

December 17, 2018

Memo: Clarification of Key Items from NEWSVT Landfill Responsiveness Summary**Background:**

On October 12, 2018 the Department of Environmental Conservation (DEC) issued a Solid Waste Management Certification of ongoing operations and expansion of the New England Waste Services of Vermont (NEWSVT), Inc. landfill in Coventry, Vermont. Since that time the DEC has been addressing public concerns regarding the landfill expansion, leachate management and treatment at Wastewater Treatment Facilities (WWTF) at public meetings in Newport, Coventry and with the Northeast Kingdom Solid Waste District. To assist with dissemination of pertinent information, this memo summarizes key findings published in the Response to Comments issues with the permit. Details on the DEC's review and decision and other facility documents can be found on the Agency of Natural Resources Environmental Research Tool by searching for Solid Waste Facility ID OL510:

- [Fact Sheet](#)- issued in May 2018 with the draft certification and describes how the application addresses relevant portions of the Solid Waste Management Rules
- [Responsiveness Summary with Attachment](#) – issued in October 2018 with the Final Certification and describes the DEC's response to public comments received and additional commitments to address concerns moving forward
- [Final Certification](#) – issued in October 2018 for continued landfill operations and expansion of Phase VI

Leachate Management at Wastewater Treatment Facilities

The management of the fluids generated within landfill waste, known as leachate, at wastewater treatment facilities (WWTF) is considered best management practice and the five lined landfills in Vermont all manage leachate at various WWTFs. This leachate is tested at least twice a year for a variety of physical and chemical properties, including metals and volatile organic compound concentrations. The intent of this testing is to ensure that the composition of the leachate does not vary significantly, and to assess any potential issues with the management of that leachate at WWTFs.

In 2016 the DEC began managing per- and polyfluoroalkyl substances (PFAS) contamination following its detection in significant concentrations around a former manufacturing facility in Bennington. In 2017 the DEC began the process of identifying other potential sources of PFAS to the environment and this work included sampling and testing for PFAS in leachate. PFAS can be introduced into landfill leachate from a variety of sources, including manufacturing, industrial processes, and the use and disposal of consumer products.

As part of this investigation process, DEC completed an internal assessment of the level at which leachate PFAS concentrations might pose a risk to human health and the environment. Vermont currently has a Health Advisory for drinking water of 20 parts per trillion (ppt) for five PFAS compounds; this has also been adopted as a groundwater enforcement standard. This standard was developed based on the Vermont Department of Health's assessment of potential health impacts for an individual drinking water with PFAS concentrations at or above 20 ppt during their lifetime.

Surface water quality standards are legal standards adopted, separate from drinking water standards, to protect all uses of surface waters including fishing, recreation and use as a water source. There are no surface water quality standards in Vermont for PFAS, and the Environmental Protection Agency has not set a surface water quality standard. However, other states have adopted standards for surface waters which consider potential impacts to both human health (through the consumption of water and fish) and to the environment (microorganism impacts). Minnesota has developed surface water standards of 780 ppt for PFOA and 6 ppt for PFOS.

Considering both the Vermont Health Advisory level for PFOA and PFOS and the established surface water quality standards from Minnesota, the DEC evaluated the potential surface water concentration of PFAS if leachate, with varying concentrations of PFAS, passed directly through a WWTF without a reduction in concentration. This evaluation was conservative in nature, with modeling designed to determine the levels at which the most restrictive standards would be exceeded in the surface waters receiving WWTF effluent. This evaluation determined that immediate action would need to be taken if leachate concentrations were in excess of 120,000 ppt for PFOA or 1,000 ppt for PFOS.

Following this determination, the leachate samples were obtained and analyzed. No sample from a Vermont lined landfill returned PFAS concentrations in excess of these maximum values as reported in the final May 2018 Weston and Sampson report on this work. In fact, all samples were orders of magnitude lower than these values, indicating that there is no potential acute risk to human health or the environment with the management of leachate at a WWTF. NEWSVT's leachate returned results with a concentration of PFOA at 1,850 ppt and PFOS of 244 ppt, well within the established guidelines and similar to results from other Vermont landfills and national and international studies. This work also sampled the concentrations of PFAS within the effluent of WWTFs. The concentrations within the effluent were significantly lower, as reasonably expected, with the sum of the five PFAS compounds coming in at 130 ppt.

Based on this work, the DEC has determined that leachate can continue to be managed at WWTFs with no adverse impacts to human health or the environment from PFAS in the waters receiving that effluent. As referenced in Attachment A to the Responsiveness Summary, the DEC also acknowledges that there is more work to be done and has committed to completing additional sampling and analysis within the next year. This work will also include additional statewide sampling to determine variability in landfill leachate and WWTF PFAS concentrations. The DEC will also be assessing other potential sources of PFAS sent to WWTFs beyond landfill leachate.

In the Solid Waste Management Facility Certification Condition 74, the NEWSVT landfill is required to assess sources of PFAS coming in to the landfill to determine the feasibility of further reducing the leachate concentrations, and to evaluate other onsite and offsite leachate treatment options.

Groundwater Monitoring and Response to Contamination

There is no indication that the NEWSVT lined landfill is leaking. Landfill liners are designed as redundant protection systems with multiple points of monitoring to detect leaks before any release reaches the environment. No leaks of leachate have been detected within these redundant monitoring systems.

Groundwater monitoring wells are located at varying depths and locations around the landfill. The groundwater monitoring wells are located based upon the consideration of the hydrogeologic conditions evaluated prior to the construction of the landfill, in proximity to the lined cells, at varying depths, in proximity to the landfill and at

the property boundary. They are positioned to capture any groundwater that would be impacted by a leak from the liners. Leachate has elevated concentrations of a variety of chemical constituents, including metals and salts, and the elevated presence of these chemicals serve as an early warning system. There have been no significant concentrations detected in the groundwater to date at this facility.

There is also an unlined landfill, which was closed in 1992, located on the NEWSVT property. As there is no barrier to contain the historic waste disposed of in this area, leachate does migrate into the groundwater. Monitoring wells around this unlined landfill cell indicate leakage into groundwater from the unlined cell. In Vermont, groundwater is managed as a public resource and is protected, however, the law recognizes that there are historic practices that may have impacted groundwater and establishes a compliance point at which contamination must be evaluated, contained and remediated. For the 63 regulated, closed unlined landfills in Vermont, the compliance point has been established as the property boundary. When groundwater contamination from an unlined landfill is detected at the property boundary, cleanup actions must be taken. DEC is responsible for pursuing the potentially responsible parties to clean up contamination and has the authority to take emergency action if warranted.

No groundwater contamination from the unlined landfill has been detected at or near the property boundary of the NEWSVT facility. As demonstrated in the May and October semi-annual water quality monitoring reports, groundwater monitoring wells dispersed within the area between the unlined landfill and the property boundary indicate that the contamination remains near the unlined landfill and that the native soils are effectively containing the contamination. This is consistent with the DEC's understanding of the geology in the area of the facility with dense, glacial till soils effectively slowing the movement of groundwater. Groundwater monitoring wells located on the property boundary do not register any groundwater contamination and additional monitoring of the Black River does not indicate any contamination.

If these monitoring wells were to indicate that groundwater contamination from the unlined landfill were significantly increasing, changing in composition or otherwise progressing unpredictably, the DEC would determine if there were a risk of the contamination moving beyond the property boundary and implement remedial action as needed. The owners of the NEWSVT facility would be required to develop a corrective action plan and to implement the approved plan. If the facility chose not to do this, the State could utilize funds held in an escrow account to implement immediate actions as needed. This would provide immediate protection for the environment and provide time for legal enforcement options to be pursued. The State also has funds set aside for immediate responses to contamination which can be utilized if a responsible party is unwilling or unable to implement a corrective action plan. Legal action can also be sought to recover funds expended. This process is consistent with how all contaminated sites within Vermont are managed.