



**Tennessee Department of Environment and Conservation (TDEC)
Division of Water Resources (DWR)
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Permit Issuance Rationale
Including
Record of Comments and Responses
(Notice of Determination)

Tosh Farms – Martin, Notice of Determination

Permit No. TN0078620

Administrative Record

The permit renewal application for Tosh Farms – Martin was approved by the Tennessee Department of Agriculture on August 20, 2019. Subsequently, a draft NPDES permit was developed and placed on public notice by the Division of Water Resources on September 24, 2019. The public comments we received regarding the draft permit are summarized below, along with the division’s responses.

Comments received and responses

1. **Comment:** *The permit should instruct the permittee to conduct a subsurface investigation to determine the water table, and to monitor groundwater for pollutants if there is a danger of seepage.*

TDEC has both the authority and the duty to ensure that CAFO NPDES permits are sufficiently protective of the waters of the state. Permits authorizing CAFOs “shall impose such conditions, including effluent standards and conditions and terms of periodic review, as are necessary to accomplish the purposes of this part, and as are not inconsistent with the regulations promulgated by the board.” For example, as part of its exercise of best professional judgment, TDEC could require groundwater monitoring as a permit condition.

The August 2018 Inspection Findings Letter indicates that “[t]wo new deep pit barns were constructed at the facility in 2015,” and that all manure generated at the facility is now stored in those deep pit barns. Per TDEC regulations, a subsurface investigation is required for any new “earthen holding pond, pit,

sump, treatment lagoon, or other earthen storage/containment structure.” This should include “a detailed soils investigation with special attention to the water table depth and seepage potential.” On January 21, 2014, TDEC noted that the submitted application, which indicated the planned construction of these barns, required a subsurface investigation. However, the revised application did not seem to include the subsurface evaluation.

Since these barns are already constructed, it would be appropriate to require the permit applicant to either conduct an investigation or to require groundwater monitoring, in order to ensure that the manure storage pits do not cause pollutants to enter groundwater. A permit may contain “any special terms or conditions the Commissioner determines are necessary to fulfill the purposes or enforce the provisions of [the Water Quality Control Act.]” Protecting groundwater in Weakley County is particularly important, because the communities there, including Martin, depend on groundwater as a drinking water supply.

Response: Rule 0400-40-05-.14(f) specifies that structure suitability must be a component of the design of earthen containment structures. The rules also expect a geological investigation to demonstrate suitable structural characteristics for those earthen storage structures. The under barn manure storage for this facility does not rely exclusively on the structural characteristics of the local geology for structural integrity since it is constructed of concrete. Since the rule specifically references earthen containment structures the division has historically not required a subsurface investigation to support concrete under barn storage structures.

The division does not have the authority to require groundwater monitoring for this operation. If a discharge of pollutants were to occur, sampling and analysis would be required per the permit. If it were to be determined at that time that groundwater monitoring is warranted, the division could pursue that via the appropriate legal mechanism.

Comment: *The permit’s language preventing land application of waste in inappropriate conditions should be strengthened.*

Section 1.2.3 of the Draft Permit states that “[t]he operator shall not land apply nutrients to frozen, flooded, or saturated soils when the potential for runoff is high.” This formulation gives too much discretion to the operator; if the soil is frozen, flooded, or saturated, then the potential for runoff is sufficiently high to prohibit land application. The operator should be required to inspect the land to which the waste will be applied at most 24 hours before land application, in order to ensure this condition is being met. Additionally, the operator should be prohibited from land application if precipitation is forecast within 48 hours of the time of application.

Increased attention to preventing surface runoff is necessary, because the watershed in which this facility is located is already burdened by CAFO and agriculture-related pollution. The Draft Permit lists the facility’s nearby receiving

water as “wet weather conveyance to tributary to North Fork Obion River.” Per the Division of Water Resources Public Data Viewer, the tributary closest to the facility has not been assessed. However, the section of the North Fork Obion River that this tributary drains to is impaired by E. coli, with “source unknown.” Additionally, watersheds throughout the Mississippi River Basin, including the North Fork Obion River watershed, are experiencing significant problems resulting from nutrient pollution.

Wet weather conveyances must be “protective of humans and wildlife that may come in contact with them and shall not adversely affect the quality of downstream waters,” and “[a]pplicable water quality standards will be maintained downstream of wet weather conveyances.” TDEC should evaluate the status of the tributary to the North Fork Obion River, as well as the wet weather conveyance, to determine whether they are impaired for nutrients or pathogens.

Some protective measures, such as prohibiting land application at times when runoff is more likely, should be required as a simple preventative measure even before such assessment. Other measures, such as increased setback distances or increased vegetative buffers, should also be considered after taking into account the water quality status of the receiving waters. Although the Draft Permit states that application of manure, litter, and process wastewater may not be applied closer than 100 feet to down-gradient surface waters (unless vegetated buffers or other equally protective measures are used), this is simply the regulatory minimum. TDEC has the authority and responsibility to require other management practices if necessary to protect water quality.

Response: Division rules will only allow the enforcement of minimum buffer distances of 100 feet from down gradient surface waters, or of 35 feet from a vegetated buffer, or 60 feet from a natural riparian buffer. The division does not have the authority to require distances beyond these. However, additional BMPs are typically included within nutrient management plans to protect water quality during land application events.

Land application of manure is not allowed to occur when the likelihood of runoff is high (e.g., within 24 hours of a rainfall event, or when the ground is saturated or frozen, etc.). While the division is unable to explicitly require an inspection by the permittee 24 hours prior via documentation, we are able to require the dates and locations that manure was applied; including the weather conditions at the time of application, as well as 24 hours before and afterward. These records are reviewed by division staff during routine inspections of the operation.

Comment: *TDEC should consider whether the permit should also require regular inspections and other measures to prevent manure foaming within the deep pit storage units.*

Foam formation in deep pit swine manure storage structures appears to be a growing concern in the pork industry. This foam “has the capacity to trap gases produced by the anaerobic decomposition of manure, leading to dangerous flammable gas concentrations upon agitation or foam disturbance,” which has caused flash fires and explosion at several swine facilities. These fires have caused worker injuries, pig deaths, and extensive building damage.

The causes of foam formation do not seem to be clearly understood. However, weekly visual inspections for the deep pit storage structures, proper ventilation of the barns, eliminating sparks, maintaining at least 12 inches of headspace above the manure, and proper safety measures when agitating and pumping manure have all been suggested as methods of reducing the risk of foaming. TDEC should consider adding some of these requirements into the permit terms for this facility, and other facilities using this type of manure storage system.

Response: Weekly inspections, noting manure levels, are a permit requirement. However, the division does not have the authority to require any information beyond that regarding the issue of foaming.

Determination

The division's decision on this matter is to proceed with the reissuance of this NPDES permit based partly on the information noted in the responses above. Thank you for providing comments regarding the draft permit.