



Entergy Nuclear Operations, Inc.
Vermont Yankee
320 Governor Hunt Rd.
Vernon, VT 05354
802-257-7711

Coley C. Chappell
Manager, Design and Programs Engineering

BVY 18-020

May 9, 2018

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: 2017 Radioactive Effluent Release Report
Vermont Yankee Nuclear Power Station
License No. DPR-28
Docket No. 50-271

Dear Sir or Madam:

In accordance with Vermont Yankee (VY) Technical Specifications (TS) 6.6.D, enclosed is a copy of the annual 2017 Radioactive Effluent Release Report (RERR).


In addition, VY TS 6.7.B requires reporting of changes to the Off-Site Dose Calculation Manual (ODCM). Appendix H of the RERR provides a summary of two revisions to the ODCM involving the changes which occurred during 2017. Attachment 1 to Appendix H provides a copy of the affected pages from Revision 38 and 39.

The submittal of this report also satisfies the requirements of the VY Renewed Facility Operating License Condition 3.E.10.

This letter contains no new regulatory commitments.

Should you have any questions concerning this letter, please contact me at (802) 451-3374.

Sincerely,

 For CCC

CCC/tbs

Enclosure: Radioactive Effluent Release Report for 2017

IE48
NRR

cc: Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd, Suite 100
King of Prussia, PA 19406-2713

Mr. Jack D. Parrott, Senior Project Manager
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Mail Stop T-5A10
Washington, DC 20555

Ms. June Tierney, Commissioner
Vermont Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05602-2601

Vermont Department of Health
Division of Radiological Health
Attn: Bill Irwin
P.O. Box 70
Burlington, VT 05402-0070

Massachusetts Department of Public Health
Director, Radiation Control Program
529 Main Street, Suite 1 M2A
Charlestown, MA 02129

Department of Health and Human Services
Administrator, Radiological Health Section
29 Hazen Drive
Concord, NH 03301-6504

Director of Nuclear Preparedness
Massachusetts Emergency Management Agency
400 Worcester Road
Framingham, MA 01702-5399

Radiation Program Manager, Health and Safety Coordinator
EPA, New England, Region 1
5 Post Office Square, Suite 100 (OSRR02-2)
Boston, MA 02109

RADIOACTIVE EFFLUENT
RELEASE REPORT
FOR 2017
INCLUDING ANNUAL RADIOLOGICAL
IMPACT ON MAN

Entergy Nuclear Vermont Yankee, LLC
Docket No. 50-271
License No. DPR-28

Prepared by: Jo-Ann Pelczar 15/7/18
Jo-Ann Pelczar, Advisory Scientist, Framatome, Inc. Date

Preparation coordinated by: Stephen Skibniowsky 15/7/2018
Stephen Skibniowsky, REMP Specialist Date

Reviewed by: Scott Doryal 15/7/18
Scott Doryal, RP Supervisor Date

Approved for Distribution: Mike Fletcher 15/7/18
Mike Fletcher, RP/Chemistry Manager Date

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Radiological Effluent Release Report for 2017
[Including Annual Radiological Impact on Man]
Entergy Nuclear Vermont Yankee, LLC

1.0 INTRODUCTION

Tables 1 through 3 list the recorded radioactive liquid and gaseous effluents and solid waste shipments for the year, with data summarized on a quarterly basis for both liquids and gases. Table 4A summarizes the estimated radiological dose commitments from all radioactive liquid and gaseous effluents released during the year 2017 in response to the ALARA objectives of 10 CFR Part 50, Appendix I. Also included in Table 4A is the estimate of direct dose from fixed station sources along the limiting west site boundary line. Tables 5A through 6H report the cumulative joint frequency distributions of wind speed, wind direction, and atmospheric stability for the 12-month period, January to December 2017. Radioactive effluents reported in Tables 1 and 2 were used to determine the dose to the maximum exposed individual member of the public for 2017.

Dose commitments resulting from the release of radioactive materials in liquids and gases during the reporting period were estimated in accordance with the plant's Off-Site Dose Calculation Manual (ODCM), Section 10.1 (Reference 1). These dose estimates were made using a "Method II" analysis as described in the ODCM, and as reported in Tables 4A and 4B of this report. A "Method II" analysis incorporates the methodology of Regulatory Guide 1.109 (Reference 2) and actual measured meteorological data recorded concurrently with the quarterly reporting period.

As required by ODCM Section 10.1, this report shall also include an assessment of the radiation doses from radioactive effluents to member(s) of the public due to allowed recreational activities inside the site boundary during the year. As discussed in Section 3.6, there were no such recreational activities permitted and, therefore, there is no associated dose assessment.

An assessment of radiation doses (including direct radiation) to the likely most exposed real member(s) of the public for the calendar year for the purposes of demonstrating conformance with 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operations," is also required to be included in this report if the conditions indicated in ODCM 3/4.4, "Total Dose," have been exceeded during the year. Since the conditions indicated in the action statement under ODCM 3/4.4 were not entered into during the year, no additional radiation dose assessment is required. However, Table 4B does provide the combination of off-site doses and dose commitments from plant effluents and direct radiation sources for the limiting member of the public as a demonstration of compliance with the dose standards of 40 CFR Part 190.

All calculated dose estimates for members of the public at the site boundary or beyond for the 2017 annual reporting period are below the dose criteria of 10 CFR Part 50, Appendix I, and 40 CFR Part 190.

Appendices B through H indicate the status of reportable items per the requirements of ODCM Section 10.1.

2.0 METEOROLOGICAL DATA

Meteorological data were collected in 2017 from the site's 300-foot meteorological tower located approximately 2,200 feet northwest of the reactor building, and about 1,400 feet from the plant stack. The 300-foot tower is approximately the same height as the primary plant stack (308 feet) and is designed to meet the requirements of Safety Guide 23 (Reference 3) for meteorological monitoring. In mid-2009, the tower was moved to a location approximately 200 feet northwest of the original location.

γ/Q and D/Q values for elevated releases were derived for all receptor points from the site meteorological record for each quarter using a straight-line airflow model. All dispersion factors have been calculated employing appropriate source configuration considerations, as described in Regulatory Guide 1.111 (Reference 4). A source depletion model as described in "Meteorology and Atomic Energy - 1968" (Reference 5) was used to generate deposition factors, assuming a constant deposition velocity of 0.01 m/sec for all stack (elevated) releases. Changes in terrain elevations in the site environment were also factored into the meteorological models as appropriate.

For any batch or discrete gas volume releases, the meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents shall be used in determining the gaseous pathway doses. For 2017 there were no reported discrete or batch gas releases.

In the event of a ground-level release, γ/Q and D/Q values would be derived for the site boundary receptor points from the site meteorological record for each quarter using a straight-line airflow model. During this reporting period, there were no ground-level releases and therefore no associated dose impact.

Table 4C lists the distances from the plant stack to the nearest site boundary, resident, and milk animal in each of the 16 principle compass directions as determined during the 2017 land use census. These locations were used in the calculation of atmospheric dispersion factors. The meteorological model was also executed for each calendar quarter to determine the location of the predicted maximum ground level air concentration from elevated releases from the plant's primary vent stack. These locations were included in the assessment of effluent doses along with identified points of interest from the annual land use census.

3.0 DOSE ASSESSMENT

3.1 Doses From Liquid Effluents

ODCM 3/4.2.2 limits total body doses (1.5 mrem per quarter, and 3 mrem per year) and organ doses (5 mrem per quarter, and 10 mrem per year) from liquid effluents to a member of the public to those specified in 10 CFR Part 50, Appendix I. By implementing the requirements of 10 CFR Part 50, Appendix I, ODCM 3/4.2.2 assures that the release of radioactive material in liquid effluents will be kept "as low as is reasonably achievable."

There were no recorded routine liquid radioactive waste discharges during the report period. However, an abnormal release to the Connecticut River is postulated due to a past leak in an underground pipe tunnel that runs between the Advanced Offgas (AOG) system building and other plant buildings which allowed accumulated piping system leakage to enter the subsurface groundwater adjacent to the plant structures. The existence of the leak was first recognized in January 2010, when a river shoreline Protected Area Boundary monitoring well sample was reported to have detectable tritium. The addition of other monitoring wells and subsequent analysis defined the extent of the affected groundwater plume moving toward the river and helped locate the source of the leak, which was stopped in February 2010.

Estimates of tritium-contaminated ground water released from the site are based on Protected Area Boundary monitoring well data collected throughout 2017, and hydrological modeling of ground water movement in the affected zone impacted by the pipe tunnel leak. Using a conservative estimate of groundwater flow through the affected area toward the river on a quarterly basis, an estimate of the total potential tritium released from the site during each quarter of 2017 was generated and reported in Table 2A.

For the projected ground water flow into the Connecticut River in 2017, the dose impact to the maximum exposed individual (MEI) assumed the following exposure pathways: (1) ingestion of fish (taken from Vernon Pond), (2) ingestion of vegetables and fresh leafy produce irrigated by water taken from the river below Vernon Dam, (3) ingestion of milk and meat from animals that were fed irrigated crops and drinking water taken from the river below Vernon Dam, and (4) potable water for a hypothetical individual drawing drinking water fed by the river below Vernon Dam. For Vernon Pond (river area adjacent to the plant property), the near shore mixing zone associated with the fish ingestion pathway is conservatively taken as 1% of the minimum recorded monthly river flow (3,421 cfs in September 2017) for dilution. All irrigation exposure pathways for the consumption of food products grown with irrigated water occur below Vernon Dam and assume the lowest 2017 quarterly average growing season river flow value (6,265 cfs in the third quarter) for environmental mixing. For the drinking water pathway, river flow mixing is assumed to occur below Vernon Dam and uses the lowest annual quarterly average river flow (6,265 cfs in the third quarter) as a conservative estimate of river dilution for all four quarters of the year. The dose models are taken from Regulatory Guide 1.109 (Reference 2) and use environmental parameters for exposure pathways listed in Tables 4D and 4F.

The maximum estimated quarterly and annual whole body and organ doses to the limiting age group from liquid releases are reported in Table 4A. These estimated doses are well below the 10 CFR Part 50, Appendix I dose criteria of ODCM 3/4.2.2. Table 4B provides an estimate of the total annual dose impact (including contribution from liquids) associated with the highest exposed member of the public for demonstration of compliance to the dose standard contained in 40 CFR Part 190 for the uranium fuel cycle.

3.2 Doses From Noble Gases

ODCM 3/4.3.2 limits the gamma air dose (5 mrad per quarter, and 10 mrad per year) and beta air (10 mrad per quarter, and 20 mrad per year) dose from noble gases released in gaseous effluents from the site to areas at and beyond the site boundary to those specified in 10 CFR Part 50, Appendix I. By implementing these, ODCM 3/4.3.2 assures that the releases of radioactive noble gases in gaseous effluents will be kept "as low as is reasonably achievable."

Dose estimates due to the release of noble gases to the atmosphere are typically calculated at the site boundary, at the nearest resident in each of the sixteen principal compass directions, at the point of highest off-site ground level air concentration of radioactive materials, and at each of the milk animal locations located within five miles of the plant. For 2017, there were no noble gases detected in effluents released from the plant stack.

3.3 Dose From Radionuclides in Particulate Form and Tritium

ODCM 3/4.3.3 limits the organ dose to a member of the public from tritium and radionuclides in particulate form in gaseous effluents released from the site to areas at and beyond the site boundary to those specified in 10 CFR Part 50, Appendix I (7.5 mrem per quarter and 15 mrem per year). By implementing the requirements of 10 CFR Part 50, Appendix I, ODCM 3/4.3.3 assures that the releases of any tritium and particulates in gaseous effluents will be kept "as low as is reasonably achievable."

During 2017, two frac tanks were used on the Vermont Yankee site to temporarily store (outdoors) tritium-contaminated water extracted from onsite groundwater wells. The quantity of tritium released to the atmosphere through the evaporation of water from this frac tank was estimated, and the dose consequence to the maximally exposed individual was calculated.

Exposure pathways that could exist as a result of the planned (routine) release of particulates to the atmosphere include external irradiation from activity deposited onto the ground surface, inhalation, and ingestion of vegetables, meat and milk. Dose estimates for 2017 were made at the site boundary and nearest resident in each of the sixteen principal compass directions, as well as all milk animal locations within five miles of the plant. The nearest resident and milk animals in each sector were identified by the most recent annual land use census (see Table 4C). Although milk collection has been discontinued due to the permanently shutdown and defueled status of the plant and identification of the nearest milk animals is no longer required per Section 3/4.5.2 of the ODCM, milk animal receptor locations were conservatively retained in the dose analysis. Also, a vegetable garden was conservatively assumed to exist at each milk animal and nearest resident location. Furthermore, the meat pathway was assumed to exist at each milk cow location since this data category is not part of the annual land use census. Doses were also calculated at the point of maximum ground level air concentration of radioactive materials in gaseous effluents and included the assumption that the inhalation, vegetable garden, and ground plane exposure pathways exist for an individual with a 100 percent occupancy factor.

It is assumed that milk and meat animals are free to graze on open pasture during the second and third quarters with no supplemental feeding. This assumption is conservative since most of the milk animals inventoried in the site vicinity are fed stored feed throughout the entire year with only limited grazing allowed during the growing season. During the non-growing season (first and fourth quarters), the milk animals are assumed to receive only stored feed. During the growing season (second and third quarters), all animal feed is assumed to be derived from fresh pasture. Usage factors for gaseous effluents

are listed by age group and pathway in Table 4D. Table 4E provides other dose model parameter assumptions used in the dose assessments.

In previous years when the plant was operating, Carbon-14 was an important nuclide to consider in the effluent dose calculations. However, with the plant permanently shut down since December of 2014, there is no longer any plant-related Carbon-14 production and, therefore, no associated dose impact for 2017.

3.4 Whole Body Doses in Unrestricted Areas From Direct Radiation

As opposed to prior years before the permanent shut down when the majority of the dose in the unrestricted area consisted of direct and skyshine radiation from N-16 decay in the Turbine Building steam cycle during power operations, there was no such source during 2017 due to the elimination of its production and its short half-life.

With the ongoing decommissioning of the plant, other past direct dose sources have been removed. The North Warehouse was emptied and demolished during 2016 and the low level waste pad was emptied of all radioactive materials in 2014. Therefore, there are no longer any direct dose contributions associated with these past sources.

The remaining potential fixed sources of direct and scatter radiation to the site boundary are the Independent Spent Fuel Storage Installation (ISFSI) and old turbine rotors and casings in the Turbine Storage Facility. The annual dose is based on dose rate measurements in these storage facilities and is projected to impact the same most restrictive site boundary dose location.

The estimated direct radiation dose from all major sources combined for the most limiting site boundary location is listed in Table 4A. These site boundary doses assume a 100 percent occupancy factor, and take no credit for the shielding effect of any residential structure.

Table 4B lists the combination of direct radiation doses at the limiting site boundary location and the maximum offsite dose from gaseous and liquid effluents for the purpose of demonstrating compliance with the dose standards contained in 40 CFR Part 190. For 2017, this annual dose was below the 25 mrem total body and organ limit, as well as the 75 mrem thyroid limit, of 40 CFR Part 190.

3.5 Doses From On-Site Disposal of Septic Waste, Cooling Tower Silt and Soil

ODCM Appendices B, F, and I require that all septic waste, cooling tower silt, and sand/soil applied within the approved designated disposal areas be controlled to ensure the dose to a maximally exposed individual during the period of Vermont Yankee site control is limited to less than 1 mrem/year to the whole body and any organ. After the period associated with Vermont Yankee operational control, the dose to the inadvertent intruder is to be limited to 5 mrem/year. The projected dose from on-site disposals of septic waste, cooling tower silt, and sand/soil mixes is given in Appendix J of this report.

During 2017 there was no septage sludge, soil or cooling tower silt spread. The last spreading occurred on October 20, 2015. The dose limits applicable to the on-site spreading of materials were met for the dose associated with past spreading activities.

3.6 On-Site Recreational Activities

During 2017, no access to the on-site boat launching ramp located north of the intake structure was permitted for employees, their families, and guests. As such, there was no associated dose impact to members of the public due to any recreational activities on-site.

REFERENCES

1. Off-Site Dose Calculation Manual (ODCM), Revision 39, Entergy Nuclear Vermont Yankee, LLC, dated March 5, 2018.
2. Regulatory Guide 1.109, "Calculation of Annual Doses to Man From Routine Release of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," U. S. Nuclear Regulatory Commission, Office of Standards Development, Revision 1, October 1977.
3. Safety Guide 1.23, "Onsite Meteorological Programs," U.S. Atomic Energy Commission, February 17, 1972.
4. Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," U.S. Nuclear Regulatory Commission, Office of Standards Development, March 1976.
5. Meteorology and Atomic Energy, 1968, Section 5-3.2.2, "Cloud Depletion," page 204, U. S. Atomic Energy Commission, July 1968.
6. Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste," U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Revision 2, June 2009.

TABLE 1A

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents - Summation of All Releases

	Unit	Quarter 1	Quarter 2	Est. Total Error, %
A. Fission and Activation Gases				
1. Total release	Ci	ND	ND	±2.30E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit (1)	%	ND	ND	N/A
B. Iodines				
1. Total Iodine	Ci	ND	ND	±1.80E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit (3)	%	(3)	(3)	N/A
C. Particulates				
1. Particulates with T-1/2>8 days	Ci	ND	ND	±1.80E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit	%	(3)	(3)	N/A
4. Gross alpha radioactivity	Ci	ND	ND	N/A
D. Tritium (4)				
1. Total release	Ci	1.04E-01	2.85E-01	±1.80E+01
2. Average release rate for period	µCi/sec	1.28E-02	3.62E-02	N/A
3. Percent of ODCM limit (2)	%	6.66E-04	1.82E-03	N/A
E. Carbon-14				
1. Total release	Ci	ND	ND	N/A
2. Percent of ODCM limit	%	(3)	(3)	N/A

ND = Not Detected, or in the case of C-14, no power operations in 2017 leads to a zero estimate of C-14 production/release.

- (1) ODCM Control 3.3.2. for the most limiting of beta air or gamma air dose. Percentage of ODCM limit calculated using Method I dose results.
- (2) Percentage of ODCM limit calculated using Method I dose results based on the limits of ODCM Control 3.3.3.
- (3) With respect to the form of Table 1A from Regulatory Guide 1.21, Revision 1 (Reference 6), any dose contribution from Carbon-14, Iodines, and particulates are included with Tritium in Part D.
- (4) Tritium released through evaporation from the on-site frac tank is included in these totals.

TABLE IA
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents - Summation of All Releases

	Unit	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and Activation Gases				
1. Total release	Ci	ND	ND	±2.30E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit (1)	%	ND	ND	N/A
B. Iodines				
1. Total Iodine	Ci	ND	ND	±1.80E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit (3)	%	(3)	(3)	N/A
C. Particulates				
1. Particulates with T-1/2>8 days	Ci	ND	ND	±1.80E+01
2. Average release rate for period	µCi/sec	ND	ND	N/A
3. Percent of ODCM limit	%	(3)	(3)	N/A
4. Gross alpha radioactivity	Ci	ND	ND	N/A
D. Tritium (4)				
1. Total release	Ci	1.65E-01	1.10E-01	±1.80E+01
2. Average release rate for period	µCi/sec	2.11E-02	1.43E-02	N/A
3. Percent of ODCM limit (2)	%	1.06E-03	7.00E-04	N/A
E. Carbon-14				
1. Total release	Ci	ND	ND	N/A
2. Percent of ODCM limit	%	(3)	(3)	N/A

ND = Not Detected, or in the case of C-14, no power operations in 2017 leads to a zero estimate of C-14 production/release.

- (1) ODCM Control 3.3.2. for the most limiting of beta air or gamma air dose. Percentage of ODCM limit calculated using Method I dose results.
- (2) Percentage of ODCM limit calculated using Method I dose results based on the limits of ODCM Control 3.3.3.
- (3) With respect to the form of Table 1A from Regulatory Guide 1.21, Revision 1 (Reference 6), any dose contribution from Carbon-14, Iodines, and particulates are included with Tritium in Part D.
- (4) Tritium released through evaporation from the on-site frac tank is included in these totals.

TABLE 1B

**Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents - Elevated Releases**

		Continuous Mode		Batch Mode (1)	
		Quarter		Quarter	
Nuclides Released	Units	1	2	1	2
1. Fission Gases					
Argon-41	Ci	ND	ND		
Krypton-85	Ci	ND	ND		
Krypton-85m	Ci	ND	ND		
Krypton-87	Ci	ND	ND		
Krypton-88	Ci	ND	ND		
Xenon-133	Ci	ND	ND		
Xenon-133m	Ci	ND	ND		
Xenon-135	Ci	ND	ND		
Xenon-135m	Ci	ND	ND		
Xenon-138	Ci	ND	ND		
Unidentified	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)
2. Iodines					
Iodine-131	Ci	ND	ND		
Iodine-133	Ci	ND	ND		
Iodine-135	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)
3. Particulates					
Strontium-89	Ci	ND	ND		
Strontium-90	Ci	ND	ND		
Cesium-134	Ci	ND	ND		
Cesium-137	Ci	ND	ND		
Barium-Lanthanum-140	Ci	ND	ND		
Manganese-54	Ci	ND	ND		
Chromium-51	Ci	ND	ND		
Cobalt-57	Ci	ND	ND		
Cobalt-58	Ci	ND	ND		
Cobalt-60	Ci	ND	ND		
Cerium-141	Ci	ND	ND		
Zinc-65	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)

ND Not Detected at the plant stack.

(1) There were no batch mode gaseous releases for this reporting period.

TABLE IB
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents - Elevated Releases

Nuclides Released	Units	Continuous Mode		Batch Mode (1)	
		Quarter		Quarter	
		3	4	3	4
1. Fission Gases					
Krypton-85	Ci	ND	ND		
Krypton-85m	Ci	ND	ND		
Krypton-87	Ci	ND	ND		
Krypton-88	Ci	ND	ND		
Xenon-133	Ci	ND	ND		
Xenon-133m	Ci	ND	ND		
Xenon-135	Ci	ND	ND		
Xenon-135m	Ci	ND	ND		
Xenon-138	Ci	ND	ND		
Unidentified	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)
2. Iodines					
Iodine-131	Ci	ND	ND		
Iodine-133	Ci	ND	ND		
Iodine-135	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)
3. Particulates					
Strontium-89	Ci	ND	ND		
Strontium-90	Ci	ND	ND		
Cesium-134	Ci	ND	ND		
Cesium-137	Ci	ND	ND		
Barium-Lanthanum-140	Ci	ND	ND		
Manganese-54	Ci	ND	ND		
Chromium-51	Ci	ND	ND		
Cobalt-58	Ci	ND	ND		
Cobalt-60	Ci	ND	ND		
Cerium-141	Ci	ND	ND		
Cerium-144	Ci	ND	ND		
Zinc-65	Ci	ND	ND		
Total for Period	Ci	ND	ND	(1)	(1)

ND Not Detected at the Plant Stack.

(1) There were no batch mode gaseous releases for this reporting period.

TABLE 1C

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents – (Routine) Ground Level Releases ⁽²⁾

		Continuous Mode		Batch Mode	
		Quarter		Quarter	
Nuclides Released	Units	1 (1)	2 (1)	1 (1)	2 (1)
1. Fission Gases					
Krypton-85	Ci				
Krypton-85m	Ci				
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-133	Ci				
Xenon-135	Ci				
Xenon-135m	Ci				
Xenon-138	Ci				
Unidentified	Ci				
Total for Period	Ci				
2. Iodines					
Iodine-131	Ci				
Iodine-133	Ci				
Iodine-I 35	Ci				
Total for Period	Ci				
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium- 137	Ci				
Barium-Lanthanum-140	Ci				
Manganese-54	Ci				
Chromium-51	Ci				
Cobalt-58	Ci				
Cobalt-60	Ci				
Cerium-141	Ci				
Zinc-65	Ci				
Iron-55	Ci				
Total for Period	Ci				

- (1) There were no routine ground level gaseous releases for this reporting period.
(2) No radioactively contaminated used oil was burned during 2017.

TABLE IC
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents - (Routine) Ground Level Releases⁽²⁾

		Continuous Mode		Batch Mode	
		Quarter		Quarter	
Nuclides Released	Units	3 (1)	4 (1)	3 (1)	4 (1)
1. Fission Gases					
Krypton-85	Ci				
Krypton-85m	Ci				
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-133	Ci				
Xenon-135	Ci				
Xenon-135m	Ci				
Xenon-138	Ci				
Unidentified	Ci				
Total for Period	Ci				
2. Iodines					
Iodine-131	Ci				
Iodine-133	Ci				
Iodine-135	Ci				
Total for Period	Ci				
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium- 134	Ci				
Cesium-137	Ci				
Barium-Lanthanum- 140	Ci				
Manganese-54	Ci				
Chromium-51	Ci				
Cobalt-58	Ci				
Cobalt-60	Ci				
Cerium-141	Ci				
Zinc-65	Ci				
Iron-55	CI				
Total for Period	Ci				

(1) There were no ground level gaseous releases for this reporting period.

(2) No radioactively contaminated used oil was burned during 2017.

TABLE 1D

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Gaseous Effluents – Non-routine Releases

Nuclides Released	Units	Quarter		Quarter	
		1(1)	2(1)	3(1)	4(1)
1. Fission Gases					
Krypton-85	Ci				
Krypton-85m	Ci				
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-133	Ci				
Xenon-135	Ci				
Xenon-135m	Ci				
Xenon-138	Ci				
Unidentified	Ci				
Total for Period	Ci				
2. Iodines					
Iodine-131	Ci				
Iodine-133	Ci				
Iodine-I 35	Ci				
Total for Period	Ci				
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium-137	Ci				
Barium-Lanthanum-140	Ci				
Manganese-54	Ci				
Chromium-51	Ci				
Cobalt-58	Ci				
Cobalt-60	Ci				
Cerium-141	Ci				
Zinc-65	Ci				
Iron-55	Cl				
Total for Period	Ci				

(1) There were no non-routine ground level gaseous releases for this reporting period.

TABLE 2A
Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Liquid Effluents - Summation of All Releases

	Units	Quarter 1	Quarter 2	Est. Total Error, %
A. Fission and Activation Products				
1. Total Release (not including tritium, gases, alpha)	Ci	ND	ND	N/A
2. Average Diluted Concentration During Period	μCi/ml	ND	ND	
3. Percent of Applicable Limit (1)	%	ND	ND	
B. Tritium				
1. Total Release	Ci	5.82E-03	5.00E-03	±2.00E+01
2. Average Diluted Concentration During Period	μCi/ml	1.18E-06	1.05E-06	
3. Percent of Applicable Limit (1)	%	3.82E-05	3.29E-05	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	ND	ND	N/A
2. Average Diluted Concentration During Period	μCi/ml	ND	ND	
3. Percent of Applicable Limit	%	ND	ND	
D. Gross Alpha Radioactivity				
1. Total Release	Ci	ND	ND	N/A
E. Volume of Waste Release (prior to dilution)				
	Liters	(2)	(2)	N/A
F. Volume of Dilution Water Used During Period				
	Liters	3.89E+06	3.89E+06	(3)

ND Not detected in liquid effluents.

- (1) The percent of limit is based on the ODCM Control 3.2.2 limiting dose (1.5 mrem/quarter to the total body) from liquid effluents and is related to the abnormal leakage of tritiated plant water into the underground environment. The percent of the concentration limits specified in Appendix B to 10CFR20.1001 – 20.2402, Table 2, Column 2 (ODCM Control 3.2.1) were estimated to be 0.12%, 0.11%, 0.11%, and 0.11% for the first, second, third, and fourth quarters, respectively.
- (2) Leakage of contaminated plant water to subsurface areas was stopped in February 2010. The release of contaminated ground water to the Connecticut River is based on site boundary monitoring well data collected during 2017.
- (3) Dilution due to groundwater flow through the affected subsurface plume area toward the Connecticut River was estimated to be 7.83 gpm (or 3.89E+06 liters per quarter) during 2017. An estimated total error is not applicable.

TABLE 2A
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Liquid Effluents - Summation of All Releases

	Units	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and Activation Products				
1. Total Release (not including tritium, gases, alpha)	Ci	ND	ND	N/A
2. Average Diluted Concentration During Period	μCi/ml	ND	ND	
3. Percent of Applicable Limit (1)	%	ND	ND	
B. Tritium				
1. Total Release	Ci	5.71E-03	5.61E-03	±2.00E+01
2. Average Diluted Concentration During Period	μCi/ml	1.08E-06	1.06E-06	
3. Percent of Applicable Limit (1)	%	3.75E-05	3.68E-05	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	ND	ND	N/A
2. Average Diluted Concentration During Period	μCi/ml	ND	ND	
3. Percent of Applicable Limit	%	ND	ND	
D. Gross Alpha Radioactivity				
1. Total Release	Ci	ND	ND	N/A
E. Volume of Waste Release (prior to dilution)				
	Liters	(2)	(2)	N/A
F. Volume of Dilution Water Used During Period				
	Liters	3.89E+06	3.89E+06	(3)

ND Not detected in liquid effluents.

- (1) The percent of limit is based on the ODCM Control 3.2.2 limiting dose (1.5 mrem/quarter to the total body) from liquid effluents and is related to the abnormal leakage of tritiated plant water into the underground environment. The percent of the concentration limits specified in Appendix B to 10CFR20.1001 – 20.2402, Table 2, Column 2 (ODCM Control 3.2.1) were estimated to be 0.12%, 0.11%, 0.11%, and 0.11% for the first, second, third, and fourth quarters, respectively.
- (2) Leakage of contaminated plant water to subsurface areas was stopped in February 2010. The release of contaminated ground water to the Connecticut River is based on site boundary monitoring well data collected during 2017.
- (3) Dilution due to groundwater flow through the affected subsurface plume area toward the Connecticut River was estimated to be 7.83 gpm (or 3.89E+06 liters per quarter) during 2017. An estimated total error is not applicable.

TABLE 2B

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Liquid Effluents - Routine Releases

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Strontium-89	Ci	-	-	-	-
Strontium-90	Ci	-	-	-	-
Cesium-134	Ci	-	-	-	-
Cesium-137	Ci	-	-	-	-
Iodine-131	Ci	-	-	-	-
Cobalt-58	Ci	-	-	-	-
Cobalt-60	Ci	-	-	-	-
Iron-59	Ci	-	-	-	-
Zinc-65	Ci	-	-	-	-
Manganese-54	Ci	-	-	-	-
Zirconium-Niobium-95	Ci	-	-	-	-
Molybdenum-99	Ci	-	-	-	-
Technetium-99	Ci	-	-	-	-
Barium-Lanthanum-140	Ci	-	-	-	-
Cerium-141					
Other (specify)	Ci	-	-	-	-
	Ci	-	-	-	-
	Ci	-	-	-	-
Unidentified	Ci	-	-	-	-
Total for Period (above)	Ci	-	-	-	-
Xe-133	Ci	-	-	-	-
Xe-135	Ci	-	-	-	-

ND Not detected in liquid effluents.
 - Dash indicates no release of this type.

TABLE 2B
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report for 2017
Liquid Effluents - Routine Releases

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Strontium-89	Ci	-	-	-	-
Strontium-90	Ci	-	-	-	-
Cesium-134	Ci	-	-	-	-
Cesium-137	Ci	-	-	-	-
Iodine-131	Ci	-	-	-	-
Cobalt-58	Ci	-	-	-	-
Cobalt-60	Ci	-	-	-	-
Iron-59	Ci	-	-	-	-
Zinc-65	Ci	-	-	-	-
Manganese-54	Ci	-	-	-	-
Zirconium-Niobium-95	Ci	-	-	-	-
Molybdenum-99	Ci	-	-	-	-
Technetium-99	Ci	-	-	-	-
Barium-Lanthanum-140	Ci	-	-	-	-
Cerium-141	Ci	-	-	-	-
Other (specify)	Ci	-	-	-	-
	Ci	-	-	-	-
	Ci	-	-	-	-
Unidentified	Ci	-	-	-	-
Total for Period (above)	Ci	-	-	-	-
Xe-133	Ci	-	-	-	-
Xe-135	Ci	-	-	-	-

ND Not detected in liquid effluents.
- Dash indicates no release of this type.

Table 3
Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters for 2017
Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Off-Site for Burial or Disposal (not Irradiated Fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	Quarters 1 & 2	Est. Total Error %
a. Spent resins, filter sludges, etc.	m ³	0	
	Ci	0	
b. Dry Compressible Waste, equipment, etc.	m ³	0	
	Ci	0	
c. Irradiated components, control rods, etc.	m ³	0	
	Ci	0	
d. Other (Oil)	m ³	0	
	Ci	0	

Shipped from Processor(s) for Burial	Unit	Quarters 1 & 2	Est. Total Error %
a. Spent resins, filter sludges, etc.	m ³	0	
	Ci	0	
b. Dry Compressible Waste, equipment, etc.	m ³	13.4	±25%
	Ci	0.03	±25%
c. Irradiated components, control rods, etc.	m ³	0	
	Ci	0	
d. Other (Oil) (water)	m ³	3.42	±25%
	Ci	0.02	±25%

2. Estimate of Major Nuclide Composition (By Type of Waste)

Spent resins, filter sludges		Dry Compressible Waste, equipment, etc.		Irradiated components, control rods, etc.		Other Waste	
Nuclide	Percent(1)	Nuclide	Percent(1)	Nuclide	Percent(1)	Nuclide	Percent(1)
						H3	99
						Co60	0.6
						Cs137	0.4

(1) Includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (1st & 2nd Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
28	28		Truck	28	
7		7	Truck		7
			Truck		
			Truck		
			Truck		

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st & 2nd Quarters)

Supplemental Information	VY to Processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	A	N/A	A
Type of Containers Used	GDC	N/A	GDC
Solidification Agent or Absorbent Used	None	None	None

GR = Gallaher Road
BCO = Bear Creek Operations
WCS = Waste Control Specialists
ES = Energy Solutions
GDC = General Design Container

Table 3
Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters for 2017
Solid Waste and Irradiated Fuel Shipments

A. Solid Waste Shipped Off-Site for Burial or Disposal (not Irradiated Fuel)

1. Type of Waste

Shipped from VY for Burial	Unit	Quarters 3 & 4	Est. Total Error %
a. Spent resins, filter sludges, etc.	m ³	4.25E-1	±25%
	Cl	1.12	±25%
b. Dry Compressible Waste, equipment, etc.	m ³	34.1	±25%
	Cl	1.19E-2	±25%
c. Irradiated components, control rods, etc.	m ³	0	
	Cl	0	
d. Other (Oil)	m ³	0	
	Cl	0	

Shipped from Processor(s) for Burial	Unit	Quarters 3 & 4	Est. Total Error %
a. Spent resins, filter sludges, etc.	m ³	0	
	Cl	0	
b. Dry Compressible Waste, equipment, etc.	m ³	15.04	±25%
	Cl	0.01	±25%
c. Irradiated components, control rods, etc.	m ³	0	
	Cl	0	
d. Other (Oil) (water)	m ³	2.35	±25%
	Cl	0.01	±25%

2. Estimate of Major Nuclide Composition (By Type of Waste)

Spent resins, filter sludges		Dry Compressible Waste, equipment, etc.		Irradiated components, control rods, etc.		Other Waste	
Nuclide	Percent(1)	Nuclide	Percent(1)	Nuclide	Percent(1)	Nuclide	Percent(1)
Co60	45	Co-60	62			H3	99
Ni63	26	Fe55	21			Co60	0.6
Fe55	21	Zn65	19			Cs137	0.4
Cs-137	3	Mn54	4				
Zn65	2						
Mn-54	0.6						

(2) Includes only those nuclides that are greater than 0.1% of the total activity

3. Disposition of Solid Waste Shipments (3rd & 4th Quarters)

No. of Shipments	From VY	From Processor	Mode	To Processor	To Burial
1	1		Truck		1
1	1		Truck	1	
22	22		Truck	22	
8		8	Truck		8
			Truck		

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (1st & 2nd Quarters)

Supplemental Information	VY to Processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	A	A	A
Type of Containers Used	GDC	GDC	GDC
Solidification Agent or Absorbent Used	None	None	None

GR = Gallaher Road
BCO = Bear Creek Operations
WCS = Waste Control Specialists
ES = Energy Solutions
GDC = General Design Container

TABLE 4A

Entergy Nuclear Vermont Yankee
 Maximum * Quarterly and Annual Off-Site Doses from Direct Radiation
 and Liquid and Gaseous Effluents for 2017
 (10CFR50, Appendix I)

Source	Dose (mrem) ^(a)				
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year ^(b)
Liquid Effluents					
Total Body Dose	5.73E-07	4.93E-07	5.63E-07	5.52E-07	2.18E-06
Footnotes	(c)	(c)	(c)	(c)	(c)
Organ Dose	5.73E-07	4.93E-07	5.63E-07	5.52E-07	2.18E-06
Footnotes	(c)	(c)	(c)	(c)	(c)
Airborne Effluents					
Iodines, H-3, C-14, and Particulates	2.34E-05	9.88E-05	5.84E-05	5.92E-05	2.40E-04
Footnotes	(f)	(f)	(g)	(g)	
Noble Gases					
Beta Air (mrad)	--	--	--	--	--
Footnotes	(d)	(d)	(d)	(d)	
Gamma Air (mrad)	--	--	--	--	--
Footnotes	(d)	(d)	(d)	(d)	
Direct Radiation					
	1.918	1.918	1.918	1.918	7.67 (e)

- * "Maximum" means the largest fraction of the corresponding 10CFR50, Appendix I dose design objective.
- (a) The lettered footnotes indicate the age group, organ, and location of the dose receptor, where appropriate.
 - (b) The yearly dose is the sum of the doses for each quarter, or a full annual assessment.
 - (c) The critical age group/organ for the Maximum Exposed Individual (MEI) is the Adult/Total Body and all organs (except Bone) from the release of H-3 to groundwater.
 - (d) There were no noble gas releases in this quarter.
 - (e) Maximum direct dose point located on the old west site boundary, approximately 208 meters from the Turbine Building.
 - (f) The critical age group/organ for the MEI is the Child/all organs (except Bone), at a location NW, 2600 meters from the stack.
 - (g) The critical age group/organ for the MEI is the Child/all organs (except Bone), at a location WNW, 2400 meters from the stack.

TABLE 4B

Entergy Nuclear Vermont Yankee
 Maximum* Annual Off-Site Doses from Direct Radiation
 and Liquid and Gaseous Effluents for 2017
 (40CFR190)

Pathway	Total Body (mrem)	Maximum Organ (mrem)	Thyroid (mrem)
Direct External (a) (b)	7.67	7.67	7.67
Liquids (c)	2.18E-06	2.18E-06	2.18E-06
Gases (c)	2.40E-04	2.40E-04	2.40E-04
Annual Total (d)	7.67	7.67	7.67

- * The location of the projected maximum individual doses from combined direct radiation plus liquid and gaseous effluents corresponds to residences at the southwest boundary relative to the Turbine Hall.
- (a) No residential shielding credit or occupancy time fraction (i.e., occupancy is assumed to be 100%) is used. Expected direct external radiation doses would be reduced by approximately 54% with a realistic residential shielding credit and occupancy time (i.e., by using a 0.7 shielding factor from Regulatory Guide 1.109 (Reference 2) and an annual occupancy time of 6760 hours).
 - (b) The direct dose reported here was calculated using the current ODCM methodology and represents the dose to the former nearest residence, which was located in the South sector at 385 meters from the stack prior to the vacancy of this residence in 2008 and the purchase of land by Vermont Yankee.
 - (c) Maximum dose to any organ over all age groups for each release.
 - (d) Annual dose limits contained in 40 CFR Part 190 are 25 mrem to the total body and any organ, and 75 mrem to the thyroid for any real member of the public.

TABLE 4C

Receptor Locations
Entergy Nuclear Vermont Yankee

Sector	Site Boundary ⁽¹⁾ (meters)	Nearest Resident ⁽²⁾ (meters)	Nearest Milk Animal ⁽²⁾⁽³⁾ (meters)
N	400	1400	--
NNE	350	1384	5520 (cows)
NE	350	1255	--
ENE	400	966	--
E	500	933	--
ESE	700	1915	--
SE	750	1963	6670 (cows)
SSE	850	2044	--
S	385	644	--
SSW	300	451	--
SW	250	418	--
WSW	250	451	9730 (cows)
W	300	628	820 (cows)
WNW	400	1062	--
NW	550	2253	--
NNW	550	1738	--

- (1) Site boundary locations taken from Table 6.10.2 of the ODCM.
- (2) The location(s) given are based on information from the Vermont Yankee 2017 Land Use Census and are relative to the plant stack. Gardens are assumed to be present at all resident locations.
- (3) Although milk collection has been discontinued due to the permanently shutdown and defueled status of the plant, receptor locations were conservatively retained in the dose analysis.

TABLE 4D

Usage Factors for Environmental Pathways
Entergy Nuclear Vermont Yankee*

Age Group	Fish (kg/yr)	Potable Water (l/yr)	Veg. (kg/yr)	Leafy Veg. (kg/yr)	Milk (l/yr)	Meat (kg/yr)	Inhalation (m ³ /yr)
Adult	21	730	520	64	310	110	8,000
Teen	16	510	630	42	400	65	8,000
Child	6.9	510	520	26	330	41	3,700
Infant	0	330	0	0	330	0	1,400

* Regulatory Guide 1.109, Table E-5 (Reference 2).

TABLE 4E

Environmental Parameters for Gaseous Effluents *
Entergy Nuclear Vermont Yankee

Variable		Vegetables		Cow Milk		Goat Milk		Meat	
		Stored	Leafy	Pasture	Stored	Pasture	Stored	Pasture	Stored
YV	Agricultural Productivity (kg/m ²)	2	2	0.70	2	0.70	2	0.70	2
P	Soil Surface Density (kg/m ²)	240	240	240	240	240	240	240	240
T	Transport Time to User (hrs)	--	--	48	48	48	48	480	480
TB	Soil Exposure Time ^(a) (hrs)	131,400	131,400	131,400	131,400	131,400	131,400	131,400	131,400
TE	Crop Exposure Time to Plume (hrs)	1,440	1,440	720	1,440	720	1,440	720	1,440
TH	Holdup After Harvest (hrs)	1,440	24	0	2,160	0	2,160	0	2,160
QF	Animals Daily Feed (kg/day)	--	--	50	50	6	6	50	50
FP	Fraction of Year on Pasture	--	--	(b)	--	(b)	--	(b)	--
FS	Fraction Pasture Feed When on Pasture ^(c)	--	--	1	--	1	--	1	--

Note: Footnotes on following page.

TABLE 4E (Continued)

Environmental Parameters for Gaseous Effluents
Entergy Nuclear Vermont Yankee

Variable		Vegetables		Cow Milk		Goat Milk		Meat	
		Stored	Leafy	Pasture	Stored	Pasture	Stored	Pasture	Stored
FG	Fraction of Stored Vegetables Grown in Garden	0.76	--	--	--	--	--	--	--
FL	Fraction of Leafy Vegetables Grown in Garden	--	1.0	--	--	--	--	--	--
FI	Fraction Elemental Iodine = 0.5	--	--	--	--	--	--	--	--
H	Absolute Humidity = 5.6 ^(d)	--	--	--	--	--	--	--	--

* From VY ODCM, Table 6.9.1 (Reference 1).

- (a) For Method II dose/dose rate analyses of identified radioactivity releases of less than one year, the soil exposure time for that release may be set at 8,760 hours (one year) for all pathways.
- (b) For Method II dose/dose rate analyses performed for releases occurring during the first or fourth calendar quarters, the fraction of time animals are assumed to be on pasture is zero (non-growing season). For the second and third calendar quarters, the fraction of time on pasture (FP) will be set at 1.0. FP may also be adjusted for specific farm locations if this information is so identified and reported as part of the land use census.
- (c) For Method II analyses, the fraction of pasture feed while on pasture may be set to less than 1.0 for specific farm locations if this information is so identified and reported as part of the land use census.
- (d) For all Method II analyses, an absolute humidity value equal to 5.6 (gm/m³) shall be used to reflect conditions in the Northeast (Reference: Health Physics Journal, Volume 39 (August), 1980; Pages 318-320, Pergamon Press).

TABLE 4F

Environmental Parameters for Liquid Releases (Tritium) Via Groundwater
 Entergy Nuclear Vermont Yankee

Variable Name (Units)	Potable Water	Aquatic Food	Stored Veg.	Leafy Veg.	Meat	Cow Milk
Mixing Ratio	2.78E-06	5.10E-04	2.78E-06	2.78E-06	2.78E-06	2.78E-06
Transit Time (hrs)*	12	24	0	0	0	0
Water Uptake** (animal) (L/day)	--	--	--	--	50.0	60.0
Feed Uptake** (animal) (kg/day)	--	--	--	--	50.0	50.0

* Values are from Regulatory Guide 1.109, Table E-15 (Reference 2)

** Values are from Regulatory Guide 1.109, Table E-3 (Reference 2)

TABLE 5A

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 1.10

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	2	1	1	1	3	2	3	0	0	0	0	1	0	0	0	1	0	15
(1)	2.13	1.06	1.06	1.06	3.19	2.13	3.19	.00	.00	.00	.00	1.06	.00	.00	.00	1.06	.00	15.96
(2)	.02	.01	.01	.01	.04	.02	.04	.00	.00	.00	.00	.01	.00	.00	.00	.01	.00	.18
4-7	2	0	0	0	5	5	4	1	0	1	0	0	0	1	1	8	0	28
(1)	2.13	.00	.00	.00	5.32	5.32	4.26	1.06	.00	1.06	.00	.00	.00	1.06	1.06	8.51	.00	29.79
(2)	.02	.00	.00	.00	.06	.06	.05	.01	.00	.01	.00	.00	.00	.01	.01	.09	.00	.33
8-12	7	0	0	0	2	6	0	3	0	0	0	0	1	1	1	3	0	24
(1)	7.45	.00	.00	.00	2.13	6.38	.00	3.19	.00	.00	.00	.00	1.06	1.06	1.06	3.19	.00	25.53
(2)	.08	.00	.00	.00	.02	.07	.00	.04	.00	.00	.00	.00	.01	.01	.01	.04	.00	.28
13-18	0	0	0	0	0	0	0	0	0	0	0	0	3	0	10	9	0	22
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.19	.00	10.64	9.57	.00	23.40
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.12	.11	.00	.26
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.19	2.13	.00	5.32
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.02	.00	.06
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	11	1	1	1	10	13	7	4	0	1	0	1	4	2	15	23	0	94
(1)	11.70	1.06	1.06	1.06	10.64	13.83	7.45	4.26	.00	1.06	.00	1.06	4.26	2.13	15.96	24.47	.00	100.00
(2)	.13	.01	.01	.01	.12	.15	.08	.05	.00	.01	.00	.01	.05	.02	.18	.27	.00	1.10

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5B

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 1.86

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	2	1	2	1	3	2	0	0	1	1	0	0	0	0	0	0	0	13
(1)	1.27	.63	1.27	.63	1.90	1.27	.00	.00	.63	.63	.00	.00	.00	.00	.00	.00	.00	8.23
(2)	.02	.01	.02	.01	.04	.02	.00	.00	.01	.01	.00	.00	.00	.00	.00	.00	.00	.15
4-7	8	1	2	5	16	11	11	5	0	0	0	1	0	0	3	10	0	73
(1)	5.06	.63	1.27	3.16	10.13	6.96	6.96	3.16	.00	.00	.00	.63	.00	.00	1.90	6.33	.00	46.20
(2)	.09	.01	.02	.06	.19	.13	.13	.06	.00	.00	.00	.01	.00	.00	.04	.12	.00	.86
8-12	7	1	0	0	1	4	6	10	3	0	1	0	3	0	6	14	0	56
(1)	4.43	.63	.00	.00	.63	2.53	3.80	6.33	1.90	.00	.63	.00	1.90	.00	3.80	8.86	.00	35.44
(2)	.08	.01	.00	.00	.01	.05	.07	.12	.04	.00	.01	.00	.04	.00	.07	.16	.00	.66
13-18	1	0	0	0	0	0	0	0	1	0	0	0	3	3	2	3	0	13
(1)	.63	.00	.00	.00	.00	.00	.00	.00	.63	.00	.00	.00	1.90	1.90	1.27	1.90	.00	8.23
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.04	.04	.02	.04	.00	.15
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.63	.63	.63	.00	1.90
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.04
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	18	3	4	6	20	17	17	15	5	1	1	1	6	4	12	28	0	158
(1)	11.39	1.90	2.53	3.80	12.66	10.76	10.76	9.49	3.16	.63	.63	.63	3.80	2.53	7.59	17.72	.00	100.00
(2)	.21	.04	.05	.07	.23	.20	.20	.18	.06	.01	.01	.01	.07	.05	.14	.33	.00	1.86

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
 (2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD
 C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5C

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS C

CLASS FREQUENCY (PERCENT) = 4.32

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	9	6	7	6	9	3	1	1	1	1	0	1	0	0	2	2	0	49
(1)	2.45	1.63	1.90	1.63	2.45	.82	.27	.27	.27	.27	.00	.27	.00	.00	.54	.54	.00	13.32
(2)	.11	.07	.08	.07	.11	.04	.01	.01	.01	.01	.00	.01	.00	.00	.02	.02	.00	.58
4-7	20	3	6	11	19	37	29	16	10	0	2	2	2	5	11	10	0	183
(1)	5.43	.82	1.63	2.99	5.16	10.05	7.88	4.35	2.72	.00	.54	.54	.54	1.36	2.99	2.72	.00	49.73
(2)	.23	.04	.07	.13	.22	.43	.34	.19	.12	.00	.02	.02	.02	.06	.13	.12	.00	2.15
8-12	6	1	0	0	3	5	3	25	7	3	3	3	6	4	9	22	0	100
(1)	1.63	.27	.00	.00	.82	1.36	.82	6.79	1.90	.82	.82	.82	1.63	1.09	2.45	5.98	.00	27.17
(2)	.07	.01	.00	.00	.04	.06	.04	.29	.08	.04	.04	.04	.07	.05	.11	.26	.00	1.17
13-18	1	0	0	0	0	0	1	4	0	0	0	0	8	7	3	5	0	29
(1)	.27	.00	.00	.00	.00	.00	.27	1.09	.00	.00	.00	.00	2.17	1.90	.82	1.36	.00	7.88
(2)	.01	.00	.00	.00	.00	.00	.01	.05	.00	.00	.00	.00	.09	.08	.04	.06	.00	.34
19-24	0	0	0	0	0	0	0	0	0	0	0	0	3	1	2	1	0	7
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.82	.27	.54	.27	.00	1.90
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.01	.02	.01	.00	.08
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	36	10	13	17	31	45	34	46	18	4	5	6	19	17	27	40	0	368
(1)	9.78	2.72	3.53	4.62	8.42	12.23	9.24	12.50	4.89	1.09	1.36	1.63	5.16	4.62	7.34	10.87	.00	100.00
(2)	.42	.12	.15	.20	.36	.53	.40	.54	.21	.05	.06	.07	.22	.20	.32	.47	.00	4.32

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5D

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS D

CLASS FREQUENCY (PERCENT) = 49.21

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	2	1	0	1	0	0	1	1	2	3	0	0	0	11
(1)	.00	.00	.00	.00	.05	.02	.00	.02	.00	.00	.02	.02	.05	.07	.00	.00	.00	.26
(2)	.00	.00	.00	.00	.02	.01	.00	.01	.00	.00	.01	.01	.02	.04	.00	.00	.00	.13
C-3	87	54	48	49	65	74	94	92	65	34	34	24	40	56	72	99	0	987
(1)	2.08	1.29	1.15	1.17	1.55	1.77	2.24	2.20	1.55	.81	.81	.57	.96	1.34	1.72	2.36	.00	23.57
(2)	1.02	.63	.56	.58	.76	.87	1.10	1.08	.76	.40	.40	.28	.47	.66	.85	1.16	.00	11.60
4-7	145	56	30	21	59	122	248	223	109	23	27	36	85	83	217	301	0	1785
(1)	3.46	1.34	.72	.50	1.41	2.91	5.92	5.32	2.60	.55	.64	.86	2.03	1.98	5.18	7.19	.00	42.62
(2)	1.70	.66	.35	.25	.69	1.43	2.91	2.62	1.28	.27	.32	.42	1.00	.98	2.55	3.54	.00	20.97
8-12	59	9	0	1	2	18	24	108	70	10	16	36	180	183	152	170	0	1038
(1)	1.41	.21	.00	.02	.05	.43	.57	2.58	1.67	.24	.38	.86	4.30	4.37	3.63	4.06	.00	24.79
(2)	.69	.11	.00	.01	.02	.21	.28	1.27	.82	.12	.19	.42	2.11	2.15	1.79	2.00	.00	12.20
13-18	5	1	0	0	0	0	2	19	16	1	2	6	74	96	74	31	0	327
(1)	.12	.02	.00	.00	.00	.00	.05	.45	.38	.02	.05	.14	1.77	2.29	1.77	.74	.00	7.81
(2)	.06	.01	.00	.00	.00	.00	.02	.22	.19	.01	.02	.07	.87	1.13	.87	.36	.00	3.84
19-24	0	0	0	0	0	0	0	0	0	0	0	0	9	11	10	6	0	36
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.26	.24	.14	.00	.86
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11	.13	.12	.07	.00	.42
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02	.05	.00	.10
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.02	.00	.05
ALL SPEEDS	296	120	78	71	128	215	368	443	260	68	80	103	391	432	526	609	0	4188
(1)	7.07	2.87	1.86	1.70	3.06	5.13	8.79	10.58	6.21	1.62	1.91	2.46	9.34	10.32	12.56	14.54	.00	100.00
(2)	3.48	1.41	.92	.83	1.50	2.53	4.32	5.21	3.05	.80	.94	1.21	4.59	5.08	6.18	7.16	.00	49.21

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5E

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS E

CLASS FREQUENCY (PERCENT) = 27.31

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	2	3	4	2	3	1	4	3	4	1	4	6	2	1	1	0	0	41
(1)	.09	.13	.17	.09	.13	.04	.17	.13	.17	.04	.17	.26	.09	.04	.04	.00	.00	1.76
(2)	.02	.04	.05	.02	.04	.01	.05	.04	.05	.01	.05	.07	.02	.01	.01	.00	.00	.48
C-3	64	29	32	25	31	80	56	90	107	146	174	131	124	125	109	86	0	1409
(1)	2.75	1.25	1.38	1.08	1.33	3.44	2.41	3.87	4.60	6.28	7.49	5.64	5.34	5.38	4.69	3.70	.00	60.63
(2)	.75	.34	.38	.29	.36	.94	.66	1.06	1.26	1.72	2.04	1.54	1.46	1.47	1.28	1.01	.00	16.56
4-7	30	1	1	3	9	17	46	51	33	12	22	38	57	69	121	164	0	674
(1)	1.29	.04	.04	.13	.39	.73	1.98	2.19	1.42	.52	.95	1.64	2.45	2.97	5.21	7.06	.00	29.00
(2)	.35	.01	.01	.04	.11	.20	.54	.60	.39	.14	.26	.45	.67	.81	1.42	1.93	.00	7.92
8-12	5	0	0	0	0	0	4	15	12	3	3	1	35	32	28	42	0	180
(1)	.22	.00	.00	.00	.00	.00	.17	.65	.52	.13	.13	.04	1.51	1.38	1.20	1.81	.00	7.75
(2)	.06	.00	.00	.00	.00	.00	.05	.18	.14	.04	.04	.01	.41	.38	.33	.49	.00	2.11
13-18	0	0	0	0	0	0	1	0	1	0	0	0	6	3	3	3	0	17
(1)	.00	.00	.00	.00	.00	.00	.04	.00	.04	.00	.00	.00	.26	.13	.13	.13	.00	.73
(2)	.00	.00	.00	.00	.00	.00	.01	.00	.01	.00	.00	.00	.07	.04	.04	.04	.00	.20
19-24	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	3
(1)	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.04	.04	.00	.00	.00	.13
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01	.01	.00	.00	.00	.04
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	101	33	37	30	43	98	111	160	157	162	203	176	225	231	262	295	0	2324
(1)	4.35	1.42	1.59	1.29	1.85	4.22	4.78	6.88	6.76	6.97	8.73	7.57	9.68	9.94	11.27	12.69	.00	100.00
(2)	1.19	.39	.43	.35	.51	1.15	1.30	1.88	1.84	1.90	2.39	2.07	2.64	2.71	3.08	3.47	.00	27.31

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5F

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS F

CLASS FREQUENCY (PERCENT) = 12.23

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	1	0	0	0	0	1	2	0	0	1	1	2	0	1	1	0	0	10
(1)	.10	.00	.00	.00	.00	.10	.19	.00	.00	.10	.10	.19	.00	.10	.10	.00	.00	.96
(2)	.01	.00	.00	.00	.00	.01	.02	.00	.00	.01	.01	.02	.00	.01	.01	.00	.00	.12
C-3	15	7	11	15	7	20	18	37	63	105	231	170	96	57	33	27	0	912
(1)	1.44	.67	1.06	1.44	.67	1.92	1.73	3.55	6.05	10.09	22.19	16.33	9.22	5.48	3.17	2.59	.00	87.61
(2)	.18	.08	.13	.18	.08	.23	.21	.43	.74	1.23	2.71	2.00	1.13	.67	.39	.32	.00	10.72
4-7	1	0	1	0	1	4	6	6	6	8	14	11	17	8	10	24	0	117
(1)	.10	.00	.10	.00	.10	.38	.58	.58	.58	.77	1.34	1.06	1.63	.77	.96	2.31	.00	11.24
(2)	.01	.00	.01	.00	.01	.05	.07	.07	.07	.09	.16	.13	.20	.09	.12	.28	.00	1.37
8-12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.19
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.02
13-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	17	7	12	15	8	25	26	43	69	114	246	183	113	66	44	53	0	1041
(1)	1.63	.67	1.15	1.44	.77	2.40	2.50	4.13	6.63	10.95	23.63	17.58	10.85	6.34	4.23	5.09	.00	100.00
(2)	.20	.08	.14	.18	.09	.29	.31	.51	.81	1.34	2.89	2.15	1.33	.78	.52	.62	.00	12.23

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5G

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS G

CLASS FREQUENCY (PERCENT) = 3.97

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	3
(1)	.00	.00	.00	.00	.30	.00	.00	.30	.00	.00	.30	.00	.00	.00	.00	.00	.00	.89
(2)	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.04
C-3	7	4	6	8	6	10	17	13	30	31	49	40	29	22	14	14	0	300
(1)	2.07	1.18	1.78	2.37	1.78	2.96	5.03	3.85	8.88	9.17	14.50	11.83	8.58	6.51	4.14	4.14	.00	88.76
(2)	.08	.05	.07	.09	.07	.12	.20	.15	.35	.36	.58	.47	.34	.26	.16	.16	.00	3.52
4-7	1	1	1	0	0	0	1	4	2	6	5	1	1	1	3	7	0	34
(1)	.30	.30	.30	.00	.00	.00	.30	1.18	.59	1.78	1.48	.30	.30	.30	.89	2.07	.00	10.06
(2)	.01	.01	.01	.00	.00	.00	.01	.05	.02	.07	.06	.01	.01	.01	.04	.08	.00	.40
8-12	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00	.00	.00	.30
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.01
13-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	8	5	7	8	7	10	18	18	32	38	55	41	30	23	17	21	0	338
(1)	2.37	1.48	2.07	2.37	2.07	2.96	5.33	5.33	9.47	11.24	16.27	12.13	8.88	6.80	5.03	6.21	.00	100.00
(2)	.09	.06	.08	.09	.08	.12	.21	.21	.38	.45	.65	.48	.35	.27	.20	.25	.00	3.97

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 5H

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA

STABILITY CLASS ALL

CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	3	3	4	2	6	3	6	5	4	2	7	9	4	5	2	0	0	65
(1)	.04	.04	.05	.02	.07	.04	.07	.06	.05	.02	.08	.11	.05	.06	.02	.00	.00	.76
(2)	.04	.04	.05	.02	.07	.04	.07	.06	.05	.02	.08	.11	.05	.06	.02	.00	.00	.76
C-3	186	102	107	105	124	191	189	233	267	318	488	367	289	260	230	229	0	3685
(1)	2.19	1.20	1.26	1.23	1.46	2.24	2.22	2.74	3.14	3.74	5.73	4.31	3.40	3.05	2.70	2.69	.00	43.30
(2)	2.19	1.20	1.26	1.23	1.46	2.24	2.22	2.74	3.14	3.74	5.73	4.31	3.40	3.05	2.70	2.69	.00	43.30
4-7	207	62	41	40	109	196	345	306	160	50	70	89	162	167	366	524	0	2894
(1)	2.43	.73	.48	.47	1.28	2.30	4.05	3.60	1.88	.59	.82	1.05	1.90	1.96	4.30	6.16	.00	34.00
(2)	2.43	.73	.48	.47	1.28	2.30	4.05	3.60	1.88	.59	.82	1.05	1.90	1.96	4.30	6.16	.00	34.00
8-12	84	11	0	1	8	33	37	161	92	17	23	40	225	220	196	253	0	1401
(1)	.99	.13	.00	.01	.09	.39	.43	1.89	1.08	.20	.27	.47	2.64	2.58	2.30	2.97	.00	16.46
(2)	.99	.13	.00	.01	.09	.39	.43	1.89	1.08	.20	.27	.47	2.64	2.58	2.30	2.97	.00	16.46
13-18	7	1	0	0	0	0	4	23	18	1	2	6	94	109	92	51	0	408
(1)	.08	.01	.00	.00	.00	.00	.05	.27	.21	.01	.02	.07	1.10	1.28	1.08	.60	.00	4.79
(2)	.08	.01	.00	.00	.00	.00	.05	.27	.21	.01	.02	.07	1.10	1.28	1.08	.60	.00	4.79
19-24	0	0	0	0	0	0	0	1	0	0	0	0	13	14	16	10	0	54
(1)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.15	.16	.19	.12	.00	.63
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.15	.16	.19	.12	.00	.63
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.02	.00	.05
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.02	.00	.05
ALL SPEEDS	487	179	152	148	247	423	581	729	541	388	590	511	788	775	903	1069	0	8511
(1)	5.72	2.10	1.79	1.74	2.90	4.97	6.83	8.57	6.36	4.56	6.93	6.00	9.26	9.11	10.61	12.56	.00	100.00
(2)	5.72	2.10	1.79	1.74	2.90	4.97	6.83	8.57	6.36	4.56	6.93	6.00	9.26	9.11	10.61	12.56	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6A

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = .16

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	7.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.14
(2)	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
4-7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	7.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.14
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
8-12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4
(1)	7.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	21.43	.00	28.57
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.05
13-18	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
(1)	7.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	14.29	.00	21.43
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.04
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	28.57	.00	28.57
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.05
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	7.14	.00	7.14
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
ALL SPEEDS	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	10	0	14
(1)	21.43	.00	.00	.00	.00	.00	7.14	.00	.00	.00	.00	.00	.00	.00	.00	71.43	.00	100.00
(2)	.04	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.16

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6B

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = .74

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4
(1)	1.59	.00	.00	.00	.00	1.59	3.17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.35
(2)	.01	.00	.00	.00	.00	.01	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
4-7	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	0	7
(1)	.00	.00	.00	.00	.00	4.76	1.59	.00	.00	.00	.00	.00	.00	.00	.00	4.76	.00	11.11
(2)	.00	.00	.00	.00	.00	.04	.01	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.08
8-12	3	0	1	1	0	1	5	0	0	0	0	0	0	1	0	8	0	20
(1)	4.76	.00	1.59	1.59	.00	1.59	7.94	.00	.00	.00	.00	.00	.00	1.59	.00	12.70	.00	31.75
(2)	.04	.00	.01	.01	.00	.01	.06	.00	.00	.00	.00	.00	.00	.01	.00	.09	.00	.23
13-18	2	1	0	0	0	0	0	0	0	0	0	0	2	1	2	5	0	13
(1)	3.17	1.59	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.17	1.59	3.17	7.94	.00	20.63
(2)	.02	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.02	.06	.00	.15
19-24	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	9	0	15
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.76	.00	4.76	14.29	.00	23.81
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.04	.11	.00	.18
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.59	4.76	.00	6.35
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.04	.00	.05
ALL SPEEDS	6	1	1	1	0	5	8	0	0	0	0	0	5	2	6	28	0	63
(1)	9.52	1.59	1.59	1.59	.00	7.94	12.70	.00	.00	.00	.00	.00	7.94	3.17	9.52	44.44	.00	100.00
(2)	.07	.01	.01	.01	.00	.06	.09	.00	.00	.00	.00	.00	.06	.02	.07	.33	.00	.74

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6C

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA

STABILITY CLASS C

CLASS FREQUENCY (PERCENT) = 2.06

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
C-3	2	1	0	1	0	1	0	1	0	0	0	0	0	1	1	0	0	8
(1)	1.14	.57	.00	.57	.00	.57	.00	.57	.00	.00	.00	.00	.00	.57	.57	.00	.00	4.57
(2)	.02	.01	.00	.01	.00	.01	.00	.01	.00	.00	.00	.00	.00	.01	.01	.00	.00	.09
4-7	3	5	2	1	4	11	6	1	0	0	0	0	1	0	4	7	0	45
(1)	1.71	2.86	1.14	.57	2.29	6.29	3.43	.57	.00	.00	.00	.00	.57	.00	2.29	4.00	.00	25.71
(2)	.04	.06	.02	.01	.05	.13	.07	.01	.00	.00	.00	.00	.01	.00	.05	.08	.00	.53
8-12	6	1	2	2	1	6	8	9	2	1	0	0	0	3	4	15	0	60
(1)	3.43	.57	1.14	1.14	.57	3.43	4.57	5.14	1.14	.57	.00	.00	.00	1.71	2.29	8.57	.00	34.29
(2)	.07	.01	.02	.02	.01	.07	.09	.11	.02	.01	.00	.00	.00	.04	.05	.18	.00	.70
13-18	9	2	0	0	0	0	0	4	2	0	0	0	6	3	6	9	0	41
(1)	5.14	1.14	.00	.00	.00	.00	.00	2.29	1.14	.00	.00	.00	3.43	1.71	3.43	5.14	.00	23.43
(2)	.11	.02	.00	.00	.00	.00	.00	.05	.02	.00	.00	.00	.07	.04	.07	.11	.00	.48
19-24	0	0	0	0	0	0	0	1	1	0	0	0	4	5	2	5	0	18
(1)	.00	.00	.00	.00	.00	.00	.00	.57	.57	.00	.00	.00	2.29	2.86	1.14	2.86	.00	10.29
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.05	.06	.02	.06	.00	.21
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	3
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.57	.00	.57	.57	.00	1.71
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.01	.00	.04
ALL SPEEDS	20	9	4	4	5	18	14	16	5	1	0	0	12	12	18	37	0	175
(1)	11.43	5.14	2.29	2.29	2.86	10.29	8.00	9.14	2.86	.57	.00	.00	6.86	6.86	10.29	21.14	.00	100.00
(2)	.23	.11	.05	.05	.06	.21	.16	.19	.06	.01	.00	.00	.14	.14	.21	.43	.00	2.06

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6D

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA

STABILITY CLASS D

CLASS FREQUENCY (PERCENT) = 48.14

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	2	1	1	0	0	0	0	1	0	0	0	0	5
(1)	.00	.00	.00	.00	.00	.05	.02	.02	.00	.00	.00	.00	.02	.00	.00	.00	.00	.12
(2)	.00	.00	.00	.00	.00	.02	.01	.01	.00	.00	.00	.00	.01	.00	.00	.00	.00	.06
C-3	49	32	16	33	57	44	77	32	18	12	10	10	8	15	23	58	0	494
(1)	1.20	.78	.39	.81	1.39	1.07	1.88	.78	.44	.29	.24	.24	.20	.37	.56	1.42	.00	12.06
(2)	.58	.38	.19	.39	.67	.52	.90	.38	.21	.14	.12	.12	.09	.18	.27	.68	.00	5.80
4-7	79	37	26	27	57	110	221	155	65	21	8	20	20	37	64	203	0	1150
(1)	1.93	.90	.63	.66	1.39	2.68	5.39	3.78	1.59	.51	.20	.49	.49	.90	1.56	4.95	.00	28.07
(2)	.93	.43	.31	.32	.67	1.29	2.60	1.82	.76	.25	.09	.23	.23	.43	.75	2.39	.00	13.51
8-12	105	30	19	3	13	39	100	182	164	31	27	34	115	121	80	257	0	1320
(1)	2.56	.73	.46	.07	.32	.95	2.44	4.44	4.00	.76	.66	.83	2.81	2.95	1.95	6.27	.00	32.22
(2)	1.23	.35	.22	.04	.15	.46	1.17	2.14	1.93	.36	.32	.40	1.35	1.42	.94	3.02	.00	15.51
13-18	57	7	3	0	2	6	9	33	109	7	16	29	122	167	106	167	0	840
(1)	1.39	.17	.07	.00	.05	.15	.22	.81	2.66	.17	.39	.71	2.98	4.08	2.59	4.08	.00	20.50
(2)	.67	.08	.04	.00	.02	.07	.11	.39	1.28	.08	.19	.34	1.43	1.96	1.25	1.96	.00	9.87
19-24	7	1	0	0	0	1	0	7	24	0	1	3	28	62	41	59	0	234
(1)	.17	.02	.00	.00	.00	.02	.00	.17	.59	.00	.02	.07	.68	1.51	1.00	1.44	.00	5.71
(2)	.08	.01	.00	.00	.00	.01	.00	.08	.28	.00	.01	.04	.33	.73	.48	.69	.00	2.75
GT 24	0	0	0	0	0	0	0	1	0	0	0	0	8	6	7	32	0	54
(1)	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.20	.15	.17	.78	.00	1.32
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.09	.07	.08	.38	.00	.63
ALL SPEEDS	297	107	64	63	129	202	408	411	380	71	62	96	302	408	321	776	0	4097
(1)	7.25	2.61	1.56	1.54	3.15	4.93	9.96	10.03	9.28	1.73	1.51	2.34	7.37	9.96	7.84	18.94	.00	100.00
(2)	3.49	1.26	.75	.74	1.52	2.37	4.79	4.83	4.46	.83	.73	1.13	3.55	4.79	3.77	9.12	.00	48.14

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6E

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA

STABILITY CLASS E

CLASS FREQUENCY (PERCENT) = 35.82

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	1	0	2	2	1	4	2	0	0	0	0	1	1	1	0	0	15
(1)	.00	.03	.00	.07	.07	.03	.13	.07	.00	.00	.00	.00	.03	.03	.03	.00	.00	.49
(2)	.00	.01	.00	.02	.02	.01	.05	.02	.00	.00	.00	.00	.01	.01	.01	.00	.00	.18
C-3	110	60	50	51	71	130	107	76	26	18	17	7	12	18	43	94	0	890
(1)	3.61	1.97	1.64	1.67	2.33	4.26	3.51	2.49	.85	.59	.56	.23	.39	.59	1.41	3.08	.00	29.19
(2)	1.29	.70	.59	.60	.83	1.53	1.26	.89	.31	.21	.20	.08	.14	.21	.51	1.10	.00	10.46
4-7	104	28	8	7	15	61	165	127	57	20	17	16	24	25	67	317	0	1058
(1)	3.41	.92	.26	.23	.49	2.00	5.41	4.17	1.87	.66	.56	.52	.79	.82	2.20	10.40	.00	34.70
(2)	1.22	.33	.09	.08	.18	.72	1.94	1.49	.67	.23	.20	.19	.28	.29	.79	3.72	.00	12.43
8-12	54	10	0	0	0	1	40	97	72	27	11	29	67	46	75	232	0	761
(1)	1.77	.33	.00	.00	.00	.03	1.31	3.18	2.36	.89	.36	.95	2.20	1.51	2.46	7.61	.00	24.96
(2)	.63	.12	.00	.00	.00	.01	.47	1.14	.85	.32	.13	.34	.79	.54	.88	2.73	.00	8.94
13-18	14	0	0	1	0	3	5	10	44	11	1	4	33	32	28	85	0	271
(1)	.46	.00	.00	.03	.00	.10	.16	.33	1.44	.36	.03	.13	1.08	1.05	.92	2.79	.00	8.89
(2)	.16	.00	.00	.01	.00	.04	.06	.12	.52	.13	.01	.05	.39	.38	.33	1.00	.00	3.18
19-24	3	0	0	0	0	1	1	8	7	1	0	0	6	3	4	5	0	39
(1)	.10	.00	.00	.00	.00	.03	.03	.26	.23	.03	.00	.00	.20	.10	.13	.16	.00	1.28
(2)	.04	.00	.00	.00	.00	.01	.01	.09	.08	.01	.00	.00	.07	.04	.05	.06	.00	.46
GT 24	0	0	0	0	0	0	1	2	2	0	0	0	3	0	0	7	0	15
(1)	.00	.00	.00	.00	.00	.00	.03	.07	.07	.00	.00	.00	.10	.00	.00	.23	.00	.49
(2)	.00	.00	.00	.00	.00	.00	.01	.02	.02	.00	.00	.00	.04	.00	.00	.08	.00	.18
ALL SPEEDS	285	99	58	61	88	197	323	322	208	77	46	56	146	125	218	740	0	3049
(1)	9.35	3.25	1.90	2.00	2.89	6.46	10.59	10.56	6.82	2.53	1.51	1.84	4.79	4.10	7.15	24.27	.00	100.00
(2)	3.35	1.16	.68	.72	1.03	2.31	3.80	3.78	2.44	.90	.54	.66	1.72	1.47	2.56	8.69	.00	35.82

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

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C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6F

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA

STABILITY CLASS F

CLASS FREQUENCY (PERCENT) = 10.96

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	1	0	0	0	2	2	0	1	0	1	0	1	0	0	0	8
(1)	.00	.00	.11	.00	.00	.00	.21	.21	.00	.11	.00	.11	.00	.11	.00	.00	.00	.86
(2)	.00	.00	.01	.00	.00	.00	.02	.02	.00	.01	.00	.01	.00	.01	.00	.00	.00	.09
C-3	46	25	23	21	16	26	32	41	21	11	10	5	10	15	25	26	0	353
(1)	4.93	2.68	2.47	2.25	1.71	2.79	3.43	4.39	2.25	1.18	1.07	.54	1.07	1.61	2.68	2.79	.00	37.83
(2)	.54	.29	.27	.25	.19	.31	.38	.48	.25	.13	.12	.06	.12	.18	.29	.31	.00	4.15
4-7	33	3	1	2	14	29	54	53	29	11	11	10	11	10	27	81	0	379
(1)	3.54	.32	.11	.21	1.50	3.11	5.79	5.68	3.11	1.18	1.18	1.07	1.18	1.07	2.89	8.68	.00	40.62
(2)	.39	.04	.01	.02	.16	.34	.63	.62	.34	.13	.13	.12	.13	.12	.32	.95	.00	4.45
8-12	8	0	0	0	0	3	23	19	13	7	8	3	14	11	18	53	0	180
(1)	.86	.00	.00	.00	.00	.32	2.47	2.04	1.39	.75	.86	.32	1.50	1.18	1.93	5.68	.00	19.29
(2)	.09	.00	.00	.00	.00	.04	.27	.22	.15	.08	.09	.04	.16	.13	.21	.62	.00	2.11
13-18	3	0	0	0	0	0	1	0	2	1	0	0	2	0	1	3	0	13
(1)	.32	.00	.00	.00	.00	.00	.11	.00	.21	.11	.00	.00	.21	.00	.11	.32	.00	1.39
(2)	.04	.00	.00	.00	.00	.00	.01	.00	.02	.01	.00	.00	.02	.00	.01	.04	.00	.15
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	90	28	25	23	30	58	112	115	65	31	29	19	37	37	71	163	0	933
(1)	9.65	3.00	2.68	2.47	3.22	6.22	12.00	12.33	6.97	3.32	3.11	2.04	3.97	3.97	7.61	17.47	.00	100.00
(2)	1.06	.33	.29	.27	.35	.68	1.32	1.35	.76	.36	.34	.22	.43	.43	.83	1.92	.00	10.96

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

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C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6G

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 2.11

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.56	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.56
(2)	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
C-3	3	2	3	0	0	4	7	5	4	5	4	3	3	3	2	5	0	53
(1)	1.67	1.11	1.67	.00	.00	2.22	3.89	2.78	2.22	2.78	2.22	1.67	1.67	1.67	1.11	2.78	.00	29.44
(2)	.04	.02	.04	.00	.00	.05	.08	.06	.05	.06	.05	.04	.04	.04	.02	.06	.00	.62
4-7	2	1	0	1	2	9	14	9	2	3	3	5	9	12	5	6	0	83
(1)	1.11	.56	.00	.56	1.11	5.00	7.78	5.00	1.11	1.67	1.67	2.78	5.00	6.67	2.78	3.33	.00	46.11
(2)	.02	.01	.00	.01	.02	.11	.16	.11	.02	.04	.04	.06	.11	.14	.06	.07	.00	.98
8-12	0	0	0	0	0	0	6	4	7	1	2	2	4	6	3	5	0	40
(1)	.00	.00	.00	.00	.00	.00	3.33	2.22	3.89	.56	1.11	1.11	2.22	3.33	1.67	2.78	.00	22.22
(2)	.00	.00	.00	.00	.00	.00	.07	.05	.08	.01	.02	.02	.05	.07	.04	.06	.00	.47
13-18	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	3
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.56	.00	.00	.00	.00	.56	.56	.00	1.67
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01	.01	.00	.04
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	5	3	3	1	2	14	27	18	13	10	9	10	16	21	11	17	0	180
(1)	2.78	1.67	1.67	.56	1.11	7.78	15.00	10.00	7.22	5.56	5.00	5.56	8.89	11.67	6.11	9.44	.00	100.00
(2)	.06	.04	.04	.01	.02	.16	.32	.21	.15	.12	.11	.12	.19	.25	.13	.20	.00	2.11

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
 (2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD
 C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

TABLE 6H

VERMONT YANKEE JAN 17 - DEC 17 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA

STABILITY CLASS ALL

CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED MPH	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
CALM	0	1	1	2	2	4	7	5	0	1	0	1	2	2	1	0	0	29
(1)	.00	.01	.01	.02	.02	.05	.08	.06	.00	.01	.00	.01	.02	.02	.01	.00	.00	.34
(2)	.00	.01	.01	.02	.02	.05	.08	.06	.00	.01	.00	.01	.02	.02	.01	.00	.00	.34
C-3	211	120	92	106	144	206	226	155	69	46	41	25	33	52	94	183	0	1803
(1)	2.48	1.41	1.08	1.25	1.69	2.42	2.66	1.82	.81	.54	.48	.29	.39	.61	1.10	2.15	.00	21.18
(2)	2.48	1.41	1.08	1.25	1.69	2.42	2.66	1.82	.81	.54	.48	.29	.39	.61	1.10	2.15	.00	21.18
4-7	222	74	37	38	92	223	461	345	153	55	39	51	65	84	167	617	0	2723
(1)	2.61	.87	.43	.45	1.08	2.62	5.42	4.05	1.80	.65	.46	.60	.76	.99	1.96	7.25	.00	31.99
(2)	2.61	.87	.43	.45	1.08	2.62	5.42	4.05	1.80	.65	.46	.60	.76	.99	1.96	7.25	.00	31.99
8-12	177	41	22	6	14	50	182	311	258	67	48	68	200	188	180	573	0	2385
(1)	2.08	.48	.26	.07	.16	.59	2.14	3.65	3.03	.79	.56	.80	2.35	2.21	2.11	6.73	.00	28.02
(2)	2.08	.48	.26	.07	.16	.59	2.14	3.65	3.03	.79	.56	.80	2.35	2.21	2.11	6.73	.00	28.02
13-18	86	10	3	1	2	9	15	47	157	20	17	33	165	203	144	272	0	1184
(1)	1.01	.12	.04	.01	.02	.11	.18	.55	1.84	.23	.20	.39	1.94	2.39	1.69	3.20	.00	13.91
(2)	1.01	.12	.04	.01	.02	.11	.18	.55	1.84	.23	.20	.39	1.94	2.39	1.69	3.20	.00	13.91
19-24	10	1	0	0	0	2	1	16	32	1	1	3	41	70	50	82	0	310
(1)	.12	.01	.00	.00	.00	.02	.01	.19	.38	.01	.01	.04	.48	.82	.59	.96	.00	3.64
(2)	.12	.01	.00	.00	.00	.02	.01	.19	.38	.01	.01	.04	.48	.82	.59	.96	.00	3.64
GT 24	0	0	0	0	0	0	1	3	2	0	0	0	12	6	9	44	0	77
(1)	.00	.00	.00	.00	.00	.00	.01	.04	.02	.00	.00	.00	.14	.07	.11	.52	.00	.90
(2)	.00	.00	.00	.00	.00	.00	.01	.04	.02	.00	.00	.00	.14	.07	.11	.52	.00	.90
ALL SPEEDS	706	247	155	153	254	494	893	882	671	190	146	181	518	605	645	1771	0	8511
(1)	8.30	2.90	1.82	1.80	2.98	5.80	10.49	10.36	7.88	2.23	1.72	2.13	6.09	7.11	7.58	20.81	.00	100.00
(2)	8.30	2.90	1.82	1.80	2.98	5.80	10.49	10.36	7.88	2.23	1.72	2.13	6.09	7.11	7.58	20.81	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

C= CALM (WIND SPEED LESS THAN OR EQUAL TO .95 MPH)

APPENDIX A

SUPPLEMENTAL INFORMATION

Facility: Vermont Yankee Nuclear Power Station

Licensee: Entergy Nuclear Vermont Yankee

1A. ODCM DOSE AND DOSE RATE LIMITS -

	<u>ODCM Controls</u>	<u>Dose Limit</u>
a.	<u>Noble Gases</u>	
	3/4.3.1 Total body dose rate	500 mrem/yr
	3/4.3.1 Skin dose rate	3000 mrem/yr
	3/4.3.2 Gamma air dose	5 mrad in a quarter
	3/4.3.2 Gamma air dose	10 mrad in a year
	3/4.3.2 Beta air dose	10 mrad in a quarter
	3/4.3.2 Beta air dose	20 mrad in a year
b.	<u>Tritium and Radionuclides in Particulate Form</u>	
	3/4.3.1 Organ dose rate	1500 mrem/yr
	3/4.3.3 Organ dose	7.5 mrem in a quarter
	3/4.3.3 Organ dose	15 mrem in a year
c.	<u>Liquids</u>	
	3/4.2.2 Total body dose	1.5 mrem in a quarter
	3/4.2.2 Total body dose	3 mrem in a year
	3/4.2.2 Organ dose	5 mrem in a quarter
	3/4.2.2 Organ dose	10 mrem in a year

2A. ODCM LIMITS - CONCENTRATION

	<u>ODCM Control</u>	<u>Limit</u>
a.	<u>Noble Gases</u>	No ECL Limits
b.	<u>Tritium and Radionuclides in Particulate Form</u>	No ECL Limits

c. Liquids

3/4.2.1 Sum of the fractions of ECL
excluding noble gases
(10CFR20, Appendix B,
Table 2, Column 2): $\leq 1.0E+01$

3/4.2.1 Total noble gas concentration: $\leq 2E-04 \mu\text{Ci/cc}$

3. AVERAGE ENERGY

Provided below are the average energy (E) of the radionuclide mixture in releases of fission and activation gases, if applicable.

a. Average gamma energy: Not Applicable

b. Average beta energy: Not Applicable

4. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

Provided below are the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

a. Fission and Activation Gases

Continuous stack monitors monitor the gross Noble Gas radioactivity released from the plant stack. Because release rates are normally below the detection limit of these monitors, periodic grab samples are taken and analyzed for the gaseous isotopes present. These are used to calculate the individual isotopic releases indicated in Table 1B and the totals of Table 1A. The error involved in these steps may be approximately ± 23 percent.

b. Particulates

Continuous isokinetic samples are drawn from the plant stack through a particulate filter. The filters are normally removed weekly and are analyzed for particulates. The error involved in these steps may be approximately ± 18 percent.

c. Tritium

ODCM Table 4.3.1 requires as a minimum that grab samples from the plant stack be taken monthly and analyzed for tritium. The stack tritium collection has been upgraded with silica gel columns and continuous sampling of stack effluents. The error involved in this sample is approximately ± 18 percent.

d. Liquid Effluents

If radioactive liquid effluents are to be released from the facility, they are continuously monitored. Measurements are also required on a representative sample of each batch of radioactive liquid effluents released. For each batch, station records are retained of the total activity (mCi) released, concentration ($\mu\text{Ci/ml}$) of gross radioactivity, volume (liters), and approximate total quantity of water (liters) used to dilute the liquid effluent prior to release to the Connecticut River.

Each batch of radioactive liquid effluents to be released is analyzed for gross gamma and gamma isotopic radioactivity. A monthly proportional composite sample, comprising an aliquot of each batch released during a month, is analyzed for tritium and gross alpha radioactivity. A quarterly proportional composite sample, comprising an aliquot of each batch released during a quarter, is analyzed for Sr-89, Sr-90, and Fe-55.

5. BATCH RELEASES

a. Liquid

There were no routine liquid batch releases during the reporting period.

b. Gaseous

There were no routine gaseous batch releases during the reporting period.

6. ABNORMAL RELEASES

a. Liquid

1) In 2017 there was a continuous release due to the residual radioactivity in groundwater from a previously undetected leak from a subsurface structure. The leak condition was identified through monitoring well data in January 2010. The leak was stopped in February 2010.

2) For 2017, the total Tritium radioactivity conservatively estimated to be released to the Connecticut River is 0.0221 Curies. No other plant-related radionuclides were detected in ground water.

3) During the NEI 5-year self-assessment for groundwater monitoring, it was determined that VY was not fully meeting the intent of reporting groundwater contamination results in annual reports. VY has consistently reported the curies of all liquid and gaseous effluents from the plant through regularly monitored discharge pathways as well as from the tritium leak of 2010. The reporting of individual well results or trends has not been a part of the annual report and this was entered into the Corrective Actions Program as WT-WTVTY-2016-00018 CA-00009 to ensure inclusion in 2016 and future reports.

VY has installed 32 groundwater wells to monitor the 2010 leak event or to monitor additional at-risk structures, systems or components (SSCs) that could cause a release of licensed material to the groundwater. One well (GZ-08) has been dry since installation and no samples were collected from it in 2017. A second well, GZ-24, was compromised by excavation activity in 2014 and is no longer able to be sampled. A summary of the remaining 30 wells is included in Table A-1. There are only six (6) wells that have detectable activity (>MDC) in 2017 and all of these wells are well below the EPA limit of 20,000 pCi/L for drinking water. None of the wells in this program supply drinking water, and no drinking water wells on-site or adjacent to VY have shown tritium at detectable levels in regular surveillance samples.

Table A-1: VY Groundwater Tritium Summary - 2017

Groundwater well Sampled	Number of analyses performed	Mean Concentration ¹	Concentration Range ¹	
			Min	Max
GZ-01	1	< 587	< 587	< 587
GZ-02	1	< 584	< 584	< 584
GZ-03	2	< 652	< 640	< 664
GZ-04	2	< 619	< 618	< 620
GZ-05	1	< 632	< 632	< 632
GZ-06	2	< 597	< 582	< 611
GZ-07	2	< 594	< 577	< 610
GZ-09	1	< 580	< 580	< 580
GZ-10	1	< 579	< 579	< 579
GZ-11	2	< 600	< 583	< 616
GZ-12	2	< 598	< 585	< 610
GZ-12D	4	755	< 595	959
GZ-13	1	< 581	< 581	< 581
GZ-13D	2	< 597	< 585	< 609
GZ-14	4	838	< 599	1102
GZ-14D	4	5074	4112	5474
GZ-15	4	2067	< 574	4664
GZ-16	1	< 598	< 598	< 598
GZ-17	1	< 581	< 581	< 581
GZ-18	1	< 581	< 581	< 581
GZ-18D	1	< 582	< 582	< 582
GZ-19	1	< 577	< 577	< 577
GZ-19D	1	< 576	< 576	< 576
GZ-20	1	< 579	< 579	< 579
GZ-21	2	< 597	< 586	< 608
GZ-22D	12	3351	2766	3886
GZ-23	12	1444	< 596	2322
GZ-25	2	< 583	< 580	< 585
GZ-26	2	< 583	< 582	< 583
GZ-27	2	< 582	< 580	< 584

¹All concentrations are in units of pCi/L.

Required LLD for tritium = 2,000 pCi/L.

"<" denotes minimum detectable value for the analytical period.

Bold values denote positive results (greater than minimum detectable values).

b. Gaseous

There were no non-routine gaseous releases (measured) during the reporting period.

APPENDIX B

LIQUID HOLDUP TANKS

Requirement Technical Specification 3.1.A.1 limits the quantity of radioactive material contained in any outside tank. With the quantity of radioactive material in any outside tank exceeding the limits of Technical Specification 3.1.A.1, a description of the events leading to this condition is required in the next annual Radioactive Effluent Release Report per ODCM Section 10.1.

Response: The limits of Technical Specification 3.1.A.1 were not exceeded during this reporting period.

APPENDIX C

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

Requirement: Radioactive liquid effluent monitoring instrumentation channels are required to be functional in accordance with ODCM Table 3.1.1. If a non-functional radioactive liquid effluent monitoring instrument is not returned to functional status prior to a release pursuant to Note 4 of Table 3.1.1, an explanation in the next annual Radioactive Effluent Release Report of the reason(s) for delay in correcting the non-functionality are required per ODCM Section 10.1.

Response: Since the requirements of ODCM Table 3.1.1 governing the operability of radioactive liquid effluent monitoring instrumentation were met for this reporting period, no response is required.

APPENDIX D

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Requirement: Radioactive gaseous effluent monitoring instrumentation channels are required to be functional in accordance with ODCM Table 3.1.2. If a non-functional, gaseous effluent monitoring instrumentation is not returned to functional status within 30 days pursuant to Note 5 of Table 3.1.2, an explanation in the next annual Radioactive Effluent Release Report of the reason(s) for the delay in correcting the inoperability is required per ODCM Section 10.1.

Response: Since the requirements of ODCM Table 3.1.2 governing the functionality of radioactive gaseous effluent monitoring instrumentation were met for this reporting period, no response is required.

APPENDIX E

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Requirement: The radiological environmental monitoring program is conducted in accordance with ODCM Control 3/4.5.1. With samples no longer available from one or more of the sample locations required by ODCM Table 3.5.1, the ODCM requires the following to be included in the next annual Radioactive Effluent Release Report: (1) identify the cause(s) of the sample(s) no longer being available, (2) identify the new location(s) for obtaining available replacement samples and (3) include revised ODCM figure(s) and table(s) reflecting the new location(s).

Response: As part of Rev. 37 to the ODCM, milk sampling has been eliminated. These changes are supported by RSCS Technical Support Document (TSD) 16-041 "Vermont Yankee Shut-Down Environmental Radionuclides of Concern and Off-Site Dose Calculation Manual Changes" and RSCS TSD 15-056 "Vermont Yankee Offsite Dose Calculation Manual (ODCM) Revisions for Decommissioning".

APPENDIX F

LAND USE CENSUS

Requirement: A land use census is conducted in accordance with ODCM Control 3/4.5.2. With a land use census identifying a location(s) that yields at least a 20 percent greater dose or dose commitment than the values currently being calculated pursuant to ODCM Control 4.3.3, the new location(s) must be identified in the next Annual Radioactive Effluent Release Report.

Response: The Land Use Census was completed during the third quarter of 2017. No locations were identified which yielded a 20 percent greater dose or dose commitment than the values currently being calculated pursuant to ODCM Control 4.3.3. See Table 4C for a listing of nearest residents and milk animals in the site area as determined in the 2017 Land Use Census.

APPENDIX G

PROCESS CONTROL PROGRAM

Requirement: ODCM Section 10.1 requires that licensee-initiated changes to the Process Control Program (PCP) be submitted to the Commission in the annual Radioactive Effluent Release Report for the period in which the change(s) was made.

Response: There were no changes made to the Process Control Program during this reporting period.

APPENDIX H

OFF-SITE DOSE CALCULATION MANUAL

Requirement: Technical Specification 6.7.B.1 requires that licensee-initiated changes to the Off-Site Dose Calculation Manual (ODCM) be submitted to the Commission in the annual Radioactive Effluent Release Report for the period in which the change(s) was made effective.

Response: There was one revision (Rev. 38) to the Offsite Dose Calculation Manual (ODCM) during 2017. Revision 39 to the ODCM was issued on March 5, 2018. The changes associated with Revision 38 and 39 are described below and the changes are presented in Attachment 1 to this Appendix.

Summary of changes made in ODCM Revision 38 (Effective 2/6/2017) (See Attachment 1)

The wording in Table 4.2.1 of the ODCM was changed from “Perimeter” wells to “Monitoring” wells in order to be consistent with the function of the well as defined in site procedures. Notations “i” and “j” were also added to Table 4.2.1 to provide basis for sampling intervals in Table 4.2.1.

Summary of changes made in ODCM Revision 39 (Effective 3/5/2018) (See Attachment 1)

The following changes were made as part of Revision 39 to the ODCM:

- Liquid Radwaste Monitor and set points were deleted from Tables 1.1.1, 1.1.7 and 4.1.1,
- Definitions 7 (Liquid Waste Discharge) and 8 (Off-Site Dose Calculation Manual) in Table 2.1.1 were revised,
- Definitions of dilution flow and discharge flow rates in Table 2.1.2 were revised and the set point and efficiency terms in Table 2.1.2 were deleted,
- Liquid Radwaste Monitor and Flow Rate Measurement Devices and Notes 1 and 3 were deleted from Table 3.1.1,
- Control 3/4.2.1 was revised to allow intercepted groundwater release through liquid waste effluent line,
- Table 4.2.1 was revised to institute requirements for release without liquid radwaste monitor and Note (k) was added to Table 4.2.1 to implement Table 3.1.1 requirements for release without liquid radwaste monitor,
- Section 3/4.6 Bases 3.1.1 was revised to pertain to flow rate meter and language on release frequency was deleted,
- Section 3/4.6 Bases 3.2.1 was revised to allow intercepted groundwater release through liquid waste effluent line,
- Cpi term in Section 5.1 was revised to remove names of SSCs to reflect SAFSTOR configuration,
- Section 5.2.1 Sample Tank Pathways was revised to reflect SAFSTOR configuration,

- Section 5.2.4 Intercepted Groundwater Concentrations in Flowpaths to the Connecticut River was revised to allow intercepted groundwater release through liquid waste effluent line,
- Section 8.1.1 Liquid Radwaste Discharge Monitor (RM-17-350) was deleted and
- Section 9.1 and Figure 9-1 were revised to reflect SAFSTOR configuration.