



STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL**

Office of the
Secretary

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**SECRETARY'S ENVIRONMENTAL ASSESSMENT REPORT
FOR A COASTAL ZONE ACT PERMIT APPLICATION**

Re: Wandendale Regional Wastewater Treatment and Disposal Facility

April 2010

Introduction

As required by the "Regulations Governing Delaware's Coastal Zone" (Section H.3 [d]) dated May 11, 1999, and amended October 1, 2001, the Secretary is required to make an environmental assessment of the impact(s) of the project on the Coastal Zone of Delaware. This is done by evaluating the project's likely impact on the statutory criteria and making a preliminary determination of the sufficiency of the Offset Proposal. The following is such an environmental assessment of the proposed project described in an application for a Coastal Zone Act (CZA) Permit, received from Wandendale Regional Wastewater Treatment and Disposal Facility.

The fact that DNREC considers an application to be preliminarily, administratively complete does not constitute the Department's position as to whether the application should be approved or denied. That decision will not be made until after the public hearing. The purpose of the Secretary's written assessment is to assist the applicant and the public to focus on issues presented in the application. It constitutes an administrative determination that the application is sufficient to proceed to a public hearing. In addition, should the Department eventually issue the CZA Permit, it does not automatically guarantee the applicant will receive other required permits.

The Proposed Project

Tidewater Environmental Services Inc. is seeking a permit to construct and operate a regional wastewater treatment and disposal facility on four parcels in the vicinity of State Route 24 and Camp Arrowhead Road, south of Love Creek in Sussex County, Delaware; three of the four parcels are in the Coastal Zone.

According to the application, the privately owned facility named the "Wandendale Regional Wastewater Treatment and Disposal Facility" will have the capacity, after complete build-out, to treat a maximum of three (3) million gallons per day of residential/domestic wastewater. The wastewater will be treated using membrane bio-reactor treatment technology with rapid infiltration basins and spray irrigation to recharge the aquifer.

Sufficiency Statement

This application for a CZA Permit, including supplemental information, has been reviewed by the Department to determine its completeness. After a thorough review of the company's application and file, the Department considers this application to be administratively complete and sufficient for proceeding to public hearing.

Environmental Assessment

The principal contaminants of concern in this application are nitrogen and phosphorus concentrations in the wastewater following the membrane bioreactor treatment. Concentrations are as shown in the charts below in the offsets discussion. Other environmental impacts, according to the application, are minimal, with no air emissions, minimal on-site employee sanitary wastewater, and no discharges to surface waters. Similarly, there will be no stormwater discharges to surface waters; best management practices using ponds, bioretention facilities, infiltration trenches, biofiltration swales, and filter strips will be used to minimize impacts to surface waters. Water supply will be furnished in the form of an onsite well in accordance with DNREC, Office of Drinking Water (ODW), and State Fire Marshal regulations.

There will be some incidental solid waste generated from packaging materials such as boxes, paper wrappers and office and laboratory supplies. Approximately 8,000 pounds per day of biosolids will be generated from the treatment process at build out capacity; they will be transported to a disposal site outside of the Coastal Zone. There will be no loss of, or impacts to, wetlands.

Approximately 10 acres of forest will be cleared to construct the treatment facility and RIBs, but this will be more than offset by the addition of trees and shrubs as part of the new landscaping to be installed in the various designated buffer areas.

As proposed and as reviewed by DNREC's Watershed Assessment Section, the Wandendale wastewater facility will meet the applicable provisions of the Inland Bays Pollution Control Strategy (PCS). The facility will be designed to achieve Performance Standard Nitrogen Level 1 and will eliminate existing onsite wastewater treatment and disposal systems in its service area. In addition, water features on the parcel to which the regulations apply will be buffered.

Tidewater has submitted a Preliminary Ground Water Impact Assessment to DNREC's Ground Water Discharges Section; that assessment is undergoing rigorous scrutiny in preparation for the company's wastewater permit application. An application for a wastewater permit has not yet been received; however, the applicant has provided the necessary technical information to review this Coastal Zone application and has been notified that under Section I(1)(f) of the Regulations no Coastal Zone permit can be issued until an administratively complete application has been received by the Division of Water Resources.

Offset Proposal

After several meetings with DNREC technical and Coastal Zone Act administration staff, Tidewater submitted a revised application and offset proposal dated March 19, 2010. As in its previous proposal, Tidewater states that the facility, at full build-out of three (3) million gallons a day, will provide service to 8,400 new connections or Equivalent Dwelling Units (EDUs) and allow for elimination of 1,600 existing on-site septic systems.

Tidewater asserts that the PCS, by virtue of its requirement to reduce total nitrogen (TN) and total phosphorous (TP) in the wastewater to less than **5 and 0.5 mg/liter**, respectively, will result in a net improvement in wastewater discharges in the Coastal Zone. Our experts in DNREC agree that the membrane bioreactor system can treat to the required PCS limits or better. Considering the expected concentration of nutrients in the discharge from any standard individual wastewater treatment system or community system as detailed below, the discharge concentration coming from this project will be a significant improvement over any discharge from new or replacement septic systems.

According to the PCS, the effluent from an existing, well functioning small onsite wastewater treatment and disposal system (OWTDS) – i.e., an individual septic system – is **50 and 15.7 mg/l TN and TP**, respectively. Under current DNREC regulations, any new or replacement small system must meet a treatment standard of **20 mg/l** for nitrogen in the Inland Bays.

Also according to the PCS, any large (>20,000 gallons per day) OWTDS – e.g., a so-called “community” disposal system – must meet a standard of **10 mg/l TN and 3.9 mg/l TP** if in an area with high phosphorous mobility potential.

Type of system	Inland Bays PCS treatment standard	Wandendale TN, TP treatment standard	Improvement
Large OWTDS (flow >20,000 gpd) – typical “community” system	10 mg/l TN and 3.9 mg/l TP	5 mg/l TN and 0.5 mg/l TP	2x nitrogen 7.8x phosphorous
Large OWTDS (flow 2,500 to 20,000 gpd) – serves apartment buildings, strip malls, etc.	10 mg/l TN and 7.85 mg/l TP for new systems and 20 mg/l TN for replacement systems	5 mg/l TN and 0.5 mg/l TP	2x nitrogen 15.7x phosphorous
New, replacement or innovative small OWTDS 2,500 gpd or less – individual onsite system	20 mg/l TN	5 mg/l TN and 0.5 mg/l TP	4x nitrogen
Existing small OWTDS (individual onsite system)	50 mg/l TP and 15.7 mg/l TN	5 mg/l TN and 0.5 mg/l TP	10x nitrogen 31.4x phosphorous

In addition, Tidewater notes that the site consists of three previously identified parcels located within Delaware’s Coastal Zone. Information on fertilizer application rates from 2003 through 2008 determined that the average annual nitrogen and phosphorous loading rate on the farmed parcels was 11,610 pounds and 6,690 pounds, respectively. Portions of these parcels will be leased to Tidewater for the treatment and disposal of wastewater. Tidewater estimates that the TN and TP reduction caused by taking 25.3 acres of farm field out of service based on historical commercial fertilizer application rates is estimated to be approximately **1,916 and 981 pounds per year**, respectively.

Tidewater also proposes to surround all spray irrigation areas with buffer zones ranging in width from 50 to 200 feet. The PCS recommends the planting of additional buffers for nutrient reduction and protection of the bays. Using DNREC’s Nutrient Loading Assessment Protocol Worksheet, an additional nitrogen and phosphorous offset of **843 and 37 pounds per year** will be achieved by the proposed buffers.

The Regulations Governing Delaware's Coastal Zone state that offset proposals "must more than offset the negative environmental impacts associated with the proposed project or activity requiring a permit. It is the responsibility of the applicant to choose an offset project that is clearly and demonstrably more beneficial to the environment in the Coastal Zone than the harm done by the negative environmental impacts associated with the permitting activities themselves."

In this case, the Wandendale facility will treat effluent from residential development to Total Nitrogen and Phosphorus standards that are, under any build-out scenario, more protective of water quality than discharge rates from systems it is designed to replace, thereby satisfying the offset requirements under the regulations.

Applicants are normally required to provide an offset of 1.3 times their environmental impact, or greater. The stated improvements in the chart above indicate that standard is more than achieved. In addition to the PCS treatment standard, additional offsets of removing farmland from fertilizer application and planting buffers around all spray irrigation areas are noted. The project exceeds the regulatory offset requirement.

Conclusion

The company's application is preliminarily administratively complete.

Approved:



Collin P. O'Mara
Secretary

Date:

4/23/10