



**Responsiveness Summary: Solid Waste Management Facility
NEWSVT, Inc.: Phase VI Application**

Date: October 12, 2018

Operator/Applicant:	New England Waste Services of Vermont, Inc. 21 Landfill Lane Coventry, Vermont 05825
Solid Waste I.D. Number:	OL510
DEC Project I.D. Number:	SJ91-0001
Facility Designation:	Solid Waste Disposal Facility

This responsiveness summary provides responses from the Department of Environmental Conservation, Solid Waste Management Program (Program) to the questions and comments that were received during the public comment period on the Draft Solid Waste Facility Certification for the NEWSVT, Inc. landfill located in Coventry, Vermont.

Background

NEWSVT, Inc. (Permittee) applied to the Program for expansion of the landfill footprint and continued operations on March 31, 2017. Following technical review and revision of the application a draft certification and fact sheet were issued on June 6, 2018. As part of the public comment period, a public meeting was held on June 21, 2018 in Coventry. The public comment period was originally scheduled to conclude on July 6, 2018; however due to a significant number of requests for extension, the public comment period was extended for two weeks and concluded on July 20, 2018.

On September 10, 2018, the Program participated in an informational meeting in Newport to discuss the expansion of the landfill. This meeting was convened by the group *Don't Undermine Memphremagog's Purity* and included public questions and comments. At this meeting, comments included the impact of the landfill on traffic, the presence of only a single landfill within the state and the location of that landfill within Coventry were raised, along with concerns about the treatment of leachate at the Newport Waste Water Treatment Plant and its potential impact on Lake Memphremagog. The majority of these comments were similar or related to comments received during the formal comment period. An additional comment regarding the use of third-party consultants for landfill monitoring was heard at this meeting and has been included within this responsiveness summary. The Program also provided a written handout at the meeting on the recent groundwater testing near the landfill for PFAS related compounds.

Decision

On October 12, 2018 the Agency issued a certification for the expansion of the NEWSVT, Inc. landfill and for continued operations of the landfill. During preparation of the Final Solid Waste Facility Certification for the landfill, the SWMP considered comments/questions received and made modification to clarify content, revise submittal dates and require additional monitoring and reporting. A copy of the issued certification can be found: <https://anrweb.vt.gov/DEC/ERT/SolidWaste.aspx?SWFacID=OL510>.

Organization of the Responsiveness Summary

This responsiveness summary groups the comments/questions received into topic areas and provides the Programs' response. The summarized comments can be found in **bold** below, with the Programs' response in plain text following. A copy of all comments as received by the SWMP can be found here: <https://anrweb.vt.gov/DEC/ERT/SolidWaste.aspx?SWFacID=OL510>.

Liners: Longevity and Leakage

- 1) What is the definition of failure? If one cell fails and it is surrounded by existing cells, how do you mitigate the failure? Has this ever been done?**

The Solid Waste Management Rules (Rules) contain performance standards which any solid waste facility must attain to be considered in compliance with the Rules. Failure would be determined by the inability of a facility to achieve these standards. This includes emissions or discharges from a facility that pose a threat to public health and safety or the environment.

It is possible to isolate the regions that have experienced failure within a lined landfill system given the design and construction of a landfill in distinct Phases and Cells. If a failure of the waste containment systems were to occur, corrective action would be implemented pursuant to §6-311 of the Rules. This corrective action would identify the type and extent of the failure, pursue eliminating any potential ongoing threat to human health and safety and the environment and remediating any releases that occurred during the failure and containment of the waste utilizing the best management practices in place at that time. Dependent on the failure type and extent, corrective action may range from continued or expanded monitoring to complete excavation of the waste and repair of the liner system.

- 2) How long can operations proceed before leakage? What is the backup system for the landfill?**

The primary containment system for the landfill waste and leachate is the geocomposite liner system. The Phase VI liner system will consist of a flexible geomembrane liner incorporating two layers (primary and secondary) of 60-mil thick, textured HDPE geomembranes. These geomembranes are chemically resistant to the variety of compounds found in landfill leachate and

designed to not be adversely affected by the placement of waste. The lifetime of a geomembrane depends on a variety of factors, including installation, exposure to ultra-violet rays and temperature. Given that modern lined landfills are limited in age, accelerated laboratory simulation tests provide the primary means of estimating lifetime of geomembranes and generally estimate geomembrane lifetimes on the order of several hundred years.

The design of the landfill does provide several methods of determining whether the landfill liner has failed and backup systems to prevent environmental impact from such a failure. The first of these backups is the installation of the double liner system. If the primary liner, below the waste were to fail, leachate would accumulate and be pumped from a drainage layer between the primary and secondary liners. Significant accumulation of fluids in this drainage layer, along with the chemical composition of those fluids can provide valuable information on what the potential type and location of the failure might be. If both the primary and secondary liner were to fail, the Phase VI landfill design also has incorporated the installation of a groundwater underdrain system. The primary purpose of the underdrain is to capture and transport groundwater to prevent it from interacting with the landfill infrastructure. However, if a leak were to occur in both the primary and secondary liners, it would be captured by the underdrain, at which point it could be collected, managed as leachate and prevented from discharging to the environment while a corrective action plan is developed and implemented to address the failure.

3) Where does the waste go if not in lined landfills?

Construction of a new unlined landfill would not be permitted within Vermont. In addition to disposal of waste within a lined landfill there are other options for the management of waste materials. These options are disposal within an unlined landfill or management at a waste incineration facility. Unlined landfills are limited in the type and volume of waste that can be accepted within the United States and would not be able to serve as a regional scaled landfill. Waste incineration is used for solid waste management throughout the country and New England, and some waste generated by Vermonter's is managed by incineration in out-of-state facilities.

Location in Coventry

4) Are home values considered? To sell a property, odors should be disclosed, and this will affect the home values.

The Rules primarily consider the design, installation, operation and closure of the solid waste facility. They do not require evaluation of the impact facility development will have on local home values and the Program does not have the authority to consider home values in the review and approval or denial of any solid waste facility certification.

- 5) The location of the landfill in a low median income, high poverty rate region is not an asset that will drive future investment and may put Coventry residents in harm's way. All Vermonters should have access to a safe and healthy environment.**

The protection of Vermont's public health and safety and the environment is the driving factor behind the establishment and implementation of the Solid Waste Management Rules. These Rules apply to any solid waste facility developed in the state regardless of location and while the Program does not have the authority to approve or deny a solid waste facility certification based on geographic location within the State, the Rules do require the best management practices to be implemented in order to maintain access to a safe and healthy environment.

- 6) Coventry will keep the waste forever while Casella is only required to monitor for 30 years.**

The requirement for landfill facilities to maintain a post-closure funding mechanism for 30-years of care serves as a financial planning tool rather than a conclusive end date to post-closure management of the facility. Post-closure management and oversight of a closed landfill can only be ceased if the facility can demonstrate that it achieves a set of performance criteria established by the Program. These performance criteria consider components such as groundwater impairment, landfill gas emissions and long-term slope stability to determine if there is any potential ongoing threat to human health and safety and the environment. If a Permittee cannot demonstrate that a landfill has achieved any of the performance criteria, it will remain in post-closure care and will have to fund that management, even if it is beyond the 30-year financial planning period.

Bird Hazards

- 7) Does the expansion present undue risk to public health and safety due to wildlife-aircraft strikes? The FAA considered MSW facilities within 5,000 feet of airports as "incompatible with safe airport operations".**

The Permittee is required to demonstrate that the landfill presence does not increase the hazard to aircraft. Neither the Federal Aviation Administration (FAA), Vermont Agency of Transportation or the Solid Waste Management Rules prohibit the siting of a landfill adjacent to an airport. The Permittee has a bird management plan that has been in use since 1992. This plan was developed from a bird migration and population study performed by Dr. David Capen, utilized by the expertise of a United States Department of Agriculture (USDA) Animal and Plant Health Inspection Services biologist stationed in the vicinity, determined by the Agency of Transportation "that the Landfill Expansion Project will have no adverse impact on Airport operations", and observed during the Program's quarterly inspections and review of biannual reporting.

Based on this data and observations, current landfill operations have been determined to cause no additional threat to the aircraft using the Newport airport. The expansion of the landfill should not increase bird activity and pose any greater threat and an agreement between the State of Vermont Agency of Transportation and the Permittee, regarding additional development of the facility with respect to location and bird management has been established with documentation submitted as part of the solid waste application. Operations of Phase VI will be sufficiently similar to current operations that it is reasonable to presume that the bird management techniques currently employed will remain effective. The bird counts, observations and diversions will continue to occur and be performed by both USDA and landfill staff.

Surface Water Quality

- 8) Can Vermont recognize Lake Memphremagog as a drinking water reservoir by the Vermont Water Quality Standards to change siting and discharge requirements? As Lake Memphremagog serves as a drinking water supply in Canada, can it be classified as a Class A water in Vermont? Lake Memphremagog should be considered a Class A water and provided with the protections provided to Class A waters under the Vermont Water Quality Standards (VWQS; §29A-106(4); §291-204(a)(1) and §29A-204(b)(1)) and the Solid Waste Management Rules (§6-502). Public health should be protected by prohibiting leachate discharge into the Lake Memphremagog watershed as if it were a Class A water as defined by the VWQS, or at the least, direct NEWSVT to take sufficient precautions to assure Canadians that their water is actually safe.**

In Vermont, both Class A(2) and Class B waters are managed for use as public water supplies. The differentiation of these two classes is primarily driven by the requirement for a uniformly excellent character of Class A waters. There are water quality conditions besides the treatment of leachate at a wastewater treatment facility that currently prevent Lake Memphremagog from being classified as a Class A(2) water.

The landfill is sited within an area designated as Class B waters, which are managed for use as a public water supply and corresponding to the use of Lake Memphremagog as a drinking water supply. Designation as a Class B watershed does not prohibit the siting of a waste management zone, but it does require that the activity occur under the oversight of a permitting program to ensure the implementation of best management practices in order to protect the use of Class B waters as potential public water supplies. These protections are being provided to Lake Memphremagog as a drinking water reservoir.

9) Which waste water treatment plants receive the leachate? Is the lined leachate tank, the leaks, and wastewater treatment plant monitored? Has there ever been a problem?

The Permittee's pre-treatment discharge permit, issued by the Vermont Wastewater Management Program, prescribes the wastewater treatment facilities that the landfill is permitted to transport leachate to. These facilities currently include Montpelier, Essex Junction, the City of Barre, Burlington, the City of Newport, Concord, New Hampshire and Plattsburgh, New York. The Vermont facilities are regulated by the Wastewater Management Program which requires monitoring and provides oversight. The Wastewater Management Program could amend a pretreatment discharge permit if there were any noted problems with management of the leachate at any of the Vermont facilities.

The Facility Management Plan required by the Solid Waste Management Rules does require monthly inspection of the leachate storage tanks. These tanks are double-walled, if a leak from the primary tank were to occur, the liquid would be contained and detected in void space between the two walls. The monthly inspection includes visual, dropping a dipstick into the interstitial monitor portal or monitoring a vacuum pressure gauge for leaks. Additionally, the production of leachate within each landfill cell is monitored and reported to the Program on a monthly basis. These reported flow rates would assist the Program in determining if the landfill liner were leaking and if there were any problems with the leachate collection and containment system.

10) Newport Wastewater Treatment Plant should not be used to treat leachate because of its location on the lake. The last Whole Effluent Toxicity (WET) Test required at the Newport plant outlet was in 2008 and Casella has treated leachate at the plant since 2009.

The Program does not regulate the Newport Wastewater Treatment Plant, this falls under the discharge permit issued by the Wastewater Management Program. The acceptance of leachate at the Newport wastewater treatment facility is determined by the municipality and the pretreatment discharge permit issued to the landfill. Whole effluent toxicity testing will be required as part of the recertification process for the Newport wastewater treatment plant by the Wastewater Management Program and this comment has been shared with that Program. Please see Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

11) What are the materials (yellow, green and brown bubbles about two inches in size) floating on the surface of the estuary canal from the Black River through the wetlands at the perimeter of the site? Has the state ecologist identified the material? Are the records analyzing it on file with ANR?

It is not known what the materials witnessed floating on the surface water are as referenced in the comment, as there are many potential sources of what was described as being observed on the Black River. Monitoring of the groundwater and surface water adjacent to the landfill has indicated that

there are no impacts to the Black River from the lined or unlined facility. Although the unlined landfill has caused some groundwater impairment, the contamination is limited to the landfill property and is not entering the Black River. Additionally, as required by the Land Use Permit issued to Permittee, the Black River is canoed by an ecologist and representatives of the Landfill Oversight Committee once a year during the summer months to evaluate impacts to the Black River. There has not been any comments in the report addressing the bubbles and no noted impact on the Black River from landfill operations.

- 12) The Memphrémagog Regional County Municipality (MRC) has serious concerns about landfill leachate treatment at the City of Newport’s wastewater treatment facility, and the resulting discharge including the potential for leachate-related contaminants entering the Clyde River and Lake Memphremagog. Based on comprehensive sampling conducted in 2004, MRC’s expert report concluded that it would be risky and imprudent to discharge leachate into a critical drinking water supply due to the risk of unknown and unregulated contaminants. The report found that leachate analysis “does not include many ‘exotic’ chemicals, for whose impacts are not known when they bioaccumulate.” Considering the wide variety of products found in a landfill—including endocrine disrupting pharmaceuticals—the report urged the Commission to follow the precautionary principle and restrict all leachate discharge into the lake’s watershed.**

This comment and the findings of the MRC’s 2004 report are acknowledged, noted and will be shared with the Wastewater Management Program. Please see Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

- 13) The Draft Solid Waste Certification fails to account for the risk to public drinking water supplies from leachate discharge at the Newport requires that “the owner and operator shall take all practicable steps to prevent the inclusion of hazardous waste . . . into the waste stream being managed by the facility.” Although NEWSVT has committed to certain very basic measures to address hazardous waste on both the “front end,” and “back end” of the waste stream, these techniques illustrate how difficult it is to ensure that unregulated hazardous waste remains out of landfills and landfill leachate. While compliance with such measures may be adequate for other landfills that are not within the watershed of public drinking water supplies, the Draft Certification fails to take into account that treated leachate is discharged directly into a waterbody used as a public drinking water supply.**

The Solid Waste Management Rules do not require consideration of the locations and treatment of the leachate in application review. The Rules do require that the leachate be collected and contained and that the landfill obtain a valid pre-treatment discharge permit for the facility. The pre-treatment discharge permit for the landfill prescribes where the leachate may be transported for treatment at wastewater treatment facilities and is issued by the Wastewater Management Program. Please see

Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

As stated, the Rules do require practicable steps to be taken to prevent the inclusion of hazardous waste within the waste stream. Statewide efforts target reduction of hazardous waste within the waste stream along with the removal of any observed materials at the point of disposal by landfill staff does minimize the amount of hazardous material within the landfilled waste mass. The efforts described by the Permittee's application for reducing hazardous materials within the waste mass sufficiently meet the requirements of the Rules.

- 14) VTDEC possesses the authority to require additional monitoring, other investigations, or remedial actions when the “operation of a facility, which is otherwise in compliance with its certification, . . . results in an emission or discharge that poses a threat to public health and safety or the environment.” Unregulated hazardous waste is likely present in the waste stream and may contaminate treated leachate discharged into a public water supply. Given that the uncertainty and risk surrounding these contaminants—even in small quantities—additional monitoring at the Newport Wastewater Treatment Facility (WWTF) is appropriate.**

The Solid Waste Management Rules do provide the Program with the authority to request additional monitoring or investigations of a solid waste facility, the Program does not have the authority to request this additional investigation of a wastewater treatment facility. This authority lies within the Wastewater Management Program within the Watershed Management Division. This comment has been supplied to that Division for consideration. Please see Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

- 15) To address whether leachate discharge poses a risk to water quality, VTDEC should require NEWSVT to present supplemental information from a qualified expert on the fate of landfill-related contaminants treated at the Newport WWTF. VTDEC should also require NEWSVT to address the risk from discharging landfill-related contaminants into a drinking water supply.**

The Solid Waste Management Rules require that the leachate be collected and contained and that the landfill obtain a valid pre-treatment discharge permit for the facility. The pre-treatment discharge permit for the landfill prescribes how the leachate will be treated and where it can be transported for treatment at wastewater treatment facilities. The landfills pretreatment discharge permit is issued by the Wastewater Management Program. This comment has been supplied to that Division for consideration. Please see Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

16) As the City of Newport and NEWSVT are likely to seek to have more landfill leachate treated within the Memphremagog basin, NEWSVT should demonstrate the prudence of discharging its leachate through the WWTF into a public water supply or propose another solution such as on-site advanced treatment. With advances in treatment technology and using design standards specific to leachate, such a facility could be a more effective long-term solution. The Coventry landfill will operate for many more years, and leachate treatment must continue during the closure period.

Same response as to #15: The Solid Waste Management Rules require that the leachate be collected and contained and that the landfill obtain a valid pre-treatment discharge permit for the facility. The pre-treatment discharge permit for the landfill prescribes how the leachate will be treated and where it can be transported for treatment at wastewater treatment facilities. The landfills pretreatment discharge permit is issued by the Wastewater Management Program. This comment has been supplied to that Division for consideration. Please see Attachment A for further information on actions that will be taken to address concerns regarding landfill leachate management.

17) The old unlined cells A and B should be relocated. ACT 250 required the landfill to submit permits to do so.

Act 250's Land Use Permit issued to the Permittee in 2004 (Project Number 740841-8) required the submission of an application to relocate the unlined landfill area into a new lined landfill cell. This relocation project is referred to as the Phase V development. In May 2005, the Permittee submitted an application to Act 250 (Project Number 7R0841-11) for review and also submitted a variance request to the Program for that Phase V development. The request for a variance from the Solid Waste Management Rules was granted, but no application for the development of the lined landfill associated with the Phase V development has been submitted to the Program.

Since the time of the submittals above, the Permittee received necessary approvals from the FAA and Agency of Transportation to construct closer to the airport than the previously approved Phase IV area. As a result, the permittee has focused on this area and submitted the Phase VI application for construction and operation before focusing back on the Phase V area. The Act 250 District 7 review of the Phase V application remains in active status for future development. District 7 and the Program have not required any further action on development of Phase V.

Groundwater Quality

18) Are the groundwater seeps being monitored? Other landfills have had seeps leave the landfill property and require monitoring wells.

As part of this proposed landfill expansion an existing groundwater monitoring network on the property will be expanded. Groundwater monitoring wells will be established along the 150-meter point of compliance to monitor any impact to groundwater quality and determine if an exceedance of a groundwater enforcement standard occurs and sampled on a semi-annual basis. To-date, no groundwater seeps have been identified downgradient of the landfill and given the local hydrology it is unlikely that groundwater would emerge as a seep in this area. However, if a groundwater seep were identified, it would be added to the groundwater monitoring network and sampled during the semi-annual water quality monitoring program to determine if there were any landfill impacts on the emerging groundwater.

19) Has the applicant demonstrated that the proposed expansion will not violate the Groundwater Protection Rule? *Note: This comment was reiterated to the Program in September 2018 following receipt of PFAS results from groundwater monitoring wells at the landfill facility.*

The Permittee did successfully demonstrate that the proposed expansion will not violate the Groundwater Protection Rule and Strategy (GWPRS). For the proposed expansion, the point of compliance is 150-meters from the edge of the double geocomposite liner system. The proposed expansion will operate with a similar design and disposal methods to those that have been historically used within the current lined landfill area. There is a groundwater monitoring network established along the current point of compliance and that monitoring network will be extended as part of the expansion. Given that there are no indications that the current lined landfill cells are impairing groundwater quality, and monitoring locations at the point of compliance are meeting groundwater enforcement standards, it is reasonable to expect that the proposed expansion will also have no adverse impact on groundwater quality and that the expanded monitoring network will provide sufficient information in order to determine the accuracy of this expectation. This evaluation of compliance with the Groundwater Protection Rule and Strategy does include consideration of the PFAS results obtained from monitoring wells down-gradient of the unlined and lined landfill cells at the facility. Monitoring at the point of compliance indicates that the facility currently is attaining groundwater enforcement standards.

20) Will the new disposal cells leak into the groundwater?

The design, installation, operation and closure of the landfill as proposed within the application is in conformance with best management practices within the industry and with the requirements of the Solid Waste Management Rules. The purpose of the Rules is to protect human health and safety and

the environment to the greatest extent feasible, given best management practices, and they were developed because the management of solid waste does have an inherent possibility of environmental impairment. It is possible that the waste containment cells constructed as part of the Phase VI expansion could leak; however, the requirements of the Rules and the implementation of best management practices within the industry serve to minimize this potential to the greatest extent feasible and the ongoing environmental monitoring serves to detect any discharge to the environment as early as possible in order to minimize the degree of impairment.

21) Remediation of any groundwater contamination should be completed prior to expansion. The landfill is leaking pollution in to the groundwater and the applicant has failed to demonstrate that the expansion will not interfere with an investigation and remediation of any existing leaking cells (lined and unlined).

The expansion area is located to the south of the current landfill operations while the unlined landfill is located to the north. There is over 2,000 feet separation distance between the expansion area and the unlined landfill. The unlined landfill is discharging any produced leachate to the groundwater table, but it has not been demonstrated to having an impact beyond the property boundary which serves as the compliance point for the unlined landfill. At this time, remediation of this unlined landfill cell is not required, but if remediation were determined to be necessary, disposal operations within the proposed expansion area would not limit any potential actions. As needed, based on the on-going groundwater quality monitoring, additional evaluation can be requested throughout the certification period in order to determine whether remediation has become necessary.

There is no evidence that the lined landfill is discharging leachate to the groundwater. However, the development of the lined landfill within discrete Phases and Cells does facilitate remediation of lined portions of landfills without impacting disposal operations.

22) VTDEC should require an in-depth analysis to inform what mitigation measures might be taken so that NEWSVT can stop shirking its responsibility to operate a safe landfill.

There is no evidence of contamination outside of the landfill property and as such no mitigation or remediation measures have been required by the Program. In order to satisfactorily demonstrate this, the landfill has performed the required semi-annual water quality monitoring and additional investigations of groundwater impact beyond the requirements of the certification and at the request of the Program. This has included excavation of waste from the unlined landfill that was located in close proximity to the lined landfill, installation and monitoring at a series of monitoring wells located adjacent to the Black River and an analysis of inorganic contaminant trends in upgradient and downgradient monitoring wells. The results of these additional investigations have informed Program requests for further work or have been incorporated into the semi-annual water

quality monitoring program. The landfill owners have completed all investigative requests and the Program has not requested any additional mitigation measures at this time.

Per- and Polyfluoroalkyl Substances (PFAS)

23) Has the landfill evaluated the potential impact of perfluoroalkyl and polyfluoroalkyl substances (PFAS) on groundwater?

The Program requested PFAS testing at six groundwater monitoring wells located on the landfill property on August 2, 2018 following review of submitted public comments. One monitoring well was upgradient of the landfill operations (MW-705), one adjacent to the unlined landfill (MW-P2RR), one down gradient of the unlined landfill (BRW-3D) and three along the compliance boundary for the lined landfill (P-6, MW-E1, MW-E2). The sampling was completed on August 8, 2018 and results received by the Program on September 4, 2018. The results for the five PFAS compounds that have groundwater enforcement standards are as follows:

<i>ppt</i>	PFOA	PFOS	PFHpA	PFHxS	PFNA	Total
MW-705	nd <1.8	nd <1.8	nd <1.8	nd <1.8	nd <1.8	ND
BRW-3D	nd <1.8	nd <1.8	nd <1.8	nd <1.8	nd <1.8	ND
MW-P2RR	57	nd <8.9	41	18	nd <8.9	116
MW-P6	nd <1.7	nd <1.7	nd <1.7	nd <1.7	nd <1.7	ND
MW-E1	nd <1.8	nd <1.8	6.7	nd <1.8	nd <1.8	6.7
MW-E2	nd <1.8	nd <1.8	nd <1.8	nd <1.8	nd <1.8	ND

The detection of the three PFAS compounds in the monitoring well adjacent to the unlined landfill are above the groundwater enforcement standard. However, it should be noted that this monitoring well is located on the landfill property and over 800 feet from the property boundary which serves as the compliance point for the unlined landfill.

Due to this detection of PFAS above standard in the vicinity of the unlined landfill, and the low-level detection in MW-E1, the certification has been amended to include a condition requiring PFAS sampling to be incorporated into the regular semi-annual groundwater monitoring program. This condition (Condition 69) requires monitoring at monitoring wells downgradient of the unlined landfill and monitoring wells located along the compliance boundary of the lined landfill, and reads as follows:

69) During the months of May and October of each certification year, the Permittee shall retain a qualified professional to perform per- and polyfluoroalkyl substance (PFAS) monitoring at groundwater monitoring locations located at the groundwater compliance points of the landfill facility. This monitoring shall detect

any PFAS compounds for which there is a groundwater enforcement standard and shall include the following locations: G-12S, E-2, MW-E1, MW-P6, BRW-2R, BRW-5S, BRW-4S, MW-P2RR and BRW-3D. Locations may be removed from this groundwater monitoring condition if the Permittee makes a demonstration that PFAS is not reasonably expected to be detected at that location and has received written approval from the Secretary for removal of that sampling location.

24) Have the reports of PFAS detections in leachate at this site been made available to the public? Have they been corroborated or refuted by a third party? At a time of revision of statewide standards for the family of PFOA synthetic chemical compounds, it makes no sense to pre-approve or to approve this application for landfill expansion.

In January 2018 the Program contracted with an independent environmental consultant for PFAS sampling of landfill leachate and wastewater treatment facility influent, effluent and sludge. The results of this work are available by request to the Program and a summary of this work was included within the July 2018 *Perfluoroalkyl Substances (PFAS) Contamination Status Report* [available online](#). This sampling effort was independent of the Permittee, who also completed sampling at the same time.

The application can only be evaluated against standards that are in place at the point of review. There currently are no PFAS standards established for landfill leachate, wastewater effluent or surface waters.

25) Are PFAS in surface water treatable for drinking?

If replacement of a drinking water source contaminated by PFAS is not feasible, it is possible to treat the water in order to reduce the contaminant to concentrations deemed safe for human consumption. Currently granulate activated carbon (GAC) filtration is the most common approach used for PFAS treatment. GAC filtration has been found to be highly effective for removal of long-chain PFAS compounds, though there are other potential treatment options for PFAS in drinking water.

26) What happens if PFAS standards at the wastewater treatment plant cannot be met and the plant cannot receive the leachate? Where does the liability lie? Should the landfill be permitted, if wastewater treatment plants cease accepting leachate?

The Solid Waste Management Rules require that the leachate collection system and on-site storage facilities be sized to minimize the collection of leachate on the landfill liner system (§6-606(b)(2)(G)). The Rules do not mandate or specify how that leachate be managed for treatment following its collection. The Permittee does hold a pre-treatment discharge permit, issued by the Wastewater

Management Program. Pre-treatment discharge permits are issued for certain industrial and commercial discharges, including landfill leachate which may interfere with the operation of municipal treatment facilities upon discharge. The pretreatment discharge permit prescribes the volumes of leachate that the landfill is permitted to discharge at prescribed wastewater treatment facilities; however, the municipal wastewater treatment facilities are not required to accept the landfill leachate. If a municipal wastewater treatment facility could not attain necessary treatment standards due to the acceptance of leachate, or if they voluntarily chose not to accept the leachate, the landfill would still be responsible for its management. Options could include evaluating treatment at other municipal wastewater treatment facilities with other treatment technologies or establishing an independent treatment facility at the landfill itself.

Waste Reduction Goals

27) Why isn't the goal to recycle, compost, and reuse? Is the State actively seeking methods to divert waste and set zero waste goals? The State will see a decrease in demand for the landfill because recycling, composting, and reuse will increase making the expansion design too large and no longer needed.

It has been the state's goal to promote waste reduction, recycling, composting and reuse before disposal since the 1980's. Vermont's Universal Recycling law (Act 148 of 2012) was passed unanimously by the Legislature to reduce waste and boost recycling, food donation, and composting statewide. The law and the State's Materials Management Plan put recycling and composting requirements on both private and public solid waste managers with a target of diverting 50% of the waste produced away from the landfill by 2020. In recent years, statewide recycling, food donation, and composting have all increased. While these initiatives will continue to have a positive impact, landfill capacity is still necessary, as there are many products and materials that cannot be recycled or composted.

Timing of the Expansion

28) Why is the expansion needed when the region is in decline? This expansion should be denied and re-visited in 10 years when there will be half the demand for waste. The landfill has an existing contract to receive waste at current levels. The state needs more time to review the concerns and ensure the quality of the water.

At current disposal rates, the landfill will have no remaining disposal capacity within the next several years. The excavation and installation of a new landfill cell is a several year process, and as such the planning and permitting must happen sufficiently in advance. The Solid Waste Management Rules do not require an evaluation regarding the necessity of a landfill, nor the regional economic

conditions. As such, the Program does not have the authority to consider these components in the review and approval or denial of a solid waste facility certification.

However, the Program does have the authority to consider water quality during the approval or denial of a solid waste facility certification. As discussed above, the current groundwater and surface water quality monitoring does not indicate that the landfill is impacting water quality off the landfill property and the Permittee's proposed monitoring network is sufficient to capture any indications of environmental impairment in the future.

29) Why is this site being reviewed for an expansion before the results of the environmental impact assessment are complete? International Joint Commission (IJC) has been asked to examine the growing public concerns over water quality in Lake Memphremagog. IJC is also evaluating a request for an environmental impact assessment regarding the location of the landfill and the use of the Newport waste water treatment plant. This expansion review should be stopped until the IJC has completed their work and reaches a decision regarding water quality and the current and potential impacts from the site.

The International Joint Commission (IJC) has been asked to examine water quality in both Lake Champlain and Lake Memphremagog. It is the Program's understanding that the IJC will be examining nutrient impacts, particularly that of phosphorus, to the lakes. It is also the Program's understanding that the scope of the IJC's evaluation does not include any potential impacts from the landfill, and therefore, the Program has processed this certification request in accordance with Solid Waste Management Rules.

30) Why hasn't Phase V been completed?

The Phase V expansion project is proposed to involve expansion of the landfill facility to the north and includes the excavation of the waste materials currently contained within the unlined landfill. New England Waste Services, Inc. has not applied for the Phase V expansion, nor was it a requirement of the Solid Waste Certification currently held by the landfill. As such the Program has not reviewed or considered the Phase V project.

31) What are the actual waste disposal capacity needs of Vermont? Expansion shouldn't be granted until full implementation of the Universal Recycling Law has occurred.

The Solid Waste Management Rules do not provide the Program with the authority to consider capacity needs or policy implementation within the state when reviewing facility applications.

In 2017 Vermonters generated 634,518 tons of waste, of which 417,402 tons, or 66%, were disposed of through landfilling or incineration. The waste generated by Vermonters is not required to be managed within the state and currently about 25% of the disposed waste is managed at out-of-state facilities.

The goal of Universal Recycling is to improve the capture and management of valuable materials by methods other than disposal. However, under full implementation of the Universal Recycling Law waste will still be produced that cannot be managed through diversion and Vermonters will still require access to disposal options either in-state or out-of-state.

Statewide Planning for Landfill Locations

32) Is the State looking for other locations for landfills near populated areas? The state does not have a backup if the landfill closes. The State should encourage new landfills to be built. The State should work on a solution to disposing of waste regionally.

Landfill siting is based on individual applicants (public or private) meeting local, state and federal regulations. There is one small proposed regional landfill that currently hold Solid Waste Certification in Vermont that has not been constructed at this time. There are no regulations holding other communities back from applying for certification to operate a regional landfill. At this time, state initiatives are focusing on waste reduction and increased recycling, reuse and composting efforts to minimize the need for disposal and preserve landfill capacity.

33) Why isn't the legislature continuing to focus on encouraging and mandating residents to recycle and siting landfills regionally? By not expanding this site, the haulers will push back and the legislators will work to find an alternative to landfilling.

The Vermont legislature has been, and continues to be, very supportive of improving the amount of materials managed by methods other than disposal. This has been demonstrated by their introduction and passage of laws such Universal Recycling requiring mandatory recycling. The legislature set up regulations and financial support in the late 80's and early 90's for promoting regional landfills. Those landfills never came to fruition because towns and regional solid waste districts felt that the financial risks were significant.

Air Quality

34) Why doesn't the site have air quality monitoring stations along the periphery of the landfill that are monitored by the state of Vermont? If the air quality standards are not met, are there penalties issued? Odors occur typically on foggy mornings with a low pressure and south breeze. The odor is noticeable as far away as the Lake Region Road in Barton and Leaf Road in Irasburg. While some odors are passing, others can persist for up to two hours. The smell of the odor varies from sludge and trash to an unexplained foul smell.

The Permittee does have established landfill gas monitoring locations at the landfill property line. Monthly, four gas probe locations are monitored for fugitive landfill gas emissions, which would be associated with odor. Additional gas probe monitoring locations would be installed as part of the Phase VI development.

A condition of the issued certification requires that "The Permittee shall operate the facility in a manner consistent with preventing objectionable off-site odors". Should the Program make a determination that odors are objectionable or a nuisance, actions would be pursued.

35) What is in the odors in the air? Is breathing in these odors toxic or harmful to my health?

Objectionable offsite odors produced by landfills typically derive from the gasses produced by waste decomposition. Landfill gas is primarily composed of methane and carbon dioxide, but can also contain other volatile compounds, including sulfides, which typically contribute most significantly to the odor associated with landfill gas. Sulfides and other volatile compounds can produce unpleasant odors even when they are in very low concentrations and at concentrations well below toxicity levels, which is what is typically found at a distance from the landfill.

The Solid Waste Management Rules require that the landfill not produce nuisance odor conditions off the landfill property. However, the landfill is also regulated by the Air Quality and Climate Division (AQCD) of the Department of Conservation and has obtained a permit required for any air pollution emitting facility. The Air Pollution Control Permit to Construct and Operate issued by the AQCD does review air quality impacts and the facility has been found to comply with all applicable ambient air quality standards and prevention of significant deterioration increments under that permit. The permit does place limitations on emissions, including hazardous air contaminants, to protect human health and safety and the environment and the landfill must remain under these limits to remain in compliance with the issued permit.

36) What is the methane used for? Will the methane be powering the greenhouses?

The Permittee is under contract with Washington Electric Cooperative (WEC) to supply WEC with all landfill gases produced. WEC utilizes the gas to fuel a gas-to-energy plant. Electrical generation is an alternative to burning the methane and other landfill gasses via a flare. In addition, WEC operations must not interfere with landfill construction, operation, closure and post-closure operations. This system is regularly monitored, at least once a month, with the vacuum system adjusted accordingly to maintain maximum efficiency of the collection system.

A separate geothermal piping system has been installed in the Phase IV portion of the landfill for possible future use as a heating source for greenhouses, methane heating is not proposed at this time.

37) What happens to the emissions and gas when the gas plant stops? The gas-to-energy plant may not be there long enough to draw off the gas.

If the gas-to-energy plant is inactive for any reason, or unable to process all or some of the landfill gas, two flares are maintained at the Facility and can independently destroy all landfill gas produced by the landfill.

38) What percent of methane emissions released from the contained leachate is contained and used as a fuel and/or flared? Are any provisions being made to require the site to conduct on-going methane stripping of leachate? What are the implications of loss of residual methane from the site to the atmosphere?

The production of methane from leachate is minimal in comparison to the methane produced within the waste mass. The landfill is maintained under negative pressure to facilitate the collection of landfill gas and the collection of that landfill gas for destruction at the on-site gas-to-energy plant. There is a certain amount of methane that is lost to the atmosphere during active waste placement; however, the Air Pollution Control Permit to Construct and Operate, issued by the Air Quality and Climate Division is based on an 85 percent capture efficiency for methane at the facility, which is typical for the landfill industry.

Long Term Care

39) Who will pay for the cleanup of the site? Will this be the State? The site is eventually going to need to be cleaned up. All the material currently stored at this landfill should be removed to a less sensitive water supply location away from drinking water and surface water resources.

If the site should need to be cleaned up, then under 10 V.S.A. §6615, owners and operators of facilities with releases of hazardous materials are liable for the costs of remediation as a responsible party. In the event that a responsible party does not take necessary remedial actions or does not

respond in a timely manner, the Agency has the option of completing the needed remediation and seeking cost recovery from responsible parties for the work. The Agency also has the option of issuing an Administrative Order requiring the responsible party to complete the necessary investigation and remediation. At this point in time, the Program has not required any site remediation as there is no evidence of groundwater impacts beyond the facility point of compliance which is 150 meters from the lined landfill edge and at the property boundary for the unlined portion.

Limit the Landfill to Vermont Generated Waste

40) Why is Vermont sharing the landfill with other states? Won't this cause Vermont to become the dumping ground for other states? Vermont needs the space. We can extend the time in the current space by limiting it to just Vermonters. Expansion is for operating another 22 years. There is no backup location for a landfill in the state and other states will fill this site.

The landfill is owned and operated by a private business. The Commerce Clause prohibits the state from limiting a business from doing business across state lines. State law does limit the amount of waste coming in from out-of-state by requiring that all the municipal solid waste (which is primarily residential waste) coming into the landfill is from a community that has a Vermont approved solid waste implementation plan. These solid waste plans require communities to commit to attaining certain performance measures for the removal of household hazardous waste, the collection of recyclables, education and outreach programs and many other plan components. No out-of-state community has submitted a plan for approval and as such, no out-of-state municipal solid waste is disposed of within Vermont.

The Program does have the ability to determine that particular wastes can be considered special wastes. This determination is based on the waste not being hazardous, not containing landfill banned items and in consideration of the waste origination and amount. Examples of these special wastes are slightly contaminated soils, sludges and uniform building materials, such as shingles. The landfill has the ability to accept special waste from out-of-state, if that waste has been approved by the Program.

Operations

- 41) Has anyone looked at the other industries in the area for the noises being heard? There are noises after permitted hours that sound like chains and alarms. The noises are heard in early morning and the early evening. If it is the site, the expansion will create more of an impact.**

The Program has not investigated noises from other industries. The landfill certification has limited hours of landfilling operations and inspections have indicated that disposal is not taking place outside of the posted operational hours. The Program has not received any complaints regarding operational noise but will investigate any complaints received.

- 42) Are the trucks for the landfill allowed under the current certification to arrive early? If not, can the arrival time be enforced or change the time in the certification? Trucks park along Route 5 as early as 4:30am and wait for the landfill gates open.**

The facility gates are not opened to truck traffic until 6:00 am. Starting at this time the trucks are permitted to line up, at the facility, to be weighed when the scales open at 6:30 am. The Program does not have the authority to enforce truck traffic flow outside of the facility property on public roads. The Natural Resources Board does have the authority under Act 250 to review traffic under Criteria 5-Transportation for any impact of the project on traffic congestion or unsafe conditions and can place requirements within their Land Use Permit. The Permittee does require particularly odorous wastes to be delivered to the landfill on a set schedule, without unnecessary stops in route to the facility, in order to minimize offsite odors

Unlined Cell

- 43) Is the unlined leachate monitored?**

Yes, the Permittee must demonstrate that they are in compliance with the Vermont Groundwater Protection Rule and Strategy which establishes groundwater enforcement standards and the points of compliance at which a permitted activity must demonstrate attainment of these standards. The point of compliance is the property boundary for the unlined landfill cell. The Permittee has established monitoring wells at or near the property boundary in the downgradient groundwater flow direction and has a series of wells in between. This monitoring network is sampled twice a year with results submitted to the Program for review. The monitoring network will continue to be managed and sampled throughout any expansion at the site and into the closure and post-closure period.

44) Will the unlined part of the landfill be cleaned up?

This is not a component of the current application under review, nor has a proposal for this work been submitted to the Program. The Permittee has indicated that the long-term plan is to remediate the unlined landfill through excavation of the unlined waste with that work beginning following the completion of Phase VI. An application for this work is on file with the Natural Resources Board as a commitment to performing this remediation.

If it were determined that the unlined landfill was having an adverse impact on public health and safety or the environment, the Program could require remediation of the unlined landfill. This remediation could be the excavation of the waste, as has been proposed by the long-term plan of the facility, or take some other form, dependent on the impact of the unlined landfill.

Landfill Size

45) Why isn't the original intent of Act 78 being considered during the review of this expansion? Town landfills were closed through the regulatory process and were provided statewide incentives for closing. The legislature envisioned that regional landfills would be created and used by nearby towns. Having only one landfill on the edge of the state was not the long-range goal for the legislature.

The 1987 ACT 78 (Solid Waste Act) is considered and has guided the development of the Solid Waste Management Rules and the statewide Material Management Plan. Under Act 78, much of the responsibility for solid waste management and development of solid waste facilities was designated to local authorities and private entities. The State provided the guidance on what management practices would need to be implemented and the permitting authority to ensure that those management activities were followed. Initially, several regional landfills were proposed and developed following implementation of Act 78; however, the cost associated with these regional landfills proved untenable. Currently, in addition to the NEWSVT, Inc. landfill, there is one other site capable of hosting a regional scale landfill, that has been approved and certified by the Program for construction and operation. The solid waste district that owns this site has decided not to construct at this time, nor is there a tentative timeline for its development. No other municipalities or private entities have submitted proposals to develop a disposal site at this time.

46) Doesn't allowing an expansion that will take the next 22 years of waste discourage regional landfills to develop? Doesn't this create a monopoly in the landfill industry in Vermont? What entity will invest in a landfill knowing the potential resistance when this site has such a large capacity? By allowing the expansion, other entities will not have an incentive to start the process.

The Program is obligated to consider any application submitted for conformance with the Solid Waste Management Rules. The Program does not have the authority to deny a certification application for the purpose of incentivizing development in other regions of Vermont. The investment to develop a landfill is significant for any entity, regardless of regional competition in the industry.

47) Does the landfill have a height limit?

Yes, the final vertical limit of the waste is 1,076 feet above sea level. Final waste grades and height limits were submitted as part of the application and approved during the review process. The slopes and final slopes were designed to satisfy the requirements of the Vermont Agency of Transportation, the Federal Aviation Administration, and the Permittee.

48) Will the landfill be more visible?

The comment cannot be accurately answered without a specific location identified. The height of the current landfill is approximately 970 feet above sea level. The expansion will increase the elevation of the area to the south of current landfill operations to a maximum of 1,076 feet above sea level. This will result in the landfill being more visible from certain locations.

Conditions of a Certification

49) Can this expansion be limited with conditions that will incentivize towns and generators to construct regional landfills? Can the expansion be limited to a one-year capacity? A one-year expansion puts all generators on notice that an alternative solution is needed and that this site does not have infinite capacity.

The Program cannot place conditions in the certification to incentivize towns or generators to construct regional landfills. If the applicant demonstrates that the proposal meets the Rules then the Program is obligated to process the application and draft a certification that requires the landfill operations to attain the performance requirements of the rules. The duration of any solid waste certification is limited to no more than a ten-year period by statute (§6605(a)(1)). Given the infrastructure installation associated with the construction of a landfill, a one-year permit duration would not provide the Program with the opportunity to review and approve the landfill as a cohesive application and development project.

50) Can the conditions in the certification be changed to address the odors, traffic, and conditions of the roadways? All need to improve if an expansion is to be considered.

The Program does not have the authority to address traffic or conditions of the roadways, these components are addressed under Act 250 review under Criteria 5-Transportation. The Program does have the ability to place conditions in the certification addressing odors and such conditions were included within the draft certification. The conditions within a certification are performance based, requiring the operations to occur in such a manner as to not cause nuisance odors. By utilizing performance-based conditions within a certification the Program maintains the ability to require ongoing improvements to operations and management strategies to minimize offsite landfill odors.

51) Can the length of the certification be changed to five years? 10 years for the certification is too long with all the changes in recycling and composting.

The Program is authorized to issue a certification up to a ten-year duration by statute 10 V.S.A. §6605(a)(1). The Permittee requested a ten-year certification and the Program agrees with this duration given the Program's ability to amend a permit on its own motion if changing conditions warrant such additional review. Changes to statewide recycling and composting may have significant impacts on solid waste management within the state and may be one of many factors that would warrant an amendment to the certification. If an amendment to the certification of a solid waste facility were deemed necessary, the amendment would go through a public process similar to the current certification review.

52) Can the Agency limit the acceptance of ground C&D, Paper sludge, contaminated soils or sewer sludge as landfill alternative daily cover? They should not be allowed to be used as ADC.

Yes, the Program does approve materials for use as alternative daily cover and could limit their acceptance. The *Procedure for Approval of Alternative Daily Cover at Solid Waste Landfills* dated February 8, 1999, defines the performance standards that these materials must attain in order to be approved and if any approved materials were demonstrated to not be capable of attaining these performance standards they could be removed from the approved alternative daily cover materials.

Currently, ground construction and demolition debris is not approved for use as alternative daily cover and it is not being used as such at the landfill. There have been no performance issues with the materials that have been approved and are being used at this time. The Program does not have sufficient evidence that these materials are not performing as intended to determine that removal any of these materials from the approved alternative daily cover list is necessary.

State Oversight

53) Are the inspections planned?

Program inspections occur at least once every three months, are unannounced and are not on a schedule that can be predicted by the Permittee.

54) Does the State monitor the statewide quantities of all sites receiving waste like transfer stations? Does the State know how many companies have gone directly to the landfill?

All permitted solid waste facilities are required to report on the quantity of solid waste managed. This includes recycling drop-offs, transfer stations, compost facilities and landfills. These facilities are required to specify the region that the waste generated within and the destination of that waste by tonnage and material type. Reporting by individual solid waste transporters is not required. The facility reports are available from the Program for public review upon request.

The Permittee does report on the waste delivered to their facility in a compiled format, that corresponds to the reporting required of any solid waste facility in Vermont. Waste tonnage and type is reported as being generated within the broad regions of Vermont, not by individual companies. The landfill does maintain scale tickets for all loads delivered to the site which includes origin location of the waste, name of the hauler, quantity and type of waste delivery. These scale tickets are maintained at the landfill for a period of at least five years and are available for review by the Program if needed.

55) Are public records available of ANR or ANR-hired field inspectors who certify the public oversight and approval of the hot welding of synthetic liner seams during new liner installation?

The Program does regularly visit the facility during the construction of a landfill cell and the installation of the landfill liner to provide oversight and inspection. The solid waste certification requires the landfill owner's contract with an independent third-party inspector for the performance of oversight and testing of the liner installation. Although this inspector is contracted by the landfill they are independently certified and the results of their inspection and test is submitted to the program for review and approval. The Program's reliance on the engineer's signed certification that the landfill was constructed in conformance with required quality assurance and quality control measures relies on the professional accreditation program accepted by the engineering practice. The review and oversight of the inspector's report is performed by the Program and these records are available for public review.

56) Is there a complaints log so the State can follow up? Are these used when odors are addressed? Does every odor complaint get addressed? Both landfill and state vehicles are seen on the road by the houses.

The Permittee is required to maintain a complaint log at the facility. Those logs are inspected by the Program's Inspector during each inspection event and are available for Program review at any time. The Inspector also maintains a complaint log for all complaints received by the Program and follows up with an investigation and these records are available for public review.

57) Does each truck get sampled before dumping? If not, can a condition be added that a State employee be required to sample each truck and test the waste prior to disposal in the landfill? This is done in agriculture and the farmer is responsible for the results.

Approximately 70% of the waste disposed at the landfill consists of municipal solid waste. This waste is not homogenous in its composition within a load or between loads and its generation by individual residents makes it difficult to evaluate. Testing of this municipal solid waste would not be representative of any individual load or of the waste mass in general.

The Program's approach to minimizing materials in the waste stream that have potential to create nuisances, environmental hazards or public health risks has been to place landfill bans on materials when appropriate, support convenient access to management options other than disposal and provide education of alternatives to disposal. These efforts are intended to reduce the risk from municipal solid waste.

The remaining 30% of the waste disposed consists of discrete material types such as ash, wastewater treatment plant sludges, contaminated soils, sewer grits, and paper sludges. Due to the nature of these wastes, testing of these materials can be representative and can be required by the Agency prior to disposal.

58) Will there be better oversight of the existing landfill to protect the area watershed? The landfill is too close to the water and damage has already begun. Do not allow an expansion to make it worse.

The current landfill operations have not resulted in any off-property contamination of the watershed. The Program will continue to provide the oversight needed to ensure protection of human health and safety and the environment and compliance with environmental regulations.

Application Process

59) Are the comments being heard? Will there be a response?

The Program does review, consider and respond to all comments received. This responsiveness summary should include, in an aggregated format, discussion of all comments received during the public comment period.

60) Are public notices still in the newspapers?

The Solid Waste Management Rules provide the requirements for the public noticing of an application and draft certification of a solid waste facility. As described in §6-305 of the Rules, public notice was provided within a daily and a weekly newspaper at the point of draft certification issuance on June 6, 2018. The public notices are not required to be continued throughout the entire public comment period.

61) Are plans available at the facility?

The application, including the site plans are available at the facility or can be obtained digitally from the Program for review.

62) Why did ANR approve a variance in November 2016 to encroach closer into buffer area of the designated wetlands? Is there a copy of the request for variance, warnings to the public, public hearings held, minutes of those hearings, and the testimony of an ANR ecologist available? If not, what is rationale for not requiring ecological input?

An approval for a variance from the 300-foot isolation distance from a solid waste facilities waste management boundary to waters was obtained from the Program in November 2016. The variance approved a reduction of the distance required by the Rules but maintained a 160-foot setback distance. The Program review determined that given the configuration of the wetland of concern, the Program's ability to mitigate impacts to human health and the environment was not impaired by this decreased distance.

In addition to the Solid Waste variance, the ecological impact to the wetland was evaluated by the United State Army Corps of Engineers and Vermont Department of Conservation Wetlands Program. The Army Corps of Engineers approved the activity on April 11, 2016 but required a mitigation payment to be made to Ducks Unlimited – Vermont In-Lieu Fee Program. The Vermont Wetlands Program approved the activity on June 30, 2016 with no conditions.

The solid waste draft variance was publicly noticed to adjoining landowners and within a daily and a weekly newspaper on August 31, 2016 with the public comment period ending on September 30, 2016. A single comment letter was received during this process and a responsiveness summary was prepared addressing the Programs consideration of these comments. The responsiveness summary and the issued variance are publicly available and can be requested through the Program.

63) What is the reasoning from the landfill owner for the request to expand this landfill?

The facility is running out of capacity within the currently permitted area and the Permittee wishes to continue operations at the facility.

Traffic

64) Why are the tractor trailers allowed to travel through adjoining communities instead of being limited to Interstate 91 and using exit 5? Will a designated traffic route be a condition in the expansion certification? Without a designated route, damage to Routes 14, 105, 58, and 5 will increase. These routes are close to houses and camps. Will the State monitor these trucks speeds and other safety considerations? Using interstate routes will preserve the conditions of the state roads and will not affect the tippage fees, though it will increase the hauling fees for the western towns.

The Program does not have jurisdiction over truck traffic. A condition cannot be added to the Solid Waste Facility Certification. Transportation is considered under Criteria 5-Transportation of the Act 250 review and safety concerns can be addressed to the Agency of Transportation.

69. Why are the state roads allowed to carry more tonnage than the federal roads? The road damage from heavy loads increases in high altitude and snow belt areas as well as congested sections.

The Solid Waste Management Rules do not have jurisdiction over transportation, concerns regarding tonnage limits may best be addressed the Agency of Transportation.

70. Are pedestrians and bicyclists safety considered in the review? The west to east routes serve as the main commuter routes from various communities to the Burlington area with limited safe passing lanes and narrow to no shoulders for pedestrians and bicyclists.

The Solid Waste Management Rules do not have jurisdiction over pedestrian and bicyclist safety issues off of the facility. Transportation is considered under Criteria 5-Transportation of the Act 250 review and safety concerns can be addressed to the Agency of Transportation.

71. Can a condition be added that the State improves the designated routes to handle truck traffic? Can this be financed with an impact fee on the tonnage hauled to the landfill? The towns, like Irasburg, along these routes feel the impacts of truck traffic and their noise. Areas of the routes that need improvements include replacing the twisted bridges, widening shoulders, reinforcing the roads for the heavy loads, adding pull off areas, increasing passing lanes, and add pedestrian/ bicycle lanes.

The Program does not have jurisdiction over truck traffic. A condition cannot be added to the Solid Waste Certification. Transportation is considered under Criteria 5-Transportation of the Act 250 review.

72. Can Route 5 receive special protection as a natural heritage corridor? Route 5 from the village of Coventry to the Airport Road is located between the Black River and a hillside where people fish, ride bike and enjoy nature.

The Solid Waste Management Program does not have authority over any designation of the Route 5 corridor.

Comment from September 10, 2018 Meeting

73. Why is the landfill allowed to hire their own consultants to perform the monitoring of the facility?

The Program does require significant monitoring of the various landfill infrastructure components but relies on the Permittee to retain the services on an independent contractor to conduct this work. While the Program does not have the capability or capacity to complete the monitoring independently, all results are submitted to the Program for review, consideration and approval. This process relies upon the professional accreditation of the consultants and laboratories to which samples are submitted and is standard practice throughout the United States.

Fact Sheet Comments

74. §6-503 Siting Standards(b)(3):

- Last paragraph on page 9: Re-phrase last sentence where it states, "odors from the existing operations have not been an issue." Numerous odor complaints from the Lawson/Maple Ridge area have been called in.
- Second paragraph on page 10: Revise the second sentence to read, "The road is northwest of the Facility".
- Second paragraph on page 10: Revise the last sentence to read, "The landfill is visible from residences in this area and on Lawson Ridge with an eastern facing viewshed..."

75. §6-606 Disposal Facilities(b)(2)(J), page 17: Noted that "odor control plan" is presented in the FMP.

76. §6-701 General Standards Applicable to All Facilities (6), page 19: State that odor issues will be minimized.

These comments on the Fact Sheet have been noted by the Program. The Fact Sheet was issued with the draft certification and will not be reissued as part of the permitting process; however, these comments have been taken into consideration in the drafting of the final certification.

Draft Certification Comments

77. Conditions and Requirements for Construction and Operation, Materials Management, Condition #31(f), page 9: Remove "shall be taken" and to read, "*All practicable steps to prevent...odors, or emissions or discharge of contaminants*"

The Program agrees, and the condition has been revised.

Comments from the Permittee

- A. 9th bullet, Section 2.1 of the Facility Management Plan. We are seeking approval to add this language to our Draft Facility Operating Plan which is a component of the Draft Facility Certification;**

“Special solid wastes from outside Vermont which are not hazardous and have been approved by NEWSVT and the Solid Waste Management Division may be accepted. Special solid wastes from inside Vermont which are not hazardous and have been approved by NEWSVT may also be accepted. This would include Ash residue that could be mixed with sludge to control nuisance odor.

Ash residue would be considered a special waste and does not need to be specifically addressed. The Program did not add the language specifically addressing ash to the certification.

- B. Condition #6 – Please consider revising the condition as follows:**

The permittee shall install marker indicating the edge location of the subsurface liner system. The limit of waste markers shall remain until the waste is placed to the horizontal limit and be replaced as needed, or as requested by the Secretary. ~~until final closure of the Facility.~~

Maintaining waste limit markers until final closure could be a decade or longer in some areas and provides little value where waste is not actively being placed. This is an unnecessary cost, NEWSVT would be more than willing to identify (stake-out) this limit at the Secretary’s request to demonstrate proper horizontal control.

The Program disagrees, and no changes have been made. The protection that the markers provides to the subsurface liner system is substantial and there is not sufficient evidence that the cost is prohibitive.

- C. Condition #15 – Please consider amending the due date for the annual inspection to August.**

NEWSVT performs an annual aerial survey in June and this would allow sufficient time to prepare the settlement evaluation required by condition #15.

The Program agrees with the request to delay the annual aerial survey until June of each year; however, would still like the engineer’s inspection to occur in May with the report submitted in August. This provides the Program with sufficient time to review and request any actions needed based on the engineer’s report during the summer months.

To accommodate the request for a delayed date of submission on the aerial survey report, the

Program has separated the requests for the engineer's inspection of the landfill facility from the request for the interpretation of the aerial survey into two conditions. This has resulted in an additional condition (16) and revisions to conditions 15 and 79. The report on the interpretation of the aerial survey is now due September 1 of each certification year.

D. Condition #22(e) – Please consider revising the definition of “Approved Material Recovery Facility Residuals” to as follows;

“Approved Material Recovery Facility Residuals” means waste accepted in accordance with 10 V.S.A. § 6605(b)(3)(B). Processed residuals from a non-implemented material recovery facility need not remove 100 percent of mandated recyclables, if the ~~disposal~~ recycling facility submits a plan demonstrating that mandated recyclables have been removed to the maximum extent practicable and the Plan has been approved in writing by the Secretary.”

The Program disagrees, and no changes have been made. The Program has no authority over the out-of-state material recovery facility and statute places responsibility for submission of the plan on the Vermont disposal facility.

E. Condition #22(f) – Please consider revising the definition of “Approved Special Waste” to as follows;

~~Approved Special Waste” means non-implemented contaminated waste, with the presence of hazardous materials~~ nonhazardous solid waste that by its contaminated nature or physical characteristic requires special review. To be approved for disposal, the facility must demonstrate that this waste is not considered regulated hazardous waste pursuant to Subchapter 2 of the Vermont Hazardous Waste Management Regulations and obtain written approval from the Secretary for disposal.

The Program agrees, and the condition has been revised.

F. Condition #23 – Please consider revising the condition as follows:

The Permittee shall provide the following information when making a request to dispose ~~for approval of the disposal~~ of Processed Construction and Demolition Debris or Material Recovery Facility Residuals: The location of the processing facility; a copy of any solid waste facility certification that the processing facility holds; a narrative description of the processing that takes place at the facility,

including specific information on how Vermont landfill banned materials are removed; a certification that the process residual is solely construction and demolition debris or material recovery facility residuals ~~and the process residual contains no municipal solid waste~~; and a certification that mandated recyclables, hazardous wastes, and yard wastes have been removed to the greatest extent practicable from the processing residual.

The Program agrees with changes to the first sentence, and the condition has been revised. However, the Program is retaining the language ‘*and the process residual contains no municipal solid waste*’. Although this language is repetitive, the inclusion provides additional clarity.

G. Condition #24 – Please consider revising the condition as follows:

The Permittee shall provide the following information when making a request for approval of Special Wastes: The origination location of the materials, the owner of the materials, a brief history and description of the origination site or materials, duration of the project, a copy of sufficient analytical data demonstrating that the material is not a regulated hazardous waste and a narrative describing that the ~~material is uniform and consistent such that the analytical data provided is representative of the materials to be disposed, safety data sheets, if applicable, and an estimated amount of material.~~

Consistent to previous discussions with the Agency, please modify this condition to remove the terms “uniform and consistent”. These terms are not defined and open to interpretation. The generator is ultimately responsible to ensure the entire waste stream proposed for disposal is non-hazardous and the analytical data is representative.

The Program disagrees, and the condition will remain as drafted. In this context the use of uniform and consistent provides guidance on what the Program will be using in its evaluation of whether the provided analytical data is sufficiently representative of the materials. The definition of ‘Approved Special Waste’ does not require that the material be uniform and consistent, which is consistent with previous discussions.

H. Condition #25 – Please consider revising the condition as follows:

The Permittee shall not accept for disposal at the Facility Non-Implemented Waste without approval from the Secretary. The Permittee may accept Approved Solid Waste and Approved Processed Construction and Demolition Waste, Approved Material Recovery Facility Residuals and Approved Special

Waste only in accordance with the standards set forth in the Secretary's written approval for each particular waste type.

The Program agrees, and the condition has been revised.

I. Condition #55 - Please consider revising the condition as follows:

In accordance with §10 V.S.A 6605(j)(2), the Permittee shall offer parallel collection for leaf and yard waste at the Facility between April 1st and December 15th.

Consistent with amended legislation in 2018.

The Program agrees, and the condition has been revised.

J. Condition #57 - Please consider revising the condition as follows:

All Source separated food residuals and organics that are removed from the facility shall be transported to a certified or registered treatment Facility on a schedule adjusted to control odors and vectors from the waste.

The Program generally agrees, and has amended the condition to read: 'Source separated food residuals and organics collected at the public drop off shall be transported.....'.

K. Condition #65 - Please consider revising the condition as follows:

During the first week of each month, the Permittee shall collect field measurements for temperature, pH, ~~and~~ specific conductance and an estimated instantaneous discharge rate (gallons per day) from the five underdrain discharge points (Phases I, II, III, IV and VI).

The Program generally agrees and has amended the condition.



- L. Condition #69 – Please consider eliminating the requirement to sample each individual primary leachate system. NEWSVT would propose to sample the consolidated leachate which is a cross section of primary and secondary flows and more representative of what the wastewater plants receive. Sampling each primary every May and October has little value real time value (unless the action leakage rate were exceeded) and is costly.**

The Program disagrees with the removal of the semi-annual sampling of the individual primary leachate systems and no changes have been made. The semi-annual sampling provides a base-line for evaluation of the performance of the system but does agree that it does not provide ‘real-time value’. If there were to be an action leakage rate exceedance the regular monitoring would provide valuable information on any changes due to the leakage and may help isolate any issues with the individual leachate systems. The analysis of the individual primary leachate systems also may provide information on the performance of any interim or final capping in place over the individual cells.

- M. Condition # 73 - Please consider revising the condition as follows:**

On or before the 15th day of each month, the Permittee shall submit the following data to the Program:

- a. records of daily leachate flows required by Condition 62;*
- b. records of the quantity of leachate pumped, quantity of leachate shipped and the name of the facility receiving the leachate for the previous month as required by Condition 63; and*
- c. field measurements for temperature, pH, specific conductance and ~~discharge volume~~ flow rate from the underdrain system as required by Condition 65.*

The Program agrees, and the condition has been revised.

- N. Condition # 78 - Please consider eliminating this condition as it is already included in Condition #77.**

The Program is retaining this condition for the September submittal of the engineer’s interpretation and evaluation of the annual aerial survey.

- O. Condition # 79 - Please consider extending the submittal of sampling results to “60 days after the receipt of all analytical laboratory results”, rather than 45 days.**

With the amount of data requiring analysis and formulation, 45 days does not give NEWSVT a reasonable amount of time to assess the data, perform a full round assessment, quality assurance review, graph and review against historical results and get the full report assembled and submitted.

While the Program generally agrees with providing additional time, the addition of 60 days after receipt of all analytical laboratory results is problematic. The certification requires that sampling occur in May of each certification year. A review of recent years analytical results indicate that analytic reports are typically completed 24 days following receipt of the samples at the laboratory. Under this average scenario, samples taken on May 31st would result in a report due mid-August. The Program would be comfortable with this timeline. However, there are occasions when receipt of the report from the laboratory is delayed for some component of the sampling suite. For example, in the Spring 2018 report, analytical results from the laboratory were not received until 60 days following their submission. This could potentially delay submission date of the report to the Program until the end of September. This would not provide the Program with sufficient time to review on the Spring report prior to the Fall Sampling.

For this reason, the Program has amended the certification to read:

The Permittee shall submit sample results required by Conditions 68-69 of this Certification within 60 days of receipt of the analytical data and no later than August 15th and January 15th of each year.

- P. Condition # 94 - Please consider eliminating this condition as it is included in Condition #77 and consider adding notes to Condition #15, that items (g) & (h) are only required during active operations.**

The revisions that the Program made to conditions based on earlier comments regarding Condition 15 make this consideration of this comment redundant and unnecessary.

Summary of Changes Made from Draft Certification to Issued Certification

The summary below provides an overview of all significant changes (does not include grammatical or typographic corrections) to the text of the issued certification when compared to the draft certification provided for public notice.

Purpose and Description: Removal of the word “on-site” in second sentence to remove repetition.

Application Review: Clarification that a copy of the application can be obtain at the Program offices for the duration of the certification.

Finding P: Clarification that it is an agreement, not a contract between the Permittee and Washington Electric Co-op and clarification on the gas to energy facility operations.

Finding S: Updated to reflect the dates of the public comment period.

Finding T: Updated to reflect requests for additional groundwater sampling that occurred after the public comment period.

Condition 2: Clarification that the application includes correspondence and revisions completed on the application throughout the decision-making process.

Condition 5: Clarification that the potable well supply decommissioning will be completed to attain isolation distances as required by Subchapter 5.

Condition 6: Additional statement that no waste shall be deposited beyond the marked liner limits.

Condition 9: Clarification and removal the requirement that the pretreatment discharge permit be issued by “the VTANR Wastewater Management Division”. By not naming the division explicitly the permit maintains the pretreatment discharge requirement even if the division name changes or the pretreatment discharge permits are obtained outside of Vermont.

Conditions 15 and 16: In order to allow the annual aerial survey to occur in June of each year, separately from the May Engineers inspection, these two requirements were separated. Added “performance and maintenance’ language to clarify what the discussion of the various systems should include.

Condition 18: Language clarification that tonnage increases are approved by the Program through an administrative amendment, not just written approval.

Condition 23(f): Language clarified.

Condition 24: Amended language to reflect that household hazardous waste should be removed to the greatest extent feasible, while hazardous wastes are not permitted for disposal.

Condition 26: Addition of “without approval from the Secretary” to clarify that Approved Solid Waste, Approved Processed Construction and Demolition Waste, Approved Material Recovery Facility Residuals and Approved Special Waste may be non-implemented wastes.

Condition 27: Removal of combustion from this requirement as it is not relevant to this facility and clarification that all landfill banned materials are prohibited from disposal, not just mercury added products.

Condition 32(f): Removal of “shall be taken” from this particular requirement of the condition, repetitive.

Condition 42: Addition of the requirement to report odors to the Agency within 24hrs or next business day.

Condition 56: Addition of the dates which the cited statute requires leaf and yard waste collection at the facility, for clarity.

Condition 58: Language change to clarify that this condition applies to food scraps collected at the public drop off only.

Condition 66: Language change to clarify that the discharge rate is instantaneous during the field visit, not over the course of the entire first week of the month.

Condition 69: Added condition to require ongoing PFAS monitoring during the certification period at nine monitoring wells. Eight monitoring wells are located at the point of compliance and one is proximal to the unlined landfill.

Condition 70: Added the requirement to sample Per- and polyfluoroalkyl substance (PFAS) testing utilizing MLA 110 method of underdrains only.

Condition 71: Addition of a requirement to analyze for PFAS during the semi-annual monitoring of leachate within the combined leachate above-ground storage tank. Although the detections of PFAS within leachate and groundwater at this site are not above any standard currently ongoing monitoring to determine any trends is prudent.

Condition 74: Addition of a requirement to review and test sources of waste with potential for contributing to elevated PFAS concentrations within the leachate.

Condition 76: Addition of a monthly reporting requirement to provide the Program with results of the explosive gas monitoring, bird management monitoring program and gas probe monitoring required by Condition 65, 72 and 73 of the Certification.

Condition 79: Addition of a reporting requirement for any HHW/CEG Collection events held at the facility as permitted by Condition 54.

Condition 81: Language changed due to the separation of the spring annual engineer’s inspection and the June aerial survey reports.

Condition 83: Condition amended to provide the Permittee with 60 days instead of 45 days for the submission of the water quality sampling results and reports, however a no later than date was also included in order to provide the Program with sufficient time to review and comment on submitted materials prior to the subsequent semi-annual monitoring event.

Condition 85: Addition of a reporting requirement for the submittal of the waste source testing for PFAS, required by Condition 74. The sampling plan shall be submitted prior to the sampling for review and approval and a final report submitted within 12 months of certification issuance.

Condition 86: Addition of a reporting requirement for the submittal of a report on at least four leachate treatment options other than the currently existing treatment options

Condition 90: Addition of a requirement to notify the Program of significant operational incidents or interruptions that occur at the facility, even if that are not issues of non-compliance.

Condition 91: Clarification of response language to make consistent with language within 10 V.S.A 6615.

Condition 100: Amended to clarify that this requirement is not repetitive of earlier conditions and applies to the post-closure period only.

ATTACHMENT A

Memo: Next Steps to Address Concerns Regarding Poly- and Perfluoroalkyl Substances (PFAS) in Landfill Leachate





Memo: Next Steps to Address Concerns Regarding Poly- and Perfluoroalkyl Substances (PFAS) in Landfill Leachate

Date: October 12, 2018

Background – Poly and Perfluoroalkyl Substances (PFAS)

Poly and Perfluoroalkyl Substances (PFAS) are used in the production of numerous household items including nonstick cookware, stain resistant textiles (clothes, furniture, carpets), packaging, cleaning waxes and they are utilized in other commercial and industrial applications (metal plating, fire-fighting foams, electronics production). Based on available information, there are thousands of poly- and perfluoroalkyl substances currently in commerce and present in commercial and industrial applications.

PFAS have been described as emerging contaminants, compounds that occur widely in the environment but for which only minimal data is available to assess their risk. While there has been some regulatory action in the past, PFAS have been of greater regulatory concern in Vermont since the 2016 discovery of the PFAS problem in Bennington. Evaluation of health and ecological impacts are taken on a chemical by chemical approach with significant resources being expended to develop necessary toxicologic and epidemiological information needed to adopt regulatory standards. Because of this, there are a limited number of States that have adopted enforceable drinking water advisories for PFAS. The State of Vermont has issued drinking water health advisories for five PFAS compounds: Perfluorooctanoic acid (PFOA), Perfluorooctane sulfonic acid (PFOS), Perfluorohexane sulfonic acid (PFHxS), Perfluorononanoic acid (PFNA) and Perfluoroheptanoic acid (PFHpA). The Health Advisory for drinking water in Vermont is 20 parts per trillion (ppt) for the sum of these five PFAS compounds. Beyond human health, the evaluation of potential ecological impacts of PFAS on natural communities has been even more limited.

In light of the extensive use of PFAS, and the evolving nature of our understanding of the behavior of these compounds in the environment, the Vermont Department of Environmental Conservation (DEC) has focused on conducting a [multisector sampling effort](#) to evaluate the potential impacts of PFAS from various commercial and industrial sectors.

PFAS at Wastewater Treatment Facilities: Wastewater can contain PFAS from manufacturing and industrial processes, the use and disposal of consumer products, and landfill leachate (which is often transported to WWTFs for treatment). Conventional WWTF treatment processes do not efficiently remove PFAS; WWTF treatment processes can lead to physical or chemical partitioning of the various PFAS compounds into either the treated liquid (effluent) or into the solids (sludges) which then may serve as sources of PFAS to the environment. For any pollutant, limits on acceptable concentrations in treated wastewater are derived from surface water quality criterion, standards which have been calculated to be protective of human health and the environment. To date, two states have adopted PFAS-related surface water standards: Minnesota and



Michigan, and only for two PFAS compounds: PFOA (720 and 420 ppt, respectively) and PFOS (6 ppt and 11 ppt, respectively).

PFAS in Landfill Leachate: The disposal of industrial waste, sewage sludge, and consumer goods can lead to PFAS being present in the fluids (leachate) that drain through landfills. Modern landfills are lined to prevent the migration of these fluids into the environment and ensure that leachate is captured for treatment. Given variability in the types and ages of waste disposed of within a landfill at any given location, PFAS concentration in landfill leachate can vary considerably. A Canadian study reported mean concentration value of a number PFAS compounds from 28 landfills to be 2,950 ppt, with the highest concentration report at 21,300 ppt (Li et al., 2012). Work by Busch et al. (2010) evaluated the concentration of individual PFAS compounds within landfill leachate and observed a mean PFOA concentration of 197 ppt (maximum: 1,000 ppt) and a mean PFOS concentration of 97 ppt (maximum: 1,500 ppt).

In January 2018 DEC obtained samples for PFAS analysis of landfill leachate and wastewater treatment facility (WWTF) influent, effluent and biosolids from all (five total: NEWSVT, Moretown, Randolph, Chittenden Solid Waste District and Burlington City) of the lined landfills in Vermont, and the Vermont WWTFs (six total: Montpelier, Newport, Burlington Main, South Burlington Airport, Barre and Randolph) that manage leachate from those facilities. This sampling included leachate from the New England Waste Services of Vermont landfill (NEWSVT) and the Newport WWTF. The full report of this work is available [here](#).

The concentrations detected within the NEWSVT landfill leachate and at the Newport WWTF are similar to the detections and concentrations at the other lined landfill facilities and WWTFs tested within Vermont and other published concentrations. The mean concentration of PFOA within Vermont leachate was 1,295 ppt (maximum: 2,110 ppt) and the mean concentration of PFOS within Vermont leachate was 183 ppt (maximum: 278 ppt).

NEWSVT Permits

Operation of the NEWSVT, Inc. (Permittee) landfill requires several permits from the Department of Environmental Conservation (DEC), including air pollution control, stormwater management, solid waste facility construction, solid waste facility operation and NPDES (national pollution discharge elimination system) pretreatment discharge. On March 31, 2017 NEWSVT applied for the expansion of the landfill footprint and continued operations. On June 6, 2018, the DEC issued a draft certification and fact sheet. The DEC opened a public comment period on the draft certification that concluded on July 20, 2018. As part of this public comment period, public concerns were raised about the treatment of leachate from the NEWSVT facility at the Newport Wastewater Treatment Facility (WWTF) and potential impact on Lake Memphremagog, especially due to the recent discovery of PFAS in the leachate. This concern derives from the fact that the effluent from the Newport WWTF is discharged to a heavily used Class B receiving water – the Clyde River – close to its confluence with Lake Memphremagog, which serves as an important water supply source in Canada.

NEWSVT holds a pre-treatment discharge permit which limits which WWTFs that the landfill is permitted to transport the landfill leachate to for treatment. DEC is currently reviewing an application for renewal of the



NEWSVT landfill facility pre-treatment discharge permit; this permit is separate from the Solid Waste Facility Certification.

Utilizing PFAS concentrations measured at the Newport WWTF, the DEC has calculated likely receiving water concentrations of PFAS downstream of the Newport WWTF within the Clyde River. These calculations show that the PFAS concentration within the Clyde River would be lower than Health Advisory for drinking water (20 ppt) as established by the Vermont Department of Health. Notwithstanding these initial findings, the DEC has concluded additional evaluation of landfill operations and leachate management is appropriate to minimize potential impacts on local receiving waters.

References

Busch, J., Ahrens, L., Sturm, R., Ebinghaus, R., 2010. Polyfluoroalkyl compounds in landfill leachates. *Environmental Pollution*, 158, 1467-1471.

Li, B., Danon-Schaffer, M.N., Li, L.Y., Ikononou, M.G., Grace, J.R., 2012. Occurrence of PFCs and PBDEs in landfill leachates from across Canada, 223, 3365-3372.

Next Steps

Following the issuance of the NEWSVT Solid Waste Facility Certification on October 12, 2018, the DEC will be implementing and requiring the following actions. The NEWSVT landfill is currently operating under a Solid Waste Facility certification which requires leachate collection for the purpose of protecting groundwater, and a NPDES pretreatment discharge permit. An application for the pretreatment discharge permit is currently being reviewed for recertification. This review of the NPDES pretreatment discharge permit and the issuance of the Solid Waste Facility Certification provides an excellent opportunity to evaluate various options for the management and treatment of the leachate. DEC is implementing the following steps, over the next year, prior to reissuing a NPDES pretreatment discharge permit for the NEWSVT landfill, with the DEC working on items #1 through #3 and NEWSVT required to complete items #4 and #5.

DEC Actions

1. The DEC will conduct a more detailed investigation into the concentrations of PFAS in Vermont leachate, WWTF influent and effluent and the surface water receiving WWTF effluent.

Reasoning: PFAS concentrations within landfill leachate can fluctuate depending on factors such as the waste composition, waste age and weather. Further evaluation is needed to better understand the fate and transport of PFAS from landfill leachate as it is processed through WWTFs. This evaluation will include more rigorous sampling of landfill leachate, WWTF influent, effluent and surface water sampling and will be conducted at times when the WWTF is processing landfill leachate. The DEC is currently developing the sampling plan and strategy to guide this work.

Timeline: Preliminary work will be completed by the end of calendar year 2019, prior to issuing a decision on the NPDS pretreatment discharge permit application, and with ongoing evaluation. Throughout this process DEC will keep interested parties updated through the sharing of information and will continue open discussion with the Landfill Oversight Committee. The sampling plan (locations and approach) will be distributed prior to completing the sampling events with results distributed to the Landfill Oversight Committee upon completion.

2. The DEC will evaluate existing information and data on treating PFAS containing wastes prior to or at the point of landfill disposal.

Reasoning: There may be options for managing PFAS containing waste which can reduce the release of PFAS to the landfill leachate and therefore the potential for environmental release. DEC will conduct an evaluation of existing or in progress work on methods used to reduce PFAS prior to disposal or reduce its potential for mobility. The DEC will also evaluate the feasibility of implementing these options within Vermont.

Timeline: Outreach has been initiated and the DEC is involved with numerous multistate organizations to coordinate on these issues. This work will be ongoing, but preliminary evaluation should be completed within 12 months following the issuance of the Solid Waste Facility Certification.

3. The DEC will continue to monitor other regulatory agency actions regarding PFAS in landfill leachate, WWTF receiving known sources of PFAS, and approaches to establish surface water criteria for PFAS that are protective of designated uses.

Reasoning: PFAS is an emerging contaminant and is a growing concern for all states and the EPA. There are a number of other States are actively in the process of requesting landfill leachate and WWTF sampling and are investigating what the appropriate steps are to address this issue. By coordinating with other States, DEC will have a broader dataset to consider including analysis from landfills and WWTFs, including data on the efficacy of treatment methods that have been used outside Vermont. There are also benefits to working with other regional agencies on evaluating appropriate surface water criteria.

Timeline: Outreach has been initiated and the DEC is involved with numerous multistate organizations, such as the Environmental Council of States (ECOS) and ITRC (Interstate Technical and Regulatory Council) to coordinate on these issues. This work will be ongoing.

NEWSVT Landfill, Inc. Actions

4. NEWSVT will manage landfill operations to promote the reduction of leachate generation.

Reasoning: A primary goal of the landfill infrastructure and successful landfill operations is the minimization of leachate production, this may also serve to reduce the total amount of PFAS that need to be managed within the leachate.

Although the footprint of the landfill will be increasing, the average daily volume of leachate generated will not be increasing at a rate proportional to the footprint. Areas of the landfill will be undergoing capping at the same time as the expansion is occurring, which will reduce the leachate generation in those areas. The Solid Waste Facility Certification requires that NEWSVT to implement best management practices to reduce leachate generation. In recent years, NEWSVT has implemented new approaches, such as the deployment of interim geomembrane capping, which are intended to reduce leachate generation with time. As these approaches are implemented DEC will continue to evaluate their effectiveness. The Solid Waste Facility Certification requires the submittal of aerial surveys which serve as the basis for determining areas appropriate for interim capping and it also requires that the DEC and NEWSVT annually discuss future plans for interim capping and the success of the installed systems.

Timeline: Ongoing as part of the Solid Waste Facility Certification review and evaluation of landfill operations.

5. NEWSVT will conduct a study of PFAS in waste being disposed at the landfill and a study of treatment options for leachate management.

Reasoning: NEWSVT has the ability to review and evaluate wastes from commercial or industrial sources that are disposed in the landfill. The Solid Waste Facility Certification to operate and construct issued to NEWSVT requires the Permittee to develop a sampling plan which will identify waste streams that have potential for high levels of PFAS and evaluate the range of PFAS concentrations in these wastes. This sampling plan will be submitted for review and approval by DEC prior to implementation. The results of this analysis will be reported to the DEC. Additionally, a copy of these reports will be submitted to the Landfill Oversight Committee. This evaluation will help guide the DEC's work in evaluating potential waste sources for which treatment prior to or at disposal may be appropriate.

In addition, the Solid Waste Facility Certification issued to NEWSVT requires semi-annual PFAS monitoring of the leachate and completion of a conceptual-level scoping study of at least two on-site and two off-site treatment options for leachate management. This evaluation must consider discussion the effectiveness of each treatment option in removing PFAS, the concentrations of PFAS that can be consistently removed by the treatment options, the overall reliability of the treatment and estimated implementation and operational costs associated with the discussed treatment options.

Timeline: The Solid Waste Certification requires that NEWSVT complete this work within 12 months of the Solid Waste Facility Certification issuance.