

State of Vermont
NATURAL RESOURCES BOARD
DISTRICT #7 ENVIRONMENTAL COMMISSION
374 Emeson Falls Road, Suite 4
St. Johnsbury, VT 05819

RE: New England Waste Services of Vermont, Inc.	Application #7R0841-13
220 Avenue B	Findings of Fact
Williston, VT	Conclusions of Law, and Order
05495	10 V.S.A. §§ 6001-6093 (Act 250)

I. INTRODUCTION

On October 6, 2017, New England Waste Services of Vermont, Inc. filed an application for an Act 250 permit amendment for a project generally described as an expansion of the existing landfill to develop approximately 51.2 acres of additional lined landfill capacity and ancillary leachate management infrastructure. The project includes stormwater treatment ponds, greenhouses, and three contiguous soil stockpiles to the south of the Phase VI landfill, and is located at 21 Landfill Lane, in Coventry, VT. The tract of land consists of approximately 1,056 acres. The Applicant's legal interest is ownership in fee simple described in deeds recorded in the land records of Coventry, Vermont.

A prehearing conference was held on November 15, 2017, a site visit was held on December 28, 2017, and a hearing was held on May 7, 2018. Pursuant to Act 250 Rule 13(B), the Commission recessed the hearing pending submittal of additional information by the Parties. A hearing recess order was issued on June 13, 2018 which outlined the specific additional information required from the Applicant. The required additional information included a Solid Waste Certification from the Agency of Natural Resources.

The applicant's response to the hearing recess order was filed on August 30, 2018, fully distributed on September 11, 2018, with supplemental information received on October 12, 2018 (solid waste facility certification). On October 26, 2018, the applicant also filed the "Solid Waste Management Facility Fact Sheet" and the October 12, 2018 "Responsiveness Summary" pursuant to a request from the Commission. Around this time, a number of additional (new) individuals and entities submitted various communications and untimely petitions for party status. On November 20, 2018, the Commission issued a decision to reconvene the hearing for the limited and specific purpose of allowing Parties and Friends of the Commission to rebut and/or respond to the Solid Waste Management Facility Certification ("Certification") (Exhibit 43) - including the Fact Sheet and Responsiveness Summary, and to the Air Pollution Control Division Permit (APCD Permit). The scope of the reconvened hearing was limited to these items, as they relate to Criterion 1(B) waste disposal and Criterion 1 air, respectively. The Commission required that all testimony and evidence be pre-filed and established a schedule, which included filing deadlines of December 20, 2018 (deadline for opponents) and January 18, 2019 (deadline for Applicant to reply to the pre-filed information from opponents). After the pre-filed information was received and distributed, the reconvened hearing was held on January 22, 2019.

The Commission adjourned the hearing on July 19, 2019 after receipt of the additional information, an opportunity for parties to respond to that information, and the completion of Commission deliberations.

As set forth below, the Commission finds that the Project complies with 10 V.S.A. § 6086(a) ("Act 250").

II. JURISDICTION

Jurisdiction attaches because the Project is a material change to a permitted development or subdivision, and thus requires a permit amendment pursuant to Act 250 Rule 34.

III. AMENDMENT APPLICATION – RULE 34(E)

The threshold question on an amendment application is “whether the applicant proposes to amend a permit condition that was included to resolve an issue critical to the issuance of the permit.” Act 250 Rule 34(E)(1).

In this application, the applicant does not seek to amend such a critical permit condition, so the Commission may consider the merits of the amendment application without conducting the rest of the Rule 34(E) analysis.

IV. PARTY STATUS AND FRIENDS OF THE COMMISSION

A. Parties by Right

Parties by right to this application pursuant to 10 V.S.A. § 6085(c)(1)(A)-(D) who attended the hearing are:

1. The Applicant, by Timothy M. Eustace, Matthew B. Byrne, Joe Gay, Brian Beaudoin, and others.
2. The Agency of Natural Resources, by Jennifer Mojo, Elizabeth Lord and others;
3. The Agency of Transportation, by Jen Davis and Larry Lackey;
4. The Agency of Agriculture, Food and Markets;
5. The Vermont Division for Historic Preservation;
6. Northeastern Vermont Development Association, by David Snedeker;
7. The Town of Coventry, by Michael Marcotte.

B. Interested Parties

Any person who has a particularized interest protected by Act 250 that may be affected by an act or decision of the Commission is also entitled to party status. 10 V.S.A. § 6085(c)(1)(E).

i. Preliminary Party Status Determinations

Pursuant to Act 250 Rule 14(E), the District Commission made preliminary determinations concerning party status at the commencement of the hearing on this application. The following persons or entities requested party status pursuant to 10 V.S.A. § 6085(c)(1)(E), and were either admitted as parties or denied party status, as indicated below:

1. Dan Gauvin, owner of adjoining property (2260 Airport Road), admitted under Criteria 1 and 8;
2. Chris & Rosemarie Roy, owners of area property (723 Maple Ridge), admitted under Criteria 1 and 8;

3. MRC de Memphremagog (MRCM), by Andy Raubvogel, Alexandra Roy, Zoe Sajor and others, admitted under Criteria 1, 1(B), 3, 7, and 9(K).

ii. Final Party Status Determinations

Prior to the close of hearings, the District Commission re-examined the preliminary party status determinations in accordance with 10 V.S.A. § 6085(c)(6) and Act 250 Rule 14(E) and found no reason to change its preliminary determinations.

C. Friends of the Commission

The District Commission allowed the following nonparties to participate as Friends of the Commission pursuant to 10 V.S.A. § 6085(c)(5). Unless otherwise noted below, each was granted the rights of full participation allowed under 10 V.S.A. § 6085(c)(5):

1. City of Newport, by Laura Dolgin and Paul Monette;
2. Magog-Orford County, Province of Quebec, by Gilles Belanger
3. Assemblée Nationale du Quebec
4. DUMP, LLC **
5. Robert Fortunati
6. Henry Coe
7. Tom Stelter **
8. Charlie Pronto
9. Other Individuals (see Exhibit 049I)
10. Conservation Law Foundation (“CLF”)
11. MCI - Memphremagog Conservation Inc.
12. Appalachian Corridor
13. Renaissance Lac Brome
14. Memphremagog Wetlands Foundation
15. Turkey Hill Sugarbush Ltd.
16. Parc D’environnement Natural de Sutton
17. RAPPEL
18. Association de la Riviere Magog, Inc.
19. APLM – Association pour la preservation du lac Magog
20. Cedarhurst Association
21. Conseil regional de l’environnement de l’estrie
22. Cogesaf – conseil de gouvernance de l’eau de bassins versants de la riviere Saint-Francois
23. Numerous other Canadian Individuals (see Exhibit 050f)
24. Town of Derby
25. Town of Barton
26. Newport Marina Condominium Association

The Commission notes that the persons or entities denoted with ** had requested party status and/or submitted communications which the Commission interpreted as a request for party status. All such ** persons requests were untimely, i.e. were late petitioners. The Commission applied the standard outlined within 10 V.S.A. §6085 (c)(3), below, emphasis added, with respect to these late petitions:

(3) Timeliness. A petition for party status pursuant to subdivision (c)(1)(E) of this section must be made at or prior to an initial prehearing conference held pursuant to Board rule or at the commencement of the hearing, whichever shall occur first, unless the District Commission directs otherwise. The District Commission may grant an untimely petition if

it finds that the petitioner has demonstrated good cause for failure to request party status in a timely fashion, and that the late appearance will not unfairly delay the proceedings or place an unfair burden on the parties.

Pursuant to 10 V.S.A. §6085 (c)(3), the Commission considered whether the late petitioners demonstrated good cause, and also considered whether or not the granting of an untimely petition would unfairly delay the proceedings or place an unfair burden on the parties. The Commission denied party status to ALL such untimely petitioners who had so requested. The Commission considered all of these requests, and found that none had satisfactorily demonstrated sufficient due cause to warrant a granting of untimely party status to such individual persons or entities, as a matter of fairness, potential for delay, adherence to process, and consideration of the specific cause contained in each request. However, the Commission admitted these untimely petitioners as Friends of the Commission, as indicated above.

Lastly, the Commission received a communication from Fred Webster which it interpreted as a request to participate as a Friend of the Commission. Mr. Webster did not identify a reason why he did not appear on time, his relationship to the project, nor specific information that could be relevant to the Act 250 criteria under consideration, and the Commission denied admission of Fred Webster.

V. FINDINGS OF FACT AND CONCLUSIONS OF LAW

The Applicant has met the burden of proving compliance with the following criteria through submittal of the application:

Therefore, the application shall serve as the Findings of Fact on these criteria.

1(D) - Floodways	9(C) - Productive Forest Soils
1(E) - Streams	9(D) - Earth Resources
1(F) - Shorelines	9(E) - Extraction of Earth Resources
1(G) - Wetlands	9(F) - Energy Conservation
4 - Soil Erosion	9(G) - Private Utility Services
8 – Natural Areas	9(H) - Costs of Scattered
8 – Historic Sites	Development
8(A) - Wildlife Habitat & Endangered Species	9(J) - Public Utility Services
9(A) - Impact of Growth	9(L) – Settlement Patterns
9(B) - Agricultural Soils	

The findings of fact are based on the application, Exhibits # 1 - 69, and other evidence in the record. Findings made in this decision are not limited to the specific criterion in which they appear, and may apply to other sections of the decision. To the extent that any proposed findings of fact are included in this decision, they are granted; otherwise, they are denied.

Under Act 250, projects are reviewed for compliance with the ten criteria of Act 250, 10 V.S.A. § 6086(a)(1)-(10). Before granting a permit, the District Commission must find that the Project complies with these criteria and, therefore, is not detrimental to the public health, safety or general welfare. The burden of proof under Criteria 1 through 4 and 9 and 10 is on the applicant, and on the opponent under Criteria 5 through 8, and 9A if the municipality does not have a duly adopted capital improvement program. 10 V.S.A. §§ 6086(a)(9)(A) and 6088.

General Findings:

1. The Project is an expansion of an existing previously permitted active lined landfill Facility. The Project will develop approximately 51.2 acres of additional lined landfill capacity identified as “Phase VI”. The Project includes ancillary leachate management infrastructure, stormwater treatment ponds, up to five greenhouses, and three contiguous soil stockpiles. The Project is located to the south of the “Phase VI” landfill, on a tract of land consisting of approximately 1,056 acres, located at 21 Landfill Lane, in Coventry, VT.
2. The Applicant has garnered support from the Town of Coventry and has acquired an array of permits from the Agency of Natural Resources. The result of this process is a well-designed landfill expansion that minimizes potential for impacts to human health and the environment.
3. The Applicant owns approximately 1,056 acres of land, in Coventry, Vermont as shown on the Locus Plan, Exhibit 16 (the “Property”).
4. Currently, the Applicant operates Vermont’s only active landfill on the Property (the existing “Landfill” or the “Facility”).
5. Portions of the Property have been used as a landfill for approximately 49 years.
6. Older portions of the existing Landfill, designated as Area A and Area B, are unlined and are located at the northern portion of the landfill area. These areas are closed and capped, and vegetation is well established on these capped areas.
7. Phases I, II, III and IV of the existing Landfill, located to the south of the unlined landfill areas, have primary and secondary liners, underdrain systems and leachate collection systems. Vegetation is well established on Phases I, II, and III. Phase IV is in the process of being filled with waste, to previously-approved final grades.
8. The Vermont Agency of Natural Resources, Department of Environmental Conservation, Solid Waste Management Program issued the Certification to the Applicant on October 12, 2018. Exhibit 43. The Certification authorizes continued landfill operations in Phases I, II, III and IV of the lined landfill, as well as the construction and operation of the Phase VI landfill area.
9. The Applicant estimates that the existing previously permitted Landfill will no longer be able to accept solid waste by ± 2022, based on current predicted rates of waste acceptance at the Facility, because the previously permitted capacity, and final grading, will be reached. To address the lack of capacity beyond ± 2022 in the existing Landfill, the Applicant is proposing to expand the existing Landfill by approximately 51.2 acres into areas located south of the existing Phase IV area (the subject Project, also identified as “Phase VI”).
10. The Applicant is not proposing any increase in the rate of acceptance of waste as a component of the landfill expansion Project. The existing Landfill is permitted to operate at a maximum annual waste acceptance rate of 600,000 tons per year and maximum daily waste acceptance rate of 5,000 tons per day, pursuant to Act 250 permit #7R0841-12, issued in November 2013. The Applicant is proposing to maintain these existing (maximum) rates as a component of the Project.
11. Landfill operations will be substantially similar to the existing Landfill operations.

12. It is estimated that the subject proposed Phase VI portion of the Facility will reach full capacity in approximately 22-25 years following initial placement of waste. The Applicant is requesting an Act 250 permit amendment with a duration of 35 years, i.e. that would authorize the Applicant to operate the landfill expansion Project (and complete closure system construction) over a period of maximum 35 years.

Criterion 1 - Air Pollution:

Findings of Fact

13. The air emissions, dust, odors, and noise resulting from the Phase VI Landfill are not expected to be substantially different from those of the existing landfill operations. Exhibit 1.
14. Dust can be produced by vehicular traffic on haul roads during active landfilling operations and during Project construction. The Applicant will control dust through the use of stabilized construction entrances, and through the use of water from the on-site stormwater detention ponds. This method of dust control has been used effectively at the site for many years and will continue. Further, road dust will be controlled by the maintenance of vegetation and the application of water and/or calcium chloride, as identified in the Certification.
15. The existing buildings located on the Property currently use fuel oil and propane as the fuel sources. There are no changes planned for these heating systems; and no additional fuel burning heating systems are proposed as part of the Project.
16. The Project includes construction of up to five (5) greenhouses. The greenhouses will be equipped to use a combination of geothermal and electric heat, and these systems will not create emissions to air. The greenhouses will use geothermal heating from piping installed in the landfill. The landfill geothermal heat may also be used to heat the sideslope riser buildings. Exhibit 1
17. Landfills generate methane and other gases as waste decomposes. The Applicant controls landfill gas odors by maintaining an active gas collection and control system ("Gas Collection System") and leases land for the operation of a landfill gas-to-energy ("LFGTE") facility to Coventry Clean Energy Corporation (a subsidiary of Washington Electric Cooperative) of East Montpelier, Vermont ("CCEC"). The LFGTE facility combusts the landfill gas collected by the Gas Collection System to generate electricity for approximately 7,000 Vermonters 24 hours per day and 7 days per week. During times of maintenance or when surplus landfill gas cannot be used by the LFGTE facility, the collected landfill gas is combusted in one of two previously permitted flares located to the southeast of the LFGTE facility, as a partial or complete back up to the LFGTE facility.
18. The objectives of the Gas Collection System include: (a) reducing landfill gas emissions, which contain the greenhouse gases methane (CH₄) and carbon dioxide (CO₂); (b) providing landfill gas as a fuel for the LFGTE facility; and (c) limiting the potential for nuisance odor and subsurface landfill gas migration. The Gas Collection System is designed to actively collect landfill gas while maintaining anaerobic conditions within the landfill by limiting air intrusion into the waste, in accordance with §6-606(a)(2) and §6-606(b)(2)(J) of the Vermont Solid Waste Management Rules.

19. Air emissions will be controlled via active management and maintenance of the landfill gas collection and control systems. The landfill gas monitoring plan is described in detail in the Facility Management Plan (“FMP”) reviewed by ANR. Exhibit 61(bb). Gas extraction wells, both horizontal and vertical, have been, and will continue to be, placed within the landfill waste mass. These wells are connected to a vacuum system that extracts and transports the gasses to the gas-to-energy plant or backup flares for destruction. This system is regularly monitored, at least once a month, with the vacuum system adjusted accordingly to maintain maximum efficiency of the collection system. Additionally, monitoring for fugitive landfill gas is performed monthly at locations around the landfill property line to determine if any explosive gases are migrating off the landfill property. These monitoring locations will be expanded as part of the Phase VI expansion project.” Exhibit 45.
20. The Phase VI Expansion design includes an expansion of the existing Gas Collection System to collect and combust landfill gas, and includes installation of additional vertical gas extraction wells, horizontal gas collection trenches, condensate traps, and gas conveyance header and lateral pipes. In accordance with the Vermont Air Quality and Climate Division's Air Pollution Control Regulations, the Applicant filed an application to modify the facility's Title V Air Pollution Control Permit to Construct and Operate (Permit No. AOP-14-034) on June 30, 2017 to include the proposed Phase VI landfill expansion. Exhibit 3.
21. The Gas Collection System is monitored and adjusted to control landfill gas. When the Gas Collection System is non-operational, or operating at reduced capacity, for example due to an unplanned equipment malfunction, or during a temporary construction activity, methane and other gases may be released into the environment, and generate nuisance odors, as has occurred during operation of the existing previously permitted Landfill on the Property.
22. Odors that may be present at the landfill can result from waste, wastewater treatment facility sludge, landfill gas (“LFG”), leachate, and potentially other various unknown sources. During active landfilling operations, the Applicant controls odors by applying a soil cover in the active landfilling area on a daily basis, by covering sludge with trash soon after it is accepted at the facility, and by using odor neutralizing equipment.
23. The Applicant has established and implemented procedures for investigating odor complaints. See *generally* Prefiled Testimony of John Gay (“Gay PFT”), Exhibit 61(y) of the Application at 10:20 through 12:21. See *also* FMPE Exhibit 61(bb) (setting forth the odor response procedures) and *Certification* (Exhibit 43), Finding 42 (stating that the Applicant “shall prevent objectionable off-site odors from the facility” and “shall report all odor complaints to the Agency within 24 hrs or the next business day in accordance with the FMP’s Odor Complaint Procedure.”).
24. The Applicant has a dedicated phone number (the “Hotline”) which members of the public may call at any time to provide information relative to questions, comments and complaints regarding odors which may be emanating from the Landfill site. The Hotline system went into effect on July 31, 2018.
25. Project opponents organized into the entity “Don’t Undermine Memphremagog’s Purity” (DUMP, LLC, or “DUMP”), allege a history of objectionable off-site odors and allege violations of the following provisions of the Vermont Solid Waste Management Rules (SWMR):

Facilities shall assure the control and treatment, if determined necessary by the Secretary, of gases resulting from the decomposition of wastes to prevent hazards to public health and safety, the environment, or the creation of a nuisance. SWMR 606(b)(2)(j).

Demonstrate that the facility landfill gas collection system is adequate to collect and destroy additional landfill gas generated as a result of additional liquids. The applicant shall include estimates of gas production resulting from changes in operations SWMR 606(b)(2)(H)(vi).

26. DUMP cites 5 specific events of confirmed odors; 6 instances of weather patterns consistent with odor impact; 5 instances of project work consistent with odor impact; and 3 instances of sludge deliveries coinciding with odor complaints. DUMP alleges that these events and instances are violations. A synopsis of the odor violations, alleged by DUMP, and provided by DUMP, includes the following notations (excerpts below are from the DUMP synopsis) Exhibits 28, 29:

- *“2- Violation(s) Found – Voluntary Correction after contact | 12/16/2011 | Flare and gas energy plant shut down. Tests show 9 locations where methane concentrations are higher than 500 ppm. (Note this is 10 times higher than the standard of 50 ppm.) Phase IV Cell 2A methane levels measure at 63,000 ppm. LPG bubbling out of landfill surface. Side slope riser pipe not connected to gas collection system. Casella admits odor problem due to plant shut downs and increased acceptance of sludge. **Shut downs occurred on June 9, Dec. 1, and Dec. 11.** (Document #25715)”*
- *“3-c Violation(s) Found – No Action Taken (lack of evidence) | 5/3/2013 | NOTE: Odor was confirmed by landfill staff: “Wing...was able to smell a gas odor at her residence.” They were digging in the landfill to fix a leachate breakout. Wing: the previous gas issues have been resolved. (Document #13EC00290)”*
- *“2 Violation(s) Found – Voluntary Correction after contact | 6/10/2013 | Landfill staff pose probable causes for odor: Lenny almost sure odor is due to sludge as Trish report following a truck that was reeking. John Gay says it could also be gas. Gas Pipe Issue”: “Our operators accidentally nicked a 6” gas pipe on top of the landfill where we are excavating for soil covers.” Plant was shut down for a short time afterward. Flare could not be lit. (Document #13EC00449)”*
- *“2 Violation(s) Found – Voluntary Correction after contact | 12/31/2017 | **Failure of gas management systems due to cold weather.** Flare and vacuum on system restored on 1/2/2018 after failing on 12/31/2017. Gas to energy plant expected to be back online 1/3/2018. SWMR 606 (b)(2)(j) Facilities shall assure the control and treatment, if determined necessary by the Secretary, of gasses resulting from the decomposition of wastes to prevent hazards to public health and safety, the environment, or the creation of a nuisance. (Document #18EC00005)”*
- *“John Gay of NEWSVT writes in an e-mail dated April 13, 2012:

Over the last week we have attempted to clear a main gas header... what we thought was debris turned out to be a crushed pipe... This header is the primary*

extraction point for Phase IV which is the area of the landfill we have identified as the likely source for offsite emission.

During the day on the dates (4/4-6, 4/11-12) we had to reduce the gas flows by an average of about 1,100 scfm to perform the cleaning/camera work which could have caused off site emission (odor)."

- *"On Sept. 5, 2014, John Gay writes to Mayor Paul Monette after the Mayor had made odor complaints" (Exhibit 29):*

... gas pressure built up over the preceding hours and because the valve was closed did not get collected into the collection system; the result was a release of gas."

- *"In hand written notes from a meeting (Exhibit 30) that occurred on Sept. 8, 2014, in which Barb Schwendtner and Jeff Bourdeau were in attendance, it states:*

1 year ago, had huge odor problem. One major trunk line collapse".

27. Neighbor Dan Gauvin reports "constant odors" and that the odors are strong enough that he must turn off his car heater (to presumably avoid the odors entering his vehicle). (Exhibits 44, 69). Mr. Gauvin's residence is located approximately 6700 feet from the existing Landfill. (Exhibit 37). The Phase VI Project will reduce the separation between Mr. Gauvin's residence and the operating landfill area, thus it may increase the potential for off-site landfill odors at the Gauvin residence.
28. Neighbor Bob Fortunati lives at 1071 Maple Ridge, Coventry, within relative close proximity to the landfill - separated only by the US RT 5 / Black River and the wetland wildlife refuge directly west of the proposed Project - roughly 800 yards, with no residences in between. Mr. Fortunati reports very foul air at random times of day and night, at his residential property, lasting for over 1-3 hours, at times making him feel sick, and that this occurrence extends to his work location (832 Pleasant Street Extension, Newport) located approximately ½ mile north of the landfill, where his co-workers have also identified or reported the odor numerous times. Mr. Fortunati further stated that the odor issue has been under-reported due to lack of presence by ANR and its limited ability to be in proximity and available during all hours; that the nuisance odors do not keep regular hours and can randomly drift by at all times. Mr. Fortunati requests consideration of a 3rd party non-biased group for odor compliance, with a local presence having the ability to respond in a timely manner to address odor complaints and/or an ANR field office to be staffed by local residents in close proximity or on site, for 24/7 response to issues; Mr. Fortunati feels that Applicant staffer Jeremy Labbe, a Derby resident, who has been involved in responding to odor complaints received on Applicant's Hotline, has demonstrated a bias, and that the Hotline system is not as effective as the system needed. Records filed by Mr. Fortunati document that he complained to state representatives about landfill odor issues approximately 8 to 10 times in 2017 and 2018. Exhibits 049a, 049r, 049z.
29. Pursuant to testimony of the Agency of Natural Resources ("ANR"):
 - (i) The ANR Solid Waste Management Program ("SWMP") and the ANR Air Quality and Climate Division ("AQCD") cooperatively manage the landfill gas emissions and

potential odors. The AQCD defers the investigation of complaints and the enforcement of odor control at this and other solid waste facilities to the SWMP. Schwendtner Pre-filed at 2.

- (ii) All odor complaints received by ANR are logged into an Agency-wide complaint tracking system. Complaints received by ANR are assigned to the Solid Waste Compliance Chief. Schwendtner Pre-filed at 3.
- (iii) The Agency's process for investigation of odor complaints involves information gathering, potential field investigations, informing the landfill operator of the complaint, questioning the NEWSVT operator regarding any issue at the site that may have resulted in excessive odors, and communicating any necessary corrective actions. As part of the information gathering, the Agency checks weather data which includes data from the landfill's on-site weather station, the Newport Airport near the landfill, and downtown Newport weather stations. Schwendtner Pre-filed at 3 -6.
- (iv) Many of the reported odor incidents have been reported to last less than an hour, which makes it impossible to conduct a field investigation out of the Montpelier office. Also presenting challenges to odor investigation are early morning, evening, or weekend complaints, and complaints reported when the odor is no longer occurring. Schwendtner Pre-filed at 4.
- (v) In order to address the transitory nature of odor complaints, the Agency conducts odor patrols in areas around the landfill and at locations that have been the subject of prior complaints. Patrols have been conducted either when ANR staff are in the vicinity of the landfill or when weather conditions are forecasted to be similar to the conditions that generated past complaints. Patrols also include a site visit to the landfill and observing operations that affect odor prevention and control. Patrols are often conducted in the early morning hours, which is the timeframe for when many complaints have been made. Schwendtner Pre-filed at 5.
- (vi) During the period 2010-2019, sixty-two odor-related complaints were filed regarding the NEWSVT landfill. Thirty-three of the complaints have been filed in the last 6 months (July 18, 2018 – January 18, 2019), since a draft of the Certification was issued. DEC investigated the sixty-two complaints and found that 11 resulted in objectionable odors being documented off-site. None of the documented off-site odors were characterized as strong or very strong. Schwendtner Pre-filed at 7. Should off-site odors be documented more frequently, for longer durations, at higher strengths, and impacting sensitive receptors such as residences, then Notice of Alleged Violations ("NOAVs") and/or formal enforcement action may be utilized. To date an NOAV related to odors has not been issued to NEWSVT landfill.

So finds the Commission.

30. Although it appears that the ANR personnel trained in odor detection have not (yet) field-verified the Gauvin and/or Fortunati complaints of odors, and correlated them to the existing Landfill, the Commission finds the Fortunati and Gauvin testimony to be credible and believes that that this testimony concerning odor occurrences reasonably corresponds and is attributable to the existing Landfill operations or its directly related activities such as odiferous waste loads arriving at the Landfill in trucks.

31. According to DUMP, ANR's characterization of landfill gas and its impact encompass the following:

- Landfill gas is created as solid waste decomposed in a landfill. Landfill gas consists of nearly 50 percent methane and 50 percent carbon dioxide and water vapor, as well as less than 1% non-methane organic compounds ("NMOCs"), small amounts of nitrogen, oxygen and hydrogen, and trace amounts of inorganic compounds.
- NMOCs in landfill gas include compounds recognized by the federal Environmental Protection Agency ("EPA") and ANR as hazardous air pollutants, exposure to which may result in adverse health effects.
- NMOCs in landfill gas include volatile organic compounds which can react with sunlight to form ground level ozone (smog).
- The release of methane and carbon dioxide in landfill contributes to global warming. Some of the compounds in landfill gas have strong odors even at very low concentrations. The odorous compounds include sulfide (hydrogen sulfide, dimethyl sulfide, and mercaptans) and ammonia.
- Methane released to the atmosphere has the potential to trap 86 times more heat than carbon dioxide over a 20 year period and 34 times more heat than carbon dioxide over a 100 year period making it a much more potent greenhouse gas.

32. A Notice of Alleged Violation, dated Dec. 10, 2012, issued by ANR, identified specific operational deficiencies in daily cover and management of mercury bulbs, as follows:

- *Daily Cover: "During the inspection on 11/16/12, Solid Waste Program staff observed that adequate daily cover had not been applied on the previous day. Raw garbage was exposed on the surface of the cell. The amount of exposed trash over a wide area also indicated insufficient daily cover on previous days, and/or failure to minimize the size of the working face and ensure that cover material remains functional and stable."*
- *Fluff Cover: "During the inspection on 11/16/12, Solid Waste Program staff observed that the initial (or "fluff") lift in Phase IV cell 3C contained unacceptable items that could pose a threat to the underlying liner. This waste had been placed on a previous day, and the unacceptable items had not been removed by a spotter. Failure to follow the filling procedures in the approved FMP violates conditions 1 and 2 of the certification, which require operation in accordance with the terms of the certification and prohibit unauthorized alterations to the approved Facility Management Plan."*
- *Mercury-Containing Bulbs: "Mercury-containing bulbs are accepted at the drop-off area adjacent to the landfill. When lamp boxes are full, they are moved to a storage shed for temporary storage. During the inspection on 11/16/12, Solid Waste Program staff observed a full box of mercury containing lamps in the shed that was not taped shut, and was not adequate to prevent breakage. Some of the bulbs were broken and had released components of the universal waste to the*

environment. The residue from broken lamps had not been containerized, characterized, or managed.”

33. Odor complaints are currently investigated by State of Vermont personnel trained in odor detection. ANR uses a “Complaint Record Form” to document the complaint information.
34. Circumstances leading to odorous conditions at the existing Landfill have included equipment malfunction, deliveries of “smelly” sludge, and landfill gas system construction work or repair, and may have included inadequate cover.
35. Both the operation of the Landfill and the LFGTE facility are regulated by the Air Quality & Climate Division of ANR. ANR has been issuing air quality permits for the existing Landfill on the tract since 1992, and issued the most recent permit for the facility, including the Phase VI Expansion, in 2018. This Title V Air Pollution Control Permit to Construct and Operate, AOP-17-018, was issued by the AQCD on August 1, 2018 (the “Air Permit”). Exhibit 53.
36. As further described in the Air Permit, ANR considered the Landfill and the LFGTE facility to be a single source of air emissions. Exhibit 53.
37. The Air Permit application was reviewed by a technical expert from the AQCD, and this review encompassed review of air quality impacts. The review found that the Project will comply with all applicable ambient air quality standards, and will prevent significant deterioration of air quality governed by the Air Permit. The Air Permit places 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 Air Permit. Exhibits 45, 53.
38. Pursuant to the Air Permit, the Project “is not anticipated to increase the instantaneous emissions of landfill gas or non-methane organic compounds from the Landfill Operation from those permitted in the previous permits for the Facility.” ANR concluded that the Project “is not anticipated to cause or contribute to a violation of any national ambient air quality standard or significantly deteriorate air quality.” Exhibit 53.
39. The Air Permit (Exhibit 53) identifies applicable requirements from the Vermont Air Pollution Control Regulations, including Section 5-241(1) and (2) – Prohibition of Nuisance and Odor, and includes conditions which detail requirements for design and operation of the landfill gas collection system, encompassing the following conditions, emphasis added:
 - a. *The LFG collection system and individual wells shall be designed to achieve comprehensive control of the LFG taking into account: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandability, leachate and condensate management, accessibility, compatibility with filling operations, integrations with closure end use, air intrusion control, corrosion resistance, fill settlement, temperature resistance.*
 - b. *There shall be a sufficient density of LFG collection wells to ensure comprehensive and effective collection of LFG.*

- c. *The system shall control LFG from all gas producing areas of the Landfill Operation except as otherwise approved by the Agency.*
- d. *The design of the collection devices within the interior must be certified to achieve comprehensive control of surface gas emissions by a professional engineer in accordance with the requirements of §60.769(a)(1), and the LFG collection and control system design plan shall be prepared and submitted in accordance with § 60.767(c).*
- e. *Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill as provided in §60.769(a)(1).*
- f. *The LFG collection system shall be designed so as not to allow Indirect short circuiting of air under the cover or refuse into the gas collection system or LFG into the ambient air. Any gravel or other materials used around pipe perforations shall be of sufficient dimension so as not to penetrate or block the perforations.*
- g. *In accordance with the requirements of 40 CFR Subpart WWW, §60.753(d) and/or 40 CFR Subpart XXX, §60.763(d), as applicable, the Permittee shall ensure the gas collection system is operated in such a manner that the methane concentration is maintained at less than 500 ppm above background at the surface of the Landfill Operation. **The Permittee shall develop a surface monitoring design plan that includes the monitoring procedures to be followed per 40 CFR Subpart WWW, §60.755(c) and (d) and/or 40 CFR Subpart XXX, §60.765(c) and (d), as applicable, as well as a topographical map with the proposed monitoring route.** Prior to closure of the Landfill Operation, at a minimum the methane concentrations shall be monitored quarterly along the entire perimeter of the collection area and along a pattern that traverses the capped areas of the Landfill Operation at 30 meter intervals and where visual observations indicate elevated concentrations of LFG, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. The Permittee must monitor any penetrations that are within an area of the Landfill where waste has been placed and a gas collection system is required.. Upon closure of the Landfill Operation, the Permittee may transition to annual monitoring along the entire perimeter of the collection area and along a pattern that traverses the capped areas of the Landfill Operation at 30 meter intervals provided there are no monitored exceedances of the surface methane limit and no areas where visual observations indicate elevated levels for three consecutive quarters. Any subsequent monitored exceedance of the surface methane limit shall return the monitoring frequency for the entire Landfill Operation back to quarterly. [10 V.S.A. §§556(c) and 556a(d)] [§5-261(2) of the Regulations] [40 CFR Part 60 Subpart WWW §60.753(d)] [40 CFR Part 60 Subpart XXX §60.763(d)]*
- h. **The gas collection and control system shall not be equipped with any LFG bypass system that would enable the collected LFG to be sent to the ambient air without first passing through the control system(s) without the prior written approval of the Agency.** Any bypass system submitted for approval by the Agency shall comply with the requirements of 40 CFR Subpart WWW, §60.756(b) and §60.756(c) and/or 40 CFR Subpart XXX, §60.766(b) and §60.766(c), as applicable. [10 V.S.A. §§556(c) and 556a(d)] [§5-261(2) of the Regulations] (40 CFR Part 60 Subpart WWW §60.756(b)) [40 CFR Part 60 Subpart XXX, §60.766(b) and §60.766(c)]

- i. In the event the engines are off-line for any reason, the flare or flares shall have the capacity to combust the entire amount of LFG collected while still complying with all the requirements of 40 CFR §60.18 including operation with no visible emissions and the limitations on gas exit velocity. The Permittee shall at no time allow the venting of LFG from the gas collection system that is not properly routed to one of the LFG control systems without the approval of the Agency. Venting of the treated landfill gas to the ambient air is not allowed.**
 - j. In the event more LFG is collected than can be accommodated in the LFG control systems the Permittee shall within one (1) hour shut down the gas mover system and close all valves in the collection and control system contributing to the venting of the gas to the atmosphere. The Permittee shall also immediately make arrangements to bring the necessary gas control system capacity on-line.** 110 V.S.A. §§556(c) and 556a(d)I (§5-261(2) of the Regulations) (40 CFR Part 60 Subpart WWW §60.753(e)J 140 CFR Part 60 Subpart XXX §60.761, §60.762(b)(2)(111), and §60.763(e)J [EPA Applicability Determination 1000002-EPA Region 1, September 30, 2009]
 - k. Treatment System Monitoring Plan:** Upon becoming subject to 40 CFR 60 Subpart XXX, in accordance with the requirements of 40 CFR Subpart XXX §60.768, the **Permittee must prepare a site-specific treatment system monitoring plan as specified in §60.768(b)(5).** [10 V.S.A. §§556(c) and 556a(d)I (§5-261(2) of the Regulations) [40 CFR Part 60 Subpart XXX §60.768(b)(5)]
 - l. Prior to relocation of any waste from the unlined areas of the Landfill Operation, the Permittee shall submit an odor control plan for approval by the Agency and shall also obtain any necessary variance(s) and Solid Waste Certifications. No relocation of waste shall occur until the Agency has issued all written approvals.** 110 v.s.A. §§556(c) and 556a(d)J [§§5- 405(1) and 5-1015(a) (1), (3) and (4) of the Regulations]
 - m. Nuisance and Odor: The Permittee shall not discharge, cause, suffer, allow, or permit from any source whatsoever such quantities of air contaminants, or odors beyond the property line of a premises, which will cause injury, detriment, nuisance or annoyance to any considerable number of people or to the public or which endangers the comfort, repose, health or safety of any such persons or the public or which causes or has a natural tendency to cause injury or damage to business or property.** 110 V.S.A. §§556(c) and 556a(d)J [§5- 241(1) of the Regulations]
40. The Applicant has 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 will be installed as part of the Phase VI Project. Exhibit 45.
41. Objectionable off-site 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. Exhibit 45.

42. The Solid Waste Management Rules require that the Landfill not produce nuisance odor conditions off the landfill property. Exhibit 45.
43. If the LFGTE facility 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 landfill gas produced by the landfill. Exhibit 45.
44. The Commission will incorporate, by permit condition, into the Act 250 permit, all of the conditions of the Air Permit (Exhibit 53) and all of the conditions of the Certification (Exhibit 43).
45. As identified by ANR, the Certification, via the Facility Management Plan (“FMP”), includes the methods that the landfill operators will use to control odors, dust, wind-blown litter, birds and vectors. Limitations on the size of the working face, utilization of odor neutralizers and deodorizers, as needed, and the use of six inches of earthen daily cover material or approved alternate, are three primary methods that will be implemented at the landfill for controlling odors, litter and vectors. The active gas system is a major factor in controlling odors. The FMP also addresses dust control, including proper maintenance of vegetated area, road sweeping and routine water or calcium chloride application to gravel service roads. During high wind events, the facility has the ability to cease operations to prevent wind-blown debris and to reject loads if waste odor is found offensive.
46. As identified by ANR, air emissions will be controlled via active management and maintenance of the landfill gas collection and control systems. The landfill gas monitoring plan is identified in the FMP. Gas extraction wells, both horizontal and vertical, have been, and will continue to be, placed within the landfill waste mass. These wells are connected to a vacuum system that extracts and transports the gasses to the LFGTE facility or backup flares for destruction. This system is regularly monitored, at least once a month, with the vacuum system adjusted accordingly to maintain maximum efficiency of the collection system. Additionally, monitoring for fugitive landfill gas is performed monthly at locations around the landfill property line to determine if any explosive gases are migrating off the landfill property. These monitoring locations will be expanded as part of the Phase VI expansion project.” Exhibit 45.
47. The Air Permit requires development of additional monitoring plans, and cites the specific standards which must be met, i.e. *Permitttee must prepare a site-specific treatment system monitoring plan as specified In §60.768(b)(5)*. DUMP asserts that the Air Permit contains conditions subsequent thus DUMP attempts to rebut the Air Permit’s presumption. The Commission does not interpret the development of a monitoring plan pursuant to specific statutory requirements as a condition subsequent.
48. ANR personnel responsible for responding to odor complaints have a base of employment located in Montpelier, and thus must typically travel well over an hour to reach the Project site, or the location corresponding to a report of off-site odor, when a complaint of off-site odor is received. Further complicating circumstances, some odors may be detected beyond normal daytime working hours, further diminishing the ability of trained state personnel to adequately detect and document conditions in response to odor complaints. Landfill neighbors assert that the response time is problematic in its failure to suitably respond, monitor, and document odor complaints and conditions, and request local presence of ANR personnel and/or 3rd party inspector who can respond 24/7. So finds the Commission.

49. The evidence, notably the landfill gas collection system design, the Air Permit, the Certification, and the Applicant's Odor Complaint Procedures, collectively establish a plan to prevent unreasonable and potentially unduly impactful off-site odors. However, neighbors and landfill opponents raise credible and reasonable concerns about incidents of actual off-site odors believed to be attributable to the existing Landfill, where these systems are already employed. Logistical hurdles have prevented the full and effective implementation of the plan, and consequently someone closer to the Facility is needed, to respond to and investigate odor complaints. Although there is not any specific element of the Air Permit which has been rebutted, due to the credible testimony concerning odors, a plan to further monitor, investigate, and document odor occurrences, is warranted, as identified below.
50. The Commission deems that a full time local inspector, trained in odor detection and control, is warranted, based at or very near the Project site, to monitor, investigate, and document landfill odor occurrences, respond quickly to off-site odor complaints at any time of day or night (and to complete other random and ongoing landfill inspections such as waste load inspections as outlined under Criteiron 1(B), where this issue is further detailed). This full time local inspector must be based in the Newport-Coventry area, and will serve as a 3rd party inspector reporting to the Natural Resources Board and to ANR. The Commission will include the following condition in any permit it may issue for the Project:
- *For the duration of this permit, Permittee shall contract with an independent third party to monitor, investigate, and document landfill odor occurrences, respond quickly to off-site odor complaints, and inspect solid waste loads being delivered to the facility for nonconforming waste. The independent third party shall provide these services on a on a full-time basis.*
 - *This independent third party may not be a current or former owner, officer, employee, or other such affiliate of Permittee or any subsidiary or parent company of Permittee. Nor shall such independent third party have worked on the project authorized by this permit either on behalf of Permittee or any other party to this permit proceeding. The third party shall be trained in odor detection and/or landfill construction, operation, and inspection and shall have the ability to respond via a site visit to investigate off-site odor complaints within 30 minutes of being notified of the complaint regardless of the time of day the complaint is received. Permittee shall grant access to the independent third party for the purposes of conducting such inspections.*
 - *Prior to contracting with such independent third party, Permittee shall submit to the District Commission for its review and approval the identity of the proposed independent third party together with the proposed contract with such party. The Natural Resources Board, with the advice of the District Commission and the Agency of Natural Resources shall have the authority to terminate the contract with the third party. Any contract between Permittee and the third party shall account for this authority. In the event the Natural Resources board terminates the contract, Permittee shall enter into a contract with a replacement independent third party per the requirements of this condition.*
 - *The independent third party shall report directly to the District Commission, Natural Resources Board, and the Agency of Natural Resources rather than Permittee. The third party may share information with the Permittee only after*

sharing it with the District Commission, Natural Resources Board, and the Agency of Natural Resources, and the Permittee shall not preview, prescreen, or filter any information flowing from the third party to these entities.

- *Permittee may apply to modify this requirement, (e.g. to reduce it to a part-time position, with use of odor monitoring technology), but the presence of a local third party inspector shall not be fully eliminated unless ANR positions a full time ANR staff person, trained in odors and dedicated full time to landfill inspections and oversight, who can be present on site within 30 minutes of a need.*

51. Neighbor Bob Fortunati is also concerned about off-site noise emissions, describing that “when the [existing Landfill] pushed a pile of top soil toward the south end of the current cell there was almost non stop equipment noise from heavy engine to backup warning and track clanging sound as well as extended hours of operation. (with a new cell it can only be worse with continued truck traffic now closer in proximity to my residence)”. Exhibit 49a.
52. Neighbor Dan Gauvin cites concerning “constant noise” from the existing Landfill. Exhibit 44.
53. Noise is currently generated by haul trucks, compaction equipment, and other heavy equipment used during active landfilling operations. The LFGTE facility also generates noise at the facility. The noise levels are not expected to change from the current conditions at the Facility. A minor increase in noise may occur during times of construction as earth moving equipment will be required for the excavation and construction of the Phase VI cells. The equipment used for construction is regularly used on-site and does not emit noise in excess of normal noise level standards for equipment.
54. There will be no burning of forests or construction debris, or any open fire pits required to construct the Project.
55. There will be no blasting conducted as part of the Project.
56. The Applicant has voluntarily switched the on-site heavy equipment back up alarms from beeping audible alarms to static audible alarms, to mitigate noise emissions from the Facility, and this will include Phase VI. The Applicant has also required third party contractors to retrofit their construction equipment with the same static audible alarms to further mitigate noise concerns at the Facility, and this will include Phase VI. These measures are expected to significantly reduce heavy-equipment-related noise emissions from the Facility, including Phase VI.
57. Typically, construction will occur from daylight to sundown Monday through Saturday; however, construction at times may need to occur at night or on Sundays. The Commission will include the following condition in any permit it may issue for the Project, to prevent unreasonable off-site construction noise:

Construction having potential to generate off-site noise will be limited to 6 AM to 6 PM weekdays and 7 AM to 6 PM on weekends, and no such construction shall occur on National Holidays

58. The District Commission previously found (2004, #7R0841-8, Finding of Fact #8, pertaining to the existing Phase IV Landfill) that “Sound level measurements at

nearby residential areas demonstrate that sound generated by landfill equipment is at low levels similar to background sound levels in the area and well below EPA's 70 dba lifetime health exposure limit". The Commission is satisfied that this will continue to be the case, with the change from heavy equipment beeping alarms to static audible alarms, at the Facility.

59. The Certification includes hours of routine landfill operation. The Certification authorizes acceptance of solid waste between the hours of 6:00 a.m. to 5:00 p.m. Monday through Friday, and between the hours of 6:30 a.m. to 4:00 p.m. on Saturdays (all other routine landfill operations, such as inspections, maintenance, repairs, monitoring and application of daily cover will be conducted as necessary to comply with the Certification). Further, under the Certification, the operational hours for accepting solid waste and other routine landfill operations may be expanded for periods of limited duration without amendment to the Certification upon written approval from the ANR Secretary upon a showing of need; such a showing shall include special events such as Green-Up day, a natural disaster, or other unforeseen circumstances that are outside of the scope and consideration of these findings and the Permittee.
60. The District 7 Commission previously found (2004, #7R0841-8, Finding of Fact #8, pertaining to the existing Phase IV Landfill) that "*Hours of operation under Phase IV will remain unchanged (7:00 a.m. to 4:00 p.m., Monday through Friday and 7:00 a.m. to 11:30 a.m. on Saturday)*".
61. Hours of operation corresponds to the time of day when people living along truck routes, and in proximity of the Project, may experience noise, air, and related aesthetic impacts, notably from heavy truck traffic. Truck queueing and/or idling along public roadways may generate these impacts.
62. The requested expansion of waste acceptance hours (as authorized under the Certification), including 6:00 a.m. weekday start time, and 6:30 a.m. Saturday start time, is significant. A 6 a.m. start time means that heavy truck traffic en route from distant locations is on the road very early in the morning. The Commission will retain and clarify the current hours of operation, in effect via #7R0841-8, with the following permit condition:
- Facility hours of operation will remain unchanged (7:00 a.m. to 4:00 p.m., Monday through Friday and 7:00 a.m. to 11:30 a.m. on Saturday). These are the hours when trucks may dump waste at the active area(s) of the landfill. The landfill gate may open at 6:00 a.m. so that trucks may queue on landfill property. Arrivals and queuing before 6:00 a.m. is strictly prohibited, queuing along public roads is strictly prohibited, and Permittee shall so educate truck drivers. In addition, operations that generate off-site noise shall be limited to 6 a.m. to 5 p.m. weekdays and 7 a.m. to 12 p.m. noon on weekends, however the landfill operator may start equipment and move daily cover around, at the active landfill area, not earlier than 6:30 a.m. (in preparation for the arrival of the first trucks carrying waste, commencing not earlier than 7 a.m.)*
63. The Commission accepts Applicant's representations that the Project will not contribute appreciably to climate change impacts, due to collection and combustion of landfill gas, where occurring on the Property, corresponding to the Project over which the Commission has jurisdiction. The Commission notes that the effect of transporting solid

waste to the Coventry solid waste disposal facility (the only such facility in Vermont) across the entire state of Vermont, and from locations beyond, has not been evaluated by the Commission, as the Commission understands that it lacks jurisdiction to do so.

Conclusions of Law

10 V.S.A. §6086(a)(1) specifies that before granting a permit, the District Commission shall find that the development will not result in undue air pollution. In making this determination, the Commission shall consider a variety of factors including the applicable Health and Environmental Conservation Department regulations. 10 V.S.A. §6086(d) and Act 250 Rule 19 provide that certain ANR permits may create presumptions of compliance with certain of the Act 250 Criteria. The issuance of such a permit creates a presumption that the application is not detrimental to the public health and welfare with respect to the specific requirement for which it is accepted. Act 250 Rule 19(F). The Rules further specify that in “the case of approvals and permits issued by ANR, technical determinations of the Agency shall be accorded substantial deference by the Commission.” Act 250 Rule 19(F)(1). 10 V.S.A. § 6086(d).

The Air Permit (Exhibit 53) creates a rebuttable presumption pursuant to Act 250 Rule 19 that this Project will not result in undue air pollution

The Commission concludes that this Project will not result in undue air pollution, with the Commission’s inclusion of the permit conditions contained within the above Findings. The Commission concludes that this Project complies with Criterion 1(air).

Criterion 1(A) - Headwaters:

Findings of Fact

64. The Project is not located in, and has no potential to impact, a headwaters area.

The Commission concludes that this Project is not located in a headwaters area as defined by this section because it is not situated in a drainage area of 20 square miles or less, is not above the elevation of 1,500 feet, is not in the watershed of a public water supply, and is not in an aquifer recharge area.

The Project complies with Criterion 1(A).

Criterion 1 Water Pollution, and 1(B) - Waste Disposal:

Introduction to the Commission’s 1(B) Findings

The Project is an expansion of an existing previously permitted landfill on the tract, and there is considerable related Act 250 history. The Commission has considered the previous decisions issued under Act 250 #7R0841 as amended. Concerns about impacts under Criterion 1(B), in the present application, were also considered in detail, under earlier applications, and some of this important background information which remains relevant at the Facility, and thus helps inform potential for impact with respect to the present application.

In particular the Commission has considered Land Use Permit No. 7R841-8 issued in 2004 for the last major landfill expansion, which involved a 44.5 acre expansion of the lined landfill, including leachate collection and disposal. MRC of Memphrémagog (“MRC”) was the sole non-statutory party to that permit proceeding, and the District Commission quoted the MRC:

"The need to protect Lake Memphremagog from potential sources of pollution cannot be overstated, given its importance to the U.S. and Canada as a highly-valued natural resource, a recreational/tourist destination and a drinking water supply for approximately 150,000 people." The District Commission provides the following excerpts from the decision on Land Use Permit #7R0841-8 , and notes that two of the District 7 Commission members serving on the Commission for the present application review (Reid, Johnson), also served on the review of Land Use Permit #7R0841-8:

- (i) *The project site is situated between Lake Memphremagog and the Black River which discharges into the lake. The proximity of the landfill to these water bodies has raised concern. However, the comprehensive design of this double-lined "dry tomb" facility combined with the naturally protective role played by the deep and pervasive clay soils beneath and surrounding the project cells, render this landfill a "low risk" facility.*
- (ii) *To date there is no evidence that the existing landfill facility has, in any way, impacted the water quality of the Memphremagog basin. However, a low risk facility is not a no-risk facility.*
- (iii) *The MRC /City of Sherbrooke analysis of the existing and planned facilities (The Teknika Report) found that: "...analysis demonstrates that the existence and operation of the Coventry landfill, as regulated and authorized by the State of Vermont, does not constitute an unacceptable risk to the public health or the Lake Memphremagog ecosystem, provided that the NEWSVT operates the landfill in compliance with all applicable permit and regulatory provisions." (emphasis added). Thus, most analysis and inquiry focused upon facility monitoring, maintenance, oversight, management, and long-term landfill security funding.*
- (iv) *The unlined landfill cells (the so-called Nadeau cells that pre-date the Applicant's ownership of the Coventry facility) pose an unacceptable degree of risk to the Lake Memphremagog watershed. These unlined cells must be moved into the new lined cells. An application to accomplish this goal will need to be submitted to the Commission within six months of issuance of the Phase IV Land Use Permit considered herein.*
- (v) *A landfill oversight committee shall be established and shall serve as an independent observer and monitor of landfill operations. The group will function, in part, for the purpose of independently reporting on landfill operations and activities and will have direct access to the District Commission through the District Coordinator. The group will have access to all data, reports, monitoring results and other information generated under the requirements of this and other state and federal permits.*
- (vi) *Landfill sustainability issues (related to Act 250 criteria 1B, 9B, 9F and 9K) have not been fully explored. Sustainability practices are key to promoting responsible use and re-use of waste resources, generating energy from waste and preserving the life of landfills thru recycling, composting, energy conversion and creative use of the waste stream.*

In December 2004, both NEWSVT and ANR filed an appeal with the Waste Facility Panel of the Environmental Board (WFP), of the District 7 Commission's 2004 #7R0841-8 decision, alleging error with respect to 10 V.S.A. §6086(a)(1)(B) (Criterion 1(B)). In July 2006, the WFP issued its decision, excerpted below:

- 26. *Lake Memphremagog flows north from the U.S. to Canada. Lake Memphremagog is a highly used resource for recreational activities and for serving as a public water supply for over 140,000 residents of Canada.*
- 27. *Existing data indicates that the landfills, unlined or lined, have not impacted the Black River or the water quality of the Lake Memphremagog basin.*

28. *NEWSVT agreed to seek permits to transfer unlined landfill areas "A" and "B" to a lined landfill. The District Commission made transfer a condition of the land use permit. Applications for permits (ANR and Act 250) to conduct the transfer (Phase V) were filed on May 12, 2005.*
29. *The principal risks of contamination to Lake Memphremagog's water quality stem from the contaminants contained in landfill leachate.*
30. *Leachate can reach the lake by the following ways:*
 - *migration of the leachate from old unlined cells "A" and "B" to the Black River;*
 - *accidental discharges, such as:*
 - *landfill liner tears with leachate leaking to the Black River;*
 - *Storage Tank rupture with leachate leaking to the Black River;*
 - *leachate tanker truck spill; and*
 - *disposal of leachate at the Newport municipal wastewater treatment plant (if disposal were permitted).*
31. *Modeling and simulation calculations have been made by the MRCM's consultants to evaluate the discharge and contaminant concentrations to Lake Memphremagog, according to the scenarios noted above and using worst-case assumptions. The consultants also performed a bioaccumulation risk evaluation of some contaminants traced in the food chain with all data available. The potential impact of bioaccumulation cannot be reasonably evaluated given the present state of knowledge.*
32. *The simulation results show that the contamination risks to the ground water are very low for iron and manganese and are nonexistent for organic substances.*
33. *Future disposal of leachate at the Newport municipal wastewater treatment plant could bring the largest amount of contaminants into the Lake. [...] NEWSVT has no plans to dispose of leachate at the Newport plant. Such a plan will require permits from the District Commission and the ANR.*
34. *MRCM's consultants' analysis indicates that the existence and operation of the Coventry landfill, as regulated and permitted by the State of Vermont, does not presently constitute an unacceptable risk to public health or the Lake Memphremagog ecosystem, provided NEWSVT operates the landfill in compliance with all applicable permit and regulatory provisions and provided the unanticipated conditions and/or accidental releases do not occur. However, this analysis does not take into account the cumulative and systemic effects of regulated and unregulated pollutants on human health and long term impacts on ecosystems, which, as noted above, cannot be reasonably evaluated given the present state of knowledge.*
35. *According to the MRCM's consultants, of the 6 million chemicals that are commercialized, only approximately 200 are regulated.*
36. *NEWSVT's consultants conducted a worst-case evaluation to calculate the environmental impact of the uncontrolled discharge of leachate if all of the capped, double lined Phase IV landfill safety systems failed.*

37.

The results of the calculations [...] demonstrate that the discharge of leachate to the Black River would increase the levels of certain regulated contaminants - arsenic, methylene chloride, pentachlorophenol, and carbaryl - but would not cause any exceedances of Quebec drinking water standards.

NEWSVT, ANR, and MRC agreed to the following conditions, as a component of their participation in the appeal, and these conditions were accepted by the Waste Facility Panel of the Environmental Board in its 2006 decision which found that the project complied with Criterion 1(B). The conditions below are excerpted in part:

1. *In addition to the ANR approved financial responsibility instrument in the Permit covering the post closure period, NEWSVT shall establish an environmental integrity trust fund ("Trust Fund") for the benefit of the ANR.*
2. *NEWSVT shall annually deposit an amount equal to \$0.20 per ton ("Trust Fund Fee") of solid waste accepted for disposal at the Coventry Landfill into the Trust Fund during the respective year of operation (accepting solid waste for disposal) of the Coventry Landfill, which NEWSVT estimates to be fifteen years based upon the permitted waste acceptance rate of 370,000 tons per year. Trust fund fees shall only be payable for solid waste disposed of in Phase IV of the Coventry Landfill. [...]*
3. *NEWSVT estimates that the Trust Fund will have a value of \$7.2 million in 2051, a reasonable amount to have available to address currently unquantified landfill maintenance requirements forty-five (45) years in the future. [...]*
4. *The Trust Fund shall be used only after the currently regulated thirty (30) year post-closure period, and only for the following purposes: (1) maintenance of the Coventry Landfill required by the ANR; and (2) corrective measures required by the ANR and for mitigation of damages caused by the landfill.*

Further, the Commission has considered a 2013 Act 250 decision issued for an application to increase the waste acceptance rate at the Facility, from maximum 370,000 tons per year to 600,000 tons per year, including maximum 2,500 tons per day to maximum 5,000 tons per day. In 2013, the District 7 Commission reviewed this application (#7R0841-12) for increase of the waste acceptance rate. The application encompassed consideration of impacts under Criterion 1(B), including leachate disposal, and identified that NEWSVT would be disposing of leachate pursuant to its ANR Certification and Pre-Treatment Discharge Permits, at one or more of the following 7 wastewater treatment facilities (5 in Vermont, 2 out of state): Montpelier VT; Burlington VT North; Essex Junction, VT; Barre, VT; Newport, VT; Concord NH; Plattsburgh NY.

MRC was once again the sole non-statutory party to the 2013 application review, stating, in part (emphasis in original):

"From the MRCM's point of view and considering the need for precaution, the fate of leachate contaminants treated through the municipal WWTF is unknown. By increasing the daily and annual tonnage of trash accepted in the landfill, short and midterm increases of leachate amounts to be treated can be expected. The release of pollutants in the Lake could directly and substantially impact the MRCM and its members in a number of ways, including: (i) impacts to the local economy through a decline in regional tourism; (ii) putting drinking water supplies, and thus human health, at risk; and (iii) increased monitoring and/or treatment costs of the water supplies. [...] ***At this point, the MRCM has concerns about the project, mainly because an increase of landfill-produced leachate is anticipated. MRCM refers to the need for precaution and asks that the treatment of leachate at the Newport WWTF is to be held off until the fate of contaminants through the treatment has been studied and the***

demonstration has been made by the applicant that the existing water supply is not threatened”.

The Commission issued permit amendment #7R0841-12, in 2013, including authorized use of the City of Newport WWTF for leachate disposal. The Commission notes the following excerpts from this 2013 decision, which encompass that the predicted total leachate generation was decreased, with the increase in waste disposal rate:

10. The off-site disposal of leachate is addressed in part through the Applicant’s Pretreatment Discharge Permit administered by the Agency of Natural Resources. The Applicant currently has a permit through the Agency of Natural Resources to dispose of leachate at five wastewater treatment facilities in Vermont. [...] There are two disposal locations outside of Vermont that are permitted independently by the receiving municipality. [...]

11, 13.. The Agency of Natural Resources has issued a solid waste certification (9th Amended Solid Waste Management Facility Certification (Certification), issued September 18, 2013, Exhibit 11) which creates a presumption under Rule 19 that “waste materials and wastewater can be disposed of through installation of wastewater and waste collection, treatment and disposal systems without resulting in undue water pollution”, to the extent that the Certification addresses impacts under Criterion 1 water pollution [and Criterion 1(B) waste disposal] from the Project; the Certification includes conditions pertaining to leachate collection, disposal, and monitoring. The Certification also includes conditions pertaining to releases, correction action, and continuing obligations.

19. The Applicant currently has a permit through the Agency of Natural Resources to dispose of leachate at five wastewater treatment facilities in Vermont. One of the permitted facilities that is used for disposal of leachate from the landfill facility (the City of Newport Wastewater Treatment Facility (Newport WWTF)) discharges to Lake Memphremagog, which is also used as a drinking water source for over 150 000 people, including citizens of the City of Magog and the City of Sherbrooke.

20. As outlined in Finding number 9, leachate generation is expected to increase in the short term as a result of the increased fill rate Project, however total leachate generation is expected to be reduced; landfill leachate will continue to be treated off-site pursuant to previously issued Land Use Permits.

Findings of Fact

65. Criterion 1 and 1(B) requires that “[a] permit will be granted whenever it is demonstrated by the applicant that, in addition to all other applicable criteria, the development or subdivision will not cause undue water pollution, will meet any applicable health and environmental conservation department regulations regarding the disposal of wastes, and will not involve the injection of waste material or any harmful or toxic substances into groundwater or wells.” 10 V.S.A. § 6086(a)(1)(B).
66. The “applicable health and environmental conservation department regulations” may include a variety of regulations including the following: the Vermont Water Quality Standards; the Environmental Protection Rules; the Groundwater Protection Rules; and the Wastewater Systems and Potable Water Supplies Rules.
67. Under the Certification, the Facility may accept maximum 5,000 tons of solid waste per day and 600,000 tons of solid waste per year for disposal.
68. Acceptable wastes for disposal in the Landfill are limited to municipal solid waste, construction and demolition debris (C&D), de-watered sludge or biosolids, asbestos

waste and certain other non-hazardous waste. Other wastes, such as hazardous waste, are prohibited from being disposed at the Landfill. The Certification requires that the Applicant conduct random inspections of incoming loads.

The Commission has considered the various waste disposal elements of the Project, as follows:

69. During construction, erosion prevention and sediment control measures, including sediment basins, silt fencing with reinforcement, stone check dams, interceptor swales, and stabilized construction entrances, will be utilized to treat construction stormwater runoff prior to discharge. Exhibit 1.
 70. An Erosion Prevention and Sediment Control Plan has been designed for the construction phases of the Project using the Vermont Standards & Specifications for Erosion Prevention & Sediment Control (2006). Exhibit 7.
 71. Following construction, the stormwater runoff (where located outside of the Landfill cells) will be treated on-site by a system that has been designed to remove potential pollutants based on guidance from the Vermont Stormwater Management Manual (Volumes I and II). Exhibit 11.
 72. Stormwater runoff (where located outside of the Landfill cells) from impervious surfaces will be collected and conveyed to detention ponds for treatment before discharge. The stormwater treatment system also includes grass-lined swales and riprap-lined swales.
 73. An ANR Individual Construction Stormwater Discharge Permit was issued on May 16, 2017, permit 4795-INDC.5A for the Project (the "Construction Stormwater Discharge Permit"). Exhibit 7. This ANR permit authorizes treatment and discharge of pollutants in stormwater runoff during Project construction, discharging to unnamed wetlands of the Black River and the South Bay of Lake Memphremagog. None of the Parties or Friends of the Commission presented scientific or technical evidence to demonstrate that the issuance of this ANR permit does not meet the applicable DEC regulations or that undue water pollution will result from stormwater runoff during Project construction.
 74. An ANR Stormwater Discharge Permit was issued for the Project on November 28, 2017 (the "Stormwater Discharge Permit") Exhibit 1. This ANR permit addresses treatment and discharge of pollutants in stormwater runoff after Project construction. None of the Parties or Friends of the Commission presented scientific or technical evidence to demonstrate that the issuance of the permit does not meet the applicable DEC regulations or that undue water pollution will result from stormwater runoff during Project construction.
 75. The Property is subject to an existing Wastewater System and Potable Water Supply Permit, WW-7-0240-3. An ANR Wastewater System and Potable Water Supply Permit Amendment was issued on January 11, 2018, permit WW-7-0240-4 (the "Wastewater Permit") Exhibit 30. The Wastewater Permit addresses treatment of sanitary waste, also known as sewage (and water supply via use of the existing St. Onge well) for the greenhouse portion of the Project, located on the Joseph and Mead parcels. None of the Parties or Friends of the Commission presented scientific or technical evidence to demonstrate that the issuance of the WW permit does not meet the applicable DEC
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- regulations or that undue water pollution will result from sanitary waste (sewage) from the Project greenhouses.
76. Approximately 70% of the waste disposed at the existing Landfill consists of 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. Exhibit 45.
 77. On March 31, 2017, the Applicant filed an application for the Certification with ANR. This application included several expert reports and supporting technical information. The technical information included design drawings, numerous test results, hydrological modeling, and air quality data and analysis. Sanborn, Head & Associates (“SHA”) provided expert analysis and engineering concerning the design, construction and maintenance of the Project. Topics addressed by SHA include air quality and the engineering design of the Phase VI liner and leachate collection system. SHA prepared a 53-page set of design plans, and a design report, to support the Application for Certification. Exhibit 4. Waite-Heindel Environmental Management (“WHEM”) provided expert analysis of water related issues, including hydrogeological modeling; compliance with water quality standards; monitoring well testing; leachate sampling; and analysis of potential impact on groundwater and waters of the State.
 78. A Solid Waste Certification is only granted when a solid waste facility successfully demonstrates compliance with Vermont’s Solid Waste Management Rules (SWMRs). The Certification for the Project was issued on October 12, 2018 by the ANR Department of Environmental Conservation, Solid Waste Management Program. Exhibits 34, 43, 67.
 79. The existing (previously issued) ANR certification for the existing landfill Facility, expires on March 31, 2015. The new Certification (or re-certification) (Exhibit 43) authorizes continued landfill operations in Phase I, II, III, and IV of the Landfill, as well as the construction and operation of the Phase VI landfill area. Lined landfill Phases I, II, III, and IV are in various states of operation. Some portions of these existing lined phases have completed final closure and will be maintained and evaluated for continued performance and integrity. Other areas will remain open and will continue to accept waste under the Certification.
 80. The Certification (Exhibit 43) is for a period of time commencing at signature (October 12, 2018) and ending **June 30, 2028**.
 81. The Certification process includes a Fact Sheet, issued by ANR on May 31, 2018. Exhibit 45. Concurrent with issuance of the Certification, ANR also issued a “Responsiveness Summary” (Exhibit 45) which includes ANR’s response to public comments received during its review of the Application for Certification.
 82. The Certification encompasses a wide array of elements related to the design, construction and operation of the Phase VI Landfill, including the management of incoming materials, hours of operation, monitoring requirements, leachate control, reporting requirements, closure and post-closure requirements and other general conditions concerning the operation of the Landfill.
 83. The Phase VI landfill area will consist of two cells. The Certification allows for the construction and operation of both cells. With the addition of Phase VI, based on current and predicted rates of acceptance of waste, the Facility will reach capacity in

approximately 2033, when the final cap (closure system) will be installed over the final ± 16 acres of landfill.

84. As the landfill fills to the permitted final grade and landfilling will not occur in those areas over consecutive years, one of two things occurs:
- Final Capping: The final cap is installed and landfilling in those areas ceases. NEWSVT anticipates installing 11 acres of final cap in 2022, 9 acres of final cap in 2027 and 16 acres of final cap in 2033. This schedule is predicated on the annual volume of waste acceptance.
 - Low Emission “Interim” Capping: To utilize capacity reestablished by waste settlement, exposed geosynthetic caps may be installed as an interim condition in areas that have been filled to at or near final grade. When the desired settlement is achieved, the interim cap may be removed so that active landfilling operations can reoccur in the cell. This process may be repeated until the rate of settlement no longer justifies the reinstallation of an interim cap as determined by the airspace volume and consolidation evaluation further described below.
85. NEWSVT will review the degree of landfill settlement with ANR once annually after a survey of the landfill is completed. The temporarily capped areas will be visually evaluated for performance during the annual facility inspections required by the Certification, and will also be evaluated during routine surface emissions monitoring, which occurs on a quarterly basis.
86. ANR’s review of water quality under the Certification process included: (a) landfill design; (b) leachate management; (c) potential groundwater impacts; (d) potential surface water quality impacts; and (e) post-operational issues. The Certification involved a technical review of the Project’s design and construction and operations plans, by ANR’s experts.
87. As part of the certification process, ANR made a finding that the landfill Facility is in compliance with the Vermont Groundwater Protection Rule and Strategy (“GWPRS”). So finds the Commission.
88. As identified by ANR, groundwater is managed at applicable points of compliance for permitted solid waste activities. Under the GWPRS, the point of compliance for a permitted activity is established as the property boundary of that activity. Federal regulations require a relevant point of compliance to be no more than 150 meters (497 feet) from the waste management unit boundary, or lined landfill cells, and on land under the same ownership for lined landfill construction. Exhibit 67.
89. As identified by ANR, the NEWSVT landfill is regulated with consideration of state and federal points of compliance. The lined landfill is regulated by the more restrictive 150-meter federal point of compliance, while the historic unlined landfill is regulated with a point of compliance being the property boundary. Exhibit 67.
90. As identified by ANR, groundwater monitoring wells are positioned at the NEWSVT facility to intercept groundwater that would be impacted by a leak from the liners and to monitor the groundwater that is affected by the unlined landfill. Groundwater elevations are monitored twice a year and reported to allow for evaluation and consideration of any changes in groundwater flow directions that may have occurred during landfill construction, operation, closure and post-closure and ensure that the monitoring network remains sufficient. Exhibit 67.

91. As identified by ANR, the established monitoring systems at the NEWSVT facility have not indicated that the lined landfill is leaking. The double-liner system allows for monitoring of the leachate both on the primary liner (directly below the waste) and the secondary liner (below the primary) and within the groundwater underdrain system (below the secondary). The quantity of leachate collected within the primary and secondary liner systems is monitored and reported to the DEC on a monthly basis. There have not been significant quantities of leachate collected within the secondary liner system within any of the lined landfill cells, and therefore there is no indication of failure within the primary liner. Exhibit 67.
92. The Phase VI Landfill design incorporates multiple redundant protective systems to ensure that leachate is not released to the environment. Double-lined landfills were first installed at the Property in 1992 in connection with the construction of Phase I.
93. As further described below, the primary and secondary geomembrane, geosynthetic clay liner, and underdrain collection system provide primary, secondary, and tertiary protection and collection systems, which are designed to prevent leaks into the subsurface environment.
94. The Phase VI Landfill design includes a liner system that meets and exceeds Federal and Vermont design and siting requirements for municipal solid waste landfills. The liner system is designed with redundant features to protect the environment in the event a primary component of the liner system were to leak. The liner system design consists of a flexible geomembrane liner incorporating two layers (primary and secondary) of 60-mil thick, textured high density polyethylene ("HDPE") geomembranes overlain by leachate collection systems. The two HDPE geomembranes are chemically resistant to a wide variety of compounds typically found in solid waste leachate and is generally the liner material of choice for landfill applications throughout the world. Based on studies that have been performed by the Geosynthetic Research Institute, a HDPE geomembrane used beneath landfill liners is expected to last at least a few hundred years. In addition to the geomembrane liners, a layer of geosynthetic clay liner ("GCL") material will be placed immediately below the primary geomembrane throughout the entire base area and two layers of GCL will be installed below the primary and secondary sumps for the leachate pumps to provide additional leakage protection. These additional GCL layers provide an extra measure of protection above and beyond that which is required by the SWMR. The GCL is comprised of Bentonite clay powder sandwiched between layers of geotextile. In the event of a leak in the primary liner, the Bentonite, when in contact with a liquid, swells in response to the leak.
95. As required by the Certification, the Phase VI Landfill will be covered with a final cap system at the time of closure. The final cap system is comprised of linear low-density polyethylene geomembrane covered with a drainage geocomposite, granular drainage material, common borrow, and topsoil to establish vegetation. The final cap prevents precipitation and snowmelt from getting into the waste, thereby reducing the amount of leachate generated by the Landfill over time. The reduction of leachate generation also helps prevent the Landfill from leaking.
96. To further ensure that the Phase VI Landfill is constructed in accordance with the approved design and technical specifications, the Applicant will conduct construction quality, control, and assurance ("CQCA") services, to be provided by a third-party engineer.

97. Opponent CLF retained expert Laura Orlando. Ms. Orlando is an adjunct assistant professor of environmental health at the Boston University School of Public Health, a civil engineer, and the Executive Director of RILES, a nonprofit organization concerned with health and the environment. Her work includes research on toxic substances and their exposure pathways; including technological, economic, political, and cultural influences. She has over thirty years of international experience working on the design and management of sustainable systems in the built environment, with a special focus on water and sanitation. She regularly reviews peer-reviewed literature and other scientific reports on the transport and fate of chemicals of concern, including PFAS, in the influent, effluent, and sludges from WWTPs. She maintains current on this topic to prepare for classes that she teaches at the Boston University School of Public Health and also for her own writing and research on the subject of health and wastewater treatment. For over thirty years she has researched and taught what happens in modern WWTPs with regard to the management of chemicals, and the federal and state rules that impact their treatment and discharge. She has also researched, taught, and consulted on water quality issues, particularly with respect to drinking water and water used for agricultural purposes.

98. As identified by CLF's expert, Orlando (Exhibit 66):

- Landfill leachate is liquid waste resulting from water moving through the waste.
- A landfill site will produce leachate throughout its working life and for several hundred years after it is decommissioned.
- Average annual leachate generation over the years 2015-2016 for the existing landfill phases (Phases I-IV) was approximately 9.5 million gallons per year.
- The landfill expansion (Phase VI) will generate approximately 6.6 million additional gallons of leachate per year.

So finds the Commission.

99. To reduce the generation of leachate, the Applicant will install a temporary geomembrane cap that can be removed to place additional waste, to establish final grading, until settlement of the Landfill diminishes to support installation of the final cap. The temporary cap prevents stormwater from getting into the waste thereby reducing leachate generation.

100. Similar to previous phases of the Landfill, primary and secondary leachate collection systems will be constructed in Phase VI, with the secondary collection system serving as a leak detection system for the primary liner system.

101. Also similar to previous phases at the Landfill, the Phase VI Expansion will be constructed with an underdrain collection system to provide the appropriate separation to groundwater below the base of the liner system, and also to provide a tertiary containment element. Like the underdrain discharges from the earlier lined phases, the discharge from the Phase VI underdrain system will be monitored as part of the facility's Water Quality Monitoring Program. It has been designed to provide the Applicant with

- the ability to collect contaminated groundwater for treatment, in the unlikely event a leak in the liner systems occurs and penetrates to the underdrain system.
102. Once leachate has been collected it is pumped and conveyed to a double-walled steel above-ground storage tanks using submersible pumps which will be connected to auxiliary generator(s) to provide power for the pumps in the event of a grid power failure. The Facility presently has one such above-ground storage tank, and the Phase VI Project will include addition of a second double-walled above-ground storage tank.
 103. Leachate will be pumped from the storage tanks to a loadout structure located near the above-ground storage tank. The Applicant's Pretreatment Discharge Permit (Exhibit 8) authorizes transportation of leachate to wastewater treatment facilities ("WWTFs") in Montpelier, Vermont; Essex Junction, Vermont; Barre, Vermont; Burlington, Vermont; Newport, Vermont, or to out of state facilities in Concord, New Hampshire or Plattsburgh, New York.
 104. Detailed laboratory analyses indicate that the leachate from the Landfill is not classified as "hazardous", as defined by the Vermont Hazardous Waste Management Regulations dated January 31, 2016. Samples of leachate from the Landfill have been tested on a quarterly, semi-annual and/or annual schedule for the past 27 years. Comprehensive test results of NEWSVT's leachate are reported to the ANR Waste Management & Prevention Division in the semi-annual reports on water quality sampling at the Facility in addition to the more regular basic test results conducted by the Applicant. Exhibit 61(j). A copy of the most recent report, entitled *October 2018 Water Quality Sampling, and Analysis of Trends and Standards Exceedances, NEWSVT Landfills*; prepared by Waite-Heindel, dated January 10, 2019 is included as Exhibit 61(l).
 105. None of the Parties or Friends of the Commission presented scientific or technical evidence to demonstrate that the issuance of the Certification does not meet the current applicable DEC regulations (to the extent regulations currently exist).
 106. PFAS are a large group of human-made chemicals that have been used in industry and consumer products worldwide since the 1950s. These chemicals are used to make household and commercial products that resist heat and chemical reactions and repel oil, stains, grease and water. PFAS chemicals include PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonic acid).
 107. Some Parties and Friends of the Commission question if Perfluoroalkyl and polyfluoroalkyl substances ("PFAS") pose a concern relative to leachate from the Landfill.
 108. Since discovering PFAS in groundwater in Bennington, Vermont several years ago, the State of Vermont has implemented regulation of PFAS. In establishing a drinking water standard, the Vermont Department of Health has set conservative levels to reduce risk of impacts to human health from PFAS exposure in drinking water. On July 10, 2018, the Vermont Department of Health issued a "Drinking Water Health Advisory (DWHA) for Five PFAS (per and polyfluorinated alkyl substances)." The Department of Health set the level at 20 parts *per trillion* (1,000,000,000,000) for *the sum* of five different PFAS chemicals; in addition to applying the 20 mg/L DWHA individually to each of these five PFAS compounds, the DWHA also applies to the sum of their concentrations.
 109. The 20 parts per trillion standard (adopted by Vermont for five PFAS chemicals) is conservative (more protective) when compared to several other federal and state

jurisdictions, for example Connecticut, Massachusetts and Colorado which have adopted standards of 70 parts per trillion.

110. The 20 parts per trillion standard (adopted by Vermont for five PFAS chemicals) is very conservative (considerably more protective) when compared to Canadian requirements pertaining to PFAS, for these five PFAS chemicals; there are currently no Quebec standards for PFAS compounds in surface water or drinking water. Summary of Surface water and Drinking Water Criteria for Per-and Polyfluoroalkyl Substances (PFAS) in Quebec and Vermont, by Golder Associates, Ltd. included as Exhibit 61(e) in the Application (“Quebec Water Standards Memo”). The Quebec Water Standards Memo compares Vermont drinking water standards and surface water standards for PFAS, to Canadian guidelines for PFAS, as no standards have been established by Canadian authorities.
111. In regards to drinking water, as identified in the Quebec Water Standards Memo (Exhibit 61e), provided by the Applicant’s expert and not refuted by the other parties:
- There are no Quebec standards for PFAS compounds in drinking water.
 - The Canadian federal department “Health Canada” has issued drinking water guidelines for two PFAS compounds: 600 ng/L for PFOS and 200 ng/L for PFOA. If the sum of the ratios of the measured concentrations of these two compounds to their respective guidelines is less than 1, the water is considered acceptable as a drinking water source.
 - The Canadian federal department “Health Canada” also issued drinking water screening values for seven other PFAS compounds, including three compounds that are regulated by Vermont. These screening values range from 20 ng/L to 30,000 ng/L.
 - Vermont has issued drinking water health advisories (DWHA) for five PFAS compounds. If the sum of the concentrations of these compounds is 20 ng/L or less, the water is considered acceptable as a drinking water source.
 - The five Vermont-regulated PFAS compounds have DWHAs that are significantly lower than the Canadian federal guidelines and screening values, except for PFNA that has the same value [20 mg/L] in both jurisdictions. In looking at the PFAS compounds, the sum of the Canadian federal guidelines and screening values (for the five Vermont-regulated PFAS compounds, and even though an additive standard is not effect in Canada) is 1,620 ng/L – in comparison to Vermont’s additive standard of 20 ng/L. On this basis, for these five compounds, the Vermont standard is stricter.
 - The effluent from the Newport Wastewater Treatment Facility (“Newport WWTF”) was analyzed in January 2018 for 25 PFAS compounds. None of the Newport effluent concentrations for the nine PFAS compounds exceed the Canadian federal guidelines or screening values.
 - The sum of the Newport effluent concentrations for the five Vermont-regulated PFAS is 130.2 ng/L, which exceeds the additive 20 NG/L Vermont drinking water health advisory. However, this sample was collected directly in the Newport WWTF effluent, which would never be a drinking water source by itself. The large dilution factor provided by the Clyde River, and then by Lake Memphremagog and other rivers that flow into the lake, would result in much lower PFAS concentrations in the nearest Canadian drinking water sourced as a result of this discharge.
112. In regards to surface water, as identified in the Quebec Water Standards Memo (Exhibit 61e), provided by the Applicant’s expert and not refuted by the other parties:

- There are no Quebec nor Vermont standards for PFAS in surface water.
 - The Canadian federal department “Environment and Climate Change Canada” has issued a federal surface water quality guideline for one PFAS compound [PFOS], but the Province of Quebec has not adopted that guideline.
 - The Canadian federal guideline for PFOS in surface water is 6,800 ng/L. This guideline is protective of long-term exposure to PFOS by aquatic species including invertebrates, aquatic plants, fish and amphibians.
 - The effluent from the Newport Wastewater Treatment Facility was analyzed in January 2018 for PFOS and was determined to be 9.83 ng/L in that sample. This value is far less than the Canadian guideline for PFOS in surface water (6,800 ng/L).
113. In addition to regulating drinking water, ANR also regulates PFAS in landfill leachate. ANR currently requires pre-treatment of leachate only when PFAS concentrations in the leachate are above certain parameters, as set forth in a document entitled: *Recommendations for Landfill Leachate Discharge Guideline Levels for PFOA and PFOS*, dated July 6, 2018, P. LaFlamme and C. Schwer to E. Boedecker, VTDEC, included in the Application as Exhibit 61o (the “VTDEC Leachate Discharge Memo”).
114. Leachate from the Landfill was sampled by a contractor on behalf of the ANR on January 10, 2018. The results of this sampling were reported in an ANR Memo dated March 13, 2018, included in the Application as Exhibit 61(m) (“March 13, 2018 VTDEC Memo”). Regarding the treatment and disposal of the Applicant’s leachate at WWTFs, the March 13, 2018 VTDEC Memo specifically states, beginning on the bottom of page 1: “the leachate concentrations at all five landfills [including the Landfill] are at levels that do not require any restrictions of leachate being taken to a permitted WWTF [wastewater treatment facility].” Emphasis added.
115. In addition, ANR confirmed the acceptability of the Applicant’s leachate being managed at the permitted WWTFs in a Memo dated December 17, 2018, entitled *Clarification of Key Items from NEWSVT Landfill Responsiveness Summary*, included in the Application as Exhibit 61(n) (the “ANR Clarification Memo”). Page 2 of the ANR Clarification Memo states that “there is no potential acute risk to human health or the environment with the management of leachate at a WWTF. . . . **Based on this work, the DEC has determined that leachate can continue to be managed at WWTFs with no adverse impacts to human health or the environment from PFAS in the waters receiving that effluent.**” Emphasis in original.
116. The PFOA and PFOS concentrations in the Applicant’s leachate that were detected in the January 2018 sampling (as described above) are below the triggers set forth in the VTDEC Leachate Discharge Memo that would require pre-treatment of the leachate before disposal at a WWTF. The Applicant’s leachate values are only 1,850 ppt for PFOA, and 244 ppt for PFOS. These values are 0.15% of the trigger requiring pre-treatment for PFOA, and 2.4% of the trigger requiring pre-treatment for PFOS. The PFOA and PFOS values for the Applicant’s leachate are also well below the triggers in the VTDEC Leachate Discharge Memo that would require any restrictions of leachate being taken to a WWTF (1.5% of the PFOA trigger, and 24% of the PFOS trigger). Therefore, VTDEC has determined that the Applicant’s leachate can be taken to WWTFs without pre-treatment or any other conditions or restrictions.

117. According to Waite-Heindel, Landfill leachate managed by the Newport WWTF will not impact drinking water intakes from the Canadian portion of Lake Memphremagog. In addition, a 2004 study commissioned by MRCM and the City of Sherbrooke and conducted by Teknika, Inc., Sherbrooke, Quebec, (the “Teknika Study”) determined that “. . .our analysis demonstrates that the existence and operation of the Coventry landfill, as regulated and authorized by the state of Vermont, does not constitute an unacceptable risk to public health or the Lake Memphremagog ecosystem, provided that NEWSVT operates the landfill in compliance with all applicable permit and regulatory provisions.” Emphasis added.
118. In several places in the Certification, ANR recognizes the importance of continued monitoring of PFAS at the Landfill. For example, Condition 69 of the Certification requires the Applicant must sample several monitoring wells for PFAS twice a year. Also, in condition 74, ANR addresses the upstream sources of PFAS by requiring the Applicant to “develop a testing plan to evaluate the concentrations of PFAS” in wastes accepted at the Landfill. Further, condition 70 of the Certification requires surface water and underdrain sampling, including for PFAS; condition 71 request leachate sampling, including for PFAS; and condition 86 requires an evaluation of on-site and off-site leachate treatment options. The Applicant has identified that the potential future on-site and off-site treatment options, that it is aware of, may include leachate recirculation, leachate evaporation, on-site treatment, or off-site treatment, as further discussed in Exhibit 061a. The future options will be further evaluated, and reviewed by ANR. Should a new or revised leachate treatment option be pursued and constitute a material change under Act 250 Rule 2c(6), an Act 250 permit amendment will be required prior to implementation of the new or revised leachate treatment option.
119. The Landfill does not itself create PFAS. The landfill is part of a system that manages waste, and provides a method of disposal of the PFAS materials which originate elsewhere. PFAS are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals, and have been manufactured and used in a variety of industries around the globe, including the United States since the 1940s, according to the Prefiled Testimony of Alexandra Roy, quoting Basic Information on PFAS, United States Environmental Protection Agency. PFASs are widely used in numerous consumer products (e.g. textiles, paper, non-stick cookware, carpets, cleaning agents, etc.) and industrial applications including metal plating, fire-fighting foams, electronics production, photography, etc.”
120. ANR has identified and requested sampling of groundwater monitoring wells located on the NEWSVT Property for PFAS analysis. This work was completed by the Facility during the summer of 2018. Of the six wells that have been analyzed, two had positive detections for the five PFAS compounds that currently have a drinking water health advisory and groundwater standard in Vermont. Vermont currently has a groundwater enforcement standard, established by the Vermont health advisory, of 20 ppt for the sum concentration of five individual PFAS compounds. One well, MW-E1 had a sum PFAS concentration of 6.7 ppt, below the groundwater enforcement standard and near the point of compliance. The second regulated PFAS detection was at MW-P2RR at 116 ppt. This monitoring well is located adjacent to the unlined landfill and not at a point of compliance. Additional wells sampled in this area, but closer to the point of compliance were non-detect for the regulated PFAS compounds.
121. The Facility is required to continue conducting PFAS monitoring as part of the regular semi- annual water quality monitoring at this location and others located along the points

of compliance. This ongoing monitoring will establish the trends in concentrations, determine if additional investigative or response evaluation is necessary.

122. As identified by ANR, given that there are no indications that the current lined landfill cells are impairing groundwater quality, and given that 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 includes 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. Exhibit 45.
123. ANR requested PFAS testing at six groundwater monitoring wells located on the landfill property in August 2, 2018, following review of public comments received. One such monitoring well is upgradient of the landfill operations (MW-705), one is adjacent to the unlined landfill (MW-P2RR), one is down gradient of the unlined landfill (BRW-3D) and three are along the compliance boundary for the lined landfill (P-6, MW-E1, MW-E2). (Exhibit 062e). The sampling was completed in August 8, 2018 and results received by ANR in September 2018. 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. Exhibit 062e.

Due to this detection of PFAS above standard in the vicinity of the unlined landfill, and the low-level detection in MW-E1, the ANR Certification includes 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 (Exhibit 062e) 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.

124. In January 2018, ANR 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 and a summary of this work was included within the July 2018 *Perfluoroalkyl Substances (PFAS) Contamination Status Report* This sampling effort was independent of the Permittee, who also completed sampling at the same time.

125. The ANR Certification application can only be evaluated by ANR using the standards that are in effect at the time of application review.
126. 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 granulated 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 options for treatment of PFAS in drinking water.
127. As identified by ANR, the SWMRs require that the leachate collection system and on-site storage facilities be sized to minimize the collection of leachate on the landfill liner system. The SWMRs do not mandate or specify how that leachate be managed for treatment following its collection. The Applicant holds a pre-treatment discharge permit (Exhibit 008), issued by the ANR Wastewater Management Program. The current pre-treatment permit is administratively extended (and thus a legally valid permit), during the currently pending ANR review of an application to renew the otherwise expired pre-treatment discharge permit. 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 specifically identified wastewater treatment facilities (WWTFs); however, each identified municipal WWTF is not required to accept the landfill leachate. If a municipal WWTF could not attain necessary treatment standards due to the acceptance of leachate, or if it elected to not accept the leachate, the landfill would still be responsible for management and disposal of its leachate. Options could include evaluating treatment at other municipal WWTFs with other treatment technologies, or establishing an independent treatment facility at the landfill Property. Exhibit 45.
128. Participants MRCM and CLF have presented expert testimony concerning the potential for undue water pollution from leachate generated by the Phase VI Project.
129. The credentials of CLF’s expert, Ms. Orlando, are outlined in Finding 31. Pursuant to Ms. Orlando (Exhibit 56a):
 - (i) The detail of leachate’s chemical character depends on the type of waste stored and the hydrologic and chemical conditions of the landfill. Certain chemical constituents are almost always present, such as high levels of biochemical oxygen demand (BOD5), chemical oxygen demand, ammonium nitrogen (NH4-N), chloride, nitrogen, solvents, phenols, heavy metals, as well as two other classes of chemicals called polybrominated diphenyl ethers (PBDEs) and per- and polyfluoroalkyl substances (PFAS).
 - (ii) Landfill leachate also contains many other kinds of chemicals, including chemicals of emerging concern. A chemical of emerging concern is a chemical that is not regulated but may pose a risk to human health or the environment. A May 2017 Vermont DEC report on wastewater treatment plant (“WWTP”) sludge and septage management states that landfill leachate may contain, among other things, aromatic hydrocarbons like benzene; halogenated hydrocarbons; phenols; alkylphenols; pesticides; phthalates; pharmaceuticals such as metformin,

lorazepam, and warfarin; and nicotine. Kelley & Twohig, "Wastewater Treatment of Sludge and Septage in Vermont."

- (iii) Products containing PFAS compounds remain in the environment for such a long period of time that scientists are unable to estimate an environmental half-life. Testimony of Linda S. Birnbaum, Ph.D., before the Senate Committee on Homeland Security and Governmental Affairs Subcommittee on Federal Spending Oversight and Emergency Management, Hearing on "The Federal Role in the Toxic PFAS Chemical Crisis," (Sept. 26, 2018).
- (iv) The health effects associated with human exposure to PFAS include: increased cholesterol levels, increased pregnancy-induced hypertension, increased risk of thyroid disease, increased risk of asthma, decreased antibody response to vaccines, increased risk of decreased fertility, and lower birth weights.
- (v) The U.S. Environmental Protection Agency has linked perfluorooctanoic acid ("PFOA") (one of the PFAS compounds) to ulcerative colitis, kidney cancer, and testicular cancer. "An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances and Interim Guidance for Clinicians Responding to Patient Exposure Concerns," ATSDR (June 7, 2017).
- (vi) PFAS are used in many consumer products including electronics, microwave popcorn bags, carpet, food packaging, upholstery, nonstick cookware (Teflon), dental floss, and textiles. These and other materials containing PFAS have been disposed of in landfills for over sixty years in a variety of forms.
- (vii) PFAS are present in the leachate at the NEWSVT landfill. May 3, 2018 Memorandum from Weston & Sampson to John Smeltzer at DEC documenting PFAS sampling of NEWSVT landfill leachate.
- (viii) PFOA levels in the NEWSVT landfill leachate were reported at 1,850 ng/L or 1,850 parts per trillion (ppt). PFOS levels were reported at 244 ng/L or 244 ppt. May 3, 2018 Memorandum from Weston & Sampson to John Smeltzer at DEC documenting PFAS sampling of NEWSVT landfill leachate.
- (ix) ANR established Landfill Leachate Discharge Guideline Levels for PFOA and PFOS in 2017. Memo from DEC Watershed Management Division to Commissioner of DEC.
- (x) ANR's guidance recommends that WWTPs in Vermont with pretreatment discharge permits do not accept landfill leachate with concentrations above 120,000 ppt for PFOA and 1,000 ppt for PFOS without additional treatment restrictions.
- (xi) Sewage treatment at WWTPs, whether there is landfill leachate present or not, results in two end products: wastewater that is discharged to surface water, and sewage sludge.
- (xii) None of the National Pollution Discharge Elimination System ("NPDES") permits for the WWTP's authorized to receive leachate from the NEWSVT landfill impose any requirements to monitor for PFAS either coming into or being discharged from the facility.
- (xiii) None of the WWTP NPDES permits contain effluent limits for any of the 3,000 plus chemicals that make up the family of compounds referred to as PFAS.
- (xiv) None of the WWTPs have pollution controls in place that remove PFAS in the leachate from the NEWSVT landfill before it is discharged into surface waters.

- (xv) PFAS chemicals in the NEWSVT landfill leachate are either: (1) discharged from the WWTP to surface waters via treated liquid effluent; or (2) distributed to soils and drinking water sources via WWTP sewage sludge (also known as biosolids). Orlando at 10:27-11:12, 13:25-29; ANR Responsiveness Summary, Appendix A at 1.
- (xvi) Sampling for PFAS in the effluent of several WWTPs that are authorized to receive leachate from the NEWSVT landfill, including the City of Barre WWTP, the City of Montpelier WWTP, and the City of Newport WWTP, demonstrate that PFOA was not mitigated or removed from the liquid effluent in the treatment processes.
- (xvii) The City of Newport's WWTF effluent concentration of PFOA from the May 3, 2018 sampling event was nearly eight times its influent.
- (xviii) The seven WWTPs that are authorized to receive leachate from the NEWSVT landfill discharge wastewater effluent into the following surface waters: Winooski River, Stevens Branch, Clyde River, Merrimack River, and Lake Champlain.
- (xix) Sampling for PFAS in the sludge from three WWTPs that are authorized to receive leachate from the NEWSVT landfill (Barre, Montpelier, and Newport) similarly demonstrated that PFAS are not removed from the sewage sludge in the wastewater treatment process.
- (xx) The U.S. Environmental Protection Agency (EPA) is unable to assess the impact of hundreds of unregulated pollutants, including PFAS, in land-applied sewage sludge on human health and the environment.
- (xxi) This notwithstanding, sewage sludge is applied to land in all 50 states including agricultural land.
- (xxii) The addition of NEWSVT leachate to WWTFs is a pathway for PFAS to enter the environment, including drinking water sources.
- (xxiii) DEC states "[t]he Solid Waste Management Rules do not require consideration of the locations and treatment of the leachate in application review."
- (xxiv) Rather, the Solid Waste Management Rules: "[r]equire 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, a separate program at DEC."
- (xxv) NEWSVT must obtain a NPDES pretreatment discharge permit for the disposal of leachate.
- (xxvi) The NPDES pretreatment discharge permit issued on November 3, 2011 by the Vermont Wastewater Management Program for the NEWSVT landfill expired on December 31, 2016. On May 25, 2016, NEWSVT filed an application for a renewal of its pretreatment discharge permit.
- (xxvii) Prior to reissuance of the NPDES pretreatment discharge permit, DEC will be implementing and requiring the following actions, with DEC working on items (a) through (c), and NEWSVT required to complete items (d) and (e) (timeline for completion included in parentheses):

- DEC will conduct a more detailed investigation into the concentration of PFAS in Vermont leachate, WWTP influent and effluent, and the surface water receiving WWTP effluent (preliminary work will be completed by end of 2019, prior to ANR issuing a decision on the NPDES pretreatment discharge permit application, and with ongoing evaluation);
 - DEC will evaluate existing information and data on treating PFAS containing wastes prior to or at the point of landfill disposal (preliminary evaluation will be completed by October 12, 2019, and work will be ongoing);
 - DEC will continue to monitor other regulatory agency actions regarding PFAS in landfill leachate, WWTPs receiving known sources of PFAS, and approaches to establish surface water criteria for PFAS that are protective of designated uses (ongoing basis);
 - NEWSVT will manage landfill operations to promote the reduction of leachate generation (ongoing basis);
 - NEWSVT will conduct a study of PFAS in waste being disposed at the landfill (see Solid Waste Certification Condition 74 and 85), and a study of treatment options for leachate management, two onsite and two offsite (see Solid Waste Certification, Condition 86) (both studies must be completed by October 12, 2019).
130. PFAS in leachate was found to be entering the groundwater, from the unlined landfill, and was found at more than five times the Vermont Department of Health (VDH) advisory level in the groundwater tested. August 8, 2018 and September 13, 2018 Waite-Heindel sampling results. (Exhibit 056a) No groundwater contamination from the unlined landfill has been detected at or near the property boundary of the NEWSVT facility, which serves as the compliance boundary for the unlined landfill (Exhibit 062e). As demonstrated in the semi-annual water quality monitoring reports, groundwater monitoring wells between the unlined landfill and the property boundary indicate that the contamination remains near the unlined landfill and that the native soils are effectively containing the contamination. Additional monitoring of the Black River surface waters does not indicate any impact. There is no evidence that the lined landfill is discharging leachate to the groundwater. Present indications are that the closed capped unlined landfills appear stable, with respect to groundwater impacts; there are no present indications of recent or imminent spikes or increases in any concentrations that would suggest that these closed landfills pose an immediate threat to the environment or to public health.
131. Alexandra Roy is an employee of MRCM and serves as its technical expert with respect to the issues of concern to MRCM in this landfill application. Ms. Roy holds a degree in biochemistry from University of Montreal, is pursuing a Master's degree in environmental sciences, and has worked as a project manager at the MRCM since January 2006. In this role, she provides scientific knowledge and strategic advice in environment and sustainable development, working closely with mayors, advisory committee members, municipalities, and other local and regional partners. She has been in charge of the MRCM's water sampling program since 2006, and has worked on numerous projects to address water quality in the Memphremagog, Massawippi, and Missisquoi watersheds. Since 2006, she has been a member of the Quebec Vermont Steering and Technical Committees, and of the Coventry Landfill Oversight Committee founded by the Act 250 Environmental Commission.
132. Pursuant to MRCM's expert, Ms. Roy:
- MRC de Memphrémagog (MRCM) represents 17 municipalities: Austin, Ayer's Cliff, Bolton-Est, Canton de Potton, Canton de Stanstead, Canton D'Orford, Canton de

Hatley, Eastman, Hatley, Magog, North Hatley, Ogden, Stanstead, St-Benoit-du-Lac, Ste-Catherine-de-Hatley, St-Etienne-de-Bolton, and Stukely-Sud. The MRCM municipalities cover an area of approximately 1,327 square kilometers (512 square miles), with a total permanent population of 50,000 and seasonal population of about 17,500 persons. Six of the municipalities border Lake Memphremagog itself.

- Lake Memphremagog is host to the Magog, Owl's Head, St-Benoit-du-Lac and Sherbrooke drinking water intakes, servicing about 175,000 persons. As a result, the MRCM has a very distinct and important role concerning the protection of the Lake's water quality. In 1989, the governments of Quebec Province and the State of Vermont signed an *Environmental Cooperation Agreement on Managing the Waters of Lake Memphremagog*.
- As MRCM has previously expressed to the Commission, the SWMFC fails to adequately address the impact of landfill leachate treatment within the Lake Memphremagog watershed on the Lake's water quality in the long term. The SWMFC requires only limited supplemental information on leachate sampling; does not provide the necessary framework for setting up an in situ treatment facility; does not prohibit the disposal of landfill leachate at the Newport wastewater treatment facility; and does not address potential underground contamination from the Nadeau unlined cells. For all of these reasons, the SWMFC will not prevent undue water pollution.

133. In 2004, as a component of the #7R0841-8 landfill expansion, the District 7 Commission found that "The applicant has not requested and the Commission has not considered testimony or other information on the impact of treating and discharging landfill leachate at treatment facilities within the watershed area of Lake Memphremagog. Therefore, such discharge is prohibited without further review and hearing by this Commission. MRC's rights to participate in any future review of this matter shall be fully preserved". Subsequently, in 2013, the District 7 Commission authorized approval of disposal of landfill leachate from the Facility, at the Newport Wastewater Treatment Facility (WWTF), which discharges to Lake Memphremagog; the Commission also authorized use of 4 other WWTF's in Vermont, in addition to one in New Hampshire and one in New York. The 2013 approval was a component of an application to increase the landfill's rate of acceptance of waste, and it was noted that leachate generation would decrease as a result of the increase in fill rate.

134. Under Criterion 1(B), the Commission will grant a permit "whenever the applicant demonstrates that, in addition to all other applicable criteria, the development or subdivision will meet any applicable health and environmental conservation department regulations regarding the disposal of wastes, and will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells." 10 V.S.A. §6086(a)(1)(B). The burden of proof under Criterion 1(B) is on NEWSVT. 10 V.S.A. §6088(a). The Commission is thus (once again, this time from the Phase VI Project) evaluating whether or not the proposed disposal of leachate, at WWTF's, including the Newport WWTF, meets applicable health and ANR regulations, and will, or will not involve the injection of harmful or toxic substances into ground water or wells. To the extent that this is a new or expanded project; and to the extent that new data, science, or such relevant information is now available; then the Commission should consider, but is not bound by earlier precedent concerning disposal of leachate, and thus considers this topic anew, with respect to the leachate generated by the Phase VI Project.

135. The average annual leachate generation over the years 2015-2016 for the existing landfill phases (Phases I-IV) was \pm 9.5 million gallons per year. The subject Phase VI Project is predicted to generate \pm 6.6 million additional gallons of leachate per year from the Facility – a very significant increase, especially when one considers the operating life of the landfill, and leachate generation continuing after the Facility is closed.
136. Landfill leachate contains PFAS, and is transported to WWTF's for disposal. The WWTF's are not equipped to treat the PFAS contained in landfill leachate. As a result, PFAS chemicals end up in WWTF effluent (which is discharged to surface waters), and in sewage sludge (often land-applied, thus potentially impacting groundwater). Sampling of WWTF effluent and sludge at several WWTFs permitted to receive leachate from the NEWSVT landfill provides conclusive evidence that PFAS are entering surface waters and soils via these two pathways. The levels of PFAS in the landfill leachate, from the existing Facility, are below ANR guidance levels for PFOA and PFOS. These ANR guidance levels have not been adopted as a rule and have not undergone public review. Furthermore, this ANR guidance only applies to PFOA and PFOS, two of over 3,000 PFAS compounds that may be found in landfill leachate. Presently only a very small number of PFAS chemicals are considered or regulated in Vermont and in Quebec, relative to drinking and groundwater quality standards. Although the limited testing to date shows that these PFAS chemicals have not exceeded applicable standards at compliance points, the testing to date is very limited, only commenced in 2018, and is limited to a very small portion of the thousands of PFAS chemicals known to exist, and that may be present in leachate from the Phase VI Project. PFAS chemicals may pose a further risk to water quality, and human and aquatic health and safety, over time, because products containing PFAS compounds remain in the environment for such a long period of time that scientists are unable to estimate an environmental half-life.
137. The NPDES pretreatment discharge permit issued in November 2011 by the ANR Wastewater Management Program expired in December 2016. In May 2016, NEWSVT filed an application for renewal of this permit. Prior to renewal of the pretreatment discharge permit, ANR is implementing and requiring the following actions, (i) ANR will conduct a more detailed investigation into the concentration of PFAS in Vermont leachate, WWTP influent and effluent, and the surface water receiving WWTP effluent, (ii) ANR will evaluate existing information and data on treating PFAS containing wastes prior to or at the point of landfill disposal, (iii) NEWSVT will conduct a study of PFAS in waste being disposed at the landfill, and a study of treatment options for leachate management, two onsite and two offsite.
138. Due to the potential risk to drinking water quality from disposal of landfill leachate (containing PFAS) into Lake Memphremagog via the Newport WWTF, including the numerous PFAS chemicals of emerging concern (for which there are very few regulatory standards in effect), the Commission will restrict disposal of leachate via the Newport WWTF, as further identified in the Findings below.
139. For twenty-seven (27) years the site has been monitored for ground and surface water quality.
140. The Landfill is located on a broad ridge of very deep low-permeability dense geologic materials that were deposited during and near the end of the Pleistocene Ice Age, both as glacial till and as glacial-lake bottom sediments. These low-permeability materials are the sub-base in which the excavations for the earlier phases of the lined cells were

placed, after approval by the ANR, and are the same materials that have been thoroughly documented and identified at the site of the Phase VI Expansion. These base soils for Phase VI have a permeability of 2.1×10^{-5} cm/sec, which is about five times lower (better) than the maximum permeability recommended in the SWMRs.

141. The Commission accepts the Applicant's expert testimony and reports finding that:

- (i) There is currently no indication that the existing lined Landfill is leaking, because no actionable leakage through any of the primary liners, secondary liners or underdrain systems has been detected.
- (ii) There is an extensive network of groundwater monitoring wells surrounding the Facility, and more will be added for the Phase VI Expansion. Most of these groundwater monitoring wells have been sampled for decades, as part of the ongoing Water Quality Monitoring Program that is required by the past and current ANR Certifications. Additional wells have also been installed at various locations and sampled or water-level-measured on specific dates, to address specific questions or to evaluate specific topics.
- (iii) For the ongoing required monitoring, groundwater samples are collected twice a year by a qualified third party, independent consultant and analyzed by certified independent laboratories. Reports of these semi-annual monitoring events are submitted to VTDEC and numerous interested parties, and are available for public distribution on request. The October and early November 2018 report is provided as Exhibit 61(l).
- (iv) The results of the October 2018 sampling are typical of previous sampling rounds: the concentrations of some groundwater parameters increased since the previous round in May 2018, some parameters decreased, and some were about the same. There were no unusual occurrences or detections. As in previous sampling rounds, the October 2018 sampling round provided no indication that the lined portion of the Landfill is leaking.
- (v) There is currently no evidence that the landfill cells, either unlined or lined, have impacted the Black River.
- (vi) In the groundwater downgradient of the lined cells but not downgradient of Unlined Areas A and B, some wells showed Arsenic, Iron, and/or Manganese concentrations higher than Groundwater Enforcement Standards ("GESs"). No indicators of landfill impacts such as Volatile Organic Compounds ("VOCs") or Semi-Volatile Organic Compounds ("SVOCs") were detected or exceeded GESs. These same three metals were also detected at various upgradient locations at levels exceeding GESs; no VOCs or SVOCs were detected at upgradient locations. The upgradient metals concentrations were generally lower than the downgradient metals concentrations, as has been the case since the lined landfill cells were first installed. This phenomenon is due not to leakage from the liners and leachate containment systems, since no other indicators of landfill impacts are seen in the downgradient groundwater. Rather, the higher concentrations downgradient of the lined cells are likely caused by the natural anaerobic conditions in groundwater in wetlands, and/or in groundwater downgradient of large areas of impeding surfaces, such as parking lots, roofs, paved areas, or in this case landfill liners.

- (vii) Two groundwater monitoring wells (MW-BRW-1 and MW-BRW-2R) in the ongoing compliance network are located further out in the Black River Wetland, approximately 350 feet north of Unlined Areas A and B, and roughly half the distance from A and B to the Black River itself, and to the Property line. These two wells have been sampled since 2005, and have never shown Landfill impacts. They do exhibit concentrations of Arsenic, Iron and/or Manganese that are higher than their GESs, which is fully expected due to the wetland soils in which these wells are found, as explained above.
- (viii) There are no Landfill impacts in groundwater at the Applicant's property boundaries. (Exhibit 61(t)). To evaluate the groundwater quality at NEWSVT's property boundaries, nine new monitoring wells were installed (MW-BRW-3S through MW-BRW-10S). These wells were sampled and analyzed in 2013 and 2014. No organic chemicals, such as VOCs, which would indicate potential landfill impacts, were detected in any of these wells. Arsenic concentrations did not exceed the GES, with the exception of MW-BRW-9S.2 The average downgradient Arsenic concentration in the near-boundary wells was 3.2 ug/L, excluding the anomalous concentration at BRW-9S (compared to the GES of 10 ug/L). Iron and Manganese concentrations exceeded the GES in almost all of the near-boundary monitoring wells, due to the reducing chemical environment created by the natural anaerobic conditions in the groundwater in the wetlands in which all of these wells are located. The lined landfill cells (Phases 1 and 2) that are found several hundred feet upgradient of some of these wells is not the source of the elevated Iron and Manganese concentrations. This is clear for two reasons: (a) no other common indicators of landfill impacts, such as VOCs or SVOCs, are detected in the near-boundary monitoring wells; and (b) Iron and Manganese concentrations in the secondary leachate from the leak-detection systems of Phases 1 and 2 sampled in April 2013 are generally lower than the Iron and Manganese concentrations in the near-boundary monitoring wells – so leachate from Phases 1 and 2 could not be causing the elevated groundwater concentrations.
- (ix) There is no evidence that the lined landfill is discharging leachate to the groundwater.
- (x) With respect to the ANR requirement that "*Facilities shall be designed to protect surface water, groundwater and the air, and to detect, through appropriate monitoring, the emission or discharge of contaminants from the facility to surface water, ground water, or the air*", ANR found that: "Surface and groundwater will be protected from possible discharge of contaminants by the engineered double liner system and underdrain controls proposed in the landfill design. Part D-3: Water Quality Monitoring Program of the application describes the surface, groundwater and underdrain monitoring that will occur throughout the operational, closure and post-closure life of the landfill. Surface water monitoring will occur at twelve locations, thirty-four monitoring wells are proposed for sampling and all five underdrain locations at the facility will be sampled for inorganic and organic compounds and physical characteristics. Sampling of these locations will occur semi- annually, at a minimum, with report submitted to the Solid Waste Management Program. The water quality monitoring program proposed in the application complies with the *Procedure Addressing Groundwater Quality monitoring and Groundwater Remedial Action at Municipal Solid Waste Landfills*. The landfill must also meet the requirements of the *Procedure Addressing Corrective Action*
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and Financial Responsibility for Corrective Action at Solid Waste Landfills. This provides the SWMP with the ability to request additional water quality monitoring or management, as needed to prevent significant damage to public health and safety and the environment and to demonstrate continued compliance with the *Groundwater Protection Rule and Strategy.*”

142. Older portions of the existing Landfill, designated as Area A and Area B, are unlined and are located at the northern portion of the landfill area. These areas are closed and capped, and vegetation is well established on these capped areas.
143. As identified above in the introductory information, as a component of the #7R0841-8 decision on the last major landfill expansion, issued in 2004, the District 7 Commission found that “The unlined landfill cells (the so-called Nadeau cells that pre-date the Applicant’s ownership of the Coventry facility) pose an unacceptable degree of risk to the Lake Memphremagog watershed. These unlined cells must be moved into the new lined cells. An application to accomplish this goal will need to be submitted to the Commission within six months of issuance of the Phase IV Land Use Permit considered herein”.
144. Phase V is the Applicant’s proposed plan to excavate and relocate the waste contained in the unlined landfill Areas A and B (which pre-date Applicant’s ownership of the Property) and place this waste in a newly constructed, lined landfill area, pursuant to the requirement established via Act 250 Permit Amendment #7R0841-8.
145. An application (#7R0841-11) was received in 2005 for the Phase V project. This application was deemed incomplete by the Coordinator, because an ANR Certification was not included with the application. Supplemental information was filed in 2006, and a site visit and preliminary pre-hearing conference also occurred around this time. Review of application #7R0841-11 has not moved forward, for lack of requisite and important ANR permits and approvals. The District 7 Commission can resume its review of application #7R0841-11 anytime it so chooses.
146. The proposed Phase VI expansion area is located to the south of the current landfill operations, and the existing unlined landfill areas (and Phase V project) are located to the north. There is over 2,000 feet of separation distance between the Phase VI expansion area and the unlined landfill (Phase V).
147. The Commission accepts the Applicant’s expert testimony and reports finding that:

Groundwater impacts from the Unlined Areas A and B have been observed, reported and acknowledged by the former site owner, NEWSVT and VTDEC for decades in the groundwater immediately adjacent to these closed landfill cells. Some metals and volatile organic compounds concentrations are seen at levels higher than their GESs in some of the monitoring wells located within a few tens of feet of edges of Unlined Areas A and B. These concentrations have not substantially increased over time, and present indications are that these closed capped landfills appear stable. There are no present indications of recent or imminent spikes or increases in any concentrations that would suggest that these closed landfills pose an immediate threat to the environment or to public health.
148. In addition to the foregoing, ANR has identified that, currently, “no groundwater contamination from the unlined landfill has been detected at or near the property boundary of the NEWSVT facility. As demonstrated in the semi-annual water quality

monitoring reports, groundwater monitoring wells between the unlined landfill and the property boundary indicate that the contamination remains near the unlined landfill and that the native soils are effectively containing the contamination. Additional monitoring of the Black River surface waters does not indicate any impact”.

149. As identified in the preceding Findings, in 2018 three PFAS compounds in the monitoring well adjacent to the unlined landfill were detected above the groundwater enforcement standard. This monitoring well is located on the landfill property, over 800 feet from the property boundary which serves as the compliance point for the unlined landfill (Exhibit 062e). 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 includes a condition requiring PFAS sampling to be incorporated into the regular semi-annual groundwater monitoring program. This condition requires monitoring at wells downgradient of the unlined landfill and wells located along the compliance boundary of the lined landfill, 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.

150. Additional water quality monitoring wells have been installed in recent history at the Property, inform trends and water quality conditions around the unlined landfill areas, and help to provide a more complete picture with ongoing passage of time and availability of additional monitoring data.
151. The unlined landfill is discharging leachate that it produces to the groundwater table, but this leachate has not been demonstrated to have an impact at or beyond the boundary of the property owned by the Applicant, which serves as the compliance boundary for the unlined landfill.
152. The timing and relative importance of developing and prioritizing the Phase V project involves consideration of potential impacts on water quality and air quality and warrants a thorough update of the current data, science, and opportunity for public comment on these issues and potential for impact.
153. The Applicant has obtained some, but not all, necessary permits to proceed with the development of the proposed Phase V landfill area, also identified as the “unlined landfill relocation project”. As identified in the Applicant’s Response to the June 13, 2018 Hearing Recess Order, the Applicant has confirmed its plan to (i) maintain the existing permits that it previously obtained for the proposed Phase V project; and (ii) apply for any necessary remaining permits in the future in order to construct the proposed planned Phase V project following the full development of Phase VI (Exhibit 40).

154. An Act 250 permit amendment has not been issued for the Phase V project, and the Commission has not decided nor identified any final specific required schedule for its development.
155. The current Air Permit for the Facility includes the following condition: *Prior to relocation of any waste from the unlined areas of the Landfill Operation, the Permittee shall submit an odor control plan for approval by the Agency.* The Commission has not reviewed an odor control plan for the Phase V “unlined landfill relocation project”. The Commission anticipates that odor control will be a significant element of the District 7 Commission review of pending incomplete application #7R0841-8 for the Phase V project.
156. If it were determined that the unlined landfill was having an adverse impact on public health and safety or the environment, ANR 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. Exhibit 45. As needed, based on the on-going groundwater quality monitoring, additional evaluation can be requested by ANR, throughout the Certification period, in order to determine whether remediation has become necessary. At this time, remediation of the unlined landfill cell is not required by ANR.
157. Ongoing consideration and timing of the Phase V landfill area, as an integral component of the Facility, must continue, with the benefit of additional water quality data gained from future sampling events. Although groundwater impact attributable to the unlined landfill has not reached its compliance boundary (the property line), ongoing water quality monitoring, attention, and Commission evaluation of the future of the unlined landfill remains very important, in consideration of the permit history, the passage of time, the unlined landfill conditions, the ongoing water quality data, current and evolving landfill science, and the finite capacity of the Property for solid waste disposal. The Commission will include the following condition in any permit to ensure that the Commission remains informed, noting that the Commission may resume its review of the Phase V Act 250 amendment application, including consideration of latest water quality data, whenever the Commission deems warranted:

The Permittee shall submit an annual evaluation of impacts to ground and surface water quality, from the unlined landfill areas on the Property, to the Commission, and to all Parties admitted under Criterion 1(B). The evaluation shall include a recommendation concerning relocation of the waste from the unlined landfill areas, into lined Landfill areas, based on the current data and science.
158. The Applicant submitted a Closure and Post-Closure Plan for the Landfill facility to ANR in accordance with Subchapter 10 of the SWMRs. ANR has determined that the Applicant’s Closure and Post-Closure Plans are in compliance with the requirements of the SWMR and applicable Solid Waste Management Procedures.
159. In accordance with the Closure and Post-Closure Plans, the Applicant has established a Surety Bond with Evergreen National Indemnity Company #850689 in the amount of \$11,340,614.51 for closure of the Landfill facility and Surety Bond #850688 in the amount of \$6,656,262.65 for post-closure of the Landfill facility. ANR has determined that the bonds, which are in favor of ANR, satisfy the requirements of Subchapter 9 of the SWMRs.

160. Consistent with the #7R0841-8 decision, the Commission finds that the present post-closure (first 30 years following closure) bonding limits and funding availability guarantees for the Phase VI Project may not be adequate given the lack of long term performance and maintenance data on landfills.
161. The Commission hereby retains jurisdiction over post-closure funding, security and financial guarantees and will further reserve the right to examine this issue in tandem with our continuing review of the post-post-closure (period after the first 30 years following closure) funding.
162. Pursuant to the 2006 Environmental Board, Waste Facility Panel decision, #7R0841-8-WFP, NEWSVT shall annually deposit an amount equal to \$0.20 per ton ("Trust Fund Fee") of solid waste accepted for disposal at the Phase IV Landfill. This "Post-Post-Closure fund" was required by the District 7 Commission, in order to establish the finances necessary to continue to provide landfill maintenance beyond the ANR-mandated 30-year post-closure care period. This fund, in the form of a Trust Account with TD Wealth, is in place and has a current balance \$1,244,565.23 as of December 31, 2018. The fund currently receives \$0.20 for each ton that is placed into Phase IV. The Trust Account value after the initial post-closure period is complete is estimated to be approximately \$7,200,000.00. The Commission notes that it had required deposits in the amount of \$1.00 per Phase IV Landfill ton, via its #7R0841-8 decision, however on appeal the Environmental Board, Waste Facility Panel, authorized reduction of the deposit amount to \$0.20 per Phase IV Landfill ton.
163. The Commission will respect and apply the Environmental Board precedent concerning the necessity and amount of post-post-closure care security funding for the landfill, adjusted for inflation, using a base rate of \$0.20 (2006). The following calculation is provided for example purposes, to illustrate calculation of the rate that would be in effect for Phase VI 2019 tonnage, if Phase VI was operational in 2019 (which it will not be). The annual rate for a given year is calculated based on the inflation rate up until December 31 of the prior calendar year:

Inflation Calculator

If in	2006	(enter year)	
I purchased an item for \$			1.00
then in	2018	(enter year)	
that same <u>item would cost:</u>			\$1.25
Cumulative rate of inflation:			24.6%
<div style="background-color: #0056b3; color: white; padding: 5px 20px; display: inline-block; margin-top: 10px;">CALCULATE</div>			

164. Permittee shall annually calculate and implement collection and remittance of the Phase VI Trust Fund Fee, adjusted for inflation. For example, the calculated adjusted Phase VI Trust Fund Fee, if implemented for the year 2019 (which won't be an actual implementation year), would be $\$0.20 \times 1.25 = \0.25 (see above). The Commission will include the following conditions in its permit for the subject Phase VI Project.

- a. *In addition to the ANR approved financial responsibility instrument in the Permit covering the post closure period, NEWSVT shall establish an additional environmental integrity trust fund ("Phase VI Trust Fund") for the benefit of the ANR. The trustee of the Phase VI Trust Fund shall be an institution acceptable to the Parties. Upon appointment of the trustee, NEWSVT shall report the identity of the trustee to the District #7 Commission.*
 - b. *NEWSVT shall annually deposit an amount equal to \$0.20 + per ton ("Phase VI Trust Fund Fee", to be adjusted annually for inflation based on a base rate of \$0.20 (2006), as identified in the Commission's Findings) of solid waste accepted for disposal at the Coventry Landfill into the Phase VI Trust Fund during the respective year of operation (accepting solid waste for disposal) of the Coventry Landfill. The Phase VI Trust Fund fees shall only be payable for solid waste disposed of in Phase VI of the Coventry Landfill. The first annual deposit of the Phase VI Trust Fund Fee to the Phase VI Trust Fund shall be made one year from the date that solid waste is first disposed of in Phase VI of the Coventry Landfill and subsequent deposits shall be made annually thereafter on the anniversary of such date. NEWSVT shall report to the District #7 Commission, ANR, and MRCM the date that waste is first disposed of in Phase VI.*
 - c. *The Phase VI Trust Fund shall be used only after the currently regulated thirty (30) year Phase VI post-closure period, and only for the following purposes: (1) maintenance of the Coventry Landfill required by the ANR; and (2) corrective measures required by the ANR and for mitigation of damages caused by the landfill.*
 - d. *The Phase VI Trust Fund may serve as evidence of compliance with any future financial responsibility required by the ANR or federal EPA regulations for the period of time beyond post-closure. If funds in the Phase VI Trust Fund are less than that required to comply with any such ANR or federal EPA requirements, NEWSVT shall supplement such Phase VI Trust Funds with additional financial responsibility instruments in a manner that satisfies such requirements. The ANR shall return to NEWSVT the difference between the funds in the Phase VI Trust Fund and the amount required to comply with any ANR or federal EPA requirements.*
 - e. *The Phase VI Trust Fund shall be terminated and the remaining funds shall be returned to NEWSVT or its successor entity upon written confirmation from the ANR that the Phase VI Trust Fund is no longer required to maintain financial responsibility for the Coventry Landfill.*
165. NEWSVT shall maintain a Commercial General Liability insurance policy in the amount of \$5 million on the Coventry Landfill, which amount shall be adjusted on each renewal date to account for inflation over each policy period.
166. 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. Exhibit 45.

167. ANR has 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 ANR. Exhibit 45.
168. The Certification requires that the Applicant conduct random inspections of incoming loads. At the hearing, the Commission received testimony regarding the frequency of these inspections, relative to the volume of incoming waste materials, and determined that only a very small percentage of waste or waste loads are actually inspected under the current methodology employed. As outlined under Criterion 1, the Commission deems that a full time local inspector, is warranted, based at or very near the Project site, to monitor, investigate, and document landfill odor occurrences, respond quickly to odor complaints at any time of day or night. Also, this person will complete other random and ongoing landfill inspections such as waste load inspections which the Commission deems appear to be lacking in scope. This full time local inspector must be based in the Newport-Conventry area, as further identified in the Commission's Criterion 1 Findings.
169. ANR concluded that:

With the issuance of the Solid Waste Management Facility Certification, it is the Agency's position that the ongoing operations and management of the NEWSVT landfill will not cause substantial harm or loss of beneficial uses of groundwater beyond a point of compliance
170. Under Act 250 Rule 19, some specific ANR permits create rebuttable presumptions that waste materials and wastewater can be disposed of through installation of wastewater and waste collection, treatment and disposal systems without resulting in undue water pollution. These specific ANR permits, issued for the Phase VI Project, are: the Solid Waste Management Facility Certification, the Wastewater System and Potable Water Supply Permit, the Stormwater Discharge Permit, and the Individual Construction Stormwater Discharge Permit.
171. The ANR Pretreatment Discharge Permit does not establish a rebuttable presumption under Rule 19.
172. All four (4) Criterion 1(B) Permits create a presumption that the Project complies with Criterion 1(B), to the extent that each specific permit addresses specific waste materials and wastewater, and for a period of time corresponding to the term, or period of time, when each permit is in effect. The Certification (Exhibit 43) is for a period of time commencing at signature (October 12, 2018) and ending **June 30, 2028**, and this is the term for which it serves as a presumption of compliance under the present #7R0841-13 application.
173. The Commission is required to give substantial deference to any technical determination ANR makes in issuing any permit or approval entitled to a presumption under Rule 19(E).

10 V.S.A. § 6086(d). This shifts the burden to the party opponent to prove, by clear and convincing evidence, that the technical determination is incorrect.

174. Landfill opponents have not proven, by clear and convincing evidence, that any of the technical determinations made by ANR in the Criterion 1(B) presumptive permits were incorrect. However, it is very important to recognize the scope of waste materials and wastewaters covered in each permit. None of the (4) Rule 19 presumptive permits obtained for the Project address treatment or disposal of PFAS chemicals found in landfill leachate, beyond conducting further studies of alternate leachate disposal options. Therefore, these permits do not establish a presumption of compliance with respect to PFAS in landfill leachate.
175. The current ANR Pretreatment Discharge Permit does not address treatment or disposal of PFAS chemicals that are present in landfill leachate.
176. Pursuant to conditions of the Certification, some related NEWSVT actions directly related to PFAS in leachate will occur: (a) NEWSVT will manage landfill operations to promote the reduction of leachate generation (ongoing basis) and (b) NEWSVT will conduct a study of PFAS in waste being disposed at the landfill, and a study of treatment options for leachate management (two onsite and two offsite, with both studies to be completed by October 12, 2019). Concerning item (a) the Commission understands that this is not a new requirement – the landfill already employs measures to minimize its leachate generation and costly leachate disposal. Concerning item (b) the information resulting from these studies will inform best practices for leachate management and disposal in the future, to be overseen by ANR as a component of its consideration of the pretreatment discharge permit renewal.
177. Due to the risk to the water quality of Lake Memphremagog - a drinking water supply for thousands of Canadians - caused by discharge of PFAS chemicals into the Lake via the Newport WWTF, the Commission will, by permit condition, prohibit disposal of leachate generated at the Facility, at the Newport WWTF. The Commission will include the following condition in its permit:

Disposal of landfill leachate from the Facility, including that generated from all Phases of the landfill (Phase I-IV) and from Phase VI, is not permitted at the Newport WWTF. Permittee may not dispose of leachate at the Newport WWTF, nor dispose of landfill leachate on-site or elsewhere within the watershed of Lake Memphremagog, without Act 250 permit amendment. This restriction shall take effect 90 days from the date of issuance of this permit.

Permittee may apply for Act 250 permit amendment, to modify this restriction, if such an amendment application is supported by new science, new technology and/or or new data which demonstrates, or seeks to demonstrate, that the risk to the Lake Memphremagog water quality (drinking water supply) will not be unduly adverse.

Permittee shall apply for an Act 250 permit amendment for any change to its method of leachate management, pre-treatment, and disposal, including but not limited to construction of on-site treatment systems.

Permittee shall submit a copy of its study of treatment options for leachate management (two onsite and two offsite, with both studies to be completed by October 12, 2019) to the District Commission for its file.

Dissenting opinion of Keith Johnson: The discharge of leachate at the Newport WWTF complies with all applicable Vermont and Canadian regulatory standards currently in effect, including those for PFAS chemicals, and I respectfully disagree with the necessity of the above permit conditions to the extent they pertain to the Newport WWTF.

178. Actual future needs for solid waste disposal via solid waste landfilling are unknown. Better methods to deal with solid waste disposal are needed, and Vermont should not rely on a single landfill to meet its waste disposal needs. The goal should be ongoing reduction of waste generation, and eventual elimination of solid waste landfilling. For this reason, and also in consideration of the term of the Certification, the Commission will limit the operating term of its permit to end **June 30, 2028** which is the end of the term permitted under the Certification which serves as a presumption of compliance for the term that it is in effect. The subject #7R0841-13 Act 250 permit amendment will remain in effect for a period of time extending beyond June 30, 2028, in that the Facility will remain under the jurisdiction of Act 250, however the right to accept and dispose of solid waste in the landfill will terminate on **June 30, 2028**. An updated closure plan may be needed, depending on final grading resulting from actual waste deposited into the Phase VI area. To this end, the Commission will include the following condition in its permit:

*This permit amendment shall expire on **June 30, 2028**, unless extended by the District Environmental Commission. If this permit is not renewed (extended), Permittee shall submit an updated closure plan for Commission review and approval, prior to installing the final closure system.*

Conclusions of Law

The ANR permits create a presumption pursuant to Act 250 Rule 19 that the disposal of wastes through the installation of wastewater and waste collection, treatment and disposal systems authorized by the permit(s) will not result in undue water pollution, to the extent that each such permit treats a particular waste or wastewater. Technical determinations made by ANR in issuing the permit(s) are entitled to substantial deference. 10 V.S.A. § 6086(d).

The Project will meet all applicable Department of Environmental Conservation (DEC) regulations on waste disposal, and will not involve the injection of waste materials or any harmful or toxic substances into groundwater or wells, and will not cause undue water pollution, with the inclusion of the Commission's conditions identified above.

The Commission's Findings of Fact identified above shall remain in effect for a period of ten (10) years from the date of this decision. The Findings are binding on the parties and final for a period of ten years from the date of this decision. The applicant may seek to renew the findings prior to expiration (i.e. as a component of an application for renewal or extension of the permit).

The Commission concludes that this Project will comply with Criteria 1(Water) and 1(B), with the Commission's inclusion of the permit conditions contained within the above Findings, for the period ending June 30, 2028. The Commission concludes that this Project complies with Criteria 1(Water) and 1(B).

Criterion 1(C) - Water Conservation:

Findings of Fact

179. Water use for the Project will generally be limited to the spraying of the Landfill's access roads in order to control fugitive dust emissions. Water will be withdrawn from on-site stormwater detention ponds for use in dust control measures during the development and operations associated with Phase VI Expansion. This water is not drawn from a drinking water aquifer, so it does not compete with other water uses that require potability.
180. A maximum of 900 gallons per day of potable water will be needed for each 100 foot by 30 foot wide greenhouse. This potable water supply would be provided by an existing Applicant-owned drilled well located on the former St. Onge property, approximately 1,060 feet to the east of the existing Phase IV landfill cell.
181. The plumbing and irrigation system for the greenhouses will use low-flow technology to conserve water.
182. Other than water withdrawal from stormwater ponds as noted above, water will not be withdrawn from rivers, streams or other bodies of water.
183. Accordingly, the Project will use the best available water conservation technology, and provides for continued efficient operation of these systems.

Conclusions of Law

The Project design has considered water conservation, incorporates multiple use or recycling where technically and economically practical, uses the best available technology for water conservation, and provides for continued efficient operation of these systems.

The Project complies with Criterion 1(C).

Criteria 2 and 3 – Water Availability and Impact on Existing Water Supply:

Findings of Fact

184. Overall, water use at the Landfill is not expected to change substantially with the Phase VI Expansion. The construction of the Phase VI Expansion will not require additional water supply outside of what is already provided at the Landfill. The existing on-site water supply will remain sufficient to meet the needs of the scale house and the facility maintenance building.
185. The SWMR require that drinking water supplies cannot be located within 1,000 feet of a discrete disposal area. The existing on-site water supply is considered a non-potable source. Drinking water for the existing scale house and facility maintenance building will continued to be provided by bottled water.
186. No drinking water supplies are located within 1,000 feet of the disposal area.
187. The Proposed Greenhouses Area Plan (Exhibit 15) depicts the future location of up to five greenhouses which require a potable water supply. The water supply is expected

to be provided by an existing Applicant-owned well located on the former St. Onge property (Well ID #36516), approximately 1,060 feet to the east of the existing Phase IV landfill (Exhibit 4 and 5). Greenhouses typically demand 0.3 gallons of water per day per square foot of greenhouse area. Therefore, each greenhouse that is constructed will require about 900 gallons per day (0.3 gallons of water per day per square foot x 3,000 square feet = 900 gallons). If all five greenhouses are built, about 4,500 gallons per day of water will be needed for greenhouse operations.

188. The Property is subject to an existing Wastewater System and Potable Water Supply Permit, WW-7-0240-3. The Wastewater Permit was issued on January 11, 2018. Exhibit 30. This permit addresses treatment of sanitary waste, also known as sewage, and water supply via use of the existing St. Onge well, for the greenhouse portion of the Project, located on the Joseph and Mead parcels.
189. None of the Parties or Friends of the Commission presented scientific or technical evidence to demonstrate that the issuance of the WW permit does not meet the applicable DEC regulations.
190. Additionally, as identified above under Criterion 1, water use for landfill operations and construction will generally be limited to dust control which will be taken from the on-site stormwater detention ponds.
191. Accordingly, the Project will have sufficient water available for its needs.
192. A significant issue concerns the potential impact from leachate disposal, via the Newport WWTF, on the water quality of Lake Memphremagog, a drinking water supply for many thousands of people, and in particular the effect of untreated PFAS chemicals. This topic is fully addressed in the Commission's Findings of Fact under Criterion 1(B) waste disposal, wherein the Commission is imposing specific conditions to protect the water quality of this drinking water. With the inclusion of the conditions as identified under Criterion 1(B), the Project will not cause an unreasonable burden on existing water supplies.

Conclusions of Law

Criterion 2:

The ANR Wastewater Management Division issued the Wastewater Permit (Exhibit 030) which creates a presumption pursuant to Act 250 Rule 19 that a sufficient supply of potable water is available to meet the foreseeable needs of the Project. No evidence was presented to rebut the presumption or challenge the technical determinations made by ANR.

The Commission concludes that there is sufficient water available to meet the reasonably foreseeable needs of this Project. The Project complies with Criterion 2.

Criterion 3:

With the inclusion of the conditions as identified under Criterion 1(B), the Project will not place an unreasonable burden on an existing supply.

The Commission concludes that this Project will comply with Criterion 3, with the Commission's inclusion of the permit conditions contained within the Criterion 1(B) Findings, for a period of time ending June 30, 2028. The Commission concludes that this Project complies with Criterion 3.

Criterion 5 - Transportation:

Findings of Fact

193. Criterion 5 provides that, before granting a permit, the Commission shall find that the Project "[w]ill not cause unreasonable congestion or unsafe conditions with respect to use of the highways, waterways, railways, airports and airways, and other means of transportation, existing or proposed." 10 V.S.A. §6086(a)(5).
194. The Project is not in a Transportation Improvement District (TID).
195. The Project is a continuation of the existing operation at the Facility; therefore, traffic to and from the site is not expected to change from current levels. No new access roads to the Property or modifications to the existing site access roads are proposed. There will be no change to traffic levels due to construction activities from that which has occurred during prior permitted and constructed landfill expansion projects at the facility.
196. As the landfill expands to the south, the existing landfill perimeter road will be extended by about 5,470 feet with a maximum 2.4 percent gradient on the Landfill facility's property as described below. The perimeter road will provide on-site access to the Landfill and other facility operations. Haul roads will be built on-site for construction equipment to transport excavated soils to the proposed stockpile locations to the south of proposed Phase VI.
197. The design provides sufficient access to the site for emergency trucks and vehicles and those vehicles will easily be able to turn around.
198. There are no existing pedestrian access facilities located along Airport Road. The project will not impact pedestrian traffic or facilities.
199. The existing site distances along Airport Road provide bicyclists with adequate visual contact with other traffic entering and exiting the site. The traffic volume on the road, created by the Project, is not expected to change and therefore will not cause any unreasonable delays or unsafe conditions for potential bicyclists and/or public transportation facilities.
200. No additional parking is needed for landfill operations at the Property. Two additional parking spaces have been added for employees managing the greenhouse operations as well as a parking space for a box truck to transport product from the greenhouses off site. The project design includes sufficient on-site parking to meet the needs of the Project.
201. The impact on the adjacent airport, owned by the State of Vermont, is presented under Criterion 9(K).

202. The Project does not incorporate transportation demand management strategies, and no such strategies are warranted, in consideration of the nature of the industrial project, and its traffic.
203. The Project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways and other means of transportation.

Conclusions of Law

Criterion 5(A) requires that the Project “will not cause unreasonable congestion or unsafe conditions with respect to use of the highways.” See 10 V.S.A § 6086(a)(5)(A). Notwithstanding the requirement for a positive finding, the Commission may not deny a permit solely on the reasons set forth under Criterion 5. See 10 V.S.A § 6087(b). The Commission may, however, attach reasonable conditions to alleviate traffic burdens. *Id.*

Criterion 5(B) requires that a project, “as appropriate . . . incorporate transportation demand management strategies and provide safe access and connections to adjacent lands and facilities and to existing and planned pedestrian, bicycle, and transit networks and services.” 10 V.S.A § 6086(a)(5)(B). In determining what is appropriate for a particular project, the Commission considers whether measure is reasonable, “given the type, scale and transportation impacts” of the proposed project. *Id.*

The Commission concludes that the Project will not cause unreasonable congestion or unsafe conditions with respect to use of roads, highways, waterways, railways, airports, and other existing or proposed means of transportation.

The Project complies with Criterion 5(A).

The Project incorporates all appropriate transportation measures and complies with Criterion 5(B).

Criteria 6 and 7 - Educational and Municipal Services:

Findings of Fact

204. The Project is not expected to result in addition of school-age children to the local school system.
205. The Project does not necessitate the need for any physical improvements to local schools.
206. The Project is a continuation of an existing Facility, and may utilize police, fire, and rescue services.
207. The Town of Coventry has been consulted and supports the Project (Exhibit 55). The Town of Coventry has not identified any burden on its ability to provided services.

Conclusions of Law

Notwithstanding the requirement for a positive finding, the Commission may not deny a permit solely on the reasons set forth under Criteria 6 and 7. See 10 V.S.A § 6087(b). The Commission may, however, attach reasonable conditions to alleviate the burdens created. *Id.*

As long as per-pupil spending does not change, a change in the Grand List will not change school tax bills after the first year, because under Vermont's school financing system (Act 60), the cost of additional students is financed entirely by the state education fund and by funds which the town has elected to spend above and beyond the state's block grant. Therefore, the inquiry under Criterion 6 is whether the Project will necessitate any physical improvement to local schools that would cause new capital costs to be incurred. If so, the question is whether such a burden is reasonable.

The Commission concludes that additional students will not impose an unreasonable burden on the municipality's ability to provide educational services. The Project complies with Criterion 6.

Under Criterion 7, the question is whether the Project places an unreasonable burden on the ability of the municipality to provide services. Relevant services include municipal fire, police, rescue, solid waste disposal, road maintenance, sewer and water service. Re: Barre Granite Quarries, LLC, #7C1079 (Revised)-EB, Findings of Fact, Conclusions of Law, and Order at 77 (Vt. Env'tl. Bd. Dec. 8, 2000).

The burden of proof is on the opponents under Criteria 6 and 7, but the burden of production is on the Applicants. No evidence was presented to contend that the proposed Project will cause an unreasonable burden on the municipality.

Therefore, the Commission concludes that this Project will not place an unreasonable burden on the ability of the municipality to provide educational, municipal or governmental services. The Project complies with Criteria 6 and 7.

Criterion 8 - Aesthetics, Historic Sites and Rare and Irreplaceable Natural Areas:

Findings of Fact

Aesthetics, Scenic or Natural Beauty

208. The present site is a landfill Facility on ±1056 acres, visible from local roads. The Property has been used as a landfill for approximately 49 years, and prior operations included a junkyard.
209. The subject Phase VI expansion is proposed to be constructed on the south side of the Property, immediately south of the existing Landfill and east of an existing soil stockpile area and natural ridge separating and screening the Landfill from Route 5. The proposed infrastructure includes a detention pond and stockpile area, beyond which the adjacent state Airport is located. Northeast of the Phase VI expansion is the proposed greenhouse area. East of the Phase VI Expansion and the proposed greenhouses is Route 5, beyond which are open areas owned by the Applicant.
210. The subject Phase VI Expansion is a southerly expansion of the existing Landfill, which consists of two closed, unlined landfills that appear as large grassy knolls, identified as Area A and Area B on plans. The site also includes 76+/- acres of lined landfill shown as Phases I, II, III and IV. Phases I to III of the existing Facility also appear to be grassy knolls while Phase IV of the Landfill is currently active and is generally covered with vegetation, daily cover or a geosynthetic cap. The surrounding and adjacent areas include the existing landfill infrastructure, including the LFGTE facility, a solar farm, wetlands, rolling fields, wooded areas, and widely spaced residences.

211. The Landfill is currently visible from U.S. Route 5, parts of the City of Newport, the South Bay of Lake Memphremagog, and the ridge located to the west of Route 5. Adjacent existing uses visible from Route 5 include a railroad yard, roadside commercial uses, power lines, automotive repair shop, and salvage yard.
212. The Applicant has prepared a detailed visual analysis, comparing the current views of the Landfill to views of the Landfill during and after development of the Project. Exhibits 19, 40.
213. As the Phase VI Expansion is developed, areas will be covered during interim conditions with either vegetation, daily cover or geosynthetic cap to help prevent odors and erosion, reduce leachate generation, and to allow for additional settlement prior to installation of the final closure system.
214. The Applicant requested approval to install a synthetic vegetation known as Closure Turf that gives an appearance of grass, in lieu of vegetation, as a component of the final closure system. The Closure Turf has not been approved by ANR, would create a uniform appearance, and is not approved by the District Commission, which will include the following condition in its permit:

Installation of synthetic Closure Turf (as a component of final closure system) is not permitted. Prior to installation of Closure Turf (as a component of the final closure system) a permit amendment must be submitted to the District Commission for additional review and approval.
215. The development of the Project is also expected to include up to five greenhouses on the eastern side of the Property. The greenhouses will be screened from Airport Road by an existing soil stockpile. Portable and fixed perimeter trash fence will also be used during waste placement operations to help prevent wind-blown litter from migrating off-site.
216. The Project design includes trees to be strategically planted along Airport Road, which will soften the appearance of the Facility as viewed from some sections of Airport Road.
217. The Project was designed in consultation with the adjacent state Airport to meet the departure and approach surfaces to ensure compatibility with the continued use of the Airport.
218. The Phase VI Landfill will appear similar to Phase IV of the Landfill, with vegetation, daily cover or a geomembrane cap, depending on phase of development.
219. With the exception of the greenhouses, any structures will be constructed of the same materials and be of the same height, style, and color as existing on-site structures.
220. The Project will include the construction of two additional sideslope riser buildings and an additional aboveground leachate storage tank. These structures are expected to be constructed using similar materials and colors to the existing sideslope riser buildings (red metal siding, with black metal roofing) and aboveground storage tank (blue metal siding with silver metal roofing).
221. Up to five (5) greenhouses may also be constructed that will be fabricated of metal framing and polycarbonate. Each greenhouse will be up to 100 feet long by 30 feet

wide by 24 feet tall and constructed immediately east of the existing Phase IV and proposed Phase VI areas. Exhibit 15.

222. The Applicant prepared a visual comparison of the current views of the Landfill to views that will be seen during and upon completion of the Project. The Applicant completed this visual analysis from seven (7) representative locations around the Landfill, focusing on locations where the Phase VI Expansion will be visible, including three (3) locations along Airport Road, one location from the City of Newport, one location from the South Bay of Lake Memphremagog, one location from Pine Hill Road in Coventry, and one location from Maple Ridge in Newport Vermont.
223. As noted on the Aesthetics Plan, the Applicant has proposed soil stockpiles south of the Landfill area to screen the landfill and associated infrastructure and buildings from view as the Landfill is approached from the south via Airport Road. In addition, extensive tree plantings will be strategically located to help limit visual impacts from several different vantage points. The stockpiles, strategically located trees, and existing wetland buffer vegetation will visually buffer the Project. Once full capacity is reached, the Phase VI Expansion, like previous phases, will be seeded to establish vegetation and will appear like a large grassed hillside
224. The natural vegetated buffer areas along Airport Road, together with the proposed soil stockpiles will significantly buffer the view of items such as aboveground storage tanks and other similar structures.
225. New above-ground utility poles will be installed along the western perimeter road to provide power to the two proposed sideslope riser buildings and the contractor's job site trailers during construction, and on the east end of the site to provide power to the proposed greenhouses. Buried electrical conduit will be used to extend power from the utility poles to the sideslope riser buildings and greenhouses. The utility poles will be largely obstructed from view as the landfill is developed
226. The Project does not include any new exterior signage at the main site access road, that would be visible from Airport Road. Additional on-site signage may be added on site, for example to direct truck drivers to various locations, or to identify speed limits; these signs will not be illuminated, and would have limited visibility from off-site.
227. Use of exterior lighting will be infrequent. In the event maintenance needs to be done during the night, exterior lights will be installed on the sideslope riser buildings and greenhouses. The exterior lighting will be low-wattage light emitting diode, dark-sky compatible, shielded, and controlled with a switch as described in the manufacturer's specification sheets. Exhibits 1, 17.
228. The Project does not violate any identified clear, written community standard governing aesthetics.
229. Noise and odor impacts are evaluated under Criteiron 1. All Criterion 1 Findings, to the extent relevant to noise impacts, are incorporated herein by reference.
230. Strategies to contain wind-blow n waste include a litter fence, which may be visible from some segments of public roadway. If the litter fence is not maintained properly (removal of waste stuck on the fence), it presents an unattractive appearance. Exhibit 069.

231. Portions of the proposed Phase VI expansion area are currently used for purposes related to existing Landfill operations – soil stockpiles, visual berms, a detention pond, etc. Exhibit 16.
232. Construction of the Project will not impact the public lands located around the Property. The Applicant has granted the State of Vermont Department of Fish and Wildlife a right-of-way along the southerly boundary of the Property for the purpose of providing public access to the State of Vermont Department of Fish and Wildlife parcel located to the west of the facility as shown on the plan included as Exhibit 10 of the Application. Access to adjacent land and facilities will not change as a result of the Project.
233. The Phase VI Expansion is included in the Town of Coventry Municipal Plan. The Project conforms to the plan by providing continued development of industrial businesses along the west side of Airport Road and by supporting their energy plan by providing continued operation of the LFGTE facility. Exhibit 23.

Conclusions of Law

Prior to granting a permit, the Commission must find that the subdivision or development under Criterion 8 "will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas." 10 V.S.A § 6086(a)(8). This Project involves concerns under Criterion 8 related to [aesthetics, noise, odors, historic sites, rare and irreplaceable natural areas].

AESTHETICS and NATURAL AND SCENIC BEAUTY

The Commission uses a two-part test to determine whether a Project meets the portion of Criterion 8 relating to aesthetics and natural and scenic beauty. First, it determines whether the Project will have an adverse effect. Second, it determines whether the adverse effect, if any, is undue. In re Rinkers, Inc., No. 302-12-08 Vtec, Decision and Order at 12 (Vt. Env'tl. Ct. May 17, 2010)(citations omitted); see also, Re: Quechee Lakes Corporation, #3W0411-EB and #3W0439-EB, Findings of Fact, Conclusions of Law, and Order at 18-20 (Vt. Env'tl. Bd. Nov. 4, 1985); In re Halnon, 174 Vt. 514 (mem.)(applying Quechee test in Section 248 context).

The burden of proof under Criterion 8 is on any party opposing the Project, 10 V.S.A § 6088(b), but the applicant must provide sufficient information for the Commission to make affirmative findings. In re Rinkers, No. 302-12-08 Vtec, Decision and Order at 10-11 (Vt. Env'tl. Ct. May 17, 2010)(citing Re: Susan Dollenmaier, #3W0125-5-EB, Findings, Conclusions and Order at 8 (Vt. Env'tl. Bd. Feb. 7, 2005); In re Eastview at Middlebury, Inc., No. 256-11-06 Vtec, slip op. at 5 (Vt. Env'tl. Ct. Feb. 15, 2008), aff'd, 2009 VT 98. "Either party's burden, however, may be satisfied by evidence introduced by any of the parties or witnesses" In re McShinsky, 153 Vt. 586, 589 (1990) (quoting In re Quechee Lakes Corp., 154 Vt. 543, 553–54 (1990)).

1. Adverse Effect

To determine whether the Project will have an adverse aesthetic effect, the Commission looks to whether the Project will "fit" the context in which it will be located. In making this evaluation, the Commission examines a number of specific factors, including: the nature of the project's surroundings; the compatibility of the project's design with those surroundings; the suitability of the colors and materials selected for the project; the locations from which the project can be viewed; and the potential impact of the project on open space. Quechee Lakes Corp et al. #3W0411-EB and #3W0439-EB Findings of Fact, Conclusions of Law and Order at 18 (Vt. Env'tl. Bd., Nov. 4, 1985)(cited in Rinkers, No. 302-12-08 Vtec, Decision and Order at 12-13).

The Project is in an area characterized by a mixture of uses including an active solid waste landfill, open spaces, wetlands, farmland, rural residences, a state airport and a wildlife management area. The Project represents a significant expansion of the industrial solid waste landfill, and has potential for an adverse effect with respect to aesthetics and odors. The Phase VI expansion will extend vertically higher than the present Facility, and will thus be more prominent on the area landscape. Additionally, the expansion of the Facility, and extension of the operating permit until 2028, extends the potential for off-site odors and overall aesthetic impact of the industrial operation on the area, including noise from equipment and truck traffic. Accordingly, the Project may have an adverse impact.

The Project may have an adverse aesthetic impact. Accordingly, we must determine whether that impact is undue.

2. Undue Adverse Effect

An adverse aesthetic impact is undue if any of the following is true: (1) the Project violates a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area; (2) the Project offends the sensibilities of the average person, or is offensive or shocking because it is out of character with its surroundings or significantly diminishes the scenic qualities of the area; or (3) the Applicants failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the Project with its surroundings. In re Rinkers, 302-12-08 Vtec, Decision and Order at 15 (May 22, 2010)(citing In re: Times & Seasons, LLC, 2008 VT 7, ¶ 8; In re McShinsky, 153 Vt. at 592).

(a) Clear, Written Community Standard

In evaluating whether a project violates a clear written community standard, the Commission looks to town plans, open land studies, and other municipal documents to discern whether a clear, written community standard exists to be applied in review of aesthetic impacts of a project. Hannaford Brothers Co. and Southland Enterprises, Inc., #4C0238-5-EB, Findings of Fact, Conclusions of Law, and Order at 18 (Vt. Env'tl. Bd. 4/9/02). A clear, written community standard must be intended to preserve the aesthetics or scenic beauty of the area where the project is located. Re: Green Meadows Center, LLC, The Community Alliance and Southeastern Vermont Community Action, #2WO694-I-EB, Findings of Fact, Conclusions of Law, and Order at 36 (Vt. Env'tl. Bd. 12/21/00).

A plan which states "consideration should be made . . ." is not a clear, written community standard. Barre Granite Quarries, LLC and William and Margaret Dyott, #7C1079(Revised)-EB, Findings of Fact, Conclusions of Law, and Order at 81 (Vt. Env'tl. Bd. Dec. 8, 2000). Although the proposed Project does not meet the specific goals or objectives cited above there are no clear community standards relevant to the proposed Project's impacts on aesthetics.

The Project does not violate a clear, written community standard. The Phase VI Expansion is included in the Town of Coventry Municipal Plan. The Project conforms to the plan by providing continued development of industrial businesses along the west side of Airport Road and by supporting their energy plan by providing continued operation of the LFGTE facility. Exhibit 23.

Therefore, the proposed Project does not violate a clear community standard.

(b) Offensive or Shocking Character

Criterion 8 "was not intended to prevent all change to the landscape of Vermont or to guarantee that the view a person sees from their property will remain the same forever." Re: Okemo Mountain, Inc. #2S0351-S-EB Findings of Fact, Conclusions of Law, and Order (Dec. 18, 1986). Criterion 8 was intended to ensure that as development occurs, reasonable consideration will be given to visual impacts on neighboring landowners, the local community, and on the special scenic resources of Vermont. Rinkers, No. 302-12-08 Vtec, Decision and Order at 11-12; Horizon Development Corp., #4C0841-EB, Findings of Fact, Conclusions of Law, and Order (Vt. Env'tl. Bd. Aug. 21, 1992).

The Project is an expansion of an existing industrial facility. The design of the expansion reflects coordination of land use with the adjacent public interests in the form of the Wildlife Management Area and state Airport. Reasonable aesthetic buffering has been provided, to minimize visual impact on area roads. As identified under Criterion 1, the Commission is requiring a local third party inspector to monitor compliance with permit conditions related to control of odors and has retained reasonable hours of operation. Also the Commission has not approved the installation of synthetic Closure Turf, in lieu of natural vegetation, as a component of the final closure system. Given all of these considerations, and with the inclusion of the Commission's conditions, providing the Applicant adheres to the conditions of the various permits, we find that the Project is not offensive or shocking.

(c) Generally Available Mitigating steps

The question under this factor of the aesthetics analysis is whether the Applicant has "failed to take generally available mitigating steps that a reasonable person would take to improve the harmony of the proposed project with its surroundings." In re Times & Seasons, 2008 VT 7, ¶ 8. If a project does have an adverse aesthetic effect, the applicant must "take generally available mitigating steps to reduce the negative aesthetic impact of a particular project," otherwise, "[f]ailure to take advantage of available alternatives may render an aesthetic impact unduly adverse." In re Stokes Communications Corp., 164 Vt. 30, 39 (1995)(quoted in In re Rinkers, 302-12-08 Vtec, Decision and Order at 19 (May 22, 2010). A generally available mitigating step "is one that is reasonably feasible and does not frustrate [either] the project's purpose or Act 250's goals."

To mitigate the aesthetic impacts of the Project, the Applicant has included aesthetic mitigation (tree plantings, soil stockpiles) which will substantially reduce visibility of the Project from nearby roads and properties; has established measures and obtained permits which establish requirements to monitor and control odors; and will adhere to reasonable hours of operation.

Given all of these considerations, we find that the Applicant has taken the available mitigating steps to minimize the adverse impacts of the proposed Project on the scenic or natural beauty of the area.

(d) Conclusion

Based on the above, the Commission concludes that the Project will not have an undue adverse effect on the aesthetics or natural and scenic beauty of the area.

Criterion 9(K) – Development Affecting Public Investments:

Findings of Fact

234. The project is adjacent to significant governmental and public utility facilities, services, and lands. These include the Newport State Airport, the LFGTE facility (which is supported by the Landfill Facility), and lands owned by the State of Vermont (Department of Fish and Wildlife) comprising the South Bay Wildlife Management Area.
235. The Applicant has provided an easement along the south end of their Facility for the public to access the land owned by the Vermont Department of Fish and Wildlife (South Bay Wildlife Management Area), from Airport Road. Exhibit 10.
236. The Newport State Airport is located to the south of the Phase VI Expansion. ANR's document titled "Procedure Addressing the Siting of Municipal Solid Waste Landfills in Proximity to Airports," dated July 8, 1994, indicates that laterally expanded landfills within a five (5) mile radius of an airport runway shall notify the Federal Aviation Administration ("FAA") and the affected airport. The Phase VI Expansion was designed based on several constraints that have limited the area available for waste disposal capacity, horizontal and vertical restrictions imposed by VTRANS, the owner of the Airport, and the FAA due to the proximity of the Airport to the Project site. The proposed limit of waste for the Phase VI Expansion is approximately 2,318 feet from the Airport's primary runway and the vertical height of Phase VI Expansion is limited based on approach and departure surfaces that were agreed upon by VTRANS, the FAA, and the Applicant (Exhibit 1). The Applicant obtained approval for the Project from VTRANS and the FAA on May 4, 2015 and May 28, 2015, respectively. Copies of the VTRANS and FAA approvals are provided in Part A-7 of the Certification application. Exhibit 4.
237. The ANR SWMRs indicate that discrete disposal facilities that may attract birds located within 10,000 feet of a runway used by turbojet aircraft, or 5,000 feet of a runway used only by piston-type aircraft, shall not pose a bird hazard to aircraft. The Phase VI Expansion limit of waste will be approximately 2,318 feet from the Airport's primary runway, and the previously permitted Phase IV area is about 3,300 feet from the primary runway. The Applicant already has a Bird Management Plan in place for the Facility, that was approved by the United States Department of Agriculture ("USDA"), VTRANS, and ANR, that will continue to be used as Phase VI is developed. (Exhibit 1). Therefore, the proposed Phase VI expansion should not pose an increased bird hazard to aircraft. A copy of the Bird Management Plan is included in the Facility Management Plan in Part D-1 of the Certification application. Exhibit 4.
238. As outlined in the preceding Findings, the Project will not unreasonably or unnecessarily endanger the public or quasi-public investment in the facility, service or lands.
239. As outlined in the preceding Findings, the Project will not materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service or lands.

Conclusions of Law

Criterion 9(K) applies to projects that are adjacent to governmental and public utility facilities, services, or lands. With regard to such projects, the applicant bears the burden of proving that the project will not unnecessarily or unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service or lands. 10 V.S.A § 6086(a)(9)(K).

Pursuant to the Findings above, the Applicant has demonstrated that the Project will not unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service or lands which are present (i.e. the Newport State Airport, the LFGTE facility, and the lands owned by the State of Vermont (South Bay Wildlife Management Area)). The Commission concludes that the Project complies with Criterion 9(K).

Criterion 10 – Town and Regional Plans:

Findings of Fact

240. A municipal plan is in effect and applies to this application.
241. The Town of Coventry Municipal Plan (“Municipal Plan”) dated July 8, 2013 states that:

“The Plan establishes Coventry as the host town for a certified landfill facility operated by New England Waste Services of Vermont, Inc. Coventry has entered into a Host Community Agreement with the landfill where the Town receives a fee for each ton of waste disposed at the facility. This offers Coventry's residents several benefits for material disposal. These ‘tipping fees’ are currently providing the Town with sufficient revenues to cover Town operating expenses, thus alleviating the need for a municipal property tax”.
242. The continued operation of the Landfill Facility furthers a number of goals set forth in the Municipal Plan, including “keep[ing] the Town's tax rate within the limits of its residents’ ability to pay.”
243. The Municipal Plan states that “[t]he majority of Coventry's future development should occur along or west of the Airport Road” where the Project is located.
244. A letter of support for the Project, from the Town of Coventry, has been provided, and does not identify any conflict with the Municipal Plan. Exhibit 55.
245. The Project complies with the Municipal Plan.
246. In consideration of the explicit reference to the Landfill and because the Project will further the goals set forth in the Municipal Plan, the Project complies with the Municipal Plan.
247. A regional plan, Northeastern Vermont Development Association (“NVDA”) Regional Plan (the “Regional Plan”) is in effect and applies to this application.
248. The Regional Plan indicates that one of the solid waste management goals is for regional solid waste disposal systems to be cost-effective, environmentally sound, and promote reduction, reuse, and recycling, and support the state-wide goal of reducing the disposal rate of municipal solid waste. The Landfill conforms to this goal. Exhibit 25.
249. A letter of support for the Project, from the NVDA, has been provided, and does not identify any conflict with the Regional Plan. Exhibit 25.
250. The Project complies with the Regional Plan.

Conclusions of Law

Before issuing a permit, the District Commission must find that the Project is in conformance with any duly adopted local or regional plan or capital program. 10 V.S.A § 6086(a)(10).

The Commission has reviewed the Town Plan and has determined that the Town Plan is sufficiently specific. Re: The Mirkwood Group #1R0780-EB, Findings of Fact, Conclusions of Law, and Order at 19 (Vt. Env'tl. Bd. August 19, 1996). Because the Town Plan is clear and unambiguous it is unnecessary to review the zoning bylaws. See *In re Frank A. Molgano Jr.* 163 Vt. 25 (1994).

In Act 250 proceedings in which the provisions of a regional plan or a municipal plan are relevant to the determination of any issue:

- (1) the provisions of the regional plan shall be given effect to the extent that they are not in conflict with the provisions of a duly adopted municipal plan;
- (2) to the extent that such a conflict exists, the regional plan shall be given effect if it is demonstrated that the project under consideration in the proceedings would have a substantial regional impact. 24 V.S.A. § 4348(h).

Maple Tree Place Associates, #4C0775-EB, Findings of Fact, Conclusions of Law, and Order at 53 (Vt. Env'tl. Bd. June 25, 1998).

Based on the preceding Findings, the Project complies with the municipal plan and the regional plan which are in effect, and apply to the application review.

The Project complies with Criterion 10.

VI. SUMMARY CONCLUSION OF LAW

Based upon the foregoing Findings of Fact, the Commission concludes that the Project, if completed and maintained as represented in the application and other representations of the Applicant, and in accordance with in the findings and conclusions of this decision and the conditions of Land Use Permit #7R0841-13, will comply with the Act 250 criteria. 10 V.S.A § 6086(a).

VII. ORDER

Based upon the foregoing Findings of Fact and Conclusions of Law, Land Use Permit #7R0841-13 is hereby issued for a term ending June 30, 2028.

Dated at St. Johnsbury, Vermont, this 23rd day of July, 2019.

By /s/ Eugene Reid
Eugene Reid, Chair
District #7 Environmental Commission

Members participating in this decision: Keith Johnson, Nicole Davignon

Any party may file a motion to alter with the District Commission within 15 days from the date of this decision, pursuant to Act 250 Rule 31(A).

Any appeal of this decision must be filed with the Superior Court, Environmental Division within 30 days of the date the decision was issued, pursuant to 10 V.S.A. Chapter 220. The Notice of Appeal must comply with the Vermont Rules for Environmental Court Proceedings. The appellant must file with the Notice of Appeal the relevant entry fee required by 32 V.S.A. § 1431.

The appellant must also serve a copy of the Notice of Appeal on the Natural Resources Board, 10 Baldwin Street, Montpelier, VT 05633-3201, and on other parties in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings.

Decisions on minor applications may be appealed only if a hearing was held by the district commission. Please note that there are certain limitations on the right to appeal, including appeals from Administrative Amendments and interlocutory appeals. See 10 V.S.A. § 8504(k), 3 V.S.A. § 815, and Vermont Rule of Appellate Procedure 5.

For additional information on filing appeals, see the Court's website at: <http://www.vermontjudiciary.org/GTC/environmental/default.aspx> or call (802) 951-1740. The Court's mailing address is: Vermont Superior Court, Environmental Division, 32 Cherry Street, 2nd Floor, Suite 303, Burlington, VT 05401.