentence of this section to: "All spray fields and dripfields shall be designed and operated to prevent or impede unauthorized entry that could expose persons to wastes that have not been disinfected or that could impair the operation of the land application area."

Comment 117: A Commenter indicates that Georgia has no fencing or UV requirement and there have been no reported disease outbreaks.

Response: The final rule is intended to minimize damage to the land application system due to trespassing or other use of the area, minimize potential exposure to wastewater effluent, and insure the public are aware of the location of the wastewater treatment and land application area. Whether there have been reported disease outbreaks is not an appropriate performance measure supporting publicly accessible land application areas.

Comment 118: A Commenter requested a language change to read: "All dripfields shall be fenced sufficiently to prevent or impede unauthorized entry unless the effluent is disinfected." Additionally, the second paragraph should clarify that signage is only required "for areas that receive effluent that is not disinfected." Commenter also indicated that if the purpose of the fencing is to impede access, the addition of signage is unnecessary.

Response: The Board does not agree with the proposed language change. However, the language has been modified to "All spray fields and dripfields shall be designed and operated to prevent or impede unauthorized entry that could expose persons to wastes that have not been disinfected or that could impair the operation of the land application area." The signage requirement, which has been significantly reduced in the final rule, is to inform the public of the location of the wastewater treatment facility and land application area.

Comment 119: A Commenter indicates that the presence of the fence is enough to deter unauthorized entry, therefore, additional signage would add no additional deterrence.

Response: The signage requirement is to inform the public of the location of the sewerage system and land application area.

Comment 120: A Commenter indicates that the proposed requirements for fencing and signage are appropriate and should apply to sprayfields as well as dripfields.

Response: The Board has changed the title of Rule 0400-40-06-.06(1)(c) to “Enclosure and Signage.” Furthermore, the Board has modified the first sentence of this section to allow for public access with appropriate disinfection.

Comment 121: A Commenter is concerned that signage requirements should not be retroactive for existing systems and that the 200-foot maximum distance between signs is excessive. Commenter proposes having signs at the entrances to the drip fields and at least one sign on each directional side (N,S,E,W) of the fence at maximum 400-foot spacing on each side.

Response: The signage requirement applies to all existing systems as well as new system construction. Establishment of signage on existing systems will be required at the time of permit renewal. The Board has modified the signage requirement generally in accordance with this comment.

0400-40-06-.06(1)(d) Inspections

Comment 122: A Commenter requested that the words “and approved in writing on or before the effective date of the permit” be deleted. Commenter indicates that the permit could actually be in effect before the permittee gets an opportunity to submit a site-specific alternative monitoring schedule.

Response: The Board considers a request for a site-specific alternative monitoring schedule to be appropriately made as part of the permit application package; therefore, any alternative schedule would be identified in the permit.

0400-40-06-.06(2) Land Application Area

Comment 123: A Commenter suggests that the reserve area requirement is a policy issue rather than one that is based on science and engineering.

Response: The Board agrees this is a policy issue, and would add that if the science and engineering of these systems were exact, the occasions where a reserve area becomes necessary would be minimized. However, in light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 124: A Commenter questioned whether the distribution system would have to be installed or just remain available for future installation.

Response: It was not the intent of the proposed rule to require front-end installation of the distribution system in the reserve area. However, the reserve area requirement has been removed from the final rule.

Comment 125: Multiple Commenters expressed concern about the imposition of a rule during the public comment period.

Response: It was not intended to make any portion of the rule retroactive. This language has been changed to state that this paragraph applies “after the effective date of this rule.”

Comment 126: A Commenter indicates that the extra 50% of land application area is septic tank thinking and has no application to these systems.

Response: While a reserve area is required in support of a permit for construction of a septic system, the need for additional area is not unique to septic systems. Four local governing bodies in Tennessee, representing four of the six counties that are the location of the majority of these systems, already enforce this standard. Two of these four governing bodies mandated a reserve area requirement early on in their use of land application sites, and the two others have adopted a reserve area requirement because of the difficulty in addressing some of their issues of noncompliance at their existing systems. However, the reserve area requirement has been removed from the final rule and will be addressed through guidance.

Comment 127: A Commenter indicates that with these systems the flow is an average flow, not worst case, so less disposal area is needed.

Response: The amplitude of variation in daily flows from subdivision developments generally reduces with the number of connections. In large subdivisions the average flow may not be remarkably different than the worst-case flow. However, systems with fewer connections often demonstrate significant variation in daily flow, particularly if the homes within the development are being used in support of vacation properties. In these cases, the variation in flow across any given week can be tremendous, not to mention holidays. Use of average flows in these circumstances can have disastrous results – especially if the system does not have any storage. Designing based on average flows without storage essentially means that the system will be overloaded half the time, or worse in the event of high weekend or holiday flow.

Comment 128: A Commenter indicates there is no scientific justification for the 150% rule change.

Response: Please see Response to Comment 123.

Comment 129: A Commenter indicates that a current project’s daily flow design capacity would be reduced from 14,300 gallons per day to 3,815 gallons per day with this rule change.

Response: Considering the deletion of the 50% reserve area requirement, the daily flow capacity for this project would be approved at 5,706 gallons rather than 3,815 gallons as expressed in the comment.

The commenter references a project that is supported by a soils area of 57,060 ft². Under the current guidance (Chapter 17 of the Design Criteria) the project was approved under the default “universal” loading rate of 0.25GPD/ft². There are two approaches for establishing a loading rate in the current guidance (Chapter 17, 17.1.4); one involves using the lesser of: 10% of the lowest KSAT value in the range published by NRCS for that particular soil series or 0.25GPD/ft²; or the other is using the lesser of the loading rate in Table 17-2 (taken from the EPA onsite manual) for that particular texture and structure or 0.25GPD/ft². The soil in this example is Needmore. The NRCS published KSAT range for the series is 0.00in/hr to 0.20in/hr. In the first calculation 10% of 0.00in/hr is 0.00GPD/ft² making it unsuitable. In the second calculation the texture and structure would be 0.3GPD/ft² which would default to 0.25GPD/ft². The system was designed using 0.25GPD/ft² for a maximum daily flow of approximately 14,300GPD. Under the rule the maximum hydraulic loading rate would be 0.1GPD/ft², giving a total capacity of 5,706 GPD. If a 50% reserve area was considered the maximum design flow

supported by the soil area is 3,804 GPD. In light of comments received, the reserve area component of the rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria. Without the 50% reserve area the maximum design flow remains at 5,706 GPD.

Table 17-2 was taken from (Table 4-3) in the EPA onsite manual published in 2002.⁴ The chart originally appeared in at least two papers by Jerry Tyler. Tyler's original research evaluated a number of onsite systems and used design flows to derive the loading rates appearing in the chart. While the EPA referenced Tyler they did not formally caveat this fact in the onsite manual. Tyler states in his paper, "The design safety factor is imbedded in the design wastewater flow. Designers using actual wastewater flow rates should assume the table values for wastewater infiltration to be more than three times higher than should be used when using actual flows."⁵ Considering this fact, dividing the published rate in Table 17-2 by 3 gives a more realistic estimate of the loading rates associated with actual flows. This rate would correspond to 0.1GPD/ft² giving a maximum design flow of 5,706GPD/ft².

Other references recommend similar loading rates. Netafim's design guide recommends a rate of 0.1 GPD/ft².⁶ The states of MS, AL, GA, publish maximum rates from 0.05 GPD/ft² to 0.1GPD/ft² for this texture and structure.

Based on the above references, the land application portion of this system is most likely under designed. Without a contingency plan, long term successful performance of this system is questionable at best.

The maximum loading rate of 0.1GPD/ft² is consistent with the rates published by MS, AL and GA, the design guidance published by Netafim, and the original author of Table 17-2 in Chapter 17 of the Design Criteria which forms the basis of the comment.

Comment 130: A Commenter requested that the first sentence be replaced with: "land application area shall contain suitable soil area(s) of sufficient size to accommodate the daily design flow unless the applicant has reliable information on actual flow. If the applicant has such reliable data on actual flow, then the size should accommodate the actual flow."

Response: The Board does not agree with the proposed language change. This approach may be more plausible if the applicant were responsible for approving the plans. As it stands, TDEC bears that responsibility and is obligated by the Act to make prudent decisions regarding system design. The Board has altered the daily design flow minimum standards in the final rule. This change is based on research provided through comments received during the public comment period.

Comment 131: A Commenter indicates that they are unaware of any justification why the size must be more than the soil needed for design flow and the Department should not mandate a set aside of land that is not going to be used. Commenter indicates that this proposed rule will result in considerable expense to developers and homeowners.

Response: Being insured with respect to expenditures incurred due to unplanned events or unforeseen circumstance is a common practice and a common expense associated with any number of real-world

⁴ EPA/625/R-00/008 Onsite Wastewater Treatment Systems Manual

⁵ Designing with Soil: Development and Use of a Wastewater Hydraulic Linear and Infiltration Loading Rate Table, Tyler & Kramer Kuns

⁶ Wastewater Reuse and Drip Design Guide, Netafim USA Wastewater Division

conditions. Reserve land application area is a form of insurance in the event additional land application area is needed. Examples of expenditures born by the customer base of a wastewater utility that is obligated to remedy multiple noncompliant land application areas is available in the docket history maintained by the Tennessee Public Utility Commission. Unfortunately, the need to remedy these systems and the expenses incurred with those remedies is usually realized long after the developer is out of the picture. However, in light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 132: A Commenter requested that the following language be added after the current introductory language: “The Commissioner shall develop criteria to define the soil profile, application rates and hydraulic loading and other soil requirements. Criteria shall be developed through public notice and an opportunity for comment prior to finalization.”

Response: Aspects of the proposed rule pertaining to reserve area, emitter placement, slope, and land application area access have been removed. Recommendations pertaining to these topics will be included in a pending revision of Chapter 17 of the Design Criteria. In accordance with Department policy, this guidance document will be subject to an informal public notice and comment process. See, e.g., <https://www.tn.gov/environment/about-tdec/policy-and-guidance-documents0.html>.

Comment 133: A Commenter indicates that reserve areas are not needed in drip systems as long as the hydraulic loading rate is less than the loading rate the soil can tolerate.

Response: The Board agrees with this comment in that if the hydraulic loading rate is estimated correctly, and the daily flow is estimated correctly, then the potential need for a reserve soil area is minimized. However, the loading rate of the soil is a value derived by multiple estimations and the daily flow rate coming into the system can be highly variable – particularly for smaller developments. Furthermore, little is known about the long-term capacity of the soil profile to not only transmit the water away from the soil interface but also regarding its capacity to treat the wastewater. Annual rainfall amounts in Tennessee are approximately 50 inches. The areas that are utilized for land application will receive an approximate 100 additional inches of applied wastewater effluent each year (approximately two inches per week). However, in light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 134: A Commenter indicates that 20 inches of soil depth is not sufficiently protective to prevent inadequate wastewater treatment and ground water contamination.

Response: The commenter did not provide any source of information that suggests a greater depth of soil is necessary to accomplish the desired condition of treatment, nor is the Board aware of any such data.

Comment 135: A Commenter suggests that the provision regarding soil depth and adequate separation from the water table be combined, and mandate that the minimum depth of soil above the restrictive horizon or seasonal water table be increased to 60 inches. Furthermore, TDEC should reserve the right to increase this depth based on site-specific characteristics, and take into consideration unusual climate patterns such as intense rainfall.

Response: The commenter did not present any source of information that suggests a greater depth of soil is necessary to accomplish the desired condition of treatment, nor is the Board aware of any such data. Rainfall events of high intensity should not have direct bearing on the soil profile to transmit and treat the wastewater

effluent, provided the wastewater effluent remains in the soil profile and does not come to the ground surface. If ponded wastewater effluent is on the ground surface the potential for it to move off site and/or to surface waters is significantly higher.

Comment 136: A Commenter indicates that the requirement for new land application facilities to contain soil area of sufficient size to accommodate more than the daily design flow is appropriate.

Response: In light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 137: A Commenter suggests that this land area should be capable of being utilized within a specific time frame.

Response: In light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 138: A Commenter suggests that the soil profile and hydrogeological profile be characterized in more detail and with more support.

Response: The extra-high soil mapping requirement proposed in the rule is appropriate in support of land application area qualification and design. This standard has been successfully utilized in support of intensive land use involving wastewater management for several decades.

Comment 139: A Commenter suggests that a greater number of soil pedon descriptions per acre be used to ensure the soil is accurately characterized.

Response: The soil pedon descriptions serve as a source of confirmation of the soil mapping and provide insight regarding the structure of the soil. The pedon descriptions do not necessarily ensure the accuracy of the soil map; however, if a pedon description does not match the soil area as mapped then the soil scientist will recognize the mapping effort in that area needs to intensify. Furthermore, the number of pedon descriptions is already established by rule (Rule 0400-48-01-.15). The number of pedon descriptions is adequate.

Comment 140: A Commenter indicates that TDEC should require that a detailed report on hydrogeological conditions be prepared by a licensed geologist, licensed soil scientist, or professional engineer.

Response: A licensed soil scientist is required in support of the extra-high intensity soil map. A licensed engineer is required in support of system design and plans submittal.

Comment 141: A Commenter indicates that a formal nutrient management plan should be required in support of land application area approval and operation.

Response: The best uptake data based on native soils from areas as diverse as New Mexico, New Hampshire, North Dakota, Massachusetts, and Michigan indicates that the parameters that have been selected are protective of the environment. The use of the appropriate soil classifications and characteristics to select disposal areas has served Tennessee well across a wide variation of the state's soils.

Comment 142: A Commenter requests that a Standard Soil Fertility Analysis be conducted on each land application site. The commenter references a standard from North Carolina.

Response: The Board appreciates the commenter's desire to reduce the level of risk associated with mechanically treating wastewater to a reduced level and, depending on the soil, to finish the job without more information on the soil itself. The rules and future guidance reflect findings after extensive investigation of the results of approximately 30 years of land application. As long as the soil meets the structural and catalogued soil series standards considered acceptable, fertility has not been a notable source of failures. It is very likely that the consistent application of nutrient loaded wastewater treatment plant effluent on a disposal area improves its fertility and dramatically changes its bioecological makeup compared to its original form.

Comment 143: A Commenter considers the proposed rule to mandate installation of the dispersal system in the entire 150% land application area. Commenter indicates that their utility requires a primary area of 100% and a reserve or secondary area of 50%. The reserve or secondary area of 50% is a back-up area that could be used to install drip line zones in the future due to damage or unsatisfactory performance of the primary area. Furthermore, the Commenter indicates that since most systems serve subdivisions that require large areas of drip field, there may be insufficient drip area nearby to acquire if part of the existing drip field becomes unusable.

Response: It was not the intent of the proposed rule to require front-end installation of the distribution system in the reserve area. The Board agrees that there may be insufficient drip area nearby to acquire if part of the existing drip field becomes unusable. However, the reserve area requirement has been removed from the final rule and will be addressed through guidance.

Comment 144: A Commenter supports the determination of soil suitability through extra-high intensity soil mapping protocol and soil pedon descriptions.

Response: The Board agrees with this comment.

0400-40-06-.06(2)(a)

Comment 145: A Commenter questions why soils need to be characterized down to 36 inches, when the first 20 inches is all that matters.

Response: While the upper 20 inches is the most critical part of the soil profile relative to land application of wastewater effluent, evaluation to greater depths is necessary in support of soil classification. Furthermore, perched water tables, fragile conditions, or other soil properties found below 20 inches can influence the upper 20 inches of the soils profile. The additional information provided by the profiles help the system designer evaluate this potential.

0400-40-06-.06(2)(b)

Comment 146: Several commenters assert that the use of Dr. Jerry Tyler's table as a rule, instead of guidance, is a violation of his original intent.

Response: The chart used for maximum hydraulic loading rates maintains the same format as Table 17-2 in Chapter 17 of the Design Criteria and Table 4-3 of EPA Onsite Wastewater Treatment System Manual.⁷ While the formatting is the same, the loading rates in the table do not reflect those rates published by Dr. Tyler.

⁷ EPA/625/R-00/008 Onsite Wastewater Treatment Systems Manual

Comment 147: A Commenter supports the proposed inclusion of weak blocky structured Sandy Clay, Clay, and Silty Clay soils as acceptable for land application. Commenter acknowledges that this is a departure from past guidance.

Response: The Board agrees with this comment.

Comment 148: A Commenter suggests that TDEC arrived at the proposed loading rates with no supporting information.

Response: The rule establishes maximum hydraulic loading rates for different soil texture and structure combinations. Most surrounding states, manufacturers, and even existing state rules in Tennessee take this approach. The current rates in the table reflect a range of values used by surrounding states, research papers, and manufacturer recommendations. The maximum hydraulic loading rate chart does not specify that engineers use the rate given. It simply limits the maximum rate that can be considered to that of industry expectations. Furthermore, these rates have already been established in Rule 0400-48-01-.15 in support of drip dispersal of effluent treated to secondary effluent treatment levels.

Comment 149: A Commenter provides an example comparing the proposed rule change to the state's existing septic system program permitting protocol. The comparison suggests that an area of ~57,000 square feet of soil would be permitted for a daily flow of 12,636 gallons through a septic system permit, and only 5,722 gallons through drip dispersal.

Response: The commenter's assertion is incorrect: as explained below, the permitted daily flow for septic would be approximately half of that for land application.

The Commenter's example considered the use of a 57,225 ft² area of Needmore soil. The loading rate for this soil in the rule is 0.1 gallons per day per ft², resulting in a daily design flow of 5,722 gpd for a land application system.

The Commenter suggests that the same area of soil would be permitted in support of 12,636 gallons of septic tank effluent per the existing septic system permitting rules. Per the septic system rules (Rule Chapter 0400-48-01, Appendix I) the Needmore soil is rated > 75 mpi, which is considered unsuitable for septic system installation; however, a footnote to this rate indicates that while some areas of Needmore soil have inadequate depth to bedrock, the depth is generally sufficient to accommodate a filter field system. Considering the identified rate of >75 mpi, percolation tests would have to be conducted to determine the areas that were suitable for use. Assuming enough percolation tests passed to accommodate a full-sized system and a duplicate of a full-sized system, the minimum amount of trench bottom absorption area would be 3.3 ft² per gallon. Considering the traditional septic system construction standards identified in rule, a maximum amount of linear feet of field line can be determined for the given area. An area of 57,225 ft², in perfect conditions, could support a maximum of 6,358 linear feet of 3-foot wide field line. This linear footage multiplied by 3 establishes the square footage of trench bottom which in this case would be 19,074 ft². Considering a loading rate of 3.3 square feet per gallon, a total daily flow of 5,780 gallons could be managed. However, the area could only be permitted in support of one-half that daily flow since the area would have to support both a primary system and a duplicate system.

Comment 150: A Commenter suggests that per NRCS soil data for a particular soil, the approximately 57,000 square foot area should be able to support the application of between 21,768 to 72,561 gallons per day rather than 5,722 gallons per day.

Response: This commenter was contacted due to mathematical inconsistencies in the original comment. They have since submitted supplemental data to accurately reflect their intent. The commenter is applying the NRCS estimated saturated conductivity (KSAT) rate⁸ for a clayey soil of 0.06 in/hr to demonstrate the amount of flow the 57,000ft² soils area can take per the estimate. If the KSAT rate estimate is applied mathematically to the entire area, the resulting value would be 51,186 GPD.

Using KSAT values for estimating application rates is a recognized approach. It is referenced in Chapter 17 of the Design Criteria (17.1.4) and the EPA's Land Application Manual.⁹ However, both references specify using 10% or less of the KSAT estimate for the design loading rate. EPA's Land Manual gives the acceptable range as being 4% to 10% of the KSAT. Using the greater 10% of 0.06in/hr gives you a loading rate of 0.09 GPD/ft² which corresponds to 5,130 GPD. Thus, using NRCS KSAT values in the manner in which is recognized by Chapter 17 of the Design Criteria and the EPA Land Application Manual would result in maximum capacity of 5,130 GPD, not 51,186 GPD.

Comment 151: A Commenter objects to the requirement of maintaining aerobic status of the soil column and claims that both aerobic and anaerobic conditions should exist at different times or jointly.

Response: An appropriately dosed, well-drained site will promote both critical environments for pathogen reduction, as well as nitrification and denitrification necessary to protect water quality. This rule is intended to increase the probability of these conditions existing.

The Board does not support the approach of designing for anaerobic soil conditions. Anaerobic conditions can and may exist in some portions of the soil profile and at micro sites around soil particles at different times for different reasons and offer some denitrification potential. However, in order to maintain the infiltrative capacity of the soil, protect against pathogen transport, and breakdown of residual organic matter, aerobic conditions should form the basis of design for the disposal field. Research suggests that degradation of the soils hydraulic conductivity can occur in a relatively short period of time of 60 to 120 days under saturated conditions with secondary treated effluent.¹⁰ Denitrification in the soil profile can occur in anaerobic environments at microsites in the soil or in the area of the groundwater interface if available carbon is present to support the activity. It is impossible to accurately or reliably predict the amount of denitrification that will take place in the soil profile. Likewise, land application design must ensure long term hydraulic performance of the soil profile while accomplishing nutrient reductions primarily through treatment system design and vegetative uptake.

The other faulty assumption in designing for a pure anaerobic (flooded or saturated condition) is that the wastewater treatment plant will always produce a highly nitrified effluent. This is simply not a valid consideration. Even units cited as always nitrifying have been shown to have periods, especially during the winter with low flows, not to nitrify. The alternating aerobic and anaerobic conditions in the dispersal soil area is universally recommended by research experts and serves as a backup for days when the mechanical treatment plant suffers from casualties or periods of reduced efficiency.

Comment 152: A Commenter requested that part (2)(b)2 be deleted in its entirety because the hydraulic loading rates have never been peer reviewed, are not accepted scientific principles, and should only be used as guidance.

⁸ https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/office/ssr10/tr/?cid=nrcs144p2_074846

⁹ EPA/625/R-06/016 Land Treatment of Municipal Wastewater Effluents

Response: The Board disagrees with the commenter's statement that the hydraulic loading rates have never been peer reviewed and should only be used as guidance. The rates published in this rule were included in Rule 0400-48-01 in 2009. During that process they were subject to public review. Establishing maximum hydraulic loading rates for different soil texture and structure combinations is not a new concept. Most surrounding states, manufacturers, and even existing state rules take this approach.

The maximum hydraulic loading rate chart does not specify that engineers use the rate given. It only limits the maximum rate that can be considered. Designers are responsible for considering clay mineralogy, site conditions, and other analysis methods they feel are necessary for the particular site. The use of KSAT ranges for soils series, digital and mathematical modeling and other considerations are at the discretion of the designer in determining the appropriate hydraulic loading rate. It is also important to consider while the maximum rates in this chart are reflective of the available data and industry experience, they do not guarantee long term performance.

Comment 153: A Commenter indicates that the proposed rules regarding aerobic conditions and prohibition of certain soil structures reflects a lack of knowledge by regulators regarding land application of high-quality, treatment system effluent.

Response: TDEC's research on accepted design methodologies published in literature, particularly those practices accepted by EPA, support a design and operational strategy that creates alternating conditions to create both aerobic and anaerobic (anoxic) conditions. These conditions, which vary somewhat site to site and season to season, can be reasonably and conservatively be predicted to meet the 10 mg/L of nitrates reaching groundwater.

The Board does not support the approach of designing for anaerobic soil conditions. To maintain the infiltrative capacity of the soil, protect against pathogen transport, and breakdown residual organic matter, aerobic conditions should form the basis of design for the disposal field. Research suggests that degradation of the soils hydraulic conductivity can occur in a relatively short period of time.¹¹

Comment 154: A Commenter indicates that loading rates should be determined by the design engineer with major input from the consulting soil scientist and should not be artificially limited by the regulator.

Response: The Board agrees that hydraulic loading rates should be determined by the design engineer and soils professional. The maximum hydraulic loading rate chart does not specify that engineers use the rate given. It only limits the maximum rate that can be considered. Designers are responsible for considering clay mineralogy, site conditions, and other analysis methods they feel are necessary for the particular site. The use of KSAT ranges for soils series, digital and mathematical modeling, and other considerations are at the discretion of the designer in determining the appropriate hydraulic loading rate. The table simply limits the maximum rate that can be considered to that of reasonable industry expectations.

Comment 155: A Commenter requested that TDEC explain why the rates in the proposed rules are appropriate and protective of the State's waters.

Response: The current rates in the table reflect a range of values used by surrounding states, research papers, and manufacturer recommendations. The Board does not propose that the rates in the table are completely

¹⁰ Change in microstructure of clogged soil in soil wastewater treatment under prolonged submergence, Jiang & Matsumoto

¹¹ *Id.*

protective of the State's waters in all cases. The table simply limits the maximum rate that can be considered to that of reasonable industry expectations, eliminating the potential for unrealistic assessments. The design engineer is responsible for evaluating the specific site and soil conditions and using a hydraulic loading rate that is protective of water quality. Moreover, any discharge to state waters that is not separately permitted by an NPDES permit or a UIC permit would be unlawful.

Comment 156: A Commenter is concerned that TDEC provides no direction of how to address drip design in large areas that could have various loading rates and that simply using the lowest of the loading rates wastes a lot of soil capacity.

Response: There is no requirement in the rule to default to a lower maximum rate in areas that have a higher maximum rate. Soil areas with more potential can be utilized through the design of the system and layout of the land application zones. However, when combining areas with different potentials, the most limiting soil conditions become the control if the system is not designed to load the areas at different rates through the zone layout.

0400-40-06-.06(2)(e)

Comment 157: A Commenter expressed concern regarding the proposed rule for slope limitations. The Commenter indicates that unless there is a geological or morphologic basis for the prohibition is not founded.

Response: In light of comments received, the slope limitation component of the proposed rule has been removed. Recommendations regarding slope limitations will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 158: A Commenter suggests that a University of Wisconsin-Madison study indicates that the loading rate can be increased with the amount of slope, not decreased.

Response: Please see Response to Comment 157.

Comment 159: A Commenter indicates that as a lot becomes steeper the surface area actually becomes greater which in turn supports more evaporation which is an important component of disposal.

Response: Please see Response to Comment 157.

Comment 160: A Commenter indicates that this subparagraph be deleted in its entirety.

Response: Please see Response to Comment 157.

Comment 161: A Commenter indicates that the proposed restrictions on slope are contrary to good engineering practices and substitute septic system prescriptive practices for effluent drip dispersal engineering design.

Response: Please see Response to Comment 157.

Comment 162: A Commenter indicates that this proposal will limit development in particular areas that do not have flat land and cause lost revenue.

Response: The intent of this rule is not to limit development. Rather, the intent is to better ensure that when/where development occurs there is a sound, reliable, long-term method of managing the wastewater flow from the development. Steeply or irregularly sloping sites or sites that are heavily forested cannot be used as efficiently as level to gently sloping open areas. Every site is different; some sites lend themselves to the efficient use of drip dispersal, some sites have limitations that reduce their ability to efficiently use drip

24-00037 MFR_ Attachment A_ CA Exhibit 2

dispersal. It is the responsibility of the designer of the system to recognize the limitations of a particular site and design accordingly. Ten thousand square feet of suitable soil in a former agricultural field in west TN is not the same as 10,000 square feet of steeply sloping forested mountainside in east TN. Both can be utilized; however, the west TN site can be utilized much more efficiently than the east TN site. Past design and approval practices did not fully consider site-specific limitations. However, please see Response to Comment 157.

Comment 163: A Commenter indicates that the maximum slope should be somewhat less than 30% to adequately protect against discharges to surface and ground water.

Response: Please see Response to Comment 157.

0400-40-06-.06(2)(f)

Comment 164: A Commenter indicates that land application should be open for public access if the wastewater is disinfected.

Response: 0400-40-06-.06(2)(f) has been removed from the final rule. The final rule allows public access with appropriate disinfection.

0400-4-06-.06(3) Construction

Comment 165: A Commenter requested that this subparagraph be deleted in its entirety and referred to guidance.

Response: The Board disagrees with this comment. Standards relating to construction are critical toward the design and performance of the land application area.

Comment 166: A Commenter indicates that the rules should become effective after the effective date of the rules.

Response: It was not intended to make any portion of the rule retroactive. This language has been changed to state that the standards in this paragraph apply “For new land application facilities utilizing subsurface drip dispersal approved after the effective date of this rule.”

Comment 167: A Commenter indicates that construction standards for spray irrigation be included in the rule proposal.

Response: The use of spray irrigation systems in Tennessee is minimal and the guidance in the Design Criteria will remain in place supporting spray irrigation systems. The Board does not currently intend to promulgate rules specific to the construction of spray irrigation systems. The introductory paragraph for this section has been changed to: “For new land application facilities utilizing subsurface drip dispersal approved after the effective date of this rule, the following construction standards shall apply.”

0400-40-06-.06(3)(a)

Comment 168: A Commenter objects to the complete prohibition of laying drip tubing on the soil surface indicating that the risk to public and environmental health would be the same as for spray irrigation. Commenter indicates that installation of drip tubing on the surface of the ground would be appropriate as long as the operator is willing to perform a higher level of maintenance and is willing to accept a NOV when leaks occur.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Response: Construction standards in the final rule apply to subsurface drip disposal systems. Spray irrigation and drip disposal systems on the surface are not subject to these standards, but must demonstrate compliance with accepted engineering standards. The Department will review these proposals to determine whether adequate provision has been made for the significantly increased maintenance obligations. Willingness to accept an NOV is not an appropriate factor in design consideration.

Comment 169: A Commenter requested adding the following language after the word “surface”: “unless surface drip is determined to be acceptable.”

Response: The rule has been modified so the construction standard applies to subsurface drip disposal.

Comment 170: A Commenter indicates that surface drip is an accepted good engineering practice in other jurisdictions and has been used successfully in several East TN projects. Furthermore, the Commenter requested that the right of design engineers to design surface drip systems should be established in the rule.

Response: Any receipt of plans indicating intent to place them on the ground surface would be subject to consideration through standards relating to spray irrigation.

Comment 171: A Commenter questions why TDEC would prohibit drip line on top of the ground.

Response: Any receipt of plans indicating intent to place them on the ground surface would be subject to consideration through standards relating to spray irrigation.

Comment 172: A Commenter asks if TDEC checked with North Carolina; and, what scientific reason did TDEC use for this rule.

Response: TDEC has reviewed North Carolina rules pertaining to drip dispersal installation.¹² North Carolina’s rule-based standard for line installation is to be “one-inch into a naturally occurring soil” and “six inches of cover over the dripline shall be maintained.” North Carolina provides an option of creating soil depth by the addition of six inches of cover. Their standard would dictate that whether imported fill was used or not, the drip line itself would have at least six inches of cover. Furthermore, North Carolina mandates that “if cover material is required and the slope is greater than 30 percent, a slope stabilization plan must be provided by an appropriate licensed individual.”

0400-40-06-.06(3)(b)

Comment 173: A Commenter agrees that drip tubing should conform to the contour of the ground; however, is concerned that how the word “generally” will be interpreted.

Response: The Board agrees with this comment and shares the stated concern. The word “generally” has been removed from the final rule.

0400-40-06-.06(3)(c)

Comment 174: A Commenter agrees with the intent of the proposed rule; however, is concerned that not all manufacturers label their products with this qualifying information making it difficult for designers, engineers, and installers.

¹² <https://cph.publichealth.nc.gov/Rules/EnvHealth/15A-NCAC-18E.pdf>

Response: The Board agrees with this comment and has adopted the following language: “All components of this system shall be suited for the purpose of managing wastewater.”

0400-40-06-.06(4) Design Basis

0400-40-06-.06(4)(a)

Comment 175: A Commenter states that the use of 300 gallons per day for single-family dwellings includes a significant safety factor. Commenter references a 2009 study using risk analysis that identified apparent resulting daily flow break points based on number of dwellings that support lower daily design flows.

Response: The Board agrees that the use of 300 GPD/residential dwelling unit for a universal design flow can represent a significant safety factor depending on the number of connections being designed for. TDEC reviewed the 2009 study¹³ and other references, and the Board has amended the rule to reflect the available data. For residential developments these minimums are reflective of flow data and analysis provided in the rule making public comment process. They are based on a tiered approach that allows the designer to maintain a factor of safety while minimizing the potential of over design. These rates are either per residence (300GPD for 1-15 units, 250 GPD for 16-30 units, 225GPD for 30+ units) or per occupant (65 gallons per day).

Comment 176: A Commenter indicates that the combination of two safety factors as currently proposed (daily design flow and reserve area) may increase land application area requirements by 70% - furthermore indicating that both safety factors are not needed.

Response: In light of comments received, the reserve area component of the proposed rule has been removed. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

Comment 177: A Commenter indicates that there should be adequate data available in the area of Gatlinburg and Pigeon Forge to formulate a loading rate for vacation rental units. Commenter then inquires as to whether TDEC has pursued any of these data sources for use in determining the proposed design flow numbers. Commenter also questions how the maximum number of occupants will be determined.

Response: On behalf of the Board, TDEC examined a number of approaches and data sets in establishing the per capita value of 65 GPD/person. Vacation units vary in greatly in size, number, design, and amenities. Square footage is not always an accurate indicator of wastewater generation. A lack of daily flow measurements, developments served by wells, and the various types and styles of vacation properties prevent accurately assessing projected flow on a vacation unit basis.

TDEC considered multiple flow studies to arrive at 65 GPD. A number of studies focused on wastewater generation per person can be reviewed in EPA’s Onsite Wastewater Manual¹⁴ Estimating wastewater flow on a per person basis is a common approach when sizing many different types of facilities. In practice, the design engineer should communicate with the local building authorities and indicate the number of occupants each facility is designed to accommodate. It also offers a degree of accuracy above that of historic bedroom counts for these types of facilities.

¹³ Using Risk Analysis to Predict Design Flow Exceedence of Decentralized Wastewater Management Systems, Dobbs, Cox, Tyler, Buchanan

The determination of occupancy limits for a structure is subject to local codes.

Comment 178: A Commenter indicates that since the national average is 138 gallons per day, there is a safety factor already built in.

Response: The Board does not agree with this comment. Depending on the source, average daily wastewater flows from residential units generally vary between 150 GPD and 200 GPD. For design purposes, peak daily flows and the number of residential units are more critical in establishing a safety factor than assigning a simple average daily flow.

The final rule reflects the available data. Minimum design flows are based on a tiered approach that allows the designer to maintain a factor of safety while minimizing the potential of over design. These rates are sized per residence (300 GPD for 1-15 units, 250 GPD for 16-30 units, 225 GPD for 30+ units). The tiered approach recognizes the reduction in variation of peak flows associated with an increasing number of units.

Comment 179: A Commenter indicates that requiring 65 gallon per day per person will hurt the vacation trade in Tennessee.

Response: The Board does not agree with this comment. Vacationers that experience a failing land application area, sewage smells, or water use volume limitations would be less likely to make a return visit. See the Response to Comment 177 regarding the Board's selection of 65 GPD.

Comment 180: A Commenter indicates that every cabin is different and should not have a hard number like 65.

Response: The Board agrees that every cabin experiences different flows; however, these are realized after the systems are designed and constructed. Because there is little that can be done to limit the flow from a structure after it has been built, it is prudent to design the system conservatively. The rate per occupant represents an added flexibility.

Comment 181: A Commenter indicates that design flows should be in guidance only and that guidance should also provide for a design flow based on knowledge of actual flows. Commenter recommends the deletion of the second sentence related to vacation rental units since the final sentence in subparagraph (4)(a) should suffice.

Response: TDEC and the Board reviewed the comments to the rule and analyzed the flow data associated with minimum design flows. The final rule reflects the available data and reduced design flow minimums. For residential developments, these minimums are reflective of flow data and analysis provided in the rule making public comment process. They are based on a tiered approach that allows the designer to maintain a factor of safety while minimizing the potential of over design. These rates are given per residence (300 GPD for 1-15 units, 250 GPD for 16-30 units, 225 GPD for 30+ units) and consider the number of residences in the development.

The Board does not support the deletion of the second sentence in subparagraph (4)(a). Vacation units vary in size, number and type of amenities, and design. Square footage is not always an accurate indicator of wastewater generation. A lack of daily flow measurements, developments served by wells and the various types and styles of vacation properties prevent accurately assessing projected flow on a vacation unit basis. The per capita approach offers a degree of accuracy above that of historic bedroom counts for these types of facilities.

The Board supports sizing vacation developments on a per capita basis since the available data showed a wide variation in estimated flow for vacation units, cabins, luxury cabins, etc.

Comment 182: A Commenter indicates that the design flow rates contain major safety factors and are about 50 gallons per day is too high for starter homes.

Response: Please see Response to Comment 181.

Comment 183: A Commenter indicates that the proposed rule removes from the licensed engineer his/her rights to use his/her experience, education, and knowledge of accepted good engineering practice to design the optimum treatment system for his/her clients.

Response: The Board does not agree that the rule removes the licensed engineer from design process. The Board appreciates the role of the design engineer, and by Rule 0400-40-02, mandates the preparation of plans to be accomplished by a licensed engineer. However, TDEC bears the responsibility to approve and permit these systems. The standards are established such that the design engineers are aware of the minimum standards for certain variables that must be met to obtain the Commissioner's approval.

0400-40-06-.06(4)(b)

Comment 184: A number of Commenters objected to the requirement that one emitter represents four square feet of application area, and complained this provision would increase costs. Some of these commenters asserted that this provision intrudes on the role of the designer.

Response: The literature is clear that the area of influence for each emitter is limited, and depends on soil type and other factors. If emitters are spaced too far apart, the system fails to utilize the entire soil area, thereby minimizing the effectiveness of the available soil to accomplish treatment; and, overapplication of wastewater to fewer emitters exacerbates effluent ponding. However, in light of comments received, the design standard intending to accomplish efficient utilization of the land application area component of the proposed rule has been removed. A recommendation to design the system layout based on four-square feet of utilized area per drip emitter will be included in a pending revision of Chapter 17 of the Design Criteria.

0400-40-06-.06(4)(c)

Comment 185: A Commenter requests this subparagraph be deleted in its entirety to the extent it applies to reuse, as it will effectively eliminate reuse.

Response: This rule applies to land application in which sewer availabilities are contingent on the proper operation of the collection, treatment, storage, and dosing system as an integrated hydraulic whole. It does not apply to reuse.

Comment 186: A Commenter indicates that drip dispersal of wastewater effluent is not applicable to row or other food crop production, and storage should not be required for any effluent drip system.

Response: The comment is correct with respect to row or food crops not being specifically applicable to land application. However, many land application sites are enhanced by removal of crops such as hay because cutting and removal completes the uptake cycle. Land application of spray systems will require storage to bridge extraordinarily wet periods or freezing weather. Rule 0400-40-06-.06(4)(c) requires the design to consider storage, operation, emergency storage, and routine maintenance. Generally accepted engineering practice requires these factors to be considered on any wastewater system.

Comment 187: A Commenter requested clarification regarding “adequate storage.”

Response: Adequate storage is defined by the situation; it is the engineer’s responsibility to provide the basis of design that defines and explains how this adequate storage, if necessary, is to be provided.

0400-40-06-.06(4)(d)

Comment 188: A Commenter indicates that the land application area setbacks should be increased to protect human health and water quality.

Response: The setbacks from land application areas are appropriately protective of human health and water quality, provided the wastewater effluent is applied appropriately into the soil profile and does not surface onto the ground.

0400-40-06-.07 Animal Feeding Operations

General

Comment 189: A Commenter questions whether TDEC believes medium AFOs/CAFOs are no longer a possible source of water pollution; and, if so, based on what evidence? If not, the Commenter questions how TDEC plans to compensate for degradation of water quality near unregulated AFOs in the absence of the SOP requirement.

Response: Public Chapter 523 limits the scope of AFOs that can be required to apply for coverage under a state operating permit. The Board does not have the regulatory authority to supersede this statute. However, the NPDES permitting mechanism is still required for AFOs that meet the criteria found in Rule 0400-40-05-.14(2).

Comment 190: A Commenter questions whether medium AFOs/CAFOs that opt-in to and comply with the SOP process are relieved of liability for citizen’s lawsuits under CWA.

Response: No, SOPs do not provide a permit shield against citizen suits under the Clean Water Act. Under federal law, only an NPDES permit could provide a permit shield in a Clean Water Act citizen suit. However, compliance with an SOP means (among other things) that a facility does not discharge. If a permittee can demonstrate that it is not discharging because it is complying with an SOP, there could be no valid claim in a Clean Water Act citizen suit.

Comment 191: A Commenter requested clarification regarding the role that TDEC enforcement will have under the Rules regarding the improper storage, use, or disposal of animal waste from an unpermitted AFO/CAFO.

Response: AFOs and CAFOs with liquid waste management systems are only required to get a permit when they stable or confine as many, or more than, the number of animals specified by federal law defining a large concentrated animal feeding operation. Operators of those facilities will need to apply for a NPDES permit pursuant to Rule Chapter 0400-40-05. Other AFOs may apply for a state operating permit but permit coverage is not required. To the extent that such facilities are not exempt agricultural activities, they would be subject to the enforcement provisions of the Tennessee Water Quality Control Act.

Comment 192: Multiple Commenters suggest that AFOs in the “medium size” range should be required to submit a notice of operation, with basic data (size, number of animals, waste system) every year, to better facilitate information gathering and enforcement.

Response: The Board does not have the regulatory authority to require this information.

0400-40-06-.07(1)

Comment 193: A Commenter requested that the word “state” be changed to “Commissioner” or “Department” for consistency.

Response: The Board agrees with this comment and has changed the word “state” to “Commissioner” throughout.

Comment 194: A Commenter reasons that because the 40 C.F.R. § 412 regulations only apply to AFOs in the large category, a separate section should be added to this proposed rule that outlines the nutrient management plan requirements that are applicable to AFOs that do not meet the Large CAFO definition, and that apply for a state operating permit.

Response: The NMP requirements associated with permitted operations, which are located in Rule 0400-40-05-.14(9)(a) and (b), are the same for permittees that are required to apply; or, that voluntarily apply for permit coverage.

Comment 195: A Commenter recommends that SOPs should only require an NMP for land application areas to complement EPA’s instructions for ensuring the agricultural stormwater exemption applies to these areas. Referencing subparagraphs (9)(a) and (b) of 0400-40-05-.14 would put in place the same requirements of 40 C.F.R. § 122.42(e)(1) in its entirety.

Response: NMP requirements also apply to the production areas associated with permitted AFOs, not the land application areas only. Ensuring adequate wastewater storage is a critical component of an NMP that is also mentioned in 40 C.F.R. § 122.42(e)(1)(i).

Comment 196: A Commenter requested the removal of the NMP requirement and instead consult with the University of Tennessee Institute of Agriculture and the Tennessee Department of Agriculture regarding nutrient management plan requirements for land application areas.

Response: Public Chapter 523 did not specify the type of information that should be contained within an NMP. As a result, the division referenced the established NMP standard found in Rule 0400-40-05-.14(9)(a) and (b). As mentioned previously, ensuring adequate storage of wastewater is also a critical component of an NMP, and not the land application area only.

0400-40-06-.07(2)

Comment 197: A Commenter expressed concern regarding references to subparagraphs (9)(a) and (b) of 0400-40-05-.14 indicating the entire section references waste management outside of the land application area; and also makes reference to applicable effluent limitations and standards. The Commenter does not believe there can be a reference to effluent limitations and standards in an SOP.

Response: Site-specific NMPs contain information regarding wastewater storage practices, in addition to proper land application practices. The production area and land application area(s) are both essential components of an NMP. The Commenter is correct that effluent limitations do not apply to non-discharging systems, so the term has been removed. SOPs do not authorize discharges, so any discharges are prohibited unless the facility has an NPDES permit.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Comment 198: A Commenter requested clarification regarding AFOs that the “activity” referenced in this language is referring to discharges and not the operation of the AFO.

Response: NPDES permitting will only be required for operations that discharge. Other operations may voluntarily apply for an NPDES permit, but are not required to unless they discharge. However, all large operations, as mentioned in 0400-40-05-.14(1), which utilize liquid waste management systems are required to apply for coverage under an SOP. If a large operation that does not discharge wishes to obtain an SOP instead of an NPDES permit, it may do so.

0400-40-06-.07(3)(c)

Comment 199: A Commenter recommends that TDEC check with USDA-NRCS, as ASM software may be scheduled for phase-out/replacement soon.

Response: The Board appreciates this insight. The rule has been modified to indicate the “most current version of USDA-NRCS’s Animal Waste Management (AWM) software.”

Comment 200: A Commenter states that an SOP should not place permitting requirements on the production area.

Response: The Board disagrees with this comment. The production area is an important component in protecting water quality, and the wastewater produced there is required to be properly managed to prevent impacts to waters.

0400-40-06-.08 Pump and Haul

Based on comments received and further internal consideration, this section of the rule has been reserved for future rulemaking.

0400-40-06-.09 Collection Systems

Comment 201: A Commenter indicates that “Collection systems” should be defined.

The final rules include the definition of sewerage system from the Act. The usual meaning of the term “collection” in the English language in combination with the definition of “sewerage system” is sufficient to identify the activity under jurisdiction of this rule. The rule does not intend to prescribe any specific boundaries to the designs of any type sewerage system.

Comment 202: A Commenter indicates that monitoring, inspections, and reporting should be required.

Response: Monitoring, recording, reporting, and inspection requirements as determined necessary by the commissioner are required in Rule 0400-40-06-.05.

0400-40-06-.09(2)

Comment 203: A Commenter indicates that the public sewerage system should not mandate that tanks in possession of the user be owned by the public sewerage systems. Furthermore, the Commenter indicates that many homeowners prefer to have ownership interests and some systems mandate or allow such ownership.

24-00037 MFR_Attachment A_CA Exhibit 2

Response: A force main without a lift station is an incomplete and inoperable engineering design. A public force main absent a public lift station fails to create an operable connection to public sewer. The requirement for public ownership has its basis in several laws and regulations. TDEC has broad authority under Tennessee Code Annotated section 68-221-101 to oversee construction and operation of public sewerage systems. Rule 0400-40-16-.02 requires evidence of ownership by an entity acceptable for the operation and maintenance of a public sewerage system prior to plans approval. This rule cites privately-owned public utilities and corporations as acceptable examples. Regarding construction, Rule Chapter 0400-40-02 requires that plans for public sewers be designed in accordance with accepted engineering practice. The regulation has allowed TDEC to develop and publish a compilation of accepted engineering practices in the form of state design criteria for sewerage works. The overall objective of these criteria is operability and maintainability of the system in order to protect water quality (and by that human health). Chapter 2 of the Design Criteria for Sewage Works requires that pumps integral to the operation of the public sewerage system also be a part of the public sewerage system. Further, Rule 0400-40-06-.05(4f) prohibits the permit from relieving the permittee from any responsibilities, liabilities or penalties pursuant to any applicable state or federal law. Pursuant to Tennessee Code Annotated section 68-12-101(a), Tennessee has adopted via Rule 0780-02-02-.01 the 2012 International Plumbing Code (IPC) as the minimum building code in Tennessee. The 2012 IPC requires that buildings plumbed for water service be able to demonstrate that the building connects to an approved subsurface disposal system or to public sewer. The 2012 IPC defines public sewer as a common sewer directly controlled by a public authority.

0400-40-06-.09(3)

Comment 204: A Commenter indicates that the proposed language “in limited circumstances, selected corporations may be approved to operate collection systems” needs clarification. The Commenter indicates that no discussion or description of what those limited circumstances are or what the qualifications or the corporations must be, and requests that this rule be revised to recognize all allowed forms of owner/operator status.

Response: The rule addresses the limited circumstances in which an entity other than a government may own a collection system. The rule specifically identifies a corporation with a demonstrated capacity to provide the managerial and operational resources necessary to maintain its sewerage system. It identifies a resort as an example of such a corporation.

Comment 205: A Commenter indicates that paragraph (3) should be deleted in its entirety as the requirement is taken from Tennessee Code Annotated section 68-221-402 related to septic tanks rather than Tennessee Code Annotated section 68-221-102.

Response: The collection sewerage systems regulated by this rule require a permit under Tennessee Code Annotated section 69-3-108(b) or (c). These primarily occur as satellite collection systems discharging into a public sewerage system of another. It is not the intent of this rule to provide any alternative to subsurface disposal systems regulated in Rule Chapter 0400-48-01.

0400-40-06-.10 Non-Potable Reuse

General

Comment 206: A Commenter wants to resolve the potential conflict between purveyors of reclaimed water encroaching on potable water only service districts created by local demographics and utility boundaries. It is

anticipated that lawn irrigation desires will result in revenue loss from the potable water utilities to the reclaimed water utility.

Response: This rule does attempt to either encourage or discourage reuse for lawn, landscape, and athletic field irrigation, or in-residence flushing water connections (if allowed by local building codes) under the non-potable reuse classification of “unrestricted urban reuse.” Business or contractual resolution of conflicts between reclaimed wastewater providers and potable water service with overlapping service areas is not a subject for this rule.

Comment 207: Commenters maintain that the proposed rules do not provide incentives for reuse.

Response: The Board has the responsibility to both encourage land application and reuse as alternatives to surface discharge and to protect the public by providing for the proper operation and maintenance of wastewater collection and treatment systems and the proper disposal of treated wastewater. Non-potable reuse of municipal and industrial wastewater in Tennessee is already approaching seven million gallons per day during certain times of the year. Existing incentives for reuse include:

- a. Reduction of nutrient and oxygen limiting compounds in receiving waters (i.e., preservation of assimilative capacity of ecologically stressed receiving waters);
- b. Preservation of vegetation and landscaping for ornamental and recreational areas;
- c. Sale of reuse water; and
- d. Avoidance of wastewater surcharges by diversion to irrigation.

This modified version of the proposed rule will provide for a wasteload allocation up to 25% of the reuse when the reuse can be demonstrated to be sufficiently consistent and resilient year-round with alternatives available in the event of lost demand.

Comment 208: Commenters believe this entire section is better suited in Rule 0400-40-05. Most reuse is documented through NPDES permits and it is unnecessarily confusing to have these rules in a separate chapter.

Response: Because reuse of reclaimed wastewater is a non-discharging means to dispose of wastewater, the regulations are more appropriately promulgated in this rule chapter. Legally, that will have no impact on how the rules are implemented; NPDES permits that contain reuse elements must incorporate the requirements set out in this rule.

Comment 209: A Commenter indicated TDEC’s decision to issue regulations rather than relying on internal guidance is a positive step forward.

Response: The Board appreciates the comment.

0400-40-06-.10(1) Scope

0400-40-06-.10(1)(a)

Comment 210: A Commenter wants to change “Non-Potable Reuse” to “Water Reuse.”

Response: The Board does not concur. This rule only authorizes two categories of reuse, both of which are non-potable.

Comment 212: Commenters do not want to limit or restrict reuse to the extent that it actually restricts legitimate reuse.

Response: The Board's intention in this rule is not to restrict legitimate categories of reuse, but to authorize appropriate permitting of Restricted and Unrestricted Urban Reuse and to allow continued investigations of other legitimate categories of potable and non-potable reuse. The rule has been revised to indicate which types of reuse are beyond the scope of this rule (meaning, these may be authorized by TDEC under its statutory authority) and what is prohibited.

Comment 213: Commenters request the deletion of all language other than the first sentence.

Response: Defining the scope of reuse addressed by this rule is important and should not be omitted. There would be no reason for this section if only the first sentence remains since it is essentially in statute.

Comment 214: Several commenters state that the rules should not prohibit potable reuse.

Response: Standards for design and operation of potable reuse systems are not mature enough nor demonstrated in Tennessee sufficiently to be authorized in this rule at this time. The final rule, however, does not prohibit pilot projects approved and monitored by the Commissioner for the purposes of investigation and establishing future conditions for implementation for potable or additional categories of non-potable reuse.

Comment 215: Commenters maintain that rules should not prohibit groundwater recharge.

Response: Groundwater recharge in Tennessee is currently covered by the UIC program, which limits injection to water that meets drinking water standards. Any proposal to pilot non-potable groundwater recharge or indirect potable reuse using groundwater as an environmental buffer would have to comply with UIC regulations and standards. The final rules do not prohibit conducting pilot projects or demonstrations to provide data on potential reuse conducted in full compliance with UIC requirements.

Comment 216: Commenters object to the language that apparently attempts to apply water withdrawal criteria by limiting non-potable reuse to less than 5% reduction of the 7Q10 flow of the receiving stream. Reuse water is not a withdrawal.

Response: The final rule removes the reference to the 7Q10. Although reuse does have the potential to reduce in-stream flow, the Tennessee Water Quality Control Act encourages reuse.

Comment 217: Commenters agree that the volume of reuse related to the 7Q10 should be evaluated to ensure that water quality is not adversely affected in receiving streams.

Response: Please see Response to Comment 216.

Comment 218: A Commenter asserts that TDEC uses and applies the term "new or expanded" to "wastewater discharge" in proposed Rule 0400-40-06-.10(1)(a) and to "reuse of reclaimed wastewater" in -.10(3)(a) but does not apply the term as required to surface waters as required by Tenn. Code § 69-3-108(e). TDEC must explain why it can employ the concept of "expanded" discharge in these contexts, but not where statutorily required in § 69-3-108(e).¹²

Response: The Board does not agree with the premise of this comment. Other rule chapters refer to "new or increased discharges," which is the same thing as "new or expanded discharges." Moreover, this comment addresses other rule chapters, and is thus outside of the scope of this rulemaking.

24-00037 MFR_Attachment A_CA Exhibit 2

Comment 219: Proposed Rule 0400-40-06-.10(1)(a) states that TDEC reserves the right to limit the use of non-potable reuse of reclaimed wastewater that causes a greater than five percent reduction of the 7Q10 flow of the receiving stream. It is unclear whether this potential limitation can be imposed at any time, or whether it is triggered only when 7Q10 flow levels are reached, and TDEC should clarify the intent of the proposed rule or modify it.

Response: The Board has removed the 7Q10 calculation from the rule.

Comment 220: A Commenter indicates that TDEC needs to clarify when the consideration of alternatives to non-potable reuse of reclaimed wastewater are applicable. Further, TDEC needs to clarify what alternatives are acceptable when an alternative is required.

Response: The rule specifically discusses non-potable reuse of reclaimed wastewater as an alternative to surface discharge not vice versa. There are multiple types of non-potable reuse as characterized by the 2012 EPA Guidance on Reuse whose classifications have been adopted by this rule. Some of the classifications are in place by permit now and are procedures prescribed by this rule; there are other classifications that may require additional investigation and consideration in light of existing rules; and in addition there are those classifications which are currently covered by other rules.

Comment 221: Commenters assert that the phrase, "...and is not intended to be applied in excess of the uptake rate of vegetation..." is more appropriate to the provisions applicable to land application (0400-40-06-.06) than the provisions applicable to non-potable reuse.

Response: The distinction between land application and reuse is important. In land application, sufficient soil and detention time is available for significant aerobic and anaerobic bacterial action in addition to evapotranspiration and plant uptake. This additional time and bacterial action should complete advanced treatment of the applied wastewater. In reuse there is no guarantee that sufficient soil or time for adequate additional treatment is available; the only treatment factor assumed in the reuse scenario is direct plant uptake and whatever evaporation that occurs. The text will remain.

Comment 222: Commenters indicate that the statement, "Moreover, the Division reserves the right to limit non-potable reuse of reclaimed wastewater that causes a greater than five percent reduction of the 7Q10 flow of the receiving stream." suggests that the state of Tennessee has a right to "wastewater to be discharged." But no such right is established in the TWQCA since wastewater is not included in the definition of waters.

Response: The text has been removed from the final rule.

0400-40-06-.10(1)(b)

Comment 223: A Commenter requests that a new paragraph (b) be added as follows: (Table 4-3 of the 2012 EPA Guidelines for Water Reuse is provided.)

Response: The Board is not addressing all types of non-potable reuse sources of reclaimed water as Table 4-3 cited in 2012 EPA Guidelines in this edition of the Rule, but rather indicating that reuse in this rule is the reuse of reclaimed wastewater; the cited Table 4-3 is not limited to reclaimed wastewater. The text will remain.

Comment 224: A Commenter requests that part 3 of this subparagraph be deleted in its entirety, indicating that reclaimed water should not be prohibited on sites that produce and treat the wastewater.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Response: The text is not prohibiting use of reclaimed water on a wastewater treatment plant site, but rather ensuring that plant water that is recycled within in a wastewater process within the plant is not regulated by this section. The distinction is significant and remains in the text.

Comment 225: A Commenter questions if the reference be to 0400-40-06-.06 and not 0400-40-06-.07.

Response: The correction has been made.

Comment 226: A Commenter questions whether this includes reuse water for irrigation landscaped areas and other non-industrial type processes? If so, then the likelihood of human contact increases and the activity should be permitted as unrestricted public access.

Response: No. Part (b)1 refers to water covered by land application; part (b)2 to water whose source is other than wastewater; and parts (b)3 and (b)4 are for recycled water within a treatment or industrial process generally not exposed to the general population.

0400-40-06-.10(1)(c)

Comment 227: Commenters insist that current subparagraph (c) should be deleted in its entirety. The rule should address direct and indirect potable reuse and not prohibit it.

Response: The final rule has been modified to indicate that potable reuse is outside the scope of this rule, not prohibited.

Comment 228: Commenter believes that under no circumstances should the commissioner get in the business of approving resale of reuse water.

Response: The Board believes that the end user must have a clear understanding of the nature of reclaimed water to distinguish the water from potable water, to protect public health and to ensure the fit-of-purpose principle is established in the contracting process. Approval of individual contracts or sales is not regulated, rather an agreed standard contract is approved once by the Commissioner in concert with the provider of reclaimed water and the end-user of that water that conveys the nature and restrictions appropriate to the use of reclaimed water. This agreement is a critical step in the education of purchasers of reclaimed water.

Comment 229: A commenter requests specific language be provided as to how the Commissioner's approval is to be obtained and under what conditions.

Response: The Board delegates the approval to the Commissioner who executes that approval authority via a State Operating Permit (SOP) or additions to an existing NPDES permit to a purveyor of reclaimed wastewater. Subsequent sales to other sites and for other uses is to be regulated by the end-use agreement the general format of which has been approved in the initial request for permission to sell or provided reclaimed wastewater.

Comment 230: A commenter recommends that the term "impoundment" be defined in the regulation.

Response: The Board concurs. A definition for surface impoundment/impoundment has been added to the rule. Note: any impoundment that has a provision for discharge requires an NPDES permit.

Comment 231: A commenter believes the SOP regulations appear to prohibit environmental reuse.

Response: The final rule clarifies that environmental reuse is not within the scope of this rule.

Comment 232: A commenter believes that TDEC needs to explain why it is prohibiting the environmental reuse of non-potable reclaimed water and why there is a distinction from waters included in NPDES provisions.

Response: The final rule clarifies that environmental reuse is not within the scope of this rule. To the extent that environmental reuse involves the discharge of reclaimed wastewater to wetlands, streams, or other waters of the state, that activity would require an NPDES permit rather than an SOP.

Comment 233: Comments were received insisting that there is no regulatory basis for prohibiting reuse in impoundments with restricted access, reuse in impoundments with unrestricted access, environmental reuse, and groundwater recharge for non-potable reuse. These activities would require additional regulatory approval as set out in 0400-40-06-.05(4)(b) and (c).

Response: The final rule clarifies that these activities are not within the scope of this rule. To the extent that these activities involve the discharge of reclaimed wastewater to wetlands, streams, or other surface waters, it would require an NPDES permit. Groundwater recharge would require a UIC permit.

Comment 234: Commenters suggest replacing “The following activities are prohibited” with the following language since there is nothing in state or federal law to prohibit the listed activities. “(c) The following activities are not authorized under 0400-40-06-.10 Non-Potable Reuse.”

Response: The final rule has been changed to indicate specific activities are outside the scope of the rule, rather than prohibited.

Comment 235: Commenters recommend deleting any reference to potable reuse since this provision clearly applies only to non-potable reuse.

Response: The final rule has been changed to indicate that potable reuse is outside the scope of the rule, rather than prohibited.

Comment 236: Commenters recommend revising (1)(c)5 and 6. to read:

5. The discharge of reclaimed wastewater into surface waters as they are regulated through the NPDES program.

6. Excess utilization of reclaimed water that results in ponding or a nuisance to adjacent properties.

Response: The final rule has been amended. An NPDES permit would not be available for “excess utilization of reclaimed wastewater” so that provision has been maintained as a prohibited activity.

0400-40-06-.10(2)¹⁵

Comment 237: A Commenter recommends changing “reclaimed wastewater” to “reuse water.”

Response: The Rule applies only to reclaimed wastewater intended for reuse.

Comment 238: A Commenter wants to change Subparagraphs (2)(c) and (d). Not sure why reference to U.S. Department of Agriculture and other rules is necessary.

Response: The Board concurs in striking the reference but asserts that consultation with additional agencies to support the growth of reuse regulations is both prudent and necessary in the future.

¹⁵ The definitions from the proposed rule that were in Rule 0400-40-06-.10(2) have been moved to the definitions section of this rule chapter. When referring to rule numbers in these responses to comments, the Board refers to the numbering from the draft rule. In the final rule, later sections are one number lower due to the deletion of this section.

24-00037 MFR_Attachment A_CA Exhibit 2

Comment 239: A Commenter requests clarification to Subparagraph 2(e) and (f), indicating that clarification is needed as to what body contact would be restricted.

Response: The definitions in Categories (e) and (f) are not authorized in 0400-40-06-.10 and are included solely to parallel the 2012 EPA Guidance. If authorized in the future, additional definitions and requirements will be promulgated in the Rule amendment.

Comment 240: A Commenter wants clarification in subparagraph 2(g) as to what receiving waters would preclude the use of reuse water in the NPDES provisions of Chapter 5.

Response: The environmental reuse category is outside the scope of this rule. The definition is provided to match the 2012 EPA Guidance categories of non-potable reuse. Reuse that involves a discharge to surface waters is subject to NPDES regulations.

Comment 241: A Commenter recommends the addition of a new paragraph. “Indirect Potable Reuse” is the augmentation of a drinking water source (surface or groundwater) with reclaimed water followed by an environmental buffer that precedes normal drinking water treatment.

Response: At this point, the Board is not ready to adopt rules for potable reuse. This is an area of high sensitivity, and requires further study, consideration, and stakeholder engagement. However, the final rule clarifies that potable reuse is not prohibited, but instead outside the scope of this rule at this time.

Comment 242: A Commenter recommends the addition of new paragraph. “Direct Potable Reuse” is the introduction of reclaimed water (with or without retention in an engineered storage buffer) directly into a water treatment plant, either collocated or remote from the advanced wastewater treatment system.³

Response: Please see Response to Comment 241.

Comment 243: A Commenter thinks TDEC should clarify the meaning of “environmental reuse” of non-potable reclaimed wastewater.

Response: The definition tracks the 2012 EPA Guidance. The current rule does not foresee the permissibility of environmental reuse as an SOP. Environmental reuse may be allowable through the NPDES program, but would be subject to all applicable regulatory requirements.

Comment 244: Commenters suggest that the definitions of the non-potable use classifications be moved to 0400-40-05-.02 and modified.

Response: The Board does not concur. Section 0400-40-05 deals with NPDES permits.

0400-40-06-.10(3) Application and Review

0400-40-06-.10(3)(a)

Comment 245: A Commenter believes that the horizontal distances of 10 feet apart between potable water and reclaimed water is unnecessary with most piping other than concrete.

Response: The Board does not concur. This is a standard water and wastewater design and construction principle applied to reuse water distribution systems.

Comment 246: A Commenter recommends that construction standards should be clarified to prevent cross-contamination between non-potable reuse water and drinking water.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Response: No additional specific set of construction standards is necessary for reclaimed or reuse water. This paragraph incorporates the same principles as between drinking water distribution systems and wastewater collection/pumping systems that have proved effective for many years.

Comment 247: A Commenter recommends that TDEC also consider adopting a standard labeling practice for non-potable pipes, such as a purple color scheme.

Response: The final rule adds a reference to “purple pipe” as the standard identification method for reuse distribution systems.

Comment 248: Commenters are of the opinion that this provision does not distinguish between the quality of non-potable reclaimed wastewater from other wastewaters and should be revised to read as follows: “Non-potable reclaimed wastewater and potable water systems should be located at least 10 feet horizontally, or at least 18 inches vertically, apart from each other if practicable. However, if the non-potable reclaimed wastewater and potable water systems are located within 10 feet horizontally and 18 inches vertically of each other, the non-potable reclaimed wastewater system shall be treated as if it were conveying wastewater that does not meet the treatment requirements of (4) (c).”

Response: This change has not been made in the final rule, which is sufficiently clear.

Comment 249: A Commenter recommends this provision be renamed Reclaimed Water Management Plan.

Response: The rule refers to reclaimed wastewater, which is an accurate description.

Comment 250: A Commenter recommends deleting subdivision (b)1 in its entirety.

Response: The final rule has been changed to require a description of treatment for reuse, discharge, or land application.

Comment 251: Commenter wants the requirement that permit renewal applicants submit an updated Reclaimed Wastewater Management Plan (RWMP) if there is a “material change in end user requirements” should be clarified.

Response: The final rule states that a material change includes water quality, delivery pressure or location, and whenever the end user becomes a purveyor of reuse water himself.

Comment 252: A Commenter wants a definition of what constitutes a “material change,” leaving considerable discretion to TDEC. Further, the wastewater could “change hands” more than once before reaching the end user. In such a case, it is unclear who needs to update their RWMP and when. TDEC needs to clarify what constitutes a “material change” and write this in a way that checks every stage “from cradle to grave.”

Response: Please see Response to Comment 251.

0400-40-06-.10(3)(c)

Comment 253: A Commenter believes this section should be eliminated in its entirety. It is not an appropriate role for TDEC to review and approve each metered recipient’s user contract or to specify any requirements for such agreements.

Response: The Board does not concur. End users must be aware of, and subject to, any limitations on the reuse of reclaimed wastewater.

24-00037 MFR_Attachment A_CA Exhibit 2

Comment 254: A Commenter recommends that end users be educated as to best management practices to protect cross-contamination and improper use, including setbacks, and compliance should be monitored.

Response: The Board concurs; this is the primary purpose of the End User Service Agreements.

0400-40-06-.10(3)(d)

Comment 255: A Commenter recommends elimination of part 2 of this subparagraph in its entirety, indicating that the stated language is simply unnecessary and is counterproductive to reuse.

Response: Part 2 of this subparagraph has been eliminated from the final rule.

Comment 256: A Commenter indicates that the language in parts 1 and 2 of this subparagraph is circular. TDEC is placing restrictions on our ability to expand both our NPDES permit and our reuse system.

Response: Part 2 of this subparagraph has been eliminated from the final rule and the requirements to demonstrate a back-up plan in case the reuse option is no longer available have been clarified.

Comment 257: A Commenter indicates that the requirement for alternatives for reuse to be demonstrably available is necessary to protect water quality.

Response: The long-term benefits of resource preservation through reuse of reclaimed warrants its safe and environmentally protective expansion. Loss of reuse opportunities is not a valid reason for failure to meet NPDES permit or SOP requirements. The RWMP must address this issue.

Comment 258: A Commenter indicates that the SOP regulations do not clarify when the requirement to consider alternatives to discharge under T.C.A. § 69-3-108(3) apply to the non-potable reuse of reclaimed wastewater.

Response: SOPs do not govern discharges. Those are regulated through the NPDES program, so this clarification is not appropriately placed in the SOP chapter. Moreover, the Commissioner has already established in guidance (Design Criteria) and in permit negotiations that expansion of discharges will only be considered in the context of a life cycle cost analysis of alternatives which must include land application and beneficial reuse of reclaimed wastewater as an alternative to a new or increased discharge.

Comment 259: A Commenter indicates that the only alternatives are land application permitted by an SOP or a NPDES-permitted discharge to surface waters. TDEC needs to explain why it is limiting alternatives to only these two options. Alternatively, if that's not the intention of TDEC, TDEC needs to incorporate some language like, "alternatives include, but are not limited to"

Response: The Board has changed the language as recommended.

Comment 260: A Commenter indicates that since non-potable reuse and land application are both covered by SOPs, the application for the reuse SOP could also include a request to authorize both the land application contingency.

Response: Agreed. This process is in effect at this time; SOPs and NPDES permits may include land application and reuse provisions.

Comment 261: A Commenter questions whether this section refers to a permitted reuse activity that no longer has the proposed alternative.

Response: Yes, the Board intends that this applies to the potential loss of a water reuse opportunity. NPDES permits and SOPs presume a high degree of discharge or disposal ability. Reuse, especially if dependent on end users, inherently possesses less wasteload satisfaction guarantees. Accordingly, a contingency plan is necessary in case the reuse option becomes unavailable in the future.

Comment 262: A Commenter indicates that the plan should be able to be freely amended as necessary. In addition, it is not clear who will be the permittee. This should be clarified.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Response: The amendment process for SOPs and NPDES permits are specified in the existing permits themselves. The permits would not be amended in the case of the expansion of the reuse system appropriately authorized up to the capacity of the reclaimed water production. Permit modifications would not be necessary for distribution system expansion.

The permittee is the entity holding the SOP or NPDES permit for the treatment of the wastewater and, therefore, responsibility for the production and/or delivery of the reclaimed water to the end user. The SOP or NPDES permit holder may have the holder's own site or reclaimed water distribution system as a part of the holder's own system without separate and distinct end user customers. If an end user purchases reclaimed water for resale, that end user must obtain an SOP and all requirements of the reclaimed water permit holder applies to them; requirements would include the RWMP and engineering distribution system standards.

0400-40-06-.10(4)(c)

Comment 263: Commenters would like to see sampling within the water system rather than at each end user.

Response: The Board agrees that the primary responsibility of monitoring the quality of reuse water rests with the entity providing the reclaimed water and that the criticality of the reuse will dictate the need for point of delivery sampling. Unrestricted access of the public to reclaimed water requires periodic sampling to minimize exposure of pathogens to the public.

Comment 264: Commenters indicate that the effluent limitations should be more stringent to protect human health and water quality.

Response: Rule 0400-40-06-.10(4)(c) does not establish effluent limitations, which are defined in the Act as regulating discharges. Reuse of reclaimed wastewater pursuant to an SOP should not result in a discharge. The numeric standards in this rule have been tightened in accordance with the 2012 EPA Guidelines with the exception of applying *E. coli* limits instead of fecal coliforms.

Comment 265: A Commenter indicates that TDEC should require system operators to educate end users on the nutrient content of the reclaimed wastewater, and the consequences of over-application of nutrients (such as eutrophication and algal blooms in nearby surface water, such as ponds in golf courses). This could be incorporated into end user agreements in the section for the end user's responsibilities with respect to the appropriate and legal use of the reclaimed wastewater.

Response: Suggested minimum requirements and a template for the end user service agreements are more properly addressed through TDEC guidance than through rule.

Comment 266: A Commenter indicates that TDEC must also explain why the minimum standards and reporting frequencies in proposed Rule 0400-60-.10(4)(c) are protective of the State's waters.

Response: This rule does not authorize discharges to waters. Any such discharges must comply with NPDES (surface water) or UIC (groundwater) requirements. Moreover, reclaimed wastewater used in irrigation should not be applied in quantities exceeding vegetative uptake or evaporation; and it should not result in a discharge. Application rates will be reported on monthly MORs and excessive application amounts will be investigated. Research has indicated that overland flow, although not permitted in Tennessee, is almost as effective in removing contaminants as land application and the treatment standards for reuse exceed those for land application.

Comment 267: A Commenter requests the addition of, "Reuse in Impoundments, Environmental Reuse and Groundwater Recharge for Non-Potable Reuse" after "Agricultural Food Crops" in the table.

24-00037 MFR_ Attachment A_ CA Exhibit 2

Response: Adding classifications or categories of reuse not authorized by this addition of the Rule would only be confusing.

Comment 268: A Commenter indicates that the minimum standards established for *E. coli* and chlorine residual for unrestricted reuse are less stringent than the existing requirements in some permits that allow unrestricted reuse.

Response: Please see response to Comment 264.

Comment 269: A Commenter provides that public acceptance of reuse is dependent upon a robust regulatory framework, and exceptional operation by practitioners. For this reason, it is recommended that the Board establish a 23 cfu/100 ml limit for *E. coli* and a minimum chlorine residual limit at 1 mg/l regardless of *E. coli* concentration; and require that a chlorine residual be maintained within the reuse transmission and distribution system.

Response: See response to Comment 264.

Comment 270: The monitoring location and the frequency of sampling and analysis such that samples are taken similar to the bacteriological sampling program with a potable water distribution system which does not require sampling at each end user; and that the current requirements are excessive.

Response: The Board concurs with the comment and remote or reuser sampling requirements must be patterned after drinking water bacteriological and chlorine residual sampling schemes.

Comment 271: Commenters insist that there is no need to be reporting consumption by individual users.

Response: The current 30-year experience of unrestricted urban reuse in the State of Tennessee reveals a tendency towards excessive irrigation. This classification of reuse cannot produce a discharge without violating the NPDES permit implementation. The Commissioner should require the reporting of the volume of water at least monthly to identify potential abusers of the requirement.

Comment 272: Commenters propose table revision as follows: (*Italicized wording different from the proposed text.*)

Parameter	Urban Unrestricted Reuse <i>Agricultural Food Crops, Reuse in Impoundments, Environmental Reuse, Groundwater Recharge for Non-Potable Reuse</i>		Urban Restricted Reuse <i>Agricultural Processed Food or Non-food crops, Industrial Reuse</i>	
	Daily Limit	Monitoring Frequency	Daily Limit	Monitoring Frequency
pH	6.0-9.0	Weekly	.0-9.0	Weekly
CBOD5	10 [mg/L]	Weekly	30 [mg/L]	Weekly
NTU/TSS	5 [NTU]/ 5 [mg/L]	Continuous/Daily	-/30[mg/L]	Weekly
E. Coli	23 [cfu/100 mL]	Daily	200 [cfu/100 mL]	Daily
Chlorine residual (1)	Minimum of 1 [mg/L](1)	Daily	Minimum of 1 [mg/L]	Daily

24-00037 MFR_Attachment A_CA Exhibit 2

- (1) *The minimum chlorine residual limit of 1 [mg/L] shall be measured at the point of release from the reclamation system and the chlorine residual must be maintained within the distribution system as measured in accordance with the approved RWMP plan.*
- ~~(2)~~ *Chlorine residual limits apply only upon failure to comply with E.Coli limits more than 10% of the time for the previous month after there is a demonstration that the system can meet the delivery standards.*

Response: The Board agrees with the direction of the changes; however, it is the Board's position that additions to impoundments that discharge to groundwater or surface waters are covered by UIC or NPDES permits respectively.

0400-40-06-.10(4)(d)1.

Comment 273: A Commenter indicates that (i) and (ii) should be deleted.

Response: The Board does not concur. Monitoring and reporting are core requirements of this rule, and provide both transparency and accountability.

Comment 274: Regarding subpart (iii) of this part, a Commenter respectfully recommends deletion of this section, stating that "...unaccounted for water from a reclaimed water system should not be considered discharges or releases..."

Response: The Board does not concur. Any discharges and releases must be reported. The discharge of reclaimed wastewater is not authorized by this rule and would require an NPDES permit.

Comment 275: A Commenter provides that although discharge of reclaimed water is not authorized under the proposed rules, it may be allowed under an NPDES permit. Therefore, the reporting requirement for discharges or releases, should distinguish between those that are included in the RWMP and those that are not. The language as written suggests that any release or discharge is a violation.

Response: A discharge of reclaimed water would be only allowed in accordance with the terms of an NPDES permit. Discharges and releases are also reportable under the NPDES rules.

0400-40-06-.10(4)(d)2.

Comment 276: A Commenter indicates that this language should be deleted.

Response: The Board agrees it should be modified. The onus for enforcement should not be on the reclaimed wastewater provider although that is usually the case in other states. The wording has been changed to require reporting to the environmental field office in the event they become aware of a violation.

Comment 277: A Commenter recommends deletion of this section part (4)(d)(2), stating "...it is unreasonable for TDEC to require utilities to inspect and determine how reclaimed water is utilized beyond the customer meter."

Response: Please see Response to Comment 276.

0400-40-06-.11 Bonds

No comments were received related to this rule.

24-00037 MFR_ Attachment A_ CA Exhibit 2
0400-40-06-.12 Duration and Reissuance of Permits

Comment 278: A Commenter requests clarification whether and to what extent a permit renewal could be denied or restricted based on such review.

Response: If a permitted activity is conducted in accordance with the Tennessee Water Quality Control Act and these rules, and there are no significant changes to environmental conditions, permits are likely to be renewed. However, the five-year permit limit is intended to ensure that the Commissioner can conduct a meaningful, regular review to ensure on-going compliance.

0400-40-06-.13 Appeals

Comment 279: A Commenter indicates that TDEC should clarify that it will work with petitioners for appeal to ensure the standards for petitions for appeal are met.

Response: It is not TDEC's responsibility to assist petitioners to appeal a TDEC decision. However, TDEC has issued guidance on how to file appeals, which can be found at https://www.tn.gov/content/dam/tn/environment/policy/documents/finalized-guidance/boe_filing-appeals-and-petitions-for-declaratory-order-with-tdec.pdf.

Comment 280: A Commenter provides that the proposed language in Rule 0400-40-06-.13(2) restricts appeals to a claim for relief based on an alleged violation of the Act. However, if a permit applicant appeals the decision of the Commissioner, it is for taking action that is not consistent with the Act as opposed to being in violation of the Act. The language should be clarified that the claim for relief should be based on an "applicable provision" of the Act or rules.

Response: The proposed language has been retained in the final rule. A permit condition that is inconsistent with the Act would violate the Act. The purpose of this provision is to clearly establish that appeals must address legitimate issues within the purview of the Act and its regulations. Petitioners regularly file appeals for reasons outside of the purview of this Board, and this rule is intended to make it clear that such appeals must be dismissed with prejudice for lack of subject-matter jurisdiction.

Comment 281: A Commenter suggests that petitions for appeal be accepted if filed by mail, hand delivery, or by any electronic means directed to the person specified in the public notice.

Response: TDEC has issued guidance on how to file appeals, which can be found at https://www.tn.gov/content/dam/tn/environment/policy/documents/finalized-guidance/boe_filing-appeals-and-petitions-for-declaratory-order-with-tdec.pdf. Among other things, this guidance document provides information about how to file appeals, and provides an email address.

Appendix: Land Application

1.0 Introduction

Since the mid-1990s the State of Tennessee, Department of Environment and Conservation's (TDEC) has issued permits governing the land application of wastewater. These permits have been issued through the State Operating Permit (SOP) program. SOPs do not authorize the discharge of pollutants to waters of the State; instead, these permits rely on the soil environment to treat wastewater, and as a medium to return the wastewater to the hydrologic cycle. The Tennessee Water Quality Control Act (the "Act") recognizes land application of wastewater as an appropriate alternative to discharges to surface waters and obligates the Board of Water Quality, Oil, and Gas to adopt rules to that effect.¹⁶

The majority of SOPs for land application serve residential communities and utilize drip dispersal as a means of distributing wastewater effluent to the land application area. These systems are commonly referred to as "decentralized wastewater systems." Utilization of this technology through the SOP framework allows development in unsewered urban and rural areas without incurring the costs associated with the construction of traditional "big pipe" sewer systems and the increase in centralized treatment capacities – costs that would otherwise be recovered by the utilities through their customer base. With decentralized wastewater systems the capital costs for the land and system installation are commonly funded by the developer of the property who then, in turn, "gifts" the system and the land on which the system is constructed to the local public utility or private utility governed by the Tennessee Public Utility Commission (TPUC).

Decentralized systems in Tennessee have had mixed results: some locations have experienced remarkable success while other locations have not. Evidence of this disparity is found through the comparison of two adjacent counties (Figure 1). These counties (Wilson and Rutherford) are in Middle TN and exhibit similar soil and geologic conditions. Combined, these two counties represent 30% of the active systems across the state. One county entity owns and operates 26 active systems; the other county utility owns and operates 63 active systems. Of the 26 systems operated by one entity, nine have been the subject of 15 total Notices of Violation (NOV) with three of the nine systems being the subject of enforcement orders. The oldest of these systems was permitted in 1998. Of the 63 active systems operated by the other entity, only one system has received a NOV, and none have been the subject of enforcement action. The oldest of these systems was permitted in 1999.

The degree of disparity between these two entities begs the question "Why?" The entities deal with the same soil types, use the same technology, manage the same type of wastewater, serve the same nature of developments (primarily residential with some schools and commercial flows), are operated by certified operators, and all of the systems were permitted by TDEC. The primary source of disparity is the adoption of minimum design standards by the county entity with the higher degree of compliance. This local entity has adopted standards of design to which any proposed design is measured – prior to being submitted to TDEC for consideration. If the design falls short of these standards the plans are not approved by the local entity and must be modified according to the established standards.

¹⁶ T.C.A. § 69-3-101: Water Quality Control Act of 1977; Section 105, Part I.

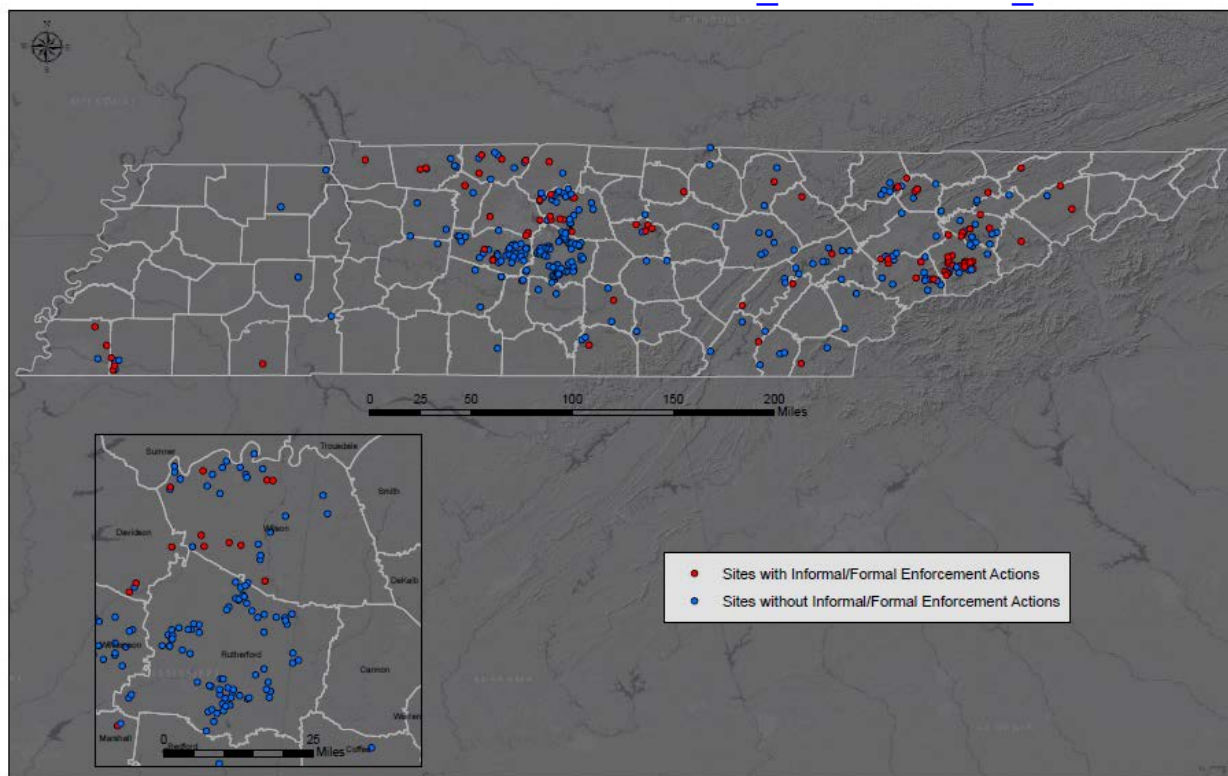


Figure 1. Distribution of SOPs with land application sites in TN and whether the systems have been subject to Informal/Formal Enforcement Actions. Inset provides a comparison of Wilson and Rutherford Counties.

2.0 Compliance and Enforcement History

The following assessment of compliance and enforcement reflects records current as of February 2020.

There are 302 active SOPs (89 different permittees) with drip dispersal land application sites in Tennessee (Figure 1). While these systems are spread across the state, there are six counties where the systems are more heavily utilized; Blount, Jefferson, Rutherford, Sevier, Williamson, and Wilson counties represent over 61% (186 systems) of the 302 active systems. TDEC has utilized its Waterlog database to conduct a comprehensive review of systems with land application areas including type of system, managing utility, design flows, actual flows and permitting and enforcement history.

Chapter 17 of the Design Criteria was developed in 2009 to support the rapidly growing use of this technology, and as a byproduct of a permit denial appeal heard by the Board of Water Quality.¹⁷ To TDEC's knowledge, two local governing entities have had enforceable standards in place for several years that are more restrictive than the guidance established in the Design Criteria, Chapter 17. These entities are Rutherford County (Consolidated Utility District¹⁸) and Williamson County (zoning ordinance¹⁹). These two entities are responsible for, or were in a position of approving, 82 (27%) of the state's 302 active systems.

¹⁷ IN THE MATTER OF: WILSON ONSITE SYSTEMS, LLC., 2007 WL 811755 (2007).

¹⁸ <https://www.cudrc.com/>

¹⁹ <http://www.williamsoncounty-tn.gov/DocumentCenter/View/4138/2013-Zoning-Ordinance?bidId=>

TDEC's database indicates 94 of the 302 active systems have received Notices of Violation.²⁰ The cumulative total NOV's issued to these active systems is 158 – with 35 of the systems receiving multiple NOV's. Systems operated or approved by the Consolidated Utility District or Williamson County represent only 3% of the total number of systems receiving NOV's; furthermore, none of the systems operated or approved by the two entities received multiple NOV's.

Eight operation-related enforcement orders have been issued for systems supported by drip dispersal land application areas. None of the enforcement orders have been issued to sites operated or approved by the Consolidated Utility District or Williamson County.

Of the 302 active systems in the State, 55% (165) are operated by two wastewater utilities.²¹ Of these 165 systems, 37 have received NOV's. One wastewater utility operates 36 (97%) of the 37 systems receiving NOV's; the other wastewater utility represents one of the systems having received a NOV. The wastewater utility with the higher level of compliance enforces standards that exceed the State's Design Criteria.

The wastewater utility with the highest level of noncompliance operates 102 of the 302 active systems across the State. Of the systems this utility operates, 36 (35%) have received NOV's. It is critical to note that 11 of the active systems operated by this utility are in Williamson County and none of these systems have received a NOV.

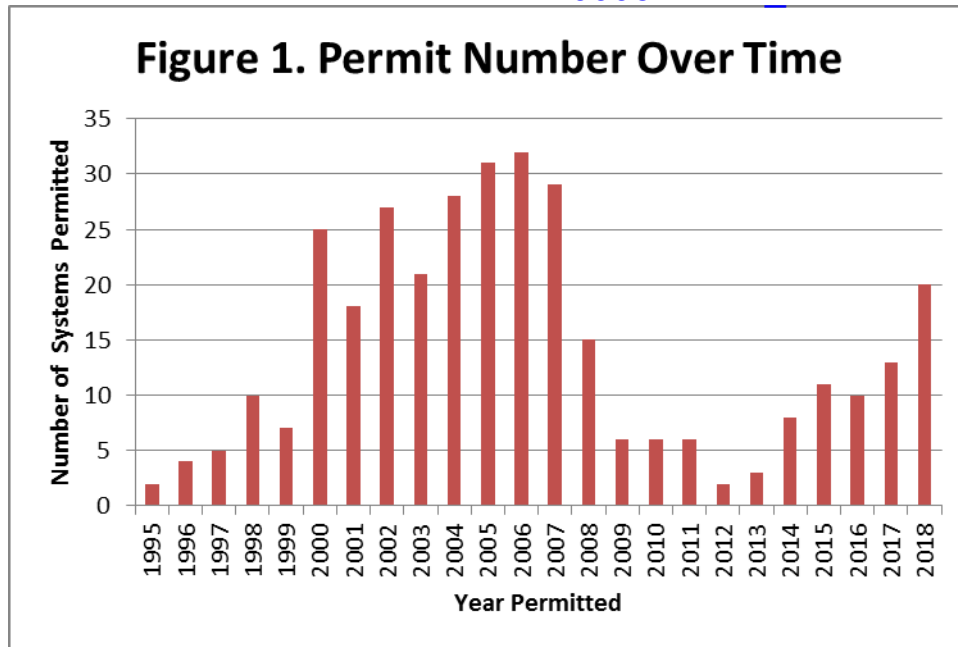
4.0 Expense

A number of commenters complained about the expense of the proposed rule, and modifications have been made in this final rule to address these concerns. However, while there are costs to properly designing, installing, operating, and maintaining decentralized wastewater systems, there are also economic impacts to utilities and their customers from poor design and construction.²² The remedy for failing land application areas often involves restructuring, replacing, or adding to the areas such that the wastewater flow can be appropriately assimilated into the soil profile. In some cases, there is no apparent remedy for these failures – and the widespread utilization of this technology is less than 20 years old (Figure 2). Unfortunately, remedial measures become necessary after the original developer and designer is out of the picture, resulting in the unanticipated remedial costs being borne by the utility or the utility's customers.

²⁰ NOV quantities are inclusive in that they may have been issued for late applications, reporting violations, and any number of other permit violations including land application area noncompliance. Many NOV's were for multiple violations. Many systems received multiple NOV's.

²¹ Sixty-three of the systems are operated by a county-based utility district. A statewide private wastewater utility directly owns and operates 76 systems and is the exclusive provider for one county-based wastewater authority with 26 systems.

²² See, e.g., TPUC Docket 16-00096: Order Approving Stipulation and Settlement Agreement. Order approved collection by the utility from its entire customer base of \$78,750 for legal expenses of the proceedings; and \$1,301,726 for repairs for three systems. <http://share.tn.gov/tra/orders/2016/1600096g.pdf>



4.1 Loading Rates

The hydraulic loading rate assigned to a soil is reflective of the texture and structure of the soil in the upper portion of the soil profile. While the hydraulic loading rates are being reduced for some soils, the nutrient loading rate limitations no longer directly govern the assigned loading rate for the soil – provided an appropriate level of nutrient reduction is accomplished through the secondary treatment system. The end result of the current proposal, along with the tiered design flow rate modification, will result in minimal increase in expenditures associated with land acquisition/set aside, with the exception of clay soils with moderate to strong, granular or sub-angular texture. The hydraulic loading rate for these clay soils is 0.3 g/d/ft² in Chapter 17 of the Design Criteria. The rule-based rate proposal for these soils is 0.1 g/d/ft². This modification is discussed in the 0400-40-06-.06(2)(b) rule-specific response to comments.

4.2 Land Application Area Utilization

Drip dispersal distribution systems supporting land application areas must be designed to ensure uniform distribution across, and full utilization of, the land application area. Every site is different; some sites lend themselves to the efficient use of drip dispersal, some sites have limitations that reduce their ability to efficiently use drip dispersal. It is the responsibility of the designer of the system to recognize the limitations of a site and design accordingly. Ten thousand square feet of suitable soil in a former agricultural field in west TN is not the same as 10,000 square feet of steeply sloping forested mountainside in east Tennessee. Both can be utilized; however, the west TN site can be utilized much more efficiently than the east Tennessee site. Past design and approval practices did not fully consider site-specific limitations.

In light of comments received, the design standard intended to accomplish efficient utilization of the land application area component of the proposed rule has been removed. Instead, the rule simply requires full utilization of the land application area, which will need to be demonstrated by the designer in the application. A

recommendation to design the system layout based on four-square feet of utilized area per drip emitter will be included in a pending revision of Chapter 17 of the Design Criteria.

4.3 Design Flow Rates

The final rule establishes minimum design flow rates. For residential developments these minimums are reflective of flow data and analysis provided during the public comment process. The minimums are based on a tiered approach that allows the designer to maintain a factor of safety while minimizing the potential for over design. These rates are either per residence (300 gallons per day for 1-15 units, 250 gallons per day for 16-30 units, and 225 gallons per day for each unit over 30) or per occupant (65 gallons per day). These values are not overly conservative. It is important for designers to consider that once a development is constructed there is little control over the volume of generated wastewater. Adoption of the tiered approach to design flow rate determination will significantly offset increased expenditures associated with uniform and complete land application area utilization.

4.4 Reserve Area

The rule, as originally proposed, would have required that an additional 50% of land application area be available and identified in support of future system installation if that became necessary. There are many variables that determine the success of the land application area component of these systems. These values are not finitely estimated. TDEC has been addressing matters of noncompliance for some systems for several years. A number of these situations need additional area to remedy the noncompliance. However, there is no additional area is available, which places homeowners and utility districts in a difficult and costly situation. Four local governing entities have already adopted reserve area standards to offset the risks associated with limited land application area.

However, in light of comments received, the reserve area component has been removed from the final rule. A recommendation to establish a reserve area at the time of system design and construction will be included in a pending revision of Chapter 17 of the Design Criteria.

5.0 State Not a Designer

A number of commenters asserted that the proposed rule would have placed the state in the position of a designer. The State is not eliminating the requirement of a licensed engineer in support of system design, nor does the rule position the state as a designer.

Tennessee Code Annotated section 69-3-107 states that the commissioner has the power, duty, and responsibility to require the submission of such plans, specifications, technical reports, and other information as deemed necessary to carry out the Act or to carry out the rules and regulations adopted pursuant to the Act. The commissioner cannot be responsible for accepting and approving plans without adopting enforceable design standards.

Unfortunately, whether “the State will approve it” often becomes a measure of quality of a given set of plans. If “the State will approve it” then the plans are “good.” TDEC is reminded of this time and again when attempting to resolve problematic systems. “The State approved it” is a commonly heard phrase in these conversations.

Each land application area supporting a decentralized system is unique. Each has its own limitations. The designer of these systems must account for these limitations in their design. As mentioned previously, 10,000 square feet of former crop ground in west Tennessee cannot be as efficiently utilized as 10,000 square feet of steeply sloping, forested mountainside in east Tennessee. The designer's responsibility, in part, is in determining how much wastewater can be assimilated by a given area of soil, or how much soil is necessary to manage the anticipated flow. The designer must consider the limitations of a site and design accordingly. The engineer's design would be obligated to represent the effective utilization of the soil, not just a footprint of suitable soil. This determination is critical and a precise, site-specific layout of the system by zone or by line can be used to accurately estimate the ability of the area to accommodate and utilize a drip dispersal system.

6.0 Not Based on Science

A number of comments assert that the rules were not based on science, which is not the case. The rules are based on science and engineering, with due consideration to other governments' examples and industry recommendations, not personal preference or intent to replicate the septic system program.

An estimate of the effective area influenced by an emitter is most certainly based in science (soil and hydrology) and engineering. The characteristics of the soil and the soil profile influence the distance and the rate the dripped liquid will travel away from the point it is introduced. Consideration of the role of weather events and seasonal fluctuations in evapotranspiration has direct bearing on system performance. Flow rates, dosing times, resting times, and distribution of points are some of the engineered components of the land application system.

In light of comments received, the design standard intending to accomplish efficient utilization of the land application area component of the proposed rule has been removed. A recommendation to design the system layout based on four-square feet of utilized area per drip emitter will be included in a pending revision of Chapter 17 of the Design Criteria.

The proposed rule establishes maximum hydraulic loading rates for different soil texture and structure combinations. Most surrounding states, manufacturers, and even existing Tennessee rules²³ take this approach. The final long-term acceptance rate is a function of the level of treatment and the appropriate hydraulic loading rate. The current values in the chart reflect a range of values used by surrounding states, produced in research, and recommended by manufacturers. While the current guidance contains a similar chart, it is also limited to a maximum value. In practice this has led to a "one loading rate fits all" approach that does not accurately reflect the different capabilities of the different soil texture and structure profiles. The maximum rates used in this proposed rule allow for as much as twice the current maximum loading rate allowed by the current Chapter 17 of the Design Criteria - if the effluent is treated to the degree that the potential for nutrient migration is removed. The proposed rule removes a "universal" maximum rate; permits the use of a texture and structure profile that has been previously prohibited; and limits the maximum rates in the clay textures where the available references recognize the limitations of those profiles.

7.0 Pre-Land Application Treatment Plant Effluent Standards

²³ Rule 0400-48-01-.15 (6).

The final version of part (1)(a)1 of Rule 0400-40-06-.06 follows previous Rule 0400-40-05-.09 in the issuance of treatment effluent guidelines for non-discharging systems and cite limits for BOD5 or CBOD5, TSS, pH and NH3-N (ammonia-as nitrogen). Since this rule change was proposed, TDEC has completed an extensive review of scientific and engineering studies concerning the disposition of constituents of concern in common municipal wastewater to determine the constituents that should be monitored and the capacity of the disposal field soils to further remove these constituents.

All research on the topic of additional in-soil treatment of secondarily treated municipal wastewater effluent agrees on the following principals:

1. Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Pathogens (in Tennessee measured by the surrogate micro-organism, *Escherichia coli*, or *E. coli*), Phosphorus, and all commonly found metals are removed or retained in the soil before reaching groundwater or surface water.
2. Nitrogenous compounds, especially nitrate, is the primary concern based on the common belief that 10 mg/L is the limit for drinking water and drinking water treatment plants are not normally configured to remove nitrate.
3. Properly sized, designed and dosed disposal soil systems will be characterized by alternating aerobic and anaerobic zones either at a macro- and/or micro-level promoting the conversion of organic nitrogen to ammonia, ammonia to nitrite and then nitrate and conversion of nitrate to nitrogen gas. The rate of that conversion is the primary issue.
4. Even when you measure the annual nitrogen removal rate in soils, it is very difficult and at least a source of great uncertainty to try to assign monthly rates of nitrogen removal from annual data.

Where researchers for the last 40 years have differed is in how to calculate the conversion rate to ensure that 10 mg/L of nitrate does not enter potential groundwater aquifer.

Measurements of wastewater nitrogenous component annual removal in the soil were conducted in the 1980s in controlled environments; these studies reviewed the mass balance for nitrogen to account for plant nitrogen uptake, evapotranspiration by crops, and rain dilution; with the remaining unaccounted for nitrogen assumed to have been lost to volatilization of ammonia and denitrification by bacteria in anoxic-anaerobic environments. These six studies have shown that as much as 60 mg/L of total nitrogen (TN) from wastewater when applied to qualifying soil profiles resulted in 10 mg/L or less nitrogen leaving the soil profile. These studies are routinely reported, including in engineering documents as recently published as 2010, as authoritative on nitrogen removal. The strongest arguments for not using this data to regulate land application effluent are:

1. Unlike most land application sites in Tennessee today, all of the test sites harvested the crops removing a substantial amount of plant uptake from the soil.
2. The data was taken over a year and no attempt was made to measure monthly removal rates.

The other source of guidance on nitrogenous compound removal in the soil column is based on a theoretical material balance endorsed by EPA in the *Process Design Manual – Land Treatment of Municipal Wastewater Effluents*, EPA/625/R-06/016 and other standards including the WEP MOP 8, 4th Edition. The balance attempted to calculate nitrogen removal in the soil assuming monthly rates of plant uptake as a function of vegetation type, evapotranspiration monthly rates as a function of latitude, denitrification and volatilization in terms of temperature, and dilution in terms of average monthly rainfall. Conspicuously no data was cited in the creation of the model, no data was used in calibration of the model and no data was used in validation of the model. In

MOP-8, both the model results and the six sites from refereed journal articles citing the mass balance research were presented in the same chapter with no attempt to correlate the results.

The EPA-endorsed formula has been incorporated in the Tennessee *Design Criteria* for treatment plants' effluent limitations when followed by land application for at least 30 years. The mass of TN applied per unit area of the disposal field was calculated as a quantity known as Lwn or "nitrogen water loading" rate for each month and compared to the "hydraulic water loading" rate (Lwh) based primarily on the hydraulic conductivity of the disposal field soils. The goal of the designer was to treat the wastewater such that its Lwn would not limit the application rate defined by the soil's hydraulic limit (Lwh). The most restrictive month's Lwn (usually October, January, or February) was compared to the Lwh and the lower number was used as the maximum loading rate throughout the year. A liberal interpretation of the factors in the model resulted in wastewater treatment plant effluent limits of TN between 18 and 23 mg/L depending on location. While this is easily achievable for convention tertiary or advanced treatment plants, most decentralized plants, the majority configured for land application disposal, would have difficulty reliably achieving this result without doubling the attached growth biological treatment train creating a two-stage process and doubling its complexity.

Based on the results of this study, the lack of evidence of any contribution to nutrients in aquifers or surface waters in the state from treatment systems working to secondary treatment standards and followed by properly designed and operated land application systems, best practical technology effluent standards are proposed for pre-land application treatment plants. These standards are approximately 50% of the documented loading that results in less than 10 mg/L nitrate in groundwater from research and will not require upgrade of most if not all current decentralized systems which would be required if effluent limits for TN were reduced to 20 or less mg/L. In addition, monitoring has been shifted to nitrogen as the constituent of concern. BOD or CBOD must be reduced significantly below normal secondary treatment standards to meet an ammonia limit of 20 or 30 mg/L. For systems with low frequencies of sampling it is important that simple and effective monitoring is dictated by the rules; CBOD5 or BOD5 will not return reportable values for 7-10 days and are not helpful in adjusting plant operations; whereas, ammonia analysis can be performed on-site as the sample is taken with a hand held instrument.

Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process, all agencies shall conduct a review of whether a proposed rule or rule affects small business.

- (1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

0400-40-06-.06 Land Application

The land application rule is anticipated to benefit small business by enabling continued development in unsewered urban and rule areas that would not otherwise be possible. These rules are also intended to protect public utility districts and future homeowners from unanticipated and hidden costs.

0400-40-06-.07 Animal Feeding Operations

The regulatory standards for Animal Feeding Operations in the proposed rule reflect standards previously housed in 0400-40-05, and mandates of Tennessee Code Annotated section 69-3-108(b)(7)(A)-(C) which reduced the population of animal feeding operations required to obtain permit coverage. No additional expenditures are anticipated to owners of animal feeding operations.

0400-40-06-.09 Collection Systems

The standards proposed in this rule are directly comparable to the industry and regulatory standards that have been used to design, construct, and operate these systems as identified in TDEC's Design Criteria. No additional expenditures are anticipated as a result of this portion of the proposed rule.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

Historically there have been no regulatory standards or design criteria addressing beneficial reuse of reclaimed wastewater in TN. Some utilities already have reuse programs and reuse is expected to become prevalent in many parts of the state in the next 5 to 10 years. Expenditures associated with this portion of the proposed rule will be borne by utilities that incorporate reuse into their wastewater management practices. However, incorporation of reuse will likely be pursued in order to provide more wastewater management capacity which in turn supports continued development and increasing rate-payer base.

- (2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

0400-40-06-.06 Land Application

No additional reporting, recordkeeping or other administrative costs are expected as a result of this proposed rule. The skillset of current administrative staff is expected to be appropriate in support of this proposed rule.

0400-40-06-.07 Animal Feeding Operations

No additional reporting, recordkeeping or other administrative costs are expected as a result of this proposed rule. The skillset of current administrative staff is expected to be appropriate in support of this proposed rule.

0400-40-06-.09 Collection Systems

No additional reporting, recordkeeping or other administrative costs are expected as a result of this proposed rule. The skillset of current administrative staff is expected to be appropriate in support of this proposed rule.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

Adoption of this portion of the proposed rule will require a utility that elects to offer treated wastewater for beneficial reuse to its customers to prepare a Reclaimed Wastewater Management Plan to be submitted with their application and updated with any substantial changes.

The proposed rule also prescribes monitoring and reporting requirements that are specific to the reuse component of the utility's reuse program. These monitoring and reporting requirements are not unlike the monitoring and reporting currently conducted by the utility, therefore while there will be additional monitoring and reporting if the utility elects to incorporate reuse, having a permitted reuse component ultimately benefits the utility and ratepayers.

- (3) A statement of the probable effect on impacted small businesses and consumers.

0400-40-06-.06 Land Application

There is minimal effect on small businesses and consumers anticipated by this portion of the rule change except for the reduction of the hydraulic loading rate in some clay soils. In the event these soils are utilized in support of land application, less volume of wastewater can be managed relative to the values in the historic Design Criteria.

0400-40-06-.07 Animal Feeding Operations

No effect on small businesses and consumers is anticipated in association with this portion of the proposed rule.

0400-40-06-.09 Collection Systems

No effect on small businesses and consumers is anticipated in association with this portion of the proposed rule.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

Adoption of this portion of the proposed rule is anticipated to benefit small businesses and consumers if a utility elects to incorporate reuse into its wastewater management structure. This benefit will be realized through the expanded capacity of the utility. Adoption of a reuse program by a utility will reduce its reliance on stream discharge capacities and/or the purchase of land application areas.

- (4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

0400-40-06-.06 Land Application

Land application of wastewater allows development in areas not served by public sewer, and this practice is inherently less burdensome than not being able to develop or having to fund a "big-pipe" collection system and increase the size of large discharging systems. Land application of wastewater is in fact a less burdensome, less intrusive, less costly alternative to traditional wastewater management. This rule is the least burdensome, least intrusive, and least costly method of ensuring safe and effective implementation of land applications subject to the rule.

0400-40-06-.07 Animal Feeding Operations

The Tennessee Legislature defined the population of animal feeding operations required to obtain permit coverage. Permit coverage of the type established in this rule has been in place for decades and places no additional burden on owners of animal feeding operations. As such, this rule is the least burdensome, least intrusive, and least costly method of achieving the objectives of this rule.

0400-40-06-.09 Collection Systems

Standards pertaining to collection systems have been in practice for years. This rule does not propose standards beyond what is currently in practice. As such, this rule is the least burdensome, least intrusive, and least costly method of achieving the objectives of this rule.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

Adoption and integration of reuse of reclaimed wastewater is an option that a utility may utilize to manage wastewater. These rules only apply if the utility elects to incorporate reuse; therefore, rather than being burdensome, the rules establish standards by which a utility can expand their capacity. The rules do not force utilities to adopt reuse. As such, this rule is the least burdensome, least intrusive, and least costly method of achieving the objectives of this rule.

- (5) A comparison of the proposed rule with any federal or state counterparts.

0400-40-06-.06 Land Application

There is no federal or state counterparts to this program. There is guidance provided from the federal level but there are no federal rules governing land application of wastewater.

0400-40-06-.07 Animal Feeding Operations

Recent legislation in Tennessee reduced the population of animal feeding operations required to obtain permit coverage. The population is however still larger than the population identified through federal rule. With respect to animal feeding operations that discharge wastewater, the Tennessee rules mirror the federal rules.

0400-40-06-.09 Collection Systems

There is no federal or state counterparts to this program.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

There is no federal or state counterparts to this program. There is guidance provided from the federal level but there are no federal rules governing beneficial reuse of reclaimed wastewater. This is an emerging water conservation activity.

- (6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

0400-40-06-.06 Land Application

This proposed rule is not anticipated to effect small businesses. A developer of property where clay soils are being proposed in support of land application of wastewater will not be permitted the same daily flow that the Design Criteria historically supported; however, the very promulgation of these rules allows developers the opportunity to develop as if public sewer were available. Exempting developers (small businesses) from these rules would allow more homes to be constructed resulting in greater flow than the clayey soil in the land application area can support. This scenario would result in enforcement action, potentially resulting in a portion of the created lots not being appropriate for home construction.

0400-40-06-.07 Animal Feeding Operations

This rule reduces the population of animal feeding operations required to obtain permit coverage.

0400-40-06-.09 Collection Systems

Exempting utilities from the requirement to operate under a valid permit would conflict with the TN Water Quality Control Act. Standards for collection systems proposed in this rule are the same as historically

practiced. In fact, collection systems have always been subject to the state's rules; this rule simply brings those standards under a designated rule section.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

Exemption of the utilities electing to incorporate beneficial reuse of reclaimed wastewater from being subject to this rule would result in a patchwork pattern of reuse across the state with some of the variables having direct potential to effect public health. These rules are intended to support beneficial reuse, rather than restrict its use. The effect on small businesses is expected to be minimal, but positive in that additional non-potable water resources would be available to them.

Impact on Local Governments

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228 “any rule proposed to be promulgated shall state in a simple declarative sentence, without additional comments on the merits of the policy of the rules or regulation, whether the rule or regulation may have a projected impact on local governments.” (See Public Chapter Number 1070 (<http://publications.tnsosfiles.com/acts/106/pub/pc1070.pdf>) of the 2010 Session of the General Assembly)

The Board does not anticipate that these new rules will have a financial impact on local governments.

Additional Information Required by Joint Government Operations Committee

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

- (A)** A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

These rules are specific to activities that require permit coverage as identified in the Tennessee Water Quality Control Act. These activities were historically governed through rules that were originally promulgated in support of direct discharging wastewater systems. Systems subject to this rule are non-discharging systems and these activities are permitted through by State Operating Permits. These systems were previously regulated through Rule Chapter 0400-40-05.

0400-40-06-.06 Land Application

This rule is specific to the utilization of soil to treat and manage the return of treated wastewater to the environment. This approach to wastewater management is highly beneficial to the State of Tennessee in that it provides development opportunities in locations not served by public sewer. Permit terms for these systems have largely been based on best professional judgment. Adoption of this rule would enhance transparency and consistency.

0400-40-06-.07 Animal Feeding Operations

This rule is proposed in response to recent state legislation that identified the population of animal feeding operations subject to permit coverage through the State Operating Permit program.

0400-40-06-.09 Collection Systems

This rule allows utilities to operate aspects of their systems that are not subject to federal NPDES permitting standards. Collection systems have always required permit coverage, this rule simply houses these permits in a new chapter specific to State Operating Permits.

0400-40-06-.10 Non-Potable Beneficial Reuse of Reclaimed Wastewater

This rule establishes standards of construction, monitoring and reporting of this component of wastewater management. Utilities that elect to incorporate reuse into their wastewater program will now be subject to a consistent state standard that minimizes the threat to public health and water quality impacts.

- (B)** A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

State Law

T.C.A. § 69-3-105(a)(1) Establishes the Water Quality, Oil, and Gas Board power, duty and responsibility to establish and adopt standards of quality for all waters of the state.

T.C.A. § 69-3-105(b) The board has and shall exercise the power, duty, and responsibility to adopt, modify, repeal, and promulgate, after due notice and enforce rules and regulations that the board deems necessary for the proper administration of this part...

T.C.A. § 69-3-107(g) The commissioner may grant permits authorizing the discharges or activities including, but not limited to, land application of wastewater...

T.C.A. § 69-3-108(b)(3) Any person proposing to construct, install, modify or operate any treatment works must have a valid permit...

T.C.A. § 69-3-108(b)(7) Pertains to animal feeding operations obligated to obtain permit coverage.

T.C.A. § 69-3-108(c) Requires permits for sewerage systems.

- (C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Municipalities that utilize land application as a means of managing wastewater support the promulgation of these rules. Without state rules in place they would be in a position of establishing their own standards for system design, construction and operation.

Developers and home builders in Tennessee opposed the rule as first drafted. Significant modifications were made to the original proposed rule and their perspective is now anticipated to be neutral. This final rule eliminates the key provisions that were the subject of objection, and these will be addressed through guidance as these commenters had requested.

Promulgation of the animal feeding operation component of these rules is a direct outgrowth of recent legislation. Several commenters (non-governmental environmental organizations) were not supportive of the rule governing animal feeding operations because it was reducing the population of operations obligated to obtain permit coverage. However, this change is mandated by statute.

Minimal comments were received regarding the collection system component of the rule. Standards identified in this portion of the rule were already in practice. There are no known entities that are either urging adoption or rejection of this rule.

The beneficial reuse of reclaimed wastewater component of the rule received many comments from concerned utilities, primarily those that already had reuse components as part of their program. Significant revisions were adopted based on feedback received. These rules do not preclude any activity that was currently being conducted by these utilities.

- (D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule or the necessity to promulgate the rule;

The Board is not aware of any.

- (E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars (\$500,000), whichever is less;

No state fee structure is being modified by this rule. No population of permitted activities is being increased. The population of animal feeding operations required to obtain permit coverage is being reduced by this rule; therefore, collected permit fees will be reduced. The impact of this reduction is minimal in that it is less than either 2% of the annual budget or five hundred thousand dollars. Moreover, this change is mandated by statute.

- (F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Britton Dotson
TDEC DWR Environmental Fellow
615-308-0734
Britton.dotson@tn.gov

- (G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Horace Tipton

Legislative Liaison
Office of General Counsel

Stephanie Durman
Senior Associate Counsel
Office of General Counsel

- (H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel
Tennessee Department of Environment and Conservation
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, Tennessee 37243
(615) 253-1965
Horace.Tipton@tn.gov

- (I) Any additional information relevant to the rule proposed for continuation that the committee requests.

Economic Impact Statement [Tenn. Code Ann. § 4-33-104(b)]

- (1) A description of the action proposed, the purpose of the action, the legal authority for the action and the plan for implementing the action.

The action proposed is the adoption of new rules regarding land application, animal feeding operations, collection systems, and non-potable beneficial reuse of reclaimed water. These rules are adopted pursuant to the authority of the Board of Water Quality, Oil and Gas under T.C.A. § 69-3-105(b). These rules are implemented through the rulemaking hearing process and by administrative implementation after the effective date of the rules. The purpose of these rules is to impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to prevent pollution of waters from the operation of non-discharging wastewater systems.

- (2) A determination that the action is the least-cost method for achieving the stated purpose.

This rulemaking is the least-cost method for implementing rules to impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to prevent pollution of waters from the operation of non-discharging wastewater systems.

- (3) A comparison of the cost-benefit relation of the action to nonaction.

Nonaction would not sufficiently prevent pollution of waters from the operation of non-discharging wastewater systems, which outweigh any costs associated with these rules.

- (4) A determination that the action represents the most efficient allocation of public and private resources.

Implementing these rules represents the most efficient allocation of public and private resources.

- (5) A determination of the effect of the action on competition.

These rules are not anticipated to have an impact on competition.

- (6) A determination of the effect of the action on the cost of living in the geographical area in which the action would occur.

These rules are unlikely to impact the cost of living in Tennessee.

- (7) A determination of the effect of the action on employment in the geographical area in which the action would occur.

These rules are unlikely to impact employment in Tennessee.

- (8) The source of revenue to be used for the action.

These rules will be implemented with existing resources.

- (9) A conclusion as to the economic impact upon all persons substantially affected by the action, including an analysis containing a description as to which persons will bear the costs of the action and which persons will benefit directly and indirectly from the action.

Developers would primarily bear the costs of complying with the rules regarding land application systems. However, these costs already apply under local laws. Moreover, these rules would help to prevent costly problems that would later need to be paid for by utility districts and homeowners. Animal feed operators will primarily bear the costs of the rule regarding animal feed operations. Utilities will primarily bear the cost if they elect to incorporate reuse into their wastewater program. The citizens of Tennessee will indirectly benefit from these rules by the prevention of pollution of waters from the operation of non-discharging wastewater systems.

From: [Wade Murphy](#)
To: jenny.nichols@adenus.com
Cc: [Landbased Systems](#); [Elizabeth Rorie](#)
Subject: FW: Updated O&M Inspection Frequency Database
Date: Monday, May 1, 2023 11:46:35 AM
Attachments: [image002.png](#)

Hello Jenny. Thanks for this updated inspection frequency document. I don't know right-off how we file the current one. I'm copying the Land Based Systems Unit's mailbox as well as Beth Rorie who processes incoming mail for that unit. Between they two of them, they'll be able to get this into the file record appropriately.

Kind regards,



Wade D. Murphy | E.I.
Division of Water Resources, Water-Based Systems Unit
William R. Snodgrass TN Tower, 11th Fl
312 Rosa L. Parks Ave 37243
p. 615-532-0666
wade.murphy@tn.gov
tn.gov/environment

Internal Customers: We value your feedback! Please complete our [customer satisfaction survey](#).

External Customers: We value your feedback! Please complete our [customer satisfaction survey](#).

From: Jenny Nichols <jenny.nichols@adenus.com>
Sent: Monday, May 1, 2023 11:35 AM
To: Wade Murphy <Wade.Murphy@tn.gov>
Subject: [EXTERNAL] Updated O&M Inspection Frequency Database

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Hello Mr. Murphy,

My name is Jenny Nichols and I work for Adenus. I have updated the previously submitted O&M inspection frequency for Adenus/Tennessee Wastewater Systems Permit File. Please see attachment. I was not sure if you take care of this or is there someone else, I need to email the updated list to.

Thank you,
Jenny



UTILITIES GROUP

Jenny Nichols

Quality Control Technologist

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615-220-7200

Middle Tennessee Permit List

Permit Number	Permittee Name	County	EFO Office	Monthly Visit >5k/day	Quarterly Visit <5 K/day
SOP-00011	Tennessee Wastewater Systems, Inc. - Harbor Pointe	DeKalb	Cookeville		x
SOP-00035	Olive Branch Missionary Baptist Church	Davidson	Nashville		x
SOP-01004	Water & Wastewater Authority of Wilson County - Richmond Subdivision	Wilson	Nashville		x
SOP-01006	Tennessee Wastewater Systems, Inc. - Dyers Hollow Treatment Facility	Stewart	Nashville		x
SOP-01017	Tennessee Wastewater Systems, Inc. - Herndon's Bluegrass Market	Robertson	Nashville	x	
SOP-01023	Water & Wastewater Authority of Wilson County - Poplar Ridge Subdivision	Wilson	Nashville		x
SOP-01025	Tennessee Wastewater Systems, Inc. - Hoffman Subdivision	DeKalb	Cookeville		x
SOP-01026	Tennessee Wastewater Systems, Inc. - K & J Market	Hickman	Columbia		x
SOP-01027	Tennessee Wastewater Systems, Inc. - Saddle Brooke	Williamson	Nashville		x
SOP-01028	Tennessee Wastewater Systems, Inc. - Maple Green Reclamation Facility	Robertson	Nashville	x	
SOP-01029	Tennessee Wastewater Systems, Inc. - Pebble Brook Golf Course	Robertson	Nashville	x	
SOP-01048	Tennessee Wastewater Systems, Inc. - Horseshoe Bend Condominiums	Bedford	Columbia	x	
SOP-02011	Tennessee Wastewater Systems, Inc. - Bolton-Williamson Treatment Facility	Williamson	Nashville	x	
SOP-02014	Tennessee Wastewater Systems, Inc. - Muddy Branch Reclamation Facility	Montgomery	Nashville	Not built	
SOP-02020	Tennessee Wastewater Systems, Inc. - Cedar Hill Baptist Church	Robertson	Nashville		x
SOP-02021	Tennessee Wastewater Systems, Inc. - McLemore Farms	Williamson	Nashville	x	
SOP-02027	Water & Wastewater Authority of Wilson County - Vulcan 231	Wilson	Nashville		x
SOP-02028	Water & Wastewater Authority of Wilson County - Lake Forrest-Saundersville	Wilson	Nashville	x	
SOP-02036	Tennessee Wastewater Systems, Inc. - Southridge Estates Subdivision	Montgomery	Nashville	x	
SOP-02048	Maury County Board of Education - Culleoka School	Maury	Columbia	x	
SOP-02051	Water & Wastewater Authority of Wilson County - Clay Estates	Wilson	Nashville	x	
SOP-02061	Tennessee Wastewater Systems, Inc. - Highland Cove	DeKalb	Cookeville	x	
SOP-03009	Water & Wastewater Authority of Wilson County - Ridgewater Estates	Wilson	Nashville	x	
SOP-03015	Tennessee Wastewater Systems, Inc. - Sunnybrook Farms	Robertson	Nashville	x	
SOP-03018	Tennessee Wastewater Systems, Inc. - Boswell Road Facility	Franklin	Columbia	x	
SOP-03022	Tennessee Wastewater Systems, Inc. - Paris Landing	Henry	Jackson	x	
SOP-03026	Water & Wastewater Authority of Wilson County - Lester-Burton Treatment Facility	Wilson	Nashville		x
SOP-03038	Tennessee Wastewater Systems, Inc. - Millview Treatment Facility	Williamson	Nashville	x	
SOP-03050	Water & Wastewater Authority of Wilson County - Walker Hill Treatment Facility	Wilson	Nashville	x	
SOP-04007	Water & Wastewater Authority of Wilson County - Fall Creek Estates Treatment Facility	Wilson	Nashville	x	
SOP-04014	Water & Wastewater Authority of Wilson County - Academy Road	Wilson	Nashville	x	
SOP-04015	Water & Wastewater Authority of Wilson County - Cedar Grove Facility	Wilson	Nashville	x	
SOP-04022	Tennessee Wastewater Systems, Inc. - Deshea Creek	Sumner	Nashville		x
SOP-04029	Deer Run Retreat Center	Williamson	Nashville		x
SOP-04039	Water & Wastewater Authority of Wilson County - CME Church Williamson Chapel	Wilson	Nashville		x
SOP-04040	Tennessee Wastewater Systems, Inc. - The Highlands	Fentress	Cookeville		x
SOP-04043	Water & Wastewater Authority of Wilson County - B.W. Bates Treatment Facility	Wilson	Nashville	x	
SOP-04044	Water & Wastewater Authority of Wilson County - Cairo Bend	Wilson	Nashville	x	
SOP-04051	Tennessee Wastewater Systems, Inc. - Huffines	Robertson	Nashville	x	
SOP-04057	Water & Wastewater Authority of Wilson County - Moccasin Treatment Facility	Wilson	Nashville	x	
SOP-04060	Water & Wastewater Authority of Wilson County - Hickory Isles	Wilson	Nashville	x	
SOP-05008	Water & Wastewater Authority of Wilson County - Mann Road	Wilson	Nashville		x
SOP-05018	Water & Wastewater Authority of Wilson County - Breckenridge Subdivision	Wilson	Nashville		x
SOP-05019	Water & Wastewater Authority of Wilson County - Sunset Harbor Treatment Facility	Wilson	Nashville	x	
SOP-05030	Tennessee Wastewater Systems, Inc. - Fanning Bend Treatment Facility	Franklin	Columbia		x
SOP-05032	Tennessee Wastewater Systems, Inc. - Blackberry Ridge Treatment Facility	Bedford	Columbia	not in operation	
SOP-05036	Tennessee Wastewater Systems, Inc. - Eudaley Treatment Facility	Williamson	Nashville	x	
SOP-05039	Tennessee Wastewater Systems, Inc. - Cedar Hill Treatment Facility	Robertson	Nashville	x	
SOP-05057	Tennessee Wastewater Systems, Inc. - Cross Plains Treatment Facility	Robertson	Nashville	x	
SOP-05067	Tennessee Wastewater Systems, Inc. - River's Edge Phase II	Decatur	Jackson		x
SOP-05069	Tennessee Wastewater Systems, Inc. - Arno Page Treatment Facility	Williamson	Nashville	x	
SOP-05074	Water & Wastewater Authority of Wilson County - Sugar Flat-Ramsey Treatment Facility	Wilson	Nashville		x
SOP-06055	Water & Wastewater Authority of Wilson County - Legends Ridge Treatment Facility	Wilson	Nashville	x	
SOP-06065	Tennessee Wastewater Systems, Inc. - Preserve Treatment Facility	DeKalb	Cookeville		x
SOP-07015	Tennessee Wastewater Systems, Inc. - Clovercroft Treatment Facility	Williamson	Nashville	x	
SOP-07024	Water & Wastewater Authority of Wilson County - Summitt Treatment Facility	Wilson	Nashville		x
SOP-07057	TN Wastewater Systems - Mountain Folks Community	Sevier	Knoxville	not built	
SOP-07059	Tennessee Wastewater Systems, Inc. - Clarkrange Treatment Facility	Fentress	Cookeville	not built	
SOP-07076	Water & Wastewater Authority of Wilson County - Bartons Creek Treatment Facility	Wilson	Nashville	X	
SOP-07082	Tennessee Wastewater Systems, Inc. - Roark Cove Treatment Facility	Franklin	Columbia	not built	
SOP-08010	Bedford County Board of Education - Community High School Treatment Facility	Bedford	Columbia	x	
SOP-08015	Tennessee Wastewater Systems, Inc. - Awalt Road Treatment Facility	Franklin	Columbia		
SOP-08045	Tennessee Wastewater Systems, Inc. - Washington Road Treatment Facility	Robertson	Nashville	not built	
SOP-08066	Water & Wastewater Authority of Wilson County - Northgate Business Park Treatment Facility	Wilson	Nashville		x
SOP-11014	Tennessee Wastewater Systems, Inc.-Meadowland Subdivision Section II	Montgomery	Nashville		x
SOP-11020	Tennessee Wastewater Systems, Inc.-The Bluff at Bradbury Farms	Montgomery	Nashville	x	
SOP-13026	Tennessee Wastewater Systems, Inc.-Clovercroft Acres S/D	Williamson	Nashville	x	
SOP-14010	Tennessee Wastewater Systems, Inc.-Clovercroft Wells TF	Williamson	Nashville	x	
SOP-15007	Tennessee Wastewater Systems, Inc.-Clovercroft Lookaway TF	Williamson	Nashville	x	
SOP-15015	Tennessee Wastewater Systems, Inc.-Nolensville-Dove Lake TF	Williamson	Nashville	X	
SOP-15026	Water and Wastewater Authority of Wilson County -Blackberry TF	Wilson	Nashville	x	
SOP-17001	Tennessee Wastewater Systems, Inc.-Cox Ladd Arrington Ridge	Williamson	Nashville	X	
SOP-18019	Water & Wastewater Authority of Wilson County-Horn Springs	Wilson	Nashville	x	
SOP-18020	Water & Wastewater Authority of Wilson County-Majors Landing	Wilson	Nashville	x	
SOP-18024	Tennessee Wastewater Systems, Inc.-Warrioto Hills	Montgomery	Nashville	x	
SOP-18033	Tennessee Wastewater Systems, Inc.-Calista/Chelsea Way	Robertson	Nashville	x	
SOP-96025	Lojac Enterprises, Inc. - River Road Asphalt Plant	Davidson	Nashville		x
SOP-96032	Open Arms Care Corporation - Cane Ridge Road	Davidson	Nashville		x
SOP-96035	Tennessee Wastewater Systems, Inc. - Oakwood Subdivision	Maury	Columbia	x	
SOP-97007	Robertson County Board of Education - Krisle Elementary School	Robertson	Nashville	x	
SOP-97009	Rebound Care Corporation - Burkett Road	Davidson	Nashville		x

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SOP-97025	Green Hill Development Group - Food Lion Center	Montgomery	Nashville		x
SOP-98022	Water & Wastewater Authority of Wilson County - Wilson Bank And Trust - Gladeville Office	Wilson	Nashville		x
SOP-98039	Water & Wastewater Authority of Wilson County - Wilson Water and Wastewater Authority	Wilson	Nashville		x
SOP-98041	Tennessee Wastewater Systems, Inc. - Lewis Gardens Subdivision	Williamson	Nashville	x	
SOP-98049	Water & Wastewater Authority of Wilson County - Tucker's Crossroads School	Wilson	Nashville	x	
SOP-99022	Tennessee Wastewater Systems, Inc. - Cornerstone of Mitchell Creek	Overton	Cookeville		x
SOP-99036	Water & Wastewater Authority of Wilson County - Tinnell Valley Subdivision	Wilson	Nashville	x	
SOP-99037	Water & Wastewater Authority of Wilson County - Couchville Pike STP	Wilson	Nashville	x	
SOP-99038	Water & Wastewater Authority of Wilson County - Logue Road STP	Wilson	Nashville	x	
NPDES-TN0074764	Tennessee Wastewater Systems, Inc. - River Road STP	Davidson	Nashville	x	
NPDES-TN0024716	Water & Wastewater Authority of Wilson County - Lakeview Elementary School	Wilson	Nashville	x	
SOP-20003	Tennessee Wastewater Systems, Inc.- Long Lane TF	Williamson	Nashville	x	
SOP-19020	Tennessee Wastewater Systems, Inc.- Daventry	Williamson	Nashville	x	

EAST TENNESSEE Permit List

Permit Number	Permittee Name	County	EFO Office	Monthly Visit >5k/day	Quarterly Visit <5 K/day
SOP-00018	TWS - Eagle Crest Resorts	Sevier	Knoxville	x	
SOP-00019	TWS - Starr Crest I Resort	Sevier	Knoxville	x	
SOP-00068	TWS - Hidden Springs Resort	Sevier	Knoxville	x	
SOP-01009	TWS - Jackson Bend Subdivision	Blount	Knoxville	x	
SOP-01024	TWS - Browning Subdivision	Knox	Knoxville	x	
SOP-01033	TWS - Starr Crest II Resorts	Sevier	Knoxville	x	
SOP-02023	TWS - Falling Waters	Sevier	Knoxville	x	
SOP-02049	TWS - The Highlands Chalet resort	Sevier	Knoxville	x	
SOP-03002	TWS - Black Bear Ridge Resort	Sevier	Knoxville	x	
SOP-03021	TWS - Smoky Cove Subdivision	Sevier	Knoxville	x	
SOP-03031	TWS - Turner's Landing Subdivision	Hamblen	Knoxville	x	
SOP-03042	TWS - Eagle Crest Resort	Sevier	Knoxville	x	
SOP-03056	TWS - Brownlee Commercial Building	Blount	Knoxville	x	
SOP-04004	TWS - Legacy Mountain East	Sevier	Knoxville	x	
SOP-04025	TWS - Timber Tops Rental Center	Sevier	Knoxville	x	
SOP-04045	TWS -Legacy Preserve #1 Resort Subdivision	Sevier	Knoxville	x	
SOP-04047	TWS -Wyndsong Subdivision	Blount	Knoxville	x	
SOP-04065	TWS -Trillium Cove Development	Blount	Knoxville	x	
SOP-05003	TWS -Wears Valley Branch	Sevier	Knoxville	x	
SOP-05025	TWS -Grainger's Landing Condominiums	Grainger	Knoxville	x	
SOP-05033	TWS -Smoky Village Subdivision	Sevier	Knoxville	x	
SOP-05043	TWS -King Branch Road Wastewater Facility	Sevier	Knoxville	x	
SOP-05045	TWS -German Creek Resort	Grainger	Knoxville	x	
SOP-05051	TWS -Brigadoon Resort	Roane	Knoxville	x	
SOP-05070	TWS -Elk Springs Resort	Sevier	Knoxville	x	
SOP-05071	TWS -Lowes Ferry Landing	Blount	Knoxville	x	
SOP-05072	TWS -Sugar Loaf Ridge	Sevier	Knoxville	x	
SOP-05077	TWS -Black Bear Ridge Resort #2	Sevier	Knoxville	x	
SOP-06033	TWS -Griffitts Mill Subdivision	Blount	Knoxville	x	
SOP-06035	TWS -Summit View Resort	Sevier	Knoxville	x	
SOP-06038	TWS -Settler's Ridge Resort	Sevier	Knoxville	x	
SOP-06053	TWS -Piney Bay Subdivision	Rhea	Chattanooga	x	
SOP-07001	TWS -Villages at Norris Lake	Campbell	Knoxville	not built	
SOP-07003	TWS -The Reserve on the Tennessee River	Blount	Knoxville	x	
SOP-07021	TWS -Norton Creek - Hickory Gap STP	Sevier	Knoxville	x	
SOP-07047	TWS -Hidden Springs Resort Wastewater System #2	Sevier	Knoxville	x	
SOP-07055	TWS -Greenbriar Subdivision Wastewater System	Sevier	Knoxville	not built	
SOP-07057	TN Wastewater Systems - Mountain Folks Community	Sevier	Knoxville	not built	
SOP-08048	TN Wastewater Systems - Lakeside Meadows	Monroe	Knoxville	x	
SOP-98033	TWS -Swan Harbour Subdivision	Roane	Knoxville	x	
SOP-98050	TWS -Windsor Pointe Subdivision	Campbell	Knoxville	x	
SOP-99016	TWS -Townsend Town Square	Blount	Knoxville	x	
SOP-99024	TWS -Tall Oak Subdivision	Blount	Knoxville	x	