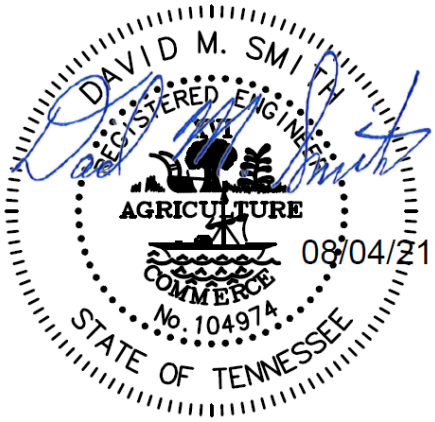
CORRECTIVE ACTION PLAN/ENGINEERING REPORT (CAP/ER)

FOR THE
TOWN OF ALAMO, TENNESSEE

IN RESPONSE TO
TDEC – DIVISION OF WATER RESOURCES
DIRECTOR'S ORDER CASE NO. WPC21-0023



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Introduction

The Town of Alamo received Director's Order and Assessment WPC21-0023 from the Tennessee Department of Environment and Conservation (TDEC), Division of Water Resources for violations of the Town's NPDES Permit. More than half of the violations were exceedances of the ammonia nitrogen limit.

One of the requirements of the Order is for the Town to provide a Corrective Action Plan/ Engineering Report for addressing the violations and providing corrective steps with a schedule. The purpose of this document is to summarize the findings of the Order, present planned corrective actions, and to provide an implementation schedule for the planned corrective actions.

Summary of Director's Order and Assessment

The Director's Order identifies the following facts:

- The Town of Alamo operates a wastewater treatment plant (WWTP) with an NPDES Permit identification of TN0024988. The permit to discharge treated wastewater is typically a five year permit; however, the current permit for Alamo is a four year permit, effective August 1, 2018, and expiring July 31, 2022.
- As part of the permit requirements, the Town of Alamo submits monthly operating data to TDEC.
- From the time period of October 2019 through March 2021 (18 months), there were 67 exceedances of various permit limits.

Due to those exceedances, the Order and Assessment was issued. Almost half of the exceedances were due to exceeding the Ammonia Nitrogen permit limit, while nearly as many were due to exceeding the BOD limit. Exceeding the BOD limit indicates that the treatment plant is not processing organic material to the level needed to be within permit limits.

The Ammonia Nitrogen and BOD exceedances account for 51 of the 67 exceedances. This indicates that the plant is challenged to consistently treat wastewater to the level needed. There are multiple causes for this; one of the chief ones is the significant infiltration and inflow issue within the Town of Alamo wastewater collection system. The collection system allows in a significant amount of rainwater, which overloads the wastewater treatment plant, reducing its ability to adequately treat wastewater to the permit limits. One of the other causes of exceedances is the limits of the permit itself. Due to the permit standards for discharging into an unnamed tributary to Buck Creek, there is little margin for error in operational efficiencies.

Planned Corrective Actions

The Town of Alamo recognizes the need to implement corrective actions to bring the wastewater treatment plant into compliance with the existing permit limits. Following are the planned activities.

Operational Adjustments

The Town of Alamo recognizes that one corrective action is to adjust the operations of the existing facility to optimize the process units available. Since October 2019, the Town has

replaced the wastewater treatment plant operator and the current operator is utilizing TAUD and MTAS resources for tweaking the plant performance. The operator has already implemented multiple adjustments to how the plant functions.

Infiltration and Inflow Reduction

The chief cause of upsets within the existing wastewater treatment plant is the significant amount of infiltration and inflow of rainwater. During 2020, the Town of Alamo engaged TREKK Design Group to inspect and assess portions of the wastewater collection system, identifying areas of higher priority for repair. The Town of Alamo is using a significant portion of an existing Community Development Block Grant (CDBG) for infiltration and inflow reduction through lining of a portion of the existing sewer system, addressing the areas identified in the TREKK study.

The CDBG plans have been submitted to the State of Tennessee ECD for review and concurrence. Once approved, the plans will be bid and construction will occur. It is anticipated that this work will be complete by May 2022.

Construction of a Second Clarifier

The existing wastewater treatment plant has only one secondary clarifier, a clear limitation to operational flexibility and redundancy. The Town has recognized this and is using a portion of their current CDBG for the design and construction of a second clarifier. The inclusion of a second clarifier will allow for the plant to be able to handle the higher storm flows and still provide acceptable settling rates. The design is complete and the plans have been submitted to the State of Tennessee ECD for review and concurrence. Once approved, the plans will be bid and construction will occur. It is anticipated that this work will be complete by May 2022.

Additional Infiltration and Inflow Study and Corrective Action

Once the initial infiltration and inflow work is complete, the Town then will monitor and assess the remaining magnitude of infiltration and inflow within the wastewater system and will determine the areas of the wastewater collection system that require additional investigation.

Once the high priority areas are identified, the Town of Alamo will retain a firm to perform cleaning and video inspection services to assess the issues and further refine the next infiltration and inflow repair project.

The Town will have the flow monitoring performed in 2022 and then have the cleaning and inspection services in 2023.

Investigation into Seasonal Spray Irrigation

One of the issues with long term compliance with the existing NPDES permit is the fact that the plant discharges to a small, unnamed tributary. It has been previously suggested by TDEC that the Town consider transitioning to spray irrigation for disposal of treated wastewater. The use of spray irrigation for disposal would eliminate the loading of treated wastewater to the unnamed tributary during applicable time periods.

The Town will investigate the opportunity for the addition of spray irrigation disposal as a seasonal wastewater disposal, with the intent that the existing discharge be utilized during the wetter months. With the current permit expiring in July 2022, it is proposed to work the permit renewal and spray irrigation disposal permitting efforts in parallel.

Corrective Action Implementation Schedule

Following is the proposed implementation schedule for the corrective actions.

Infiltration and Inflow Reduction - Initial wastewater collection system investigation and determination of repair needs	• *Completed January 2021*
Infiltration and Inflow Reduction – Rehabilitation of wastewater collection system – CDBG project	• Design is complete • Construction Anticipated *October 2021 – May 2022*
Construction of a Second Clarifier – Design and construction of a second clarifier	• Design is complete • Construction Anticipated *October 2021 – May 2022*
Additional Infiltration and Inflow Study and Corrective Action – Wastewater collection system infiltration and inflow study	• Flow monitoring – *May 2022 through December 2022* • Cleaning and Inspection – *first half 2023*
Investigation into Seasonal Spray Irrigation – Siting and permitting of seasonal spray irrigation	• Preliminary siting discussion with TDEC – *fall 2021* • Soil percolation investigations – *spring 2022* • Permit application for spray irrigation – *summer 2022* • Construction Plans for spray irrigation – *2023* • Construction of spray field - *2024*

The schedule for the various construction projects is dependent on the ability of the Town of Alamo to obtain grant funding for the projects

Conclusion

The Town of Alamo recognizes that improvements to the processes of collection and treatment of wastewater must be made to be in compliance with the Town's NPDES permit. The Town has already committed funds for investigation of the collection system, repair of portions of the collection system, and construction of a second clarifier at the wastewater treatment plant for the purpose of achieving compliance with the permit.

The Town believes that the proposed corrective actions will obtain compliance with the current NPDES permit limits and proposes to implement these actions as per the presented schedule.