Entergy

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

Michael J. Colomb
Site Vice President

BVY 10-030

May 12, 2010

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: 2009 Radioactive Effluent Release Report
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

Dear Sir or Madam,

In accordance with Vermont Yankee (VY) Technical Specifications (TS) 6.6.D, attached is a copy of the annual 2009 Radioactive Effluent Release Report.

In addition, VY TS 6.7.B requires reporting of changes to the Off-Site Dose Calculation Manual (ODCM). There were no changes made to the ODCM during 2009.

There are no new regulatory commitments being made in this submittal.

Should you have any questions concerning this submittal, please contact Mr. James M. DeVincentis (802) 451-3150.

Sincerely,

[MJC/JMD]

Attachment 1: Radioactive Effluent Release Report for 2009

cc listing (next page)

IE48

NRR

cc: Mr. Samuel J. Collins, Region 1 Administrator
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. James S. Kim, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop 08C2A
Washington, DC 20555

Mr. James Noggle, Sr. Health Physicist
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

USNRC Resident Inspector
Entergy Nuclear Vermont Yankee, LLC
320 Governor Hunt Road
Vernon, Vermont 05354

Mr. David O'Brien, Commissioner
VT Department of Public Service
112 State Street – Drawer 20
Montpelier, VT 05620

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

Massachusetts Department of Public Health
Radiation Control Program
Attn: Bob Walker, Director
Schrafft Center – Suite 1M21
529 Main Street
Charlestown, MA 02129

Dennis P. O'Dowd, Administrator
Radiological Health Section
29 Hazen Drive
Concord, NH 03301-6504

Docket No. 50-271
BVY 10-030

Attachment 1

Vermont Yankee Nuclear Power Station

2009 Radioactive Effluent Release Report

RADIOACTIVE EFFLUENT
RELEASE REPORT
FOR 2009
INCLUDING ANNUAL RADIOLOGICAL
IMPACT ON MAN

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

Prepared by: Edward R. Cumming / 5/5/2010
Edward R. Cumming, CHP, Advisory Scientist, AREVA NP — Date

Preparation coordinated by: Stephen P. Skibniowsky / 5/5/2010
Stephen P. Skibniowsky, Senior Environmental Specialist (REMP) — Date

Reviewed by: Stephen C. McAvoy / 5/5/10
Stephen C. McAvoy, Chemistry Supervisor — Date

Approved for Distribution: JAH / 5-5-2010
Jeffery A. Hardy, Chemistry Manager — Date

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Radiological Effluent Release Report for 2009

[Including Annual Radiological Impact on Man]
Entergy Nuclear Vermont Yankee, LLC

1.0 INTRODUCTION

Tables 1 through 3 lists 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 2009 in response to the ALARA objectives of 10CFR50, 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 2009. Radioactive effluents reported in Tables 1 and 2 were used to determine the dose to the maximum exposed individual for 2009.

As required by ODCM Section 10.1, (Reference 1) 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). These dose estimates were made using a "Method II" analysis as described in the ODCM. 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. During this reporting period, no recreational activity was permitted and, therefore, there is no associated dose assessment as stated in Section 3.6.

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 40CFR190, "Environmental Radiation Protection Standards for Nuclear Power Operations," are 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 assessments are required. However, Table 4B does provide the combination of doses and dose commitments from plant effluents and direct radiation sources for the limiting member of the public off-site as a demonstration of compliance with the dose standards of 40CFR190.

All calculated dose estimates for members of the public at the site boundary or beyond for the 2009 annual reporting period are below the dose criteria of 10CFR Part 50, Appendix I, and 40CFR190.

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 2009 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 (94 meters) and is designed to meet the requirements of Regulatory Guide 1.23 for meteorological monitoring. In mid-2009, the tower was moved to a location approximately 200 feet northwest of the original location.

χ/Q and D/Q values 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 3). A source depletion model as described in "Meteorology and Atomic Energy - 1968" (Reference 4) 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.

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 2009 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. 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 10CFR Part 50, Appendix I. By implementing the requirements of 10CFR 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 the discovery of a 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 help locate the source of the leak which was stopped in February, 2010.

Based the Protected Area Boundary monitoring well data, the last recorded sample from the affected well that showed no indication of tritium being present was taken on 8/19/2009. For the purpose of estimating the maximum possible release conditions, it is assumed that immediately after the 8/19/2009 clean sample, the groundwater at the Protected Area boundary well locations (and river shoreline) reached and maintained the same concentration as when first detected. Using a conservative estimate of groundwater flow through the affected area toward the river of 50 gpm, an estimate of the total potential tritium released from the site during the third and fourth quarters of 2009 were generated and reported in Table 2A.

For the third and fourth quarters of 2009 in which liquid waste are postulated to have been released from the site to the Connecticut River, the dose impacts to the maximum exposed individual (MEI) assumed the following exposure pathways: (1) ingestion of fish (taken from Vernon Pond), (2) ingestion of irrigated vegetable 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. Environmental mixing of liquid effluents in the river is based on the recorded low monthly average river flow of 3,796 cfs (September, 2009). 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 for dilution. All other exposure pathways for the consumption of potable water and food products grown with irrigated water occur below Vernon Dam and assume the September, 2009, low flow value for environmental mixing. The dose models are taken from US NRC Regulatory Guide 1.109, Revision 1, 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 any age group from liquid releases are reported in Table 4A. These estimated doses are well below the 10CFR Part 50, Appendix I dose criteria of ODCM 3/4.2.2. Table 4B provides an estimation of the total annual dose impact (including contributions from liquids) associated with the highest exposed member of the public for demonstration of compliance to the dose standard contained in 40CFR 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 10CFR Part 50, Appendix I. By implementing the requirements of 10CFR Part 50, Appendix I, 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."

There were no recorded noble gas releases during the report period, and therefore, no dose impact.

3.3 Doses From Iodine-131, Iodine-133, Tritium, and Radionuclides in Particulate Form With Half-Lives Greater Than 8 Days

ODCM 3/4.3.3 limits the organ dose to a member of the public from iodine-131, iodine-133, tritium and radionuclides in particulate form with half-lives greater than 8 days (hereafter called iodines and particulates) in gaseous effluents released from the site to areas at and beyond the site boundary to those specified in 10CFR Part 50, Appendix I (7.5 mrem per quarter, and 15 mrem per year). By implementing the requirements of 10CFR Part 50, Appendix I, ODCM 3/4.3.3 assures that the releases of iodines and particulates in gaseous effluents will be kept "as low as is reasonably achievable."

Exposure pathways that could exist as a result of the release of iodines and particulates to the atmosphere include external irradiation from activity deposited onto the ground surface, inhalation, and ingestion of vegetables, meat and milk. Dose estimates 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 as required by ODCM 3/4.5.2 (see Table 4C). Conservatively, a vegetable garden was 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. It has also been assumed that only 50 percent of the iodine deposited from gaseous effluent is in elemental form (I_2) and is available for uptake (see p. 6, Reference 2). 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.

The resultant organ doses were determined after adding the contributions from all pathways at each location. Doses were calculated for the whole body, GI-tract, bone, liver, kidney, thyroid, lung and skin for adults, teenagers, children, and infants. The maximum estimated quarterly and annual organ doses to any age group due to iodines and particulates at any of the off-site receptor locations are reported in Table 4A. These estimated organ doses are well below the 10CFR Part 50, Appendix I dose criteria of ODCM 3/4.3.3.

Table 4B provides an estimation of the total annual dose impact (including contributions from iodine and particulates) associated with the highest exposed member of the public for demonstration of compliance to the dose standard contained in 40CFR Part 190 for the uranium fuel cycle.

3.4 Whole Body Doses in Unrestricted Areas From Direct Radiation

The major dose in unrestricted areas occurs at the west site boundary, and mainly consists of direct and skyshine radiation from N-16 decay in the Turbine Building steam cycle during power operations. Because of the orientation of the Turbine Building on the site, and the shielding effects of the adjacent Reactor Building, only the seven westerly sectors (SSW to NNW) see any significant direct radiation.

A correlation method was derived, based directly on site boundary exposure rate and in-plant Main Steam Line Radiation Monitor measurements, that allows changes in the N-16 carryover in the main steam flow to be directly related to changes in the site boundary dose. This correlation is documented in section 6.11.1 (Equation 6-27a) of the ODCM. This method was used to calculate direct dose at the maximum site boundary location from radiation sources in the steam cycle.

The other fixed sources of direct and scatter radiation to the site boundary are from the Independent Spent Fuel Storage Installation (ISFSI), the low level radioactive materials stored in the North Warehouse, the Low Level Waste Storage Pad Facility, 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 determined to occur at the same most restrictive site boundary dose location as that for N-16 shine from the Turbine Building.

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 nearest residence and the maximum offsite dose from gaseous and liquid effluents for the purpose of demonstrating compliance with the dose standards contained in 40CFR Part 190. For direct radiation, no credit for actual occupancy time is taken (i.e., occupancy is equal to 100%).

For 2009, the annual dose limit for the nearest real resident from all station sources (effluents plus fixed radiation sources) was below the 25 mrem total body and organ limit (75 mrem thyroid) of 40 CFR 190.

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

Off-Site Dose Calculation Manual, Appendices B, F, and I require that all applications of septage, cooling tower silt, and sand/soil within the approved designated disposal areas be limited to ensure the dose to a maximally exposed individual during the period of Vermont Yankee site control be maintained at 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 maintained at less than 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.

The dose limits applicable for the on-site spreading of materials were met for the two disposals (sand/soil and cooling tower silt) in 2009 and in combination with all past spreadings.

3.6 On-Site Recreational Activities

During 2009, no access for employees, their families and guests to the boat launching ramp located on-site just north of the intake structure was permitted. As such, no recreational activities were permitted on-site during the report period and, therefore, no associated dose impact to members of the public.

REFERENCES

1. Off-site Dose Calculation Manual (ODCM), Revision 32, Entergy Nuclear Vermont Yankee, LLC , dated 06/24/08.

2. Regulatory Guide 1.109, "Calculation of Annual Doses to Man From Routine Release of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR Part 50, Appendix I", U. S. Nuclear Regulatory Commission, Office of Standards Development, Revision l, October 1977.

3. 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.

4. Meteorology and Atomic Energy, 1968, Section 5-3.2.2, "Cloud Depletion", pg. 204. U. S. Atomic Energy Commission, July 1968.

TABLE IA

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
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. Average release rate for period	µCi/sec	ND	ND	
3. Percent of ODCM limit (1)	%	ND	ND	
B. Iodines				
1. Total Iodine	Ci	7.93E-06	ND	±1.80E+01
2. Average release rate for period	µCi/sec	9.98E-7	ND	
3. Percent of ODCM limit (2)	%	1.27E-02	3.63E-03	
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	
3. Percent of ODCM limit (3)	%	(3)	(3)	
4. Gross alpha radioactivity	Ci	ND	ND	
D. Tritium				
1. Total release	Ci	2.83E-01	5.69E-01	±1.80E+01
2. Average release rate for period	µCi/sec	3.56E-02	7.16E-02	
3. Percent of ODCM limit (3)	%	(3)	(3)	

ND = Not Detected

(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) ODCM Control 3.3.3. for dose from 1-131, 1-133, Tritium, and radionuclides in particulate form. Percentage of ODCM limit calculated using Method I dose results.

(3) Per ODCM Control 3.3.3, dose contribution from Tritium and particulates are included with Iodine above in Part B.

TABLE 1A
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
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. Average release rate for period	µCi/sec	ND	ND	
3. Percent of ODCM limit (1)	%	ND	ND	
B. Iodines				
1. Total Iodine	Ci	6.40E-05	9.71E-05	±1.80E+01
2. Average release rate for period	µCi/sec	8.05E-06	1.22E-05	
3. Percent of ODCM limit (2)	%	2.60E-02	4.59E-02	
C. Particulates				
1. Particulates with T-1/2>8 days	Ci	ND	2.05E-05	±1.80E+01
2. Average release rate for period	µCi/sec	ND	2.57E-06	
3. Percent of ODCM limit (3)	%	(3)	(3)	
4. Gross alpha radioactivity	Ci	ND	ND	
D. Tritium				
1. Total release	Ci	5.42E-01	3.55E-01	±1.80E+01
2. Average release rate for period	µCi/sec	6.82E-02	4.46E-02	
3. Percent of ODCM limit (3)	%	(3)	(3)	

ND = Not Detected

(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) ODCM Control 3.3.3. for dose from 1-131, 1-133, Tritium, and radionuclides in particulate form. Percentage of ODCM limit calculated using Method I dose results.

(3) Per ODCM Control 3.3.3, dose contribution from Tritium and particulates are included with Iodine above in Part B.

TABLE lB

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
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	7.93E-06	ND		
Iodine-133	Ci	ND	ND		
Iodine-135	Ci	ND	ND		
Total for Period	**Ci**	**7.93E-06**	**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		
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 lB
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
Gaseous Effluents -Elevated Releases

		Continuous Mode		Batch Mode (1)	
		Quarter		Quarter	
Nuclides Released	Units	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**		
2. Iodines					
Iodine-131	Ci	1.59E-05	3.00E-05		
Iodine-133	Ci	4.81E-05	6.71E-05		
Iodine-135	Ci	ND	ND		
Total for Period	**Ci**	**6.40E-05**	**9.71E-05**		
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	2.05E-05		
Total for Period	**Ci**	**ND**	**2.05E-05**		

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
First and Second Quarters, 2009
Gaseous Effluents - 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	Cl				
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 2009.

TABLE lC
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
Gaseous Effluents - Ground Level Releases[2]

		Continuous Mode		Batch Mode	
		Quarter		Quarter	
Nuclides Released	Units	3 (1)	4 (1)	3	4
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 2009

TABLE 1D

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
for 2009
Gaseous Effluents -Nonroutine Releases

There were no non-routine or accidental gaseous releases during this reporting period.

TABLE 2A

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
Liquid Effluents - Summation of All Releases

	Unit	Quarter 1	Quarter 2	Est. Total Error, %
A. Fission and Activation Products				
1. Total Release (not including tritium, gases, alpha)	Ci	-	-	
2. Average Diluted Concentration During Period	µCi/ml	-	-	
3. Percent of Applicable Limit	%	-	-	
B. Tritium				
1. Total Release	Ci	-	-	
2. Average Diluted Concentration During Period	µCi/ml	-	-	
3. Percent of Applicable Limit	%	-	-	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	-	-	
2. Average Diluted Concentration During Period	µCi/ml	-	-	
3. Percent of Applicable Limit	%	-	-	
D. Gross Alpha Radioactivity				
1. Total Release	Ci	-	-	
E. Volume of Waste Release (prior to dilution)	Liters	-	-	
F. Volume of Dilution Water Used During Period	Liters	-	-	

ND Not detected in liquid effluents.

\- Dash indicates no release of this type. There were no routine or unplanned/abnormal liquid releases in the first or second quarters of 2009.

TABLE 2A
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
Liquid Effluents - Summation of All Releases

	Unit	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and Activation Products				
1. Total Release (not including tritium, gases, alpha)	Ci	ND	ND	
2. Average Diluted Concentration During Period	µCi/ml	ND	ND	
3. Percent of Applicable Limit (a)	%	ND	ND	
B. Tritium				
1. Total Release	Ci	1.07E-01	2.93E-01	±1.00E+01
2. Average Diluted Concentration During Period	µCi/ml	9.38E-06	1.17E-05	
3. Percent of Applicable Limit (a)	%	9.00E-04	2.47E-03	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	ND	ND	
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	
E. Volume of Waste Release (prior to dilution)	Liters	(b)	(b)	
F. Volume of Dilution Water Used During Period (c)	Liters	1.14E+07	2.51E+07	±2.00E+01

ND Not detected in liquid effluents.

(a) The percent of limit is based on the ODCM Control 3.2.2 limiting dose (1.5 mrem/quarter) 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 0.94% and 1.17% for the third and fourth quarters, respectively.

(b) Estimation of the volume of tritiated plant water that leaked from a subsurface structure into groundwater is on-going and pending full characterization of the environmental contamination that was first reported in January, 2010.

(c) Dilution due to groundwater flow in the effected subsurface plume area (conservatively estimated to be 50 gpm) during the expected period of water leakage.

TABLE 2B

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
Liquid Effluents - Routine Releases

		Continuous Mode		Batch Mode	
Nuclides Released	Unit	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
Third and Fourth Quarters, 2009
Liquid Effluents[a] - Routine Releases

		Continuous Mode		Batch Mode	
Nuclides Released	Unit	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					
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.
(a) There was one abnormal release (unplanned and unmonitored) due to tritiated plant water leaking from a subsurface structure into groundwater potentially during the third and fourth quarters. No other radionuclides were detected. See Table 2A for details.

TABLE 3

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2009
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	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
c. Irradiated components, control rods, etc,	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	1st & 2nd Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	30.55	+/- 2.50 E+01
	Ci	2.268E+02	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	27.67	+/- 2.50 E+01
	Ci	1.898E+00	+/- 2.50 E+01
c. Irradiated components, control rods, etc,	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

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

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent
Cr-51	0.3%	Cr-51	6.2%	na	na
Mn-54	6.3%	Mn-54	4.1%		
Fe-55	26.8%	Fe-55	52.4%		
Co-58	0.5%	Fe-59	0.7%		
Co-60	16.7%	Co-58	0.8%		
Ni-63	7.3%	Co-60	23.1%		
Zn-65	34.3%	Ni-63	0.4%		
Cs-137	5.5%	Zn-65	10.9%		
		Zr-95	0.9%		
		Cs-137	0.3%		

(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
0	X		truck		Energy Solutions, Clive UT
10	X		truck	E/S-Bear Creek TN	
0	X		truck	Studsvik-Erwin, TN	
23		E/S-Bear Creek TN	truck		Energy Solutions, Clive UT
0		Studsvik-Memphis TN	truck		Energy Solutions, Clive UT
0		Studsvik-Erwin TN	truck		E/S -Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

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

Supplimental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	none	AU
Type of Containers Used	General Design	none	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

TABLE 3
(Continued)

Entergy Nuclear Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2009
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	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	0.0	+/- 2.50 E+01
	Ci	0.0	+/- 2.50 E+01

Shipped from Processor(s) for Burial	Unit	3rd & 4th Quarters	Est. Total Error %
a. Spent resins, filter sludges, etc.	m3	11.52	+/- 2.50 E+01
	Ci	3.225E+01	+/- 2.50 E+01
b. Dry Compressable waste, equipment, etc.	m3	99.55	+/- 2.50 E+01
	Ci	5.716E+03	+/- 2.50 E+01
c. Irradiated components, control rods, etc.	m3	3.89	+/- 2.50 E+01
	Ci	1.405E-04	+/- 2.50 E+01

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

a. spent resins filter sludges		b. Dry Compactable waste, equipment		c. Irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent (1)
Cr-51	0.3%	Cr-51	6.2%	H-3	1.4%
Mn-54	6.3%	Mn-54	4.1%	Fe-55	48.5%
Fe-55	28.8%	Fe-55	52.4%	Co-60	38.8%
Co-58	0.5%	Fe-59	0.7%	Ni-63	5.5%
Co-60	16.7%	Co-58	0.8%	Rb-87	2.3%
Ni-63	7.3%	Co-60	23.1%	Eu-152	0.4%
Zn-65	34.3%	Ni-63	0.4%		
Cs-137	5.5%	Zn-65	10.9%		
		Zr-95	0.5%		
		Cs-137	0.3%		

(1) 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
0	X		truck		E/S - Barnwell SC
9	X		truck	E/S - Oak Ridge TN	
0	X		truck	Studsvik-Erwin, TN	
20		E/S - Bear Creek TN	truck		Energy Solutions, Clive UT
1		E/S - Bear Creek TN	truck		RETURN TO Vermont
0		Studsvik-Erwin TN	truck		E/S - Barnwell SC

B. Irradiated Fuel Shipments (Disposition): None

C. Additional Data (3rd & 4th Quarters)

Supplemental Information	VY to processor	VY to Burial	Processors to Burial
Class of Solid Waste Shipped	AU	na	AU
Type of Containers Used	General Design	na	GDC, Type A
Solidification Agent or Absorbent Used	none	none	none

TABLE 4A

Entergy Nuclear Vermont Yankee
Maximum* Off-Site Doses/Dose Commitments to Members of the Public
from Liquid and Gaseous Effluents for 2009
(10CFR50, Appendix I)

Source	Dose (mrem)[a]				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year[b]
Liquid Effluents					
Total Body Dose	--	--	1.35E-05	3.71E-05	5.06E-05
Footnotes	(c)	(c)	(c)	(c)	(c)
Organ Dose	--	--	1.35E-05	3.71E-05	5.06E-05
Footnotes	(c)	(c)	(c)	(c)	(c)
Airborne Effluents					
Iodines and Particulates	1.06E-04	1.16E-04	2.49E-04	3.17E-04	7.88E-04
Footnotes	(f)	(g)	(h)	(i)	
Noble Gases					
Beta Air (mrad)	--	--	--	--	--
Footnotes	(d)	(d)	(d)	(d)	(d)
Gamma Air (mrad)	--	--	--	--	--
Footnotes	(d)	(d)	(d)	(d)	(d)
Direct Radiation					
	3.96	4.11	4.28	4.49	16.83 (e)

* "Maximum" means the largest fraction of the corresponding 10CFR50, Appendix I dose design objective.
(a) The numbered 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) There were no liquid releases in the first and second quarters. In the third and fourth quarters, the dose is to the CHILD/Total Body for the maximally-exposed individual.
(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 (per ODCM, Rev. 32, Sect. 6.11.1).
(f) CHILD/All Organs/WNW /2400 meters from stack
(g) CHILD/THYROID/WNW /2400 meters from stack
(h) CHILD/THYROID/WNW/2400 meters from stack
(i) CHILD/THYROID/NW/2900 meters from stack
"All Organs" include equal impact to Liver, Kidney, Lung, GI-LLI, Thyroid and Whole Body.

TABLE 4B

Entergy Nuclear Vermont Yankee
Maximum Annual Dose Commitments from Direct External Radiation,
Plus Liquid and Gaseous Effluents for 2009(*)
(40CFR190)

Pathway	Total Body (mrem)	Maximum Organ (mrem)	Thyroid (mrem)
Direct External (a) (b)	16.83	16.83	16.83
Liquids (c)	5.06E-05	5.06E-05	5.06E-05
Gases (c)	3.87E-04	3.93E-04	7.88E-04
Annual Total (d)	16.83	16.83	16.83

(*) The location of the projected maximum individual doses from combined direct radiation plus liquid and gaseous effluents correspond to residences at the southwest boundary relative to the Turbine Hall.

(a) No occupancy time fraction (assumed 100%) or residential shielding credit is assumed which would reduce real doses below the calculated values. Expected direct external radiation doses would be reduced by about 54% with a realistic residential shielding credit and occupancy time (0.7 shielding factor from Regulatory Guide 1.109 and annual occupancy time 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 S sector at 385 meters from the stack prior to the vacancy of this residence in 2008 and the purchase of land by Vermont Yankee. An estimate of the dose to the new nearest real residence and maximum impacted site boundary, which is now located in the SSW sector approximately 428 meters from the stack, results in an annual dose reduction (from Turbine Building shine) from approximately 15.2 mrem to 7.8 mrem.

(c) Maximum dose to any organ over all age groups for each release.

(d) Annual dose limits contained in the EPA Radiation Protection Standards (40CFR190) equal 25 mrem to the total body and any organ, except 75 mrem to the thyroid of a 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) Within 10 km (Meters)
N	400	1400	--
NNE	350	1384	5520 (cows)
NE	350	1255	--
ENE	400	966	--
E	500	933	--
ESE	700	1915	--
SE	750	1963	3600 (cows)
SSE	850	2044	--
S	385	644	2220 (cows)
SSW	300	451	--
SW	250	418	8200 (cows)
WSW	250	451	9730 (cows)
W	300	628	820 (cows)
WNW	400	1062	--
NW	550	2253	--
NNW	550	1738	--

(1) Vermont Yankee UFSAR Figure 2.2-5.
(2) The location(s) given are based on information from the Vermont Yankee 2009 Land Use Census and are relative to the plant stack. Gardens are assumed to be present at all resident locations.

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

		Vegetables		Cow Milk		Goat Milk		Meat	
Variable		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

		Vegetables		Cow Milk		Goat Milk		Meat	
Variable		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/m^3) shall be used to reflect conditions in the Northeast (Reference: Health Physics Journal, Volume 39 (August), 1980; Pages 318-320, Pergammon 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	2.93E-05	2.93E-03	2.93E-05	2.93E-05	2.93E-05	2.93E-05
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 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 3.45

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	6	0	4	4	2	3	4	3	0	0	0	1	0	0	3	1	0	31
(1)	2.16	.00	1.44	1.44	.72	1.08	1.44	1.08	.00	.00	.00	.36	.00	.00	1.08	.36	.00	11.15
(2)	.07	.00	.05	.05	.02	.04	.05	.04	.00	.00	.00	.01	.00	.00	.04	.01	.00	.39
4-7	39	9	1	4	7	9	11	6	0	0	0	2	8	6	19	38	0	159
(1)	14.03	3.24	.36	1.44	2.52	3.24	3.96	2.16	.00	.00	.00	.72	2.88	2.16	6.83	13.67	.00	57.19
(2)	.48	.11	.01	.05	.09	.11	.14	.07	.00	.00	.00	.02	.10	.07	.24	.47	.00	1.98
8-12	7	4	3	1	0	2	2	1	3	0	1	1	11	9	6	16	0	67
(1)	2.52	1.44	1.08	.36	.00	.72	.72	.36	1.08	.00	.36	.36	3.96	3.24	2.16	5.76	.00	24.10
(2)	.09	.05	.04	.01	.00	.02	.02	.01	.04	.00	.01	.01	.14	.11	.07	.20	.00	.83
13-18	11	0	0	0	0	0	0	0	0	0	0	0	0	6	1	3	0	21
(1)	3.96	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	2.16	.36	1.08	.00	7.55
(2)	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.01	.04	.00	.26
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	63	13	8	9	9	14	17	10	3	0	1	4	19	21	29	58	0	278
(1)	22.66	4.68	2.88	3.24	3.24	5.04	6.12	3.60	1.08	.00	.36	1.44	6.83	7.55	10.43	20.86	.00	100.00
(2)	.78	.16	.10	.11	.11	.17	.21	.12	.04	.00	.01	.05	.24	.26	.36	.72	.00	3.45

(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)

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 2.67

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	1	0	2	3	2	2	3	1	0	0	1	0	0	2	1	0	19
(1)	.47	.47	.00	.93	1.40	.93	.93	1.40	.47	.00	.00	.47	.00	.00	.93	.47	.00	8.84
(2)	.01	.01	.00	.02	.04	.02	.02	.04	.01	.00	.00	.01	.00	.00	.02	.01	.00	.24
4-7	15	3	6	3	7	20	15	13	8	0	1	1	4	2	12	28	0	138
(1)	6.98	1.40	2.79	1.40	3.26	9.30	6.98	6.05	3.72	.00	.47	.47	1.86	.93	5.58	13.02	.00	64.19
(2)	.19	.04	.07	.04	.09	.25	.19	.16	.10	.00	.01	.01	.05	.02	.15	.35	.00	1.71
8-12	8	1	0	0	1	0	2	2	6	1	0	4	4	9	6	8	0	52
(1)	3.72	.47	.00	.00	.47	.00	.93	.93	2.79	.47	.00	1.86	1.86	4.19	2.79	3.72	.00	24.19
(2)	.10	.01	.00	.00	.01	.00	.02	.02	.07	.01	.00	.05	.05	.11	.07	.10	.00	.65
13-18	2	0	0	0	0	0	0	0	1	0	0	0	0	2	0	1	0	6
(1)	.93	.00	.00	.00	.00	.00	.00	.00	.47	.00	.00	.00	.00	.93	.00	.47	.00	2.79
(2)	.02	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.02	.00	.01	.00	.07
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	26	5	6	5	11	22	19	18	16	1	1	6	8	13	20	38	0	215
(1)	12.09	2.33	2.79	2.33	5.12	10.23	8.84	8.37	7.44	.47	.47	2.79	3.72	6.05	9.30	17.67	.00	100.00
(2)	.32	.06	.07	.06	.14	.27	.24	.22	.20	.01	.01	.07	.10	.16	.25	.47	.00	2.67

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

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 5.02

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	7	3	6	8	6	11	3	9	3	1	1	0	2	2	0	5	0	67
(1)	1.73	.74	1.49	1.98	1.49	2.72	.74	2.23	.74	.25	.25	.00	.50	.50	.00	1.24	.00	16.58
(2)	.09	.04	.07	.10	.07	.14	.04	.11	.04	.01	.01	.00	.02	.02	.00	.06	.00	.83
4-7	23	12	10	11	20	19	18	32	13	5	2	3	13	3	5	44	0	233
(1)	5.69	2.97	2.48	2.72	4.95	4.70	4.46	7.92	3.22	1.24	.50	.74	3.22	.74	1.24	10.89	.00	57.67
(2)	.29	.15	.12	.14	.25	.24	.22	.40	.16	.06	.02	.04	.16	.04	.06	.55	.00	2.90
8-12	7	2	0	0	1	2	3	2	25	2	2	2	4	22	13	8	0	95
(1)	1.73	.50	.00	.00	.25	.50	.74	.50	6.19	.50	.50	.50	.99	5.45	3.22	1.98	.00	23.51
(2)	.09	.02	.00	.00	.01	.02	.04	.02	.31	.02	.02	.02	.05	.27	.16	.10	.00	1.18
13-18	2	0	0	0	0	0	0	0	1	0	0	0	0	2	2	2	0	9
(1)	.50	.00	.00	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00	.50	.50	.50	.00	2.23
(2)	.02	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.02	.02	.02	.00	.11
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	39	17	16	19	27	32	24	43	42	8	5	5	19	29	20	59	0	404
(1)	9.65	4.21	3.96	4.70	6.68	7.92	5.94	10.64	10.40	1.98	1.24	1.24	4.70	7.18	4.95	14.60	.00	100.00
(2)	.48	.21	.20	.24	.34	.40	.30	.53	.52	.10	.06	.06	.24	.36	.25	.73	.00	5.02

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 43.47

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	2	0	0	1	0	0	0	1	0	0	0	0	0	0	4
(1)	.00	.00	.00	.06	.00	.00	.03	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.11
(2)	.00	.00	.00	.02	.00	.00	.01	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.05
C-3	94	56	33	35	55	56	81	84	51	31	32	46	38	39	93	159	0	983
(1)	2.69	1.60	.94	1.00	1.57	1.60	2.32	2.40	1.46	.89	.91	1.32	1.09	1.11	2.66	4.55	.00	28.10
(2)	1.17	.70	.41	.43	.68	.70	1.01	1.04	.63	.39	.40	.57	.47	.48	1.16	1.98	.00	12.22
4-7	161	43	12	33	47	98	98	187	133	33	21	33	110	88	174	350	0	1621
(1)	4.60	1.23	.34	.94	1.34	2.80	2.80	5.35	3.80	.94	.60	.94	3.14	2.52	4.97	10.01	.00	46.34
(2)	2.00	.53	.15	.41	.58	1.22	1.22	2.32	1.65	.41	.26	.41	1.37	1.09	2.16	4.35	.00	20.14
8-12	105	13	0	0	1	7	6	26	95	24	5	2	62	160	138	114	0	758
(1)	3.00	.37	.00	.00	.03	.20	.17	.74	2.72	.69	.14	.06	1.77	4.57	3.95	3.26	.00	21.67
(2)	1.30	.16	.00	.00	.01	.09	.07	.32	1.18	.30	.06	.02	.77	1.99	1.71	1.42	.00	9.42
13-18	18	1	0	0	0	0	1	1	7	2	0	0	0	36	48	12	0	126
(1)	.51	.03	.00	.00	.00	.00	.03	.03	.20	.06	.00	.00	.00	1.03	1.37	.34	.00	3.60
(2)	.22	.01	.00	.00	.00	.00	.01	.01	.09	.02	.00	.00	.00	.45	.60	.15	.00	1.57
19-24	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	6
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.11	.00	.00	.17
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.05	.00	.00	.07
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	378	113	45	70	103	161	187	298	286	90	59	81	210	325	457	635	0	3498
(1)	10.81	3.23	1.29	2.00	2.94	4.60	5.35	8.52	8.18	2.57	1.69	2.32	6.00	9.29	13.06	18.15	.00	100.00
(2)	4.70	1.40	.56	.87	1.28	2.00	2.32	3.70	3.55	1.12	.73	1.01	2.61	4.04	5.68	7.89	.00	43.47

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 27.69

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	1	1	0	1	2	0	1	0	0	6
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.04	.04	.00	.04	.09	.00	.04	.00	.00	.27
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.01	.02	.00	.01	.00	.00	.07
C-3	55	17	20	17	15	22	44	58	81	109	144	189	193	142	186	173	0	1465
(1)	2.47	.76	.90	.76	.67	.99	1.97	2.60	3.64	4.89	6.46	8.48	8.66	6.37	8.35	7.76	.00	65.75
(2)	.68	.21	.25	.21	.19	.27	.55	.72	1.01	1.35	1.79	2.35	2.40	1.76	2.31	2.15	.00	18.21
4-7	39	11	1	1	2	5	21	32	42	20	13	22	83	86	119	140	0	637
(1)	1.75	.49	.04	.04	.09	.22	.94	1.44	1.89	.90	.58	.99	3.73	3.86	5.34	6.28	.00	28.59
(2)	.48	.14	.01	.01	.02	.06	.26	.40	.52	.25	.16	.27	1.03	1.07	1.48	1.74	.00	7.92
8-12	3	0	0	0	1	0	0	4	9	6	1	0	6	31	25	15	0	101
(1)	.13	.00	.00	.00	.04	.00	.00	.18	.40	.27	.04	.00	.27	1.39	1.12	.67	.00	4.53
(2)	.04	.00	.00	.00	.01	.00	.00	.05	.11	.07	.01	.00	.07	.39	.31	.19	.00	1.26
13-18	0	0	0	0	0	0	0	0	2	0	0	0	1	9	4	2	0	18
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.04	.40	.18	.09	.00	.81
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.01	.11	.05	.02	.00	.22
19-24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.04
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01
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	97	28	21	18	18	27	65	94	135	136	158	212	286	268	335	330	0	2228
(1)	4.35	1.26	.94	.81	.81	1.21	2.92	4.22	6.06	6.10	7.09	9.52	12.84	12.03	15.04	14.81	.00	100.00
(2)	1.21	.35	.26	.22	.22	.34	.81	1.17	1.68	1.69	1.96	2.63	3.55	3.33	4.16	4.10	.00	27.69

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 13.83

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	1	0	2
(1)	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.18
(2)	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.02
C-3	18	9	1	5	9	11	14	25	56	82	149	205	190	116	79	57	0	1026
(1)	1.62	.81	.09	.45	.81	.99	1.26	2.25	5.03	7.37	13.39	18.42	17.07	10.42	7.10	5.12	.00	92.18
(2)	.22	.11	.01	.06	.11	.14	.17	.31	.70	1.02	1.85	2.55	2.36	1.44	.98	.71	.00	12.75
4-7	2	0	0	0	0	0	2	5	9	2	2	6	7	6	17	26	0	84
(1)	.18	.00	.00	.00	.00	.00	.18	.45	.81	.18	.18	.54	.63	.54	1.53	2.34	.00	7.55
(2)	.02	.00	.00	.00	.00	.00	.02	.06	.11	.02	.02	.07	.09	.07	.21	.32	.00	1.04
8-12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.09
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.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	20	9	1	5	9	12	16	30	65	84	151	211	197	122	97	84	0	1113
(1)	1.80	.81	.09	.45	.81	1.08	1.44	2.70	5.84	7.55	13.57	18.96	17.70	10.96	8.72	7.55	.00	100.00
(2)	.25	.11	.01	.06	.11	.15	.20	.37	.81	1.04	1.88	2.62	2.45	1.52	1.21	1.04	.00	13.83

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

35.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 3.86

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	1	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.32	.00	.00	.00	.32
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.01
C-3	8	4	1	4	2	4	3	9	17	28	37	59	50	30	24	19	0	299
(1)	2.57	1.29	.32	1.29	.64	1.29	.96	2.89	5.47	9.00	11.90	18.97	16.08	9.65	7.72	6.11	.00	96.14
(2)	.10	.05	.01	.05	.02	.05	.04	.11	.21	.35	.46	.73	.62	.37	.30	.24	.00	3.72
4-7	0	0	0	0	0	0	0	1	0	1	2	0	2	1	3	1	0	11
(1)	.00	.00	.00	.00	.00	.00	.00	.32	.00	.32	.64	.00	.64	.32	.96	.32	.00	3.54
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.01	.02	.00	.02	.01	.04	.01	.00	.14
8-12	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
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	4	1	4	2	4	3	10	17	29	39	59	52	32	27	20	0	311
(1)	2.57	1.29	.32	1.29	.64	1.29	.96	3.22	5.47	9.32	12.54	18.97	16.72	10.29	8.68	6.43	.00	100.00
(2)	.10	.05	.01	.05	.02	.05	.04	.12	.21	.36	.48	.73	.65	.40	.34	.25	.00	3.86

(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)

VERMONT YANKEE JAN 09 - DEC 09 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	0	0	0	2	0	1	1	0	1	1	1	1	2	1	1	1	0	13
(1)	.00	.00	.00	.02	.00	.01	.01	.00	.01	.01	.01	.01	.02	.01	.01	.01	.00	.16
(2)	.00	.00	.00	.02	.00	.01	.01	.00	.01	.01	.01	.01	.02	.01	.01	.01	.00	.16
C-3	189	90	65	75	92	109	151	191	209	251	363	501	473	329	387	415	0	3890
(1)	2.35	1.12	.81	.93	1.14	1.35	1.88	2.37	2.60	3.12	4.51	6.23	5.88	4.09	4.81	5.16	.00	48.34
(2)	2.35	1.12	.81	.93	1.14	1.35	1.88	2.37	2.60	3.12	4.51	6.23	5.88	4.09	4.81	5.16	.00	48.34
4-7	279	78	30	52	83	151	165	276	205	61	41	67	227	192	349	627	0	2883
(1)	3.47	.97	.37	.65	1.03	1.88	2.05	3.43	2.55	.76	.51	.83	2.82	2.39	4.34	7.79	.00	35.83
(2)	3.47	.97	.37	.65	1.03	1.88	2.05	3.43	2.55	.76	.51	.83	2.82	2.39	4.34	7.79	.00	35.83
8-12	130	20	3	1	4	11	13	35	138	33	9	9	87	231	189	161	0	1074
(1)	1.62	.25	.04	.01	.05	.14	.16	.43	1.71	.41	.11	.11	1.08	2.87	2.35	2.00	.00	13.35
(2)	1.62	.25	.04	.01	.05	.14	.16	.43	1.71	.41	.11	.11	1.08	2.87	2.35	2.00	.00	13.35
13-18	33	1	0	0	0	0	1	1	11	2	0	0	1	55	55	20	0	180
(1)	.41	.01	.00	.00	.00	.00	.01	.01	.14	.02	.00	.00	.01	.68	.68	.25	.00	2.24
(2)	.41	.01	.00	.00	.00	.00	.01	.01	.14	.02	.00	.00	.01	.68	.68	.25	.00	2.24
19-24	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	0	0	7
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.05	.00	.00	.09
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.05	.00	.00	.09
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	631	189	98	130	179	272	331	503	564	348	414	578	791	810	985	1224	0	8047
(1)	7.84	2.35	1.22	1.62	2.22	3.38	4.11	6.25	7.01	4.32	5.14	7.18	9.83	10.07	12.24	15.21	.00	100.00
(2)	7.84	2.35	1.22	1.62	2.22	3.38	4.11	6.25	7.01	4.32	5.14	7.18	9.83	10.07	12.24	15.21	.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 G-1: Upper Level Joint Frequency Distribution

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 1.88

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	1	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00	.00	.00	.00	.67
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01
C-3	2	3	5	2	2	1	4	1	1	0	0	0	0	1	2	3	0	27
(1)	1.33	2.00	3.33	1.33	1.33	.67	2.67	.67	.67	.00	.00	.00	.00	.67	1.33	2.00	.00	18.00
(2)	.03	.04	.06	.03	.03	.01	.05	.01	.01	.00	.00	.00	.00	.01	.03	.04	.00	.34
4-7	11	5	2	1	7	19	5	6	4	4	3	0	0	2	2	4	0	75
(1)	7.33	3.33	1.33	.67	4.67	12.67	3.33	4.00	2.67	2.67	2.00	.00	.00	1.33	1.33	2.67	.00	50.00
(2)	.14	.06	.03	.01	.09	.24	.06	.08	.05	.05	.04	.00	.00	.03	.03	.05	.00	.94
8-12	3	1	0	0	1	2	2	2	4	2	1	0	3	1	1	8	0	31
(1)	2.00	.67	.00	.00	.67	1.33	1.33	1.33	2.67	1.33	.67	.00	2.00	.67	.67	5.33	.00	20.67
(2)	.04	.01	.00	.00	.01	.03	.03	.03	.05	.03	.01	.00	.04	.01	.01	.10	.00	.39
13-18	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	5
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.67	.00	.00	2.00	.67	.00	3.33
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.04	.01	.00	.06
19-24	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3	0	5
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.33	.00	.00	2.00	.00	3.33
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.04	.00	.06
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.00	.00	4.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.08	.00	.08
ALL SPEEDS	16	9	7	3	10	22	11	9	9	6	4	1	6	4	8	25	0	150
(1)	10.67	6.00	4.67	2.00	6.67	14.67	7.33	6.00	6.00	4.00	2.67	.67	4.00	2.67	5.33	16.67	.00	100.00
(2)	.20	.11	.09	.04	.13	.28	.14	.11	.11	.08	.05	.01	.08	.05	.10	.31	.00	1.88

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

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 1.66

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	2	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	8
(1)	1.52	1.52	.00	.00	.00	.00	2.27	.76	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.06
(2)	.03	.03	.00	.00	.00	.00	.04	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10
4-7	0	1	0	0	3	4	3	0	2	1	0	0	0	2	1	4	0	21
(1)	.00	.76	.00	.00	2.27	3.03	2.27	.00	1.52	.76	.00	.00	.00	1.52	.76	3.03	.00	15.91
(2)	.00	.01	.00	.00	.04	.05	.04	.00	.03	.01	.00	.00	.00	.03	.01	.05	.00	.26
8-12	6	2	0	0	0	11	8	1	10	1	0	2	2	2	5	17	0	67
(1)	4.55	1.52	.00	.00	.00	8.33	6.06	.76	7.58	.76	.00	1.52	1.52	1.52	3.79	12.88	.00	50.76
(2)	.08	.03	.00	.00	.00	.14	.10	.01	.13	.01	.00	.03	.03	.03	.06	.21	.00	.84
13-18	3	1	1	0	0	0	0	0	0	0	0	0	2	2	4	9	0	22
(1)	2.27	.76	.76	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.52	1.52	3.03	6.82	.00	16.67
(2)	.04	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.03	.05	.11	.00	.28
19-24	0	0	0	0	0	1	0	0	0	0	0	0	6	3	1	1	0	12
(1)	.00	.00	.00	.00	.00	.76	.00	.00	.00	.00	.00	.00	4.55	2.27	.76	.76	.00	9.09
(2)	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.08	.04	.01	.01	.00	.15
GT 24	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	1.52	.00	1.52
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.03
ALL SPEEDS	11	6	1	0	3	16	14	2	12	2	0	2	10	9	11	33	0	132
(1)	8.33	4.55	.76	.00	2.27	12.12	10.61	1.52	9.09	1.52	.00	1.52	7.58	6.82	8.33	25.00	.00	100.00
(2)	.14	.08	.01	.00	.04	.20	.18	.03	.15	.03	.00	.03	.13	.11	.14	.41	.00	1.66

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

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 3.81

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	3	0	0	0	1	1	1	1	1	0	0	0	0	1	0	0	0	9
(1)	.99	.00	.00	.00	.33	.33	.33	.33	.33	.00	.00	.00	.00	.33	.00	.00	.00	2.96
(2)	.04	.00	.00	.00	.01	.01	.01	.01	.01	.00	.00	.00	.00	.01	.00	.00	.00	.11
4-7	16	1	5	4	3	11	11	4	2	0	0	0	1	1	2	13	0	74
(1)	5.26	.33	1.64	1.32	.99	3.62	3.62	1.32	.66	.00	.00	.00	.33	.33	.66	4.28	.00	24.34
(2)	.20	.01	.06	.05	.04	.14	.14	.05	.03	.00	.00	.00	.01	.01	.03	.16	.00	.93
8-12	24	5	0	2	1	13	13	17	9	4	1	1	8	8	1	28	0	135
(1)	7.89	1.64	.00	.66	.33	4.28	4.28	5.59	2.96	1.32	.33	.33	2.63	2.63	.33	9.21	.00	44.41
(2)	.30	.06	.00	.03	.01	.16	.16	.21	.11	.05	.01	.01	.10	.10	.01	.35	.00	1.69
13-18	8	1	1	1	1	5	1	1	15	1	0	2	9	6	3	12	0	67
(1)	2.63	.33	.33	.33	.33	1.64	.33	.33	4.93	.33	.00	.66	2.96	1.97	.99	3.95	.00	22.04
(2)	.10	.01	.01	.01	.01	.06	.01	.01	.19	.01	.00	.03	.11	.08	.04	.15	.00	.84
19-24	3	0	0	0	0	1	0	0	0	0	0	0	5	3	1	2	0	15
(1)	.99	.00	.00	.00	.00	.33	.00	.00	.00	.00	.00	.00	1.64	.99	.33	.66	.00	4.93
(2)	.04	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.06	.04	.01	.03	.00	.19
GT 24	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
(1)	.99	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.33	.00	1.32
(2)	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.05
ALL SPEEDS	57	7	6	7	6	31	26	23	27	5	1	3	23	19	7	56	0	304
(1)	18.75	2.30	1.97	2.30	1.97	10.20	8.55	7.57	8.88	1.64	.33	.99	7.57	6.25	2.30	18.42	.00	100.00
(2)	.72	.09	.08	.09	.08	.39	.33	.29	.34	.06	.01	.04	.29	.24	.09	.70	.00	3.81

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

VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 50.58

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	51	38	37	39	53	39	67	36	18	9	13	10	9	15	29	49	0	512
(1)	1.27	.94	.92	.97	1.31	.97	1.66	.89	.45	.22	.32	.25	.22	.37	.72	1.22	.00	12.70
(2)	.64	.48	.46	.49	.66	.49	.84	.45	.23	.11	.16	.13	.11	.19	.36	.61	.00	6.42
4-7	87	45	28	27	68	84	166	140	78	20	11	22	27	27	46	205	0	1081
(1)	2.16	1.12	.69	.67	1.69	2.08	4.12	3.47	1.94	.50	.27	.55	.67	.67	1.14	5.09	.00	26.82
(2)	1.09	.56	.35	.34	.85	1.05	2.08	1.76	.98	.25	.14	.28	.34	.34	.58	2.57	.00	13.56
8-12	139	36	11	9	21	36	71	145	171	26	18	27	112	110	72	292	0	1296
(1)	3.45	.89	.27	.22	.52	.89	1.76	3.60	4.24	.65	.45	.67	2.78	2.73	1.79	7.24	.00	32.15
(2)	1.74	.45	.14	.11	.26	.45	.89	1.82	2.15	.33	.23	.34	1.41	1.38	.90	3.66	.00	16.26
13-18	91	6	1	1	1	6	3	21	105	12	4	13	98	183	104	194	0	843
(1)	2.26	.15	.02	.02	.02	.15	.07	.52	2.60	.30	.10	.32	2.43	4.54	2.58	4.81	.00	20.91
(2)	1.14	.08	.01	.01	.01	.08	.04	.26	1.32	.15	.05	.16	1.23	2.30	1.30	2.43	.00	10.58
19-24	31	0	0	0	1	1	2	0	22	2	0	0	36	41	35	85	0	256
(1)	.77	.00	.00	.00	.02	.02	.05	.00	.55	.05	.00	.00	.89	1.02	.87	2.11	.00	6.35
(2)	.39	.00	.00	.00	.01	.01	.03	.00	.28	.03	.00	.00	.45	.51	.44	1.07	.00	3.21
GT 24	4	0	0	0	0	0	0	0	1	0	0	0	0	2	16	20	0	43
(1)	.10	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.05	.40	.50	.00	1.07
(2)	.05	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	.20	.25	.00	.54
ALL SPEEDS	403	125	77	76	144	166	309	342	395	69	46	72	282	378	302	845	0	4031
(1)	10.00	3.10	1.91	1.89	3.57	4.12	7.67	8.48	9.80	1.71	1.14	1.79	7.00	9.38	7.49	20.96	.00	100.00
(2)	5.06	1.57	.97	.95	1.81	2.08	3.88	4.29	4.96	.87	.58	.90	3.54	4.74	3.79	10.60	.00	50.58

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 29.55

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	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
(1)	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.08
(2)	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03
C-3	87	61	33	33	63	67	88	52	18	12	8	9	15	11	21	58	0	636
(1)	3.69	2.59	1.40	1.40	2.68	2.85	3.74	2.21	.76	.51	.34	.38	.64	.47	.89	2.46	.00	27.01
(2)	1.09	.77	.41	.41	.79	.84	1.10	.65	.23	.15	.10	.11	.19	.14	.26	.73	.00	7.98
4-7	86	11	7	7	18	25	107	119	53	21	12	16	34	35	35	260	0	846
(1)	3.65	.47	.30	.30	.76	1.06	4.54	5.05	2.25	.89	.51	.68	1.44	1.49	1.49	11.04	.00	35.92
(2)	1.08	.14	.09	.09	.23	.31	1.34	1.49	.66	.26	.15	.20	.43	.44	.44	3.26	.00	10.61
8-12	64	10	1	3	4	6	19	37	57	28	11	20	46	74	38	236	0	654
(1)	2.72	.42	.04	.13	.17	.25	.81	1.57	2.42	1.19	.47	.85	1.95	3.14	1.61	10.02	.00	27.77
(2)	.80	.13	.01	.04	.05	.08	.24	.46	.72	.35	.14	.25	.58	.93	.48	2.96	.00	8.21
13-18	14	1	0	0	0	0	0	3	28	4	3	3	24	33	14	70	0	197
(1)	.59	.04	.00	.00	.00	.00	.00	.13	1.19	.17	.13	.13	1.02	1.40	.59	2.97	.00	8.37
(2)	.18	.01	.00	.00	.00	.00	.00	.04	.35	.05	.04	.04	.30	.41	.18	.88	.00	2.47
19-24	1	0	0	0	0	0	0	0	4	0	0	0	2	5	3	2	0	17
(1)	.04	.00	.00	.00	.00	.00	.00	.00	.17	.00	.00	.00	.08	.21	.13	.08	.00	.72
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.03	.06	.04	.03	.00	.21
GT 24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.08	.00	.13
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.03	.00	.04
ALL SPEEDS	252	83	41	44	85	98	214	211	160	65	34	48	122	158	112	628	0	2355
(1)	10.70	3.52	1.74	1.87	3.61	4.16	9.09	8.96	6.79	2.76	1.44	2.04	5.18	6.71	4.76	26.67	.00	100.00
(2)	3.16	1.04	.51	.55	1.07	1.23	2.69	2.65	2.01	.82	.43	.60	1.53	1.98	1.41	7.88	.00	29.55

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 10.84

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	0	0	0	1	0	0	0	0	0	0	0	0	2
(1)	.12	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.00	.00	.00	.00	.23
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.03
C-3	55	24	22	17	23	15	37	32	14	14	4	7	7	6	17	39	0	333
(1)	6.37	2.78	2.55	1.97	2.66	1.74	4.28	3.70	1.62	1.62	.46	.81	.81	.69	1.97	4.51	.00	38.54
(2)	.69	.30	.28	.21	.29	.19	.46	.40	.18	.18	.05	.09	.09	.08	.21	.49	.00	4.18
4-7	45	6	0	5	7	14	60	42	21	15	16	16	10	14	28	86	0	385
(1)	5.21	.69	.00	.58	.81	1.62	6.94	4.86	2.43	1.74	1.85	1.85	1.16	1.62	3.24	9.95	.00	44.56
(2)	.56	.08	.00	.06	.09	.18	.75	.53	.26	.19	.20	.20	.13	.18	.35	1.08	.00	4.83
8-12	7	1	0	0	0	1	4	8	9	4	6	9	7	10	8	65	0	139
(1)	.81	.12	.00	.00	.00	.12	.46	.93	1.04	.46	.69	1.04	.81	1.16	.93	7.52	.00	16.09
(2)	.09	.01	.00	.00	.00	.01	.05	.10	.11	.05	.08	.11	.09	.13	.10	.82	.00	1.74
13-18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	5
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.46	.00	.58
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.05	.00	.06
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	108	31	22	22	30	30	101	82	45	33	26	32	24	30	54	194	0	864
(1)	12.50	3.59	2.55	2.55	3.47	3.47	11.69	9.49	5.21	3.82	3.01	3.70	2.78	3.47	6.25	22.45	.00	100.00
(2)	1.36	.39	.28	.28	.38	.38	1.27	1.03	.56	.41	.33	.40	.30	.38	.68	2.43	.00	10.84

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VERMONT YANKEE JAN 09 - DEC 09 METEOROLOGICAL DATA JOINT FREQUENCY DISTRIBUTION

297.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 1.68

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	1	0	0	0	0	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.75	.00	.00	.00	.00	.00	.00	.00	.00	.00	.75
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
C-3	1	0	1	0	2	2	2	2	4	0	1	2	0	2	1	4	0	24
(1)	.75	.00	.75	.00	1.49	1.49	1.49	1.49	2.99	.00	.75	1.49	.00	1.49	.75	2.99	.00	17.91
(2)	.01	.00	.01	.00	.03	.03	.03	.03	.05	.00	.01	.03	.00	.03	.01	.05	.00	.30
4-7	6	0	1	1	2	4	10	10	4	5	3	4	6	4	10	8	0	78
(1)	4.48	.00	.75	.75	1.49	2.99	7.46	7.46	2.99	3.73	2.24	2.99	4.48	2.99	7.46	5.97	.00	58.21
(2)	.08	.00	.01	.01	.03	.05	.13	.13	.05	.06	.04	.05	.08	.05	.13	.10	.00	.98
8-12	1	1	0	0	0	0	3	2	2	2	1	2	4	2	3	8	0	31
(1)	.75	.75	.00	.00	.00	.00	2.24	1.49	1.49	1.49	.75	1.49	2.99	1.49	2.24	5.97	.00	23.13
(2)	.01	.01	.00	.00	.00	.00	.04	.03	.03	.03	.01	.03	.05	.03	.04	.10	.00	.39
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	1	2	1	4	6	15	15	10	7	5	8	10	8	14	20	0	134
(1)	5.97	.75	1.49	.75	2.99	4.48	11.19	11.19	7.46	5.22	3.73	5.97	7.46	5.97	10.45	14.93	.00	100.00
(2)	.10	.01	.03	.01	.05	.08	.19	.19	.13	.09	.06	.10	.13	.10	.18	.25	.00	1.68

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VERMONT YANKEE JAN 09 - DEC 09 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	1	0	0	1	0	0	0	1	1	0	0	0	2	0	0	0	0	6
(1)	.01	.00	.00	.01	.00	.00	.00	.01	.01	.00	.00	.00	.03	.00	.00	.00	.00	.08
(2)	.01	.00	.00	.01	.00	.00	.00	.01	.01	.00	.00	.00	.03	.00	.00	.00	.00	.08
C-3	201	128	98	91	144	125	202	125	56	35	26	28	31	36	70	153	0	1549
(1)	2.52	1.61	1.23	1.14	1.81	1.57	2.53	1.57	.70	.44	.33	.35	.39	.45	.88	1.92	.00	19.44
(2)	2.52	1.61	1.23	1.14	1.81	1.57	2.53	1.57	.70	.44	.33	.35	.39	.45	.88	1.92	.00	19.44
4-7	251	69	43	45	108	161	362	321	164	66	45	58	78	85	124	580	0	2560
(1)	3.15	.87	.54	.56	1.36	2.02	4.54	4.03	2.06	.83	.56	.73	.98	1.07	1.56	7.28	.00	32.12
(2)	3.15	.87	.54	.56	1.36	2.02	4.54	4.03	2.06	.83	.56	.73	.98	1.07	1.56	7.28	.00	32.12
8-12	244	56	12	14	27	69	120	212	262	67	38	61	182	207	128	654	0	2353
(1)	3.06	.70	.15	.18	.34	.87	1.51	2.66	3.29	.84	.48	.77	2.28	2.60	1.61	8.21	.00	29.52
(2)	3.06	.70	.15	.18	.34	.87	1.51	2.66	3.29	.84	.48	.77	2.28	2.60	1.61	8.21	.00	29.52
13-18	116	9	3	2	2	11	4	25	148	17	7	19	133	224	129	290	0	1139
(1)	1.46	.11	.04	.03	.03	.14	.05	.31	1.86	.21	.09	.24	1.67	2.81	1.62	3.64	.00	14.29
(2)	1.46	.11	.04	.03	.03	.14	.05	.31	1.86	.21	.09	.24	1.67	2.81	1.62	3.64	.00	14.29
19-24	35	0	0	0	1	3	2	0	26	2	0	0	51	52	40	93	0	305
(1)	.44	.00	.00	.00	.01	.04	.03	.00	.33	.03	.00	.00	.64	.65	.50	1.17	.00	3.83
(2)	.44	.00	.00	.00	.01	.04	.03	.00	.33	.03	.00	.00	.64	.65	.50	1.17	.00	3.83
GT 24	7	0	0	0	0	0	0	0	1	0	0	0	0	2	17	31	0	58
(1)	.09	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	.21	.39	.00	.73
(2)	.09	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	.21	.39	.00	.73
ALL SPEEDS	855	262	156	153	282	369	690	684	658	187	116	166	477	606	508	1801	0	7970
(1)	10.73	3.29	1.96	1.92	3.54	4.63	8.66	8.58	8.26	2.35	1.46	2.08	5.98	7.60	6.37	22.60	.00	100.00
(2)	10.73	3.29	1.96	1.92	3.54	4.63	8.66	8.58	8.26	2.35	1.46	2.08	5.98	7.60	6.37	22.60	.00	100.00

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APPENDIX A

SUPPLEMENTAL INFORMATION

Facility: Vermont Yankee Nuclear Power Station

Licensee: Entergy Nuclear Vermont Yankee

1A. ODCM DOSE AND DOSE RATE LIMITS -

ODCM Controls	Dose Limit
a. Noble Gases	
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. Iodine-131, Iodine-133, Tritium and Radionuclides in Particulate Form With Half-Lives Greater Than 8 Days	
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. Liquids	
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

ODCM Control	Limit
a. Noble Gases	No ECL Limits
b. Iodine-131, Iodine-133, Tritium and Radionuclides in Particulate Form With Half-Lives	
Greater Than 8 Days	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 μCi/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. Iodines

Continuous isokinetic samples are drawn from the plant stack through a particulate filter and charcoal cartridge. The filters and cartridges are normally removed weekly and are analyzed for Iodine-131, 132, 133, 134, and 135. The error involved in these steps may be approximately ±18 percent.

c. Particulates

The particulate filters described in b. above are also counted for particulate radioactivity. The error involved in this sample is also approximately ±18 percent.

d. 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 ±10 percent.

e. Waste Oil

Prior to issuing the permit to burn a drum of radioactively contaminated waste oil, one liter of the oil is analyzed by gamma spectroscopy to determine concentrations of radionuclides that meet or exceed the LLD for all of the liquid phase radionuclides listed in ODCM Table 4.2.1.

Monthly, samples from drums that were issued burn permits are sent to the contracted laboratory for compositing and analysis. The lab analyzes for tritium, alpha, Fe-55, Sr-89, and Sr-90 on the composite sample.

The error involved in this sample is approximately ±15 percent.

f. 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 (μCi/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 2009 there was a continuous release (3rd and 4th quarters) due to an undetected leak from a subsurface structure. The leak condition was identified through monitoring well data in January 2010.

2) For 2009, the total Tritium radioactivity conservatively estimated to be released to the Connecticut River is 0.40 Curies. No other plant-related radionuclides were detected in ground water.

b. Gaseous

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

APPENDIX B

LIQUID HOLDUP TANKS

Requirement: Technical Specification 3.8.D.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 3.8.D.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 3.8.D.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 operable in accordance with ODCM Table 3.1.1. If an inoperable radioactive liquid effluent monitoring instrument is not returned to operable 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 inoperability 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 operable in accordance with ODCM Table 3.1.2. If inoperable gaseous effluent monitoring instrumentation is not returned to operable 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 operability 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 milk samples no longer available from one or more of the sample locations required by ODCM Table 3.5.1, ODCM 10.1 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: No changes were needed in the milk sampling locations as specified in ODCM Table 3.5.1 and implemented in ODCM Table 7.1 during the reporting year.

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 2009. 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.

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 were no changes made to the ODCM during this reporting period.

APPENDIX I

RADIOACTIVE LIQUID, GASEOUS, AND SOLID WASTE TREATMENT SYSTEMS

Requirement: ODCM Section 10.4 requires that licensee initiated major changes to the radioactive waste systems (liquid, gaseous, and solid) be reported to the Commission in the annual Radioactive Effluent Release Report for the period in which the evaluation was reviewed by the Plant Operation Review Committee.

Response: There were no licensee-initiated major changes to the radioactive waste systems during this reporting period.

APPENDIX J

ON-SITE DISPOSAL OF SEPTIC/SILT/SOIL WASTE

Requirement: Off-Site Dose Calculation Manual, Appendices B, F and I require that the dose impact due to on-site disposal of septic waste, cooling tower silt, and sand/soil type materials during the reporting year and from previous years be reported to the Nuclear Regulatory Commission in the annual Radioactive Effluent Report if disposals occur during the reporting year. Entergy Nuclear Vermont Yankee will report in the Annual Radioactive Effluent Release Report a list of the radionuclides present and the total radioactivity associated with the on-site disposal activities on the Vermont Yankee site.

Response: There were two on-site disposal spreading activities of contaminated soil and cooling tower silt during the reporting year – one in June and one in October. The total volume of soil and silt spread in 2009 was 387 cubic yards. The total activity spread on the 1.9 acres (southern) on-site disposal field from 2009 spreading and from previous years was as follows:

Radionuclide	Activity Spread in 2009 (Ci)	Activity from 2009, Plus Activity from All Past Disposals Decayed to 10/19/2009 (Ci)
Mn-54	2.03E-06	1.52E-06
Co-60	6.72E-06	2.07E-05
Zn-65	2.57E-06	1.76E-06
Cs-134	0.00E+00	5.01E-09
Cs-137	2.00E-05	8.61E-05

The maximum organ dose from all past spreading operations, including the material spread in 2009, totaled 1.44E-01 mrem/year. These calculated values are within the 1 mrem/year limit applied during the period of operational control of the site. The projected hypothetical dose for the period following the loss of operational control of the site area due to all spreading operations to-date is 5.23E-01 mrem/year versus a 5 mrem/year dose limit.