VERMONT YANKEE
NUCLEAR POWER CORPORATION

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May 15, 2001
BVY 01-41

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

Reference: (a) Letter, VYNPS to USNRC, "Changes to the Off-site Dose Calculation Manual made during 2000," BVY 01-42, dated May 15, 2001.

Subject: **Vermont Yankee Nuclear Power Station**
License No. DPR-28 (Docket No. 50-271)
2000 Annual Radioactive Effluent Release Report

In accordance with Vermont Yankee (VY) Technical Specification (TS) 6.6.D, attached is a copy of the 2000 Annual Radioactive Effluent Release Report.

In addition, VY TS 6.7.B requires reporting of changes to the Off-site Dose Calculation Manual (ODCM) that were made during 2000. A summary of the changes made in Revisions 26 and 27 of the ODCM is provided in Appendix H of the subject report. Copies of the revised pages of the ODCM associated with Revision 26 and a complete copy through Revision 27 were submitted concurrent with this letter via Reference (a).

We trust that the information provided is adequate; however, should you have questions or require additional information, please contact Mr. David P. Tkatch at (802) 258-5500.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Gautam Sen
Licensing Manager

Attachment

cc: USNRC Region 1 Administrator
USNRC Resident Inspector – VYNPS
USNRC Project Manager – VYNPS
Vermont Department of Public Service
Vermont Division of Occupational and Radiological Health
Massachusetts Metropolitan District Commission
Massachusetts Department of Public Health

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A004

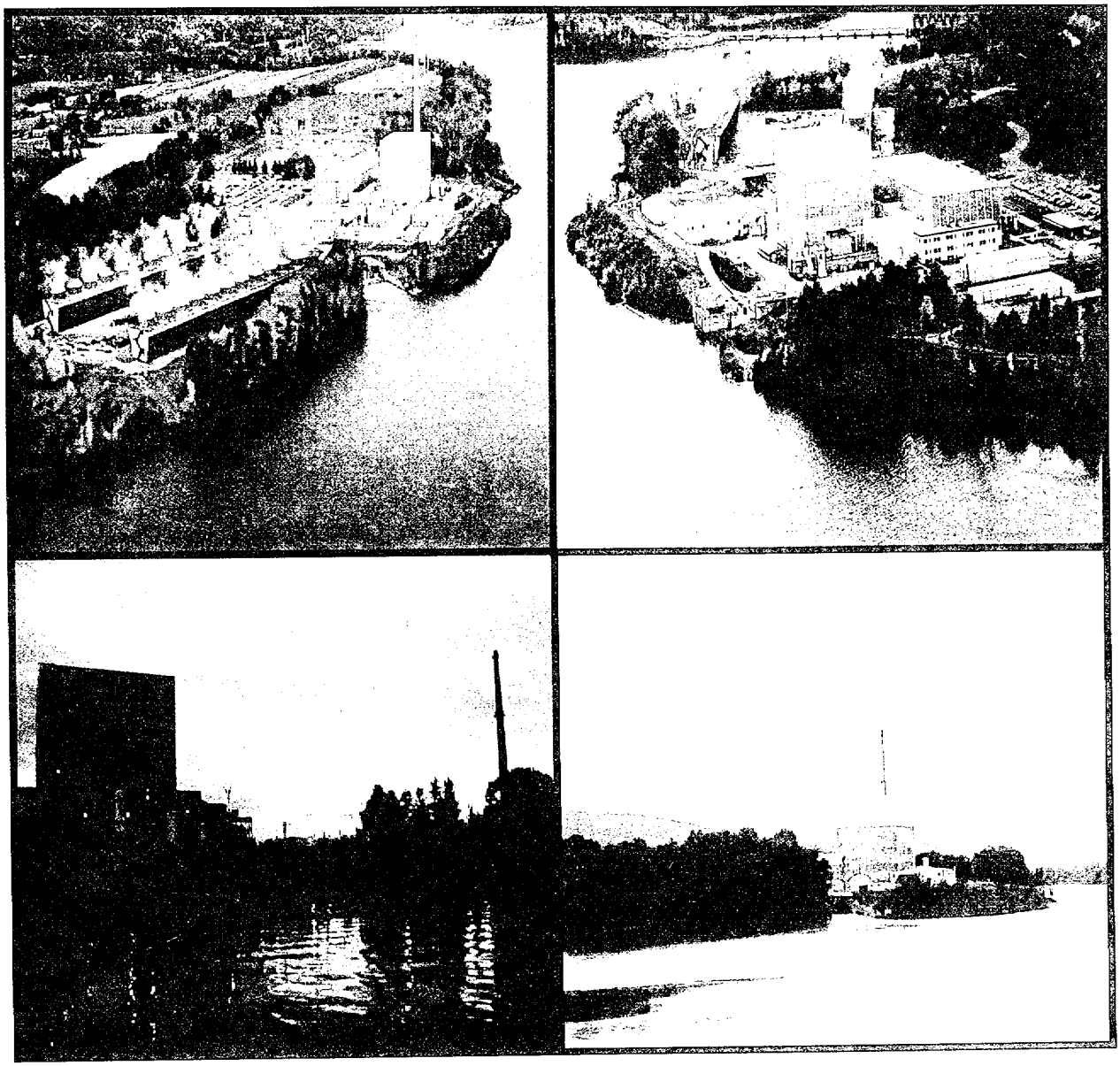
SUMMARY OF VERMONT YANKEE COMMITMENTS

BVY NO.: 01-41

The following table identifies commitments made in this document by Vermont Yankee. Any other actions discussed in the submittal represent intended or planned actions by Vermont Yankee. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager of any questions regarding this document or any associated commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"
None	N/A

Vermont Yankee Nuclear Power Station
Vernon, Vermont



2000 Radioactive Effluent Release Report

RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2000 INCLUDING ANNUAL RADIOLOGICAL IMPACT ON MAN

Vermont Yankee Nuclear Power Station

May 2001

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LIST OF TABLES

RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2000
[INCLUDING ANNUAL RADIOLOGICAL IMPACT ON MAN]

1.0 INTRODUCTION

Tables 1 through 3 list the recorded radioactive liquid and gaseous effluents and solid waste 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 2000 in response to the ALARA objectives of 10CFR50, Appendix I. Also included on 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 2000. Radioactive effluents reported in Tables 1 and 2 were used to determine the resulting doses for 2000.

As required by Technical Specification 6.6.D and ODCM Section 10.1, dose commitments resulting from the release of radioactive materials in liquids and gases during the reporting period were estimated in accordance with the "Vermont Yankee Nuclear Power Station 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 3) and actual measured meteorological data recorded during the 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. For this reporting period, the only recreational activity permitted was employee access to a boat launching ramp adjacent to the intake structure. The assessment of recreational activities is described 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 3.4.1, "Total Dose," have been exceeded during the year. Since the conditions indicated in the action statement under ODCM 3.4.1 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 this 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 Technical Specification 6.7.B.1.c, Technical Requirements Manual (TRM) Section 6.12.A.1, and ODCM Section 10.1.

2.0 METEOROLOGICAL DATA

Meteorological data was collected during this reporting period from the site's 300-foot met 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.

X/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 1). A source depletion model as described in "Meteorology and Atomic Energy - 1968" (Reference 2) 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 2000 land use census. These locations were used in the calculation of atmospheric dispersion factors.

3.0 DOSE ASSESSMENT

3.1 Doses From Liquid Effluents

The Offsite Dose Calculation Manual (ODCM) Control 3/4.2.2 limits total body (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, Control 3/4.2.2 assures that the release of radioactive material in liquid effluents will be kept "as low as is reasonably achievable."

For periods in which liquid waste discharges actually occur, the exposure pathways that could exist are fish, direct exposure from river shoreline sedimentation, milk and meat via animal ingestion of the Connecticut River water, and meat, milk and vegetable pathways via crop irrigation with water withdrawn from the Connecticut River. The drinking water and aquatic invertebrate pathways do not exist down river of the Vermont Yankee plant.

There were no recorded liquid radioactive waste discharges during the report period, and therefore, no dose impact.

3.2 Doses From Noble Gases

ODCM Control 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, Control 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, nearest resident in each of the sixteen principal compass directions, the point of highest off-site ground level air concentration of radioactive materials, and for each of the milk animal locations located within five miles of the plant.

The maximum estimated air doses at or beyond the site boundary from noble gas effluents for 2000 are listed in Table 4A. The maximum annual dose commitments to the nearest resident (40CFR190) from noble gas effluents for 2000 are included in the gas pathway dose assessment in Table 4B. These dose estimates are based on dose modeling which follows the guidance of the NRC Regulatory Guide 1.109 Revision 1.

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

ODCM Control 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 Control 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. 26, Reference 3). During the first and fourth quarters, the milk animals are assumed to receive only stored feed. 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 Control 3/4.3.3.

The maximum estimated doses to members of the public from iodines and air particulate effluents for 2000 are listed in Table 4A. The maximum annual dose commitments to the nearest resident (40CFR190) from iodines and air particulate gas effluents for 2000 are included in the gas pathway of Table 4B. These dose estimates are

based on dose modeling which follows the guidance of the NRC Regulatory Guide 1.109 Revision 1.

3.4 Whole-Body Doses in Unrestricted Areas From Direct Radiation

The major source of direct radiation and skyshine from the fixed station sources is due to N-16 decay in the Turbine Building. 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.

High Pressure Ionization Chamber (HPIC) measurements have been made in the plant area in order to estimate the direct radiation from the station. The chamber was located at a point along the west site boundary, which has been determined to receive the maximum direct radiation from the plant. Using measurements of dose rate made while the plant operated at different power levels, from shutdown to 100 percent, the total integrated dose from direct radiation over each three month period was determined by considering the quarterly gross megawatts generated. Field measurements of exposure, in units of Roentgen, were modified by multiplying by 0.6 to obtain whole-body dose equivalents, in units of rem, in accordance with recommendations of HASL Report 305 (Reference 4) for radiation fields resulting from N-16 photons.

The other fixed sources contributing direct radiation and skyshine to the site boundary are from low level radioactive waste 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 three storage facilities and determined at the same most restrictive site boundary dose location as that for N-16 decay from the Turbine Building.

The estimated direct radiation dose from all major sources combined for the most limiting site boundary location is listed on 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 and effluent release doses at the limiting nearest residence for the purpose of demonstrating compliance with the dose standards contained in 40CFR190. For direct radiation, no credit for actual occupancy time is taken (i.e., occupancy is equal to 100%).

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

Off-Site Dose Calculation Manual, Appendices B and F, require that all applications of septage and the cooling tower silt within the approved designated on site 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 other sand/soil is given in Appendix J of this report.

3.6 On-Site Recreational Activities

During the summer of 2000, limited access to a boat launching ramp located on-site just north of the intake structure was permitted for employees, their families and guests. An assessment of the Thermoluminescent Dosimeters (TLD's) situated at the boat launch, on the boat launch access gate and along the access road to the boat launch were used to estimate the direct radiation exposure rate for this recreational activity. Security access records show 11 days to be the highest amount of usage for a single individual. A usage factor of 132 hours/year was calculated using a conservative occupancy rate of 12 hours/day. Most visits were 6 hours or less in duration. The shoreline recreational usage factor in Regulatory Guide 1.109 (Table E-5), is 67 hours/year. The calculated shoreline recreational usage factor of 132 hours/year was applied to the highest TLD since it is more conservative than the regulatory guide value. The resulting individual dose is estimated to be 1.3 mrem. This is considered conservative since the TLD results at the boat ramp (most probable occupancy location) were more than three times lower than the TLD along the access road as used in this calculation. There was no significant gaseous inhalation or ground deposition contribution to dose since the close proximity of the ramp area to the 94 meter tall plant stack kept gaseous effluents well over head.

REFERENCES

1. 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.

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

3. 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 1, October 1977.

4. W. M. Lowder, P. D. Raft, and G. dePlanque Burke, "Determination of N-16 Gamma Radiation Fields at BWR Nuclear Power Stations," Health and Safety Laboratory, Energy Research and Development

TABLE 1A
Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2000
Gaseous Effluents - Summation of All Releases

		Unit	Quarter 1	Quarter 2	Est. Total Error, %
A.	Fission and Activation Gases				
1.	Total release	Ci	0.00E+00	0.00E+00	±2.30E+01
2.	Average release rate for period	µCi/sec	0.00E+00	0.00E+00	
3.	Percent of ODCM limit (1)	%	0.00E+00	0.00E+00	
B.	Iodines				
1.	Total Iodine	Ci	2.73E-04	1.61E-04	±1.80E+01
2.	Average release rate for period	µCi/sec	3.47E-05	2.05E-05	
3.	Percent of ODCM limit (2)	%	1.28E-02	1.32E-02	
C.	Particulates				
1.	Particulates with T-1/2>8 days	Ci	9.26E-05	1.12E-05	±1.80E+01
2.	Average release rate for period	µCi/sec	1.18E-05	1.42E-06	
3.	Percent of ODCM limit (3)	%	(3)	(3)	
4.	Gross alpha radioactivity	Ci	2.24E-06	7.31E-07	
D.	Tritium				
1.	Total release	Ci	4.09E+00	3.47E+00	±1.80E+01
2.	Average release rate for period	µCi/sec	5.20E-1	4.41E-01	
3.	Percent of ODCM limit (3)	%	(3)	(3)	

(1) ODCM Control 3.3.2. for the most limiting of beta air or gamma air dose.
(2) ODCM Control 3.3.3. for dose from I-131, I-133, Tritium, and radionuclides in particulate form.
(3) Per ODCM Control 3.3.3, dose contribution from Tritium and particulates are included with Iodine above in Part B.

TABLE 1A
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2000
Gaseous Effluents - Summation of All Releases

	Unit	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and Activation Gases				
1. Total release	Ci	7.57E+00	0.00E+00	±2.30E+01
2. Average release rate for period	µCi/sec	9.63E-01	0.00E+00	
3. Percent of ODCM limit (1)	%	2.22E-01	0.00E+00	
B. Iodines				
1. Total Iodine	Ci	1.93E-04	1.49E-05	±1.80E+01
2. Average release rate for period	µCi/sec	2.45E-05	1.90E-06	
3. Percent of ODCM limit (2)	%	3.35E-02	1.22E-02	
C. Particulates				
1. Particulates with T-1/2>8 days	Ci	3.19E-06	1.65E-04	±1.80E+01
2. Average release rate for period	µCi/sec	4.06E-07	2.10E-05	
3. Percent of ODCM limit (3)	%	(3)	(3)	
4. Gross alpha radioactivity	Ci	0.00E+00	0.00E+00	
D. Tritium				
1. Total release	Ci	3.79E+00	4.03E+00	±1.50E+01
2. Average release rate for period	µCi/sec	4.82E-01	5.13E-01	
3. Percent of ODCM limit (3)	%	(3)	(3)	

(1) ODCM Control 3.3.2. for the most limiting of beta air or gamma air dose.
(2) ODCM Control 3.3.3. for dose from 1-131, 1-133, Tritium, and radionuclides in particulate form.
(3) Per ODCM Control 3.3.3, dose contribution from Tritium and particulates are included with Iodine above in Part B.

TABLE lB

Vermont Yankee

Effluent and Waste Disposal Annual Report

First and Second Quarters, 2000

Gaseous Effluents - Elevated Releases

	Continuous Mode			Batch Mode (1)	
		Quarter		Quarter	
Nuclides Released	Units	1	2	1	2
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**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
2. Iodines					
Iodine-131	Ci	3.16E-05	1.04E-05		
Iodine-133	Ci	2.41E-04	1.51E-04		
Iodine-135	Ci	ND	ND		
Total for Period	**Ci**	**2.73E-04**	**1.61E-04**	**0.00E+00**	**0.00E+00**
3. Particulates					
Strontium-89	Ci	ND	1.12E-05		
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	7.10E-05	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**	**7.10E-05**	**1.12E-05**	**0.00E+00**	**0.00E+00**

(1) There were no batch mode gaseous releases for this reporting period.
ND Not Detected at the plant stack

TABLE lB
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2000
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	ND	
Krypton-85m	Ci	ND	ND	1.21E-01	
Krypton-87	Ci	ND	ND	6.92E-01	
Krypton-88	Ci	ND	ND	4.11E-01	
Xenon-133	Ci	ND	ND	5.40E-02	
Xenon-133m	Ci	ND	ND	ND	
Xenon-135	Ci	ND	ND	8.85E-01	
Xenon-135m	Ci	ND	ND	1.22E+00	
Xenon-138	Ci	ND	ND	4.19E+00	
Unidentified	Ci	ND	ND	ND	
Total for Period	**Ci**	**0.00E+00**	**0.00E+00**	**7.57E+00**	**0.00E+00**
2. Iodines					
Iodine-131	Ci	3.73E-05	1.49E-05		
Iodine-133	Ci	1.56E-04	ND		
Iodine-135	Ci	ND	ND		
Total for Period	**Ci**	**1.93E-04**	**1.49E-05**	**0.00E+00**	**0.00E+00**
3. Particulates					
Strontium-89	Ci	ND	3.90E-05		
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	1.02E-04		
Cobalt-58	Ci	ND	ND		
Cobalt-60	Ci	ND	ND		
Cerium-141	Ci	3.19E-06	ND		
Zinc-65	Ci	ND	2.41E-05		
Total for Period	**Ci**	**3.19E-06**	**1.65E-04**	**0.00E+00**	**0.00E+00**

ND Not Detected at the Plant Stack

TABLE 1C

Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2000
Gaseous Effluents .Ground Level Releases [2]

		Continuous Mode		Batch Mode	
		Quarter		Quarter	
Nuclides Released	Units	1(1)(2)	2	1	2
1. Fission Gases					
Krypton-85	Ci	ND			
Krypton-85m	Ci				
Krypton-87	Ci	ND			
Krypton-88	Ci	ND			
Xenon-133	Ci	ND			
Xenon-135	Ci	ND			
Xenon-135m	Ci	ND			
Xenon-138	Ci	ND			
Unidentified	Ci	ND			
Total for Period	**Ci**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
2. Iodines					
Iodine-131	Ci	ND			
Iodine-133	Ci	ND			
Iodine-I 35	Ci	ND			
Total for Period	**Ci**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
3. Particulates					
Strontium-89	Ci	ND			
Strontium-90	Ci	ND			
Cesium-134	Ci	ND			
Cesium- 137	Ci	5.68E-06			
Barium-Lanthanum-140	Ci	ND			
Manganese-54	Ci	1.18E-06			
Chromium-51	Ci	ND			
Cobalt-58	Ci	ND			
Cobalt-60	Ci	1.09E-05			
Cerium-141	Ci	ND			
Zinc-65	Ci	3.79E-06			
Iron-55	Cl	ND			
Total for Period	**Ci**	**2.16E-05**	**0.00E+00**	**0.00E+00**	**0.00E+00**

(1) Burning of used oil was treated as a continuous release for the first quarter. Used oil was burned only in the first quarter.
(2) The North Warehouse stack was used as a ground level release point for burning of used oil.
ND Not detected in the used oil sample.

TABLE lC
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2000
Gaseous Effluents - Ground Level Releases

		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**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
2. Iodines					
Iodine-131	Ci				
Iodine-133	Ci				
Iodine-135	Ci				
Total for Period	**Ci**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
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**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

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

TABLE 1D
Vermont Yankee
Effluent and Waste Disposal Annual Report
for 2000
Gaseous Effluents - Nonroutine Releases

There were no nonroutine or accidental gaseous releases during this reporting period.

TABLE 2A
Vermont Yankee
Effluent and Waste Disposal Annual Report
for 2000
Liquid Effluents .Summation of All Releases

There were no liquid releases during this reporting period.

TABLE 2B
Vermont Yankee
Effluent and Waste Disposal Annual Report
for 2000
Liquid Effluents Nonroutine Releases

There were no nonroutine or accidental liquid releases during this reporting period.

TABLE 3

Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2000
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	1ST and 2ND Quarters 2000	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m3 Ci	9.7E+00 4.02E+01	±2.50E+01
b. Dry compressible waste, contaminated equipment, etc.	m3 Ci	None	±2.50E+01
c. Irradiated components, control rods, etc.:	m3 Ci	None	±2.50E+01

Shipped from Processor(s) for Burial or Disposal	Unit	1ST and 2ND Quarters 2000	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m3 Ci	None	±2.50E+01
b. Dry compressible waste, contaminated equipment, etc.	m3 Ci	8.2E+00 1.16E+00	±2.50E+01
c. Irradiated components, control rods, etc.:	m3 Ci	None	±2.50E+01

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

a. Spent resins, filter sludges, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.	
Isotope	Percent (1)	Isotope	Percent (1)
Zinc-65	% 2.10E+01	Iron-55	% 7.40E+01
Cesium-137	% 1.30E+01	Zinc-65	% 3.00E+00
Cobalt-60	% 1.80E+01	Cobalt-60	% 1.30E+01
Cesium-134	% 1.00E+00	Manganese-54	% 5.00E+00
Manganese-54	% 1.00E+01	Cesium-137	% 2.00E+00
Iron-55	% 2.60E+01		

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

Note: Sections A.1. and A.2. above do not include the data for the waste shipments from VY to the processors. The data for this waste will be included in the report that covers the year that this waste is shipped from the processor for burial or disposal.

TABLE 3
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
First and Second Quarters, 2000
Solid Waste and Irradiated Fuel Shipments

3. Disposition of solid waste shipments (1st and 2nd Quarters)

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
2	X		Truck		CNS, Inc. Barnwell, SC
24		X	Truck		Envirocare Clive, UT
1	X		Truck	GTS Duratek Oak Ridge, TN	

B. Irradiated Fuel Shipments (Disposition): None

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

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	1 A	0 A 2 B	A (quantity of containers not required)
Type of containers used	1 Strong Tight	2 Type A	Strong Tight (quantity of containers not required)
Solidification agent or absorbent	None	None	None

TABLE 3
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2000
Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (not irradiated fuel)

1. Type of Waste

Shipped from VY for Burial or Disposal	Unit	3rd and 4th Quarters 2000	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m3 Ci	1.93E+01 5.23E+01	±2.50E+01
b. Dry compressible waste, contaminated equipment, etc.	m3 Ci	None	±2.50E+01
c. Irradiated components, control rods, etc.	m3 Ci	6.00E+00 2.31E+04	±2.50E+01

Shipped from Processor(s) for Burial or Disposal	Unit	3rd and 4th Quarters 2000	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m3 Ci	None	±2.50E+01
b. Dry compressible waste, contaminated equipment, etc.	m3 Ci	1.37E+01 5.00E-01	±2.50E+01
c. Irradiated components, control rods, etc.	m3 Ci	None	±2.50E+01

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

a. Spent resins, filter sludges, evaporator bottoms, etc.		b. Dry compressible waste, contaminated equipment, etc.		c. Irradiated components, control rods, etc.	
Isotope	Percent (1)	Isotope	Percent (1)	Isotope	Percent (1)
Zinc-65	% 2.10E+01	Iron-55	% 7.40E+01	Iron-55	% 4.10E+01
Cesium-137	% 1.30E+01	Zinc-65	% 3.00E+00	Manganese-54	% 1.00E+00
Cobalt-60	% 1.80E+01	Cobalt-60	% 1.30E+01	Cobalt-60	% 5.50E+01
Cesium-134	% 1.00E+00	Manganese-54	% 5.00E+00	Nickel-63	% 3.00E+00
Manganese-54	% 1.00E+01	Cesium-137	% 2.00E+00		
Iron-55	% 2.60E+01				

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

Note: Sections A.1. and A.2. above do not include the data for the shipments from VY to the processors. The data for this waste will be included in the report that covers the year that this waste is shipped from the processor for burial or disposal.

TABLE 3
(Continued)

Vermont Yankee
Effluent and Waste Disposal Annual Report
Third and Fourth Quarters, 2000
Solid Waste and Irradiated Fuel Shipments

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

Number of Shipments	From VY	From Processor	Mode of Transportation	Destination	
				Processor	Burial or Disposal
6	X		Truck		CNS, Inc. Barnwell, SC
19		X	Truck		Envirocare Clive, UT
2	X		Truck	GTS Duratek Oak Ridge, TN	

B. Irradiated Fuel Shipments (Disposition): None

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

Supplemental Information	Shipments from VY to Processors	Shipments from VY for Burial or Disposal	Shipments from Processors for Burial or Disposal
Class of solid waste shipped	2 A	3 A 1 B 2 C	A (quantity of containers not required)
Type of containers used	2 Strong Tight	4 Type A 2 Type B	Strong Tight (quantity of containers not required)
Solidification agent or absorbent	None	None	None

TABLE 4A
Vermont Yankee
Maximum* Off-Site Doses/Dose Commitments to Members of the Public
from Liquid and Gaseous Effluents for 2000
(10CFR50, Appendix I)

Source	Dose (mrem)[a]				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year[b]
Liquid Effluents					
Total Body Dose					
Footnotes	(c)	(c)	(c)	(c)	(c)
Organ Dose					
Footnotes	(c)	(c)	(c)	(c)	(c)
Airborne Effluents					
Iodines and Particulates	9.62E-04	9.92E-04	2.51E-03	9.18E-04	5.38E-03
Footnotes	(1)	(2)	(2)	(3)	
Noble Gases					
Beta Air (mrad)	--	--	1.90E-03	--	1.90E-03
Footnotes	(d)	(d)	(4)	(d)	
Gamma Air (mrad)	--	--	1.11E-02	--	1.11E-02
Footnotes	(d)	(d)	(5)	(d)	
Direct Radiation					
See Section 3.4	4.44	4.32	4.26	4.48	17.5 (**)

* "Maximum" means the largest fraction of the corresponding 10CFR50, Appendix I dose design objective.

** Maximum direct dose point on the West Site Boundary fenceline.

(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 this quarter.

(d) There were no detectable noble gas releases in this quarter.

(1) CHILD/ THYROID/ NW/ 2900 meters
(2) INFANT/ THYROID/ NW/ 4260 meters
(3) CHILD/ THYROID/ NW/ 2600 meters
(4) SSE/ 600 meters
(5) WNW/ 2400 meters

TABLE 4B
Vermont Yankee
Maximum Annual Dose Commitments from Direct External Radiation,
Plus Liquid and Gaseous Effluents for 2000(*)
(40CFR190)

Pathway	Total Body (mrem)	Maximum Organ (mrem)	Thyroid (mrem)
Direct External (a)	*13.6*	*13.6*	*13.6*
Liquids	*(c)*	*(c)*	*(c)*
Gases	*7.23E-05*	*1.42E-04 (d)*	*5.04E-05*
Annual Total (b)	*13.6*	*13.6*	*13.6*

(*) 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 plant stack.

(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) 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.

(c) There was no liquid release in 2000.

(d) Maximum dose to any organ over all age groups.

TABLE 4C
Receptor Locations for Vermont Yankee

Sector	Site Boundary [1] (Meters)	Nearest Resident[2] (Meters)	Nearest Milk Animal[2] Within 10 km (Meters)
N	400	1470	--
NNE	350	1400	5520 (Cows)
NE	350	1250	--
ENE	400	970	--
E	500	930	--
ESE	700	2830	--
SE	750	1970	3600 (cows)
SSE	850	2050	5240 (cows)
S	385	450	2220 (cows)
SSW	300	450	--
SW	250	410	8200 (cows)
WSW	250	450	9590 (goats)
W	300	620	820 (goats)
WNW	400	1060	7530 (cows)
NW	550	2600	4260 (cows)
NNW	550	2600	--

(1) Vermont Yankee UFSAR Figure 2.2-5.

(2) The location(s) given are based on data from the Vermont Yankee 2000 Land Use Census relative to the plant stack. Gardens are assumed to be present at all resident locations.

TABLE 4D

Usage Factors for Various Gaseous Pathways at Vermont Yankee

(From Reference 1, Table E-5[1])

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

(1) Regulatory Guide 1.109.

TABLE 4E
Environmental Parameters for Gaseous Effluents at 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[e](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]			0.50		0.50		0.50	
FS	Fraction Pasture Feed When on Pasture[c]			1		1		1	

Note: Footnotes on following page.

TABLE 4E
(Continued)
Environmental Parameters for Gaseous Effluents at 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)]								

(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 (nongrowing 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 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.)

(e) Variable T is a combination of variables TF and TS in Regulatory Guide 1.109, Revision 1.

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
321	Table 5A																	
322	Stability Class 5A																	
323	Class Frequency = 0.61%																	
324	Upper Data Collection Station (297 ft)																	
325																		
326	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
327	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
328	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
329	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
330	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
331	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
332	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
333																		
334	GT 0.95 and LE 3.50	0	2	1	0	0	2	1	0	1	0	1	0	1	0	2	0	11
335	% of all valid observations for this stability class	0.00	3.77	1.89	0.00	0.00	3.77	1.89	0.00	1.89	0.00	1.89	0.00	1.89	0.00	3.77	0.00	20.75
336	% of all valid observations for this period	0.00	0.02	0.01	0.00	0.00	0.02	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.13
337																		
338	GT 3.50 and LE 7.50	2	0	0	1	0	0	4	1	0	0	0	0	0	0	0	2	10
339	% of all valid observations for this stability class	3.77	0.00	0.00	1.89	0.00	0.00	7.55	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.77	18.87
340	% of all valid observations for this period	0.02	0.00	0.00	0.01	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.12
341																		
342	GT 7.50 and LE 12.50	5	2	1	0	0	0	0	0	0	0	0	0	1	0	0	7	16
343	% of all valid observations for this stability class	9.43	3.77	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	0.00	13.21	30.19
344	% of all valid observations for this period	0.06	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.19
345																		
346	GT 12.50 and LE 18.50	3	0	0	0	0	0	0	0	0	0	0	0	1	1	1	7	13
347	% of all valid observations for this stability class	5.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	1.89	1.89	13.21	24.53
348	% of all valid observations for this period	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.08	0.15
349																		
350	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3
351	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00	3.77	5.66
352	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.03
353																		
354	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
355	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
356	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
357																		
358	All Velocities	10	4	2	1	0	2	5	1	1	0	1	0	3	2	3	18	53
359	% of all valid observations for this stability class	18.87	7.55	3.77	1.89	0.00	3.77	9.43	1.89	1.89	0.00	1.89	0.00	5.66	3.77	5.66	33.96	100.00
360	% of all valid observations for this period	0.12	0.05	0.02	0.01	0.00	0.02	0.06	0.01	0.01	0.00	0.01	0.00	0.03	0.02	0.03	0.21	0.61

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
361	Table 5B																	
362	Stability Class 5B																	
363	Class Frequency = 1.02%																	
364	Upper Data Collection Station (297 ft)																	
365																		
366	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
367	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
368	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
369	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
370	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
371	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
372	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
373																		
374	GT 0.95 and LE 3.50	0	0	0	0	0	1	0	2	0	1	0	0	0	0	0	0	4
375	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	1.14	0.00	2.27	0.00	1.14	0.00	0.00	0.00	0.00	0.00	0.00	4.55
376	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.05
377																		
378	GT 3.50 and LE 7.50	2	0	0	0	0	0	2	0	2	0	0	0	0	0	2	6	14
379	% of all valid observations for this stability class	2.27	0.00	0.00	0.00	0.00	0.00	2.27	0.00	2.27	0.00	0.00	0.00	0.00	0.00	2.27	6.82	15.91
380	% of all valid observations for this period	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.16
381																		
382	GT 7.50 and LE 12.50	3	0	0	0	0	0	0	0	0	0	0	0	2	0	3	17	25
383	% of all valid observations for this stability class	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.00	3.41	19.32	28.41
384	% of all valid observations for this period	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.20	0.29
385																		
386	GT 12.50 and LE 18.50	5	0	0	0	0	0	0	0	4	0	0	1	2	1	2	12	27
387	% of all valid observations for this stability class	5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.55	0.00	0.00	1.14	2.27	1.14	2.27	13.64	30.68
388	% of all valid observations for this period	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.02	0.01	0.02	0.14	0.31
389																		
390	GT 18.50 and LE 24.50	1	0	0	0	0	0	0	0	2	0	0	1	0	4	2	3	13
391	% of all valid observations for this stability class	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.27	0.00	0.00	1.14	0.00	4.55	2.27	3.41	14.77
392	% of all valid observations for this period	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.05	0.02	0.03	0.15
393																		
394	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
395	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.68	5.68
396	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06
397																		
398	All Velocities	11	0	0	0	0	1	2	2	8	1	0	2	4	5	9	43	88
399	% of all valid observations for this stability class	12.50	0.00	0.00	0.00	0.00	1.14	2.27	2.27	9.09	1.14	0.00	2.27	4.55	5.68	10.23	48.86	100.00
400	% of all valid observations for this period	0.13	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.09	0.01	0.00	0.02	0.05	0.06	0.10	0.50	1.02

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
401	Table 5C																	
402	Stability Class 5C																	
403	Class Frequency = 2.31%																	
404	Upper Data Collection Station (297 ft)																	
405																		
406	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
407	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
408	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
409	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
410	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
411	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
412	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
413																		
414	GT 0.95 and LE 3.50	2	0	0	0	0	1	2	1	0	0	1	0	1	0	0	1	9
415	% of all valid observations for this stability class	1.00	0.00	0.00	0.00	0.00	0.50	1.00	0.50	0.00	0.00	0.50	0.00	0.50	0.00	0.00	0.50	4.50
416	% of all valid observations for this period	0.02	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.10
417																		
418	GT 3.50 and LE 7.50	6	0	1	0	1	0	0	2	2	1	0	0	0	3	3	18	37
419	% of all valid observations for this stability class	3.00	0.00	0.50	0.00	0.50	0.00	0.00	1.00	1.00	0.50	0.00	0.00	0.00	1.50	1.50	9.00	18.50
420	% of all valid observations for this period	0.07	0.00	0.01	0.00	0.01	0.00	0.00	0.02	0.02	0.01	0.00	0.00	0.00	0.03	0.03	0.21	0.43
421																		
422	GT 7.50 and LE 12.50	10	0	0	0	0	2	4	5	6	1	0	2	4	6	3	17	60
423	% of all valid observations for this stability class	5.00	0.00	0.00	0.00	0.00	1.00	2.00	2.50	3.00	0.50	0.00	1.00	2.00	3.00	1.50	8.50	30.00
424	% of all valid observations for this period	0.12	0.00	0.00	0.00	0.00	0.02	0.05	0.06	0.07	0.01	0.00	0.02	0.05	0.07	0.03	0.20	0.69
425																		
426	GT 12.50 and LE 18.50	9	0	0	0	0	0	0	1	8	1	0	0	3	10	8	19	59
427	% of all valid observations for this stability class	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.50	4.00	0.50	0.00	0.00	1.50	5.00	4.00	9.50	29.50
428	% of all valid observations for this period	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.01	0.00	0.00	0.03	0.12	0.09	0.22	0.68
429																		
430	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	1	1	0	1	2	7	3	13	28
431	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.50	1.00	3.50	1.50	6.50	14.00
432	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.02	0.08	0.03	0.15	0.32
433																		
434	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
435	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	3.50
436	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
437																		
438	All Velocities	27	0	1	0	1	3	6	9	17	4	1	3	10	26	17	75	200
439	% of all valid observations for this stability class	13.50	0.00	0.50	0.00	0.50	1.50	3.00	4.50	8.50	2.00	0.50	1.50	5.00	13.00	8.50	37.50	100.00
440	% of all valid observations for this period	0.31	0.00	0.01	0.00	0.01	0.03	0.07	0.10	0.20	0.05	0.01	0.03	0.12	0.30	0.20	0.87	2.31

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
441	Table 5D																	
442	Stability Class 5D																	
443	Class Frequency = 53.25%																	
444	Upper Data Collection Station (297 ft)																	
445																		
446	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
447	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
448	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
449	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
450	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
451	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
452	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
453																		
454	GT 0.95 and LE 3.50	67	36	33	31	37	61	74	60	29	20	14	9	16	24	31	60	602
455	% of all valid observations for this stability class	1.46	0.78	0.72	0.67	0.80	1.33	1.61	1.30	0.63	0.43	0.30	0.20	0.35	0.52	0.67	1.30	13.08
456	% of all valid observations for this period	0.78	0.42	0.38	0.36	0.43	0.71	0.86	0.69	0.34	0.23	0.16	0.10	0.19	0.28	0.36	0.69	6.97
457																		
458	GT 3.50 and LE 7.50	134	46	33	36	62	77	171	153	124	22	11	10	18	27	27	204	1155
459	% of all valid observations for this stability class	2.91	1.00	0.72	0.78	1.35	1.67	3.72	3.32	2.69	0.48	0.24	0.22	0.39	0.59	0.59	4.43	25.10
460	% of all valid observations for this period	1.55	0.53	0.38	0.42	0.72	0.89	1.98	1.77	1.43	0.25	0.13	0.12	0.21	0.31	0.31	2.36	13.36
461																		
462	GT 7.50 and LE 12.50	196	39	9	12	23	50	100	138	228	51	18	30	55	126	68	232	1375
463	% of all valid observations for this stability class	4.26	0.85	0.20	0.26	0.50	1.09	2.17	3.00	4.95	1.11	0.39	0.65	1.20	2.74	1.48	5.04	29.88
464	% of all valid observations for this period	2.27	0.45	0.10	0.14	0.27	0.58	1.16	1.60	2.64	0.59	0.21	0.35	0.64	1.46	0.79	2.68	15.91
465																		
466	GT 12.50 and LE 18.50	176	17	3	1	4	6	13	10	98	23	7	24	57	187	86	286	998
467	% of all valid observations for this stability class	3.82	0.37	0.07	0.02	0.09	0.13	0.28	0.22	2.13	0.50	0.15	0.52	1.24	4.06	1.87	6.21	21.69
468	% of all valid observations for this period	2.04	0.20	0.03	0.01	0.05	0.07	0.15	0.12	1.13	0.27	0.08	0.28	0.66	2.16	1.00	3.31	11.55
469																		
470	GT 18.50 and LE 24.50	80	1	0	0	0	1	0	1	28	3	0	3	17	64	39	145	382
471	% of all valid observations for this stability class	1.74	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.61	0.07	0.00	0.07	0.37	1.39	0.85	3.15	8.30
472	% of all valid observations for this period	0.93	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.32	0.03	0.00	0.03	0.20	0.74	0.45	1.68	4.42
473																		
474	GT 24.50	11	0	0	0	0	0	0	0	3	0	0	0	2	6	14	54	90
475	% of all valid observations for this stability class	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.04	0.13	0.30	1.17	1.96
476	% of all valid observations for this period	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.07	0.16	0.62	1.04
477																		
478	All Velocities	664	139	78	80	126	195	358	362	510	119	50	76	165	434	265	981	4602
479	% of all valid observations for this stability class	14.43	3.02	1.69	1.74	2.74	4.24	7.78	7.87	11.08	2.59	1.09	1.65	3.59	9.43	5.76	21.32	100.00
480	% of all valid observations for this period	7.68	1.61	0.90	0.93	1.46	2.26	4.14	4.19	5.90	1.38	0.58	0.88	1.91	5.02	3.07	11.35	53.25

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
481	Table 5E																	
482	Stability Class 5E																	
483	Class Frequency = 30.51%																	
484	Upper Data Collection Station (297 ft)																	
485																		
486	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
487	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
488	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
489	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
490	GE 0.00 and LE 0.95	1	1	3	0	0	0	0	2	1	1	2	0	1	1	1	0	14
491	% of all valid observations for this stability class	0.04	0.04	0.11	0.00	0.00	0.00	0.00	0.08	0.04	0.04	0.08	0.00	0.04	0.04	0.04	0.00	0.53
492	% of all valid observations for this period	0.01	0.01	0.03	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.02	0.00	0.01	0.01	0.01	0.00	0.16
493																		
494	GT 0.95 and LE 3.50	103	66	53	50	57	64	80	61	47	16	21	11	9	19	25	60	742
495	% of all valid observations for this stability class	3.91	2.50	2.01	1.90	2.16	2.43	3.03	2.31	1.78	0.61	0.80	0.42	0.34	0.72	0.95	2.28	28.14
496	% of all valid observations for this period	1.19	0.76	0.61	0.58	0.66	0.74	0.93	0.71	0.54	0.19	0.24	0.13	0.10	0.22	0.29	0.69	8.59
497																		
498	GT 3.50 and LE 7.50	153	26	12	3	12	36	106	158	86	16	13	17	21	36	36	204	935
499	% of all valid observations for this stability class	5.80	0.99	0.46	0.11	0.46	1.37	4.02	5.99	3.26	0.61	0.49	0.64	0.80	1.37	1.37	7.74	35.46
500	% of all valid observations for this period	1.77	0.30	0.14	0.03	0.14	0.42	1.23	1.83	1.00	0.19	0.15	0.20	0.24	0.42	0.42	2.36	10.82
501																		
502	GT 7.50 and LE 12.50	89	12	0	2	1	4	24	48	68	23	9	6	38	78	43	222	667
503	% of all valid observations for this stability class	3.38	0.46	0.00	0.08	0.04	0.15	0.91	1.82	2.58	0.87	0.34	0.23	1.44	2.96	1.63	8.42	25.29
504	% of all valid observations for this period	1.03	0.14	0.00	0.02	0.01	0.05	0.28	0.56	0.79	0.27	0.10	0.07	0.44	0.90	0.50	2.57	7.72
505																		
506	GT 12.50 and LE 18.50	41	0	0	1	0	1	3	3	19	20	4	3	16	37	24	65	237
507	% of all valid observations for this stability class	1.55	0.00	0.00	0.04	0.00	0.04	0.11	0.11	0.72	0.76	0.15	0.11	0.61	1.40	0.91	2.46	8.99
508	% of all valid observations for this period	0.47	0.00	0.00	0.01	0.00	0.01	0.03	0.03	0.22	0.23	0.05	0.03	0.19	0.43	0.28	0.75	2.74
509																		
510	GT 18.50 and LE 24.50	8	0	0	0	0	1	0	0	3	4	1	0	1	6	0	16	40
511	% of all valid observations for this stability class	0.30	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.11	0.15	0.04	0.00	0.04	0.23	0.00	0.61	1.52
512	% of all valid observations for this period	0.09	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.05	0.01	0.00	0.01	0.07	0.00	0.19	0.46
513																		
514	GT 24.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2
515	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.08
516	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02
517																		
518	All Velocities	395	105	68	56	70	106	213	272	225	80	50	37	86	177	130	567	2637
519	% of all valid observations for this stability class	14.98	3.98	2.58	2.12	2.65	4.02	8.08	10.31	8.53	3.03	1.90	1.40	3.26	6.71	4.93	21.50	100.00
520	% of all valid observations for this period	4.57	1.21	0.79	0.65	0.81	1.23	2.46	3.15	2.60	0.93	0.58	0.43	1.00	2.05	1.50	6.56	30.51

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
521	Table 5F																	
522	Stability Class 5F																	
523	Class Frequency = 10.72%																	
524	Upper Data Collection Station (297 ft)																	
525																		
526	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
527	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
528	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
529	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
530	GE 0.00 and LE 0.95	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	1	4
531	% of all valid observations for this stability class	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.11	0.11	0.43
532	% of all valid observations for this period	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.05
533																		
534	GT 0.95 and LE 3.50	47	39	23	15	28	29	43	45	26	17	9	5	14	8	22	33	403
535	% of all valid observations for this stability class	5.08	4.21	2.48	1.62	3.02	3.13	4.64	4.86	2.81	1.84	0.97	0.54	1.51	0.86	2.38	3.56	43.52
536	% of all valid observations for this period	0.54	0.45	0.27	0.17	0.32	0.34	0.50	0.52	0.30	0.20	0.10	0.06	0.16	0.09	0.25	0.38	4.66
537																		
538	GT 3.50 and LE 7.50	50	5	0	1	5	17	50	49	24	12	12	13	12	13	24	82	369
539	% of all valid observations for this stability class	5.40	0.54	0.00	0.11	0.54	1.84	5.40	5.29	2.59	1.30	1.30	1.40	1.30	1.40	2.59	8.86	39.85
540	% of all valid observations for this period	0.58	0.06	0.00	0.01	0.06	0.20	0.58	0.57	0.28	0.14	0.14	0.15	0.14	0.15	0.28	0.95	4.27
541																		
542	GT 7.50 and LE 12.50	10	0	0	0	0	0	13	14	14	9	6	7	7	14	11	35	140
543	% of all valid observations for this stability class	1.08	0.00	0.00	0.00	0.00	0.00	1.40	1.51	1.51	0.97	0.65	0.76	0.76	1.51	1.19	3.78	15.12
544	% of all valid observations for this period	0.12	0.00	0.00	0.00	0.00	0.00	0.15	0.16	0.16	0.10	0.07	0.08	0.08	0.16	0.13	0.40	1.62
545																		
546	GT 12.50 and LE 18.50	1	0	0	0	0	0	0	0	1	1	0	0	1	0	1	5	10
547	% of all valid observations for this stability class	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.11	0.00	0.11	0.54	1.08
548	% of all valid observations for this period	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.06	0.12
549																		
550	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
551	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
552	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
553																		
554	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
555	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
556	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
557																		
558	All Velocities	108	44	23	17	33	46	106	108	65	40	27	25	34	35	59	156	926
559	% of all valid observations for this stability class	11.66	4.75	2.48	1.84	3.56	4.97	11.45	11.66	7.02	4.32	2.92	2.70	3.67	3.78	6.37	16.85	100.00
560	% of all valid observations for this period	1.25	0.51	0.27	0.20	0.38	0.53	1.23	1.25	0.75	0.46	0.31	0.29	0.39	0.40	0.68	1.81	10.72

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
561	Table 5G																	
562	Stability Class 5G																	
563	Class Frequency = 1.57%																	
564	Upper Data Collection Station (297 ft)																	
565																		
566	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
567	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
568	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
569	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
570	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
571	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
572	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
573																		
574	GT 0.95 and LE 3.50	2	1	2	0	4	5	2	1	2	1	1	0	2	2	1	2	28
575	% of all valid observations for this stability class	1.47	0.74	1.47	0.00	2.94	3.68	1.47	0.74	1.47	0.74	0.74	0.00	1.47	1.47	0.74	1.47	20.59
576	% of all valid observations for this period	0.02	0.01	0.02	0.00	0.05	0.06	0.02	0.01	0.02	0.01	0.01	0.00	0.02	0.02	0.01	0.02	0.32
577																		
578	GT 3.50 and LE 7.50	5	3	0	0	1	2	11	14	7	9	3	4	2	2	4	6	73
579	% of all valid observations for this stability class	3.68	2.21	0.00	0.00	0.74	1.47	8.09	10.29	5.15	6.62	2.21	2.94	1.47	1.47	2.94	4.41	53.68
580	% of all valid observations for this period	0.06	0.03	0.00	0.00	0.01	0.02	0.13	0.16	0.08	0.10	0.03	0.05	0.02	0.02	0.05	0.07	0.84
581																		
582	GT 7.50 and LE 12.50	0	2	0	0	0	0	2	1	0	0	3	1	2	4	3	10	28
583	% of all valid observations for this stability class	0.00	1.47	0.00	0.00	0.00	0.00	1.47	0.74	0.00	0.00	2.21	0.74	1.47	2.94	2.21	7.35	20.59
584	% of all valid observations for this period	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.03	0.01	0.02	0.05	0.03	0.12	0.32
585																		
586	GT 12.50 and LE 18.50	0	0	0	0	0	0	0	0	3	0	0	1	1	0	0	1	6
587	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.21	0.00	0.00	0.74	0.74	0.00	0.00	0.74	4.41
588	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.07
589																		
590	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
591	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74
592	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
593																		
594	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
595	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
596	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
597																		
598	All Velocities	7	6	2	0	5	7	15	16	13	10	7	6	7	8	8	19	136
599	% of all valid observations for this stability class	5.15	4.41	1.47	0.00	3.68	5.15	11.03	11.76	9.56	7.35	5.15	4.41	5.15	5.88	5.88	13.97	100.00
600	% of all valid observations for this period	0.08	0.07	0.02	0.00	0.06	0.08	0.17	0.19	0.15	0.12	0.08	0.07	0.08	0.09	0.09	0.22	1.57

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
601	Table 5ALL																	
602	Stability Class 5ALL																	
603	Class Frequency = 100.00%																	
604	Upper Data Collection Station (297 ft)																	
605																		
606	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
607	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
608	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
609	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
610	GE 0.00 and LE 0.95	1	1	3	1	0	0	0	2	1	2	2	0	1	1	2	1	18
611	% of all valid observations for this stability class	0.01	0.01	0.03	0.01	0.00	0.00	0.00	0.02	0.01	0.02	0.02	0.00	0.01	0.01	0.02	0.01	0.21
612	% of all valid observations for this period	0.01	0.01	0.03	0.01	0.00	0.00	0.00	0.02	0.01	0.02	0.02	0.00	0.01	0.01	0.02	0.01	0.21
613																		
614	GT 0.95 and LE 3.50	221	144	112	96	126	163	202	170	105	55	47	25	43	53	81	156	1799
615	% of all valid observations for this stability class	2.56	1.67	1.30	1.11	1.46	1.89	2.34	1.97	1.21	0.64	0.54	0.29	0.50	0.61	0.94	1.81	20.82
616	% of all valid observations for this period	2.56	1.67	1.30	1.11	1.46	1.89	2.34	1.97	1.21	0.64	0.54	0.29	0.50	0.61	0.94	1.81	20.82
617																		
618	GT 3.50 and LE 7.50	352	80	46	41	81	132	344	377	245	60	39	44	53	81	96	522	2593
619	% of all valid observations for this stability class	4.07	0.93	0.53	0.47	0.94	1.53	3.98	4.36	2.83	0.69	0.45	0.51	0.61	0.94	1.11	6.04	30.00
620	% of all valid observations for this period	4.07	0.93	0.53	0.47	0.94	1.53	3.98	4.36	2.83	0.69	0.45	0.51	0.61	0.94	1.11	6.04	30.00
621																		
622	GT 7.50 and LE 12.50	313	55	10	14	24	56	143	206	316	84	36	46	109	228	131	540	2311
623	% of all valid observations for this stability class	3.62	0.64	0.12	0.16	0.28	0.65	1.65	2.38	3.66	0.97	0.42	0.53	1.26	2.64	1.52	6.25	26.74
624	% of all valid observations for this period	3.62	0.64	0.12	0.16	0.28	0.65	1.65	2.38	3.66	0.97	0.42	0.53	1.26	2.64	1.52	6.25	26.74
625																		
626	GT 12.50 and LE 18.50	235	17	3	2	4	7	16	14	133	45	11	29	81	236	122	395	1350
627	% of all valid observations for this stability class	2.72	0.20	0.03	0.02	0.05	0.08	0.19	0.16	1.54	0.52	0.13	0.34	0.94	2.73	1.41	4.57	15.62
628	% of all valid observations for this period	2.72	0.20	0.03	0.02	0.05	0.08	0.19	0.16	1.54	0.52	0.13	0.34	0.94	2.73	1.41	4.57	15.62
629																		
630	GT 18.50 and LE 24.50	89	1	0	0	0	2	0	1	35	8	1	5	20	82	44	179	467
631	% of all valid observations for this stability class	1.03	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.40	0.09	0.01	0.06	0.23	0.95	0.51	2.07	5.40
632	% of all valid observations for this period	1.03	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.40	0.09	0.01	0.06	0.23	0.95	0.51	2.07	5.40
633																		
634	GT 24.50	11	0	0	0	0	0	0	0	4	0	0	0	2	6	15	66	104
635	% of all valid observations for this stability class	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.02	0.07	0.17	0.76	1.20
636	% of all valid observations for this period	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.02	0.07	0.17	0.76	1.20
637																		
638	All Velocities	1222	298	174	154	235	360	705	770	839	254	136	149	309	687	491	1859	8642
639	% of all valid observations for this stability class	14.14	3.45	2.01	1.78	2.72	4.17	8.16	8.91	9.71	2.94	1.57	1.72	3.58	7.95	5.68	21.51	100.00
640	% of all valid observations for this period	14.14	3.45	2.01	1.78	2.72	4.17	8.16	8.91	9.71	2.94	1.57	1.72	3.58	7.95	5.68	21.51	100.00

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Table 6A																	
2	Stability Class 6A																	
3	Class Frequency = 3.73%																	
4	Lower Data Collection Station (35 ft)																	
5																		
6	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
7	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
9	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
10	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13																		
14	GT 0.95 and LE 3.50	1	0	0	0	1	2	0	0	0	1	0	0	0	0	0	0	5
15	% of all valid observations for this stability class	0.31	0.00	0.00	0.00	0.31	0.62	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	1.55
16	% of all valid observations for this period	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.06
17																		
18	GT 3.50 and LE 7.50	42	5	1	0	3	4	6	10	10	1	0	1	4	4	14	50	155
19	% of all valid observations for this stability class	13.04	1.55	0.31	0.00	0.93	1.24	1.86	3.11	3.11	0.31	0.00	0.31	1.24	1.24	4.35	15.53	48.14
20	% of all valid observations for this period	0.49	0.06	0.01	0.00	0.03	0.05	0.07	0.12	0.12	0.01	0.00	0.01	0.05	0.05	0.16	0.58	1.79
21																		
22	GT 7.50 and LE 12.50	17	3	0	0	2	1	0	4	16	7	1	1	13	14	11	39	129
23	% of all valid observations for this stability class	5.28	0.93	0.00	0.00	0.62	0.31	0.00	1.24	4.97	2.17	0.31	0.31	4.04	4.35	3.42	12.11	40.06
24	% of all valid observations for this period	0.20	0.03	0.00	0.00	0.02	0.01	0.00	0.05	0.19	0.08	0.01	0.01	0.15	0.16	0.13	0.45	1.49
25																		
26	GT 12.50 and LE 18.50	2	0	0	0	0	0	0	0	4	0	0	0	4	10	4	7	31
27	% of all valid observations for this stability class	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.00	0.00	1.24	3.11	1.24	2.17	9.63
28	% of all valid observations for this period	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.12	0.05	0.08	0.36
29																		
30	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
31	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.62
32	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
33																		
34	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37																		
38	All Velocities	62	8	1	0	6	7	6	14	30	9	1	2	21	30	29	96	322
39	% of all valid observations for this stability class	19.25	2.48	0.31	0.00	1.86	2.17	1.86	4.35	9.32	2.80	0.31	0.62	6.52	9.32	9.01	29.81	100.00
40	% of all valid observations for this period	0.72	0.09	0.01	0.00	0.07	0.08	0.07	0.16	0.35	0.10	0.01	0.02	0.24	0.35	0.34	1.11	3.73

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
41	Table 6B																	
42	Stability Class 6B																	
43	Class Frequency = 1.75%																	
44	Lower Data Collection Station (35 ft)																	
45																		
46	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
47	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
48	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
49	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
50	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53																		
54	GT 0.95 and LE 3.50	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	5
55	% of all valid observations for this stability class	1.32	0.00	0.66	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	3.31
56	% of all valid observations for this period	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06
57																		
58	GT 3.50 and LE 7.50	11	5	1	0	3	3	5	10	8	1	1	0	4	7	6	10	75
59	% of all valid observations for this stability class	7.28	3.31	0.66	0.00	1.99	1.99	3.31	6.62	5.30	0.66	0.66	0.00	2.65	4.64	3.97	6.62	49.67
60	% of all valid observations for this period	0.13	0.06	0.01	0.00	0.03	0.03	0.06	0.12	0.09	0.01	0.01	0.00	0.05	0.08	0.07	0.12	0.87
61																		
62	GT 7.50 and LE 12.50	10	8	0	0	1	1	0	1	8	1	0	0	3	6	3	10	52
63	% of all valid observations for this stability class	6.62	5.30	0.00	0.00	0.66	0.66	0.00	0.66	5.30	0.66	0.00	0.00	1.99	3.97	1.99	6.62	34.44
64	% of all valid observations for this period	0.12	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.09	0.01	0.00	0.00	0.03	0.07	0.03	0.12	0.60
65																		
66	GT 12.50 and LE 18.50	5	0	0	0	0	0	0	0	4	0	0	1	1	5	2	1	19
67	% of all valid observations for this stability class	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	0.00	0.00	0.66	0.66	3.31	1.32	0.66	12.58
68	% of all valid observations for this period	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01	0.01	0.06	0.02	0.01	0.22
69																		
70	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73																		
74	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77																		
78	All Velocities	28	13	2	1	4	4	5	11	20	2	1	1	8	18	11	22	151
79	% of all valid observations for this stability class	18.54	8.61	1.32	0.66	2.65	2.65	3.31	7.28	13.25	1.32	0.66	0.66	5.30	11.92	7.28	14.57	100.00
80	% of all valid observations for this period	0.32	0.15	0.02	0.01	0.05	0.05	0.06	0.13	0.23	0.02	0.01	0.01	0.09	0.21	0.13	0.25	1.75

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
81	Table 6C																	
82	Stability Class 6C																	
83	Class Frequency = 4.67%																	
84	Lower Data Collection Station (35 ft)																	
85																		
86	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
87	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
88	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
89	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
90	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
93																		
94	GT 0.95 and LE 3.50	7	4	5	3	2	1	5	6	3	2	0	0	1	0	0	6	45
95	% of all valid observations for this stability class	1.73	0.99	1.24	0.74	0.50	0.25	1.24	1.49	0.74	0.50	0.00	0.00	0.25	0.00	0.00	1.49	11.14
96	% of all valid observations for this period	0.08	0.05	0.06	0.03	0.02	0.01	0.06	0.07	0.03	0.02	0.00	0.00	0.01	0.00	0.00	0.07	0.52
97																		
98	GT 3.50 and LE 7.50	24	14	5	4	8	17	26	19	34	4	2	3	8	14	13	30	223
99	% of all valid observations for this stability class	5.94	3.47	1.24	0.99	1.98	4.21	6.44	4.70	8.42	0.99	0.50	0.74	1.49	3.47	3.22	7.43	55.20
100	% of all valid observations for this period	0.28	0.16	0.06	0.05	0.09	0.20	0.30	0.22	0.39	0.05	0.02	0.03	0.07	0.16	0.15	0.35	2.58
101																		
102	GT 7.50 and LE 12.50	19	5	1	0	0	2	0	2	12	9	5	0	2	26	13	13	109
103	% of all valid observations for this stability class	4.70	1.24	0.25	0.00	0.00	0.50	0.00	0.50	2.97	2.23	1.24	0.00	0.50	6.44	3.22	3.22	26.98
104	% of all valid observations for this period	0.22	0.06	0.01	0.00	0.00	0.02	0.00	0.02	0.14	0.10	0.06	0.00	0.02	0.30	0.15	0.15	1.26
105																		
106	GT 12.50 and LE 18.50	5	2	0	0	0	0	0	0	3	0	1	0	1	7	4	3	26
107	% of all valid observations for this stability class	1.24	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.25	0.00	0.25	1.73	0.99	0.74	6.44
108	% of all valid observations for this period	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.08	0.05	0.03	0.30
109																		
110	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
111	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.25
112	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
113																		
114	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
116	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117																		
118	All Velocities	55	25	11	7	10	20	31	27	52	15	8	3	10	48	30	52	404
119	% of all valid observations for this stability class	13.61	6.19	2.72	1.73	2.48	4.95	7.67	6.68	12.87	3.71	1.98	0.74	2.48	11.88	7.43	12.87	100.00
120	% of all valid observations for this period	0.64	0.29	0.13	0.08	0.12	0.23	0.36	0.31	0.60	0.17	0.09	0.03	0.12	0.56	0.35	0.60	4.67

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
121	Table 6D																	
122	Stability Class 6D																	
123	Class Frequency = 47.60%																	
124	Lower Data Collection Station (35 ft)																	
125																		
126	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
127	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
128	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
129	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
130	GE 0.00 and LE 0.95	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	1	4
131	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.10
132	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.05
133																		
134	GT 0.95 and LE 3.50	129	62	61	74	75	96	79	101	89	63	48	30	42	55	88	164	1256
135	% of all valid observations for this stability class	3.14	1.51	1.48	1.80	1.82	2.33	1.92	2.46	2.16	1.53	1.17	0.73	1.02	1.34	2.14	3.99	30.53
136	% of all valid observations for this period	1.49	0.72	0.71	0.86	0.87	1.11	0.91	1.17	1.03	0.73	0.56	0.35	0.49	0.64	1.02	1.90	14.53
137																		
138	GT 3.50 and LE 7.50	233	70	42	41	70	154	83	138	175	50	27	30	82	83	127	350	1755
139	% of all valid observations for this stability class	5.66	1.70	1.02	1.00	1.70	3.74	2.02	3.35	4.25	1.22	0.66	0.73	1.99	2.02	3.09	8.51	42.66
140	% of all valid observations for this period	2.70	0.81	0.49	0.47	0.81	1.78	0.96	1.60	2.02	0.58	0.31	0.35	0.95	0.96	1.47	4.05	20.31
141																		
142	GT 7.50 and LE 12.50	173	43	1	2	6	12	0	7	102	29	7	22	52	152	105	182	895
143	% of all valid observations for this stability class	4.21	1.05	0.02	0.05	0.15	0.29	0.00	0.17	2.48	0.70	0.17	0.53	1.26	3.69	2.55	4.42	21.75
144	% of all valid observations for this period	2.00	0.50	0.01	0.02	0.07	0.14	0.00	0.08	1.18	0.34	0.08	0.25	0.60	1.76	1.21	2.11	10.36
145																		
146	GT 12.50 and LE 18.50	27	6	0	0	0	1	0	0	18	9	0	0	11	56	42	21	191
147	% of all valid observations for this stability class	0.66	0.15	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.22	0.00	0.00	0.27	1.36	1.02	0.51	4.64
148	% of all valid observations for this period	0.31	0.07	0.00	0.00	0.00	0.01	0.00	0.00	0.21	0.10	0.00	0.00	0.13	0.65	0.49	0.24	2.21
149																		
150	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	0	12
151	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.19	0.00	0.29
152	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00	0.14
153																		
154	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
155	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
156	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
157																		
158	All Velocities	562	181	104	117	151	264	162	247	384	151	82	83	187	350	371	718	4114
159	% of all valid observations for this stability class	13.66	4.40	2.53	2.84	3.67	6.42	3.94	6.00	9.33	3.67	1.99	2.02	4.55	8.51	9.02	17.45	100.00
160	% of all valid observations for this period	6.50	2.09	1.20	1.35	1.75	3.05	1.87	2.86	4.44	1.75	0.95	0.96	2.16	4.05	4.29	8.31	47.60

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
161	Table 6E																	
162	Stability Class 6E																	
163	Class Frequency = 27.27%																	
164	Lower Data Collection Station (35 ft)																	
165																		
166	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
167	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
168	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
169	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
170	GE 0.00 and LE 0.95	0	0	2	0	1	0	1	0	1	1	4	1	0	1	0	0	12
171	% of all valid observations for this stability class	0.00	0.00	0.08	0.00	0.04	0.00	0.04	0.00	0.04	0.04	0.17	0.04	0.00	0.04	0.00	0.00	0.51
172	% of all valid observations for this period	0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.05	0.01	0.00	0.01	0.00	0.00	0.14
173																		
174	GT 0.95 and LE 3.50	76	32	18	33	28	32	45	57	91	125	168	183	156	138	173	142	1497
175	% of all valid observations for this stability class	3.22	1.36	0.76	1.40	1.19	1.36	1.91	2.42	3.86	5.30	7.13	7.76	6.62	5.85	7.34	6.02	63.51
176	% of all valid observations for this period	0.88	0.37	0.21	0.38	0.32	0.37	0.52	0.66	1.05	1.45	1.94	2.12	1.81	1.60	2.00	1.64	17.32
177																		
178	GT 3.50 and LE 7.50	52	9	2	3	6	23	32	40	58	32	11	32	56	79	131	146	712
179	% of all valid observations for this stability class	2.21	0.38	0.08	0.13	0.25	0.98	1.36	1.70	2.46	1.36	0.47	1.36	2.38	3.35	5.56	6.19	30.21
180	% of all valid observations for this period	0.60	0.10	0.02	0.03	0.07	0.27	0.37	0.46	0.67	0.37	0.13	0.37	0.65	0.91	1.52	1.69	8.24
181																		
182	GT 7.50 and LE 12.50	12	0	0	0	0	2	0	4	22	18	3	1	4	25	18	17	126
183	% of all valid observations for this stability class	0.51	0.00	0.00	0.00	0.00	0.08	0.00	0.17	0.93	0.76	0.13	0.04	0.17	1.06	0.76	0.72	5.35
184	% of all valid observations for this period	0.14	0.00	0.00	0.00	0.00	0.02	0.00	0.05	0.25	0.21	0.03	0.01	0.05	0.29	0.21	0.20	1.46
185																		
186	GT 12.50 and LE 18.50	0	0	0	0	0	0	0	0	3	0	1	0	1	2	2	0	9
187	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.04	0.00	0.04	0.08	0.08	0.00	0.38
188	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.02	0.02	0.00	0.10
189																		
190	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
191	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04
192	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
193																		
194	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
197																		
198	All Velocities	140	41	22	36	35	57	78	101	175	176	187	217	217	246	324	305	2357
199	% of all valid observations for this stability class	5.94	1.74	0.93	1.53	1.48	2.42	3.31	4.29	7.42	7.47	7.93	9.21	9.21	10.44	13.75	12.94	100.00
200	% of all valid observations for this period	1.62	0.47	0.25	0.42	0.40	0.66	0.90	1.17	2.02	2.04	2.16	2.51	2.51	2.85	3.75	3.53	27.27

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
201	Table 6F																	
202	Stability Class 6F																	
203	Class Frequency = 11.91%																	
204	Lower Data Collection Station (35 ft)																	
205																		
206	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
207	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
208	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
209	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
210	GE 0.00 and LE 0.95	1	1	2	1	0	0	0	0	0	0	0	0	1	0	2	0	8
211	% of all valid observations for this stability class	0.10	0.10	0.19	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.19	0.00	0.78
212	% of all valid observations for this period	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.09
213																		
214	GT 0.95 and LE 3.50	14	16	13	11	11	15	19	14	59	75	172	201	132	96	63	31	942
215	% of all valid observations for this stability class	1.36	1.55	1.26	1.07	1.07	1.46	1.85	1.36	5.73	7.29	16.72	19.53	12.83	9.33	6.12	3.01	91.55
216	% of all valid observations for this period	0.16	0.19	0.15	0.13	0.13	0.17	0.22	0.16	0.68	0.87	1.99	2.33	1.53	1.11	0.73	0.36	10.90
217																		
218	GT 3.50 and LE 7.50	1	1	0	0	0	1	2	4	10	11	6	5	5	7	14	6	73
219	% of all valid observations for this stability class	0.10	0.10	0.00	0.00	0.00	0.10	0.19	0.39	0.97	1.07	0.58	0.49	0.49	0.68	1.36	0.58	7.09
220	% of all valid observations for this period	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.05	0.12	0.13	0.07	0.06	0.06	0.08	0.16	0.07	0.84
221																		
222	GT 7.50 and LE 12.50	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
223	% of all valid observations for this stability class	0.49	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58
224	% of all valid observations for this period	0.06	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
225																		
226	GT 12.50 and LE 18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
227	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
228	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
229																		
230	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
232	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
233																		
234	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
236	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
237																		
238	All Velocities	21	18	15	12	11	17	21	18	69	86	178	206	138	103	79	37	1029
239	% of all valid observations for this stability class	2.04	1.75	1.46	1.17	1.07	1.65	2.04	1.75	6.71	8.36	17.30	20.02	13.41	10.01	7.68	3.60	100.00
240	% of all valid observations for this period	0.24	0.21	0.17	0.14	0.13	0.20	0.24	0.21	0.80	1.00	2.06	2.38	1.60	1.19	0.91	0.43	11.91

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
241	Table 6G																	
242	Stability Class 6G																	
243	Class Frequency = 3.07%																	
244	Lower Data Collection Station (35 ft)																	
245																		
246	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
247	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
248	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
249	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
250	GE 0.00 and LE 0.95	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
251	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.00	0.75
252	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02
253																		
254	GT 0.95 and LE 3.50	13	4	1	1	2	3	5	7	28	28	50	32	24	16	21	7	242
255	% of all valid observations for this stability class	4.91	1.51	0.38	0.38	0.75	1.13	1.89	2.64	10.57	10.57	18.87	12.08	9.06	6.04	7.92	2.64	91.32
256	% of all valid observations for this period	0.15	0.05	0.01	0.01	0.02	0.03	0.06	0.08	0.32	0.32	0.58	0.37	0.28	0.19	0.24	0.08	2.80
257																		
258	GT 3.50 and LE 7.50	2	0	0	1	0	1	0	1	1	2	4	0	2	1	4	1	20
259	% of all valid observations for this stability class	0.75	0.00	0.00	0.38	0.00	0.38	0.00	0.38	0.38	0.75	1.51	0.00	0.75	0.38	1.51	0.38	7.55
260	% of all valid observations for this period	0.02	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.05	0.00	0.02	0.01	0.05	0.01	0.23
261																		
262	GT 7.50 and LE 12.50	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
263	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.38
264	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
265																		
266	GT 12.50 and LE 18.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
267	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
268	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
269																		
270	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
271	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
272	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
273																		
274	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
275	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
276	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
277																		
278	All Velocities	15	4	1	2	2	4	5	8	29	30	56	33	26	17	25	8	265
279	% of all valid observations for this stability class	5.66	1.51	0.38	0.75	0.75	1.51	1.89	3.02	10.94	11.32	21.13	12.45	9.81	6.42	9.43	3.02	100.00
280	% of all valid observations for this period	0.17	0.05	0.01	0.02	0.02	0.05	0.06	0.09	0.34	0.35	0.65	0.38	0.30	0.20	0.29	0.09	3.07

Joint Frequency Distribution Table

January 01, 2000 to December 31, 2000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
281	Table 6ALL																	
282	Stability Class 6ALL																	
283	Class Frequency = 100.00%																	
284	Lower Data Collection Station (35 ft)																	
285																		
286	Wind From This Direction ->	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Total
287	Index ->	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
288	Direction (Deg) GE ->	348.75	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	0
289	VELOCITY (MPH) and LT ->	11.25	33.75	56.25	78.75	101.25	123.75	146.25	168.75	191.25	213.75	236.25	258.75	281.25	303.75	326.25	348.75	360
290	GE 0.00 and LE 0.95	1	1	4	1	1	1	1	1	1	1	5	3	1	1	2	1	26
291	% of all valid observations for this stability class	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.02	0.01	0.30
292	% of all valid observations for this period	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.03	0.01	0.01	0.02	0.01	0.30
293																		
294	GT 0.95 and LE 3.50	242	118	99	123	119	149	153	185	270	294	438	446	355	305	345	351	3992
295	% of all valid observations for this stability class	2.80	1.37	1.15	1.42	1.38	1.72	1.77	2.14	3.12	3.40	5.07	5.16	4.11	3.53	3.99	4.06	46.19
296	% of all valid observations for this period	2.80	1.37	1.15	1.42	1.38	1.72	1.77	2.14	3.12	3.40	5.07	5.16	4.11	3.53	3.99	4.06	46.19
297																		
298	GT 3.50 and LE 7.50	365	104	51	49	90	203	154	222	296	101	51	71	159	195	309	593	3013
299	% of all valid observations for this stability class	4.22	1.20	0.59	0.57	1.04	2.35	1.78	2.57	3.43	1.17	0.59	0.82	1.84	2.26	3.58	6.86	34.86
300	% of all valid observations for this period	4.22	1.20	0.59	0.57	1.04	2.35	1.78	2.57	3.43	1.17	0.59	0.82	1.84	2.26	3.58	6.86	34.86
301																		
302	GT 7.50 and LE 12.50	236	59	2	2	9	19	0	18	160	64	17	24	74	223	150	261	1318
303	% of all valid observations for this stability class	2.73	0.68	0.02	0.02	0.10	0.22	0.00	0.21	1.85	0.74	0.20	0.28	0.86	2.58	1.74	3.02	15.25
304	% of all valid observations for this period	2.73	0.68	0.02	0.02	0.10	0.22	0.00	0.21	1.85	0.74	0.20	0.28	0.86	2.58	1.74	3.02	15.25
305																		
306	GT 12.50 and LE 18.50	39	8	0	0	0	1	0	0	32	9	2	1	18	80	54	32	276
307	% of all valid observations for this stability class	0.45	0.09	0.00	0.00	0.00	0.01	0.00	0.00	0.37	0.10	0.02	0.01	0.21	0.93	0.62	0.37	3.19
308	% of all valid observations for this period	0.45	0.09	0.00	0.00	0.00	0.01	0.00	0.00	0.37	0.10	0.02	0.01	0.21	0.93	0.62	0.37	3.19
309																		
310	GT 18.50 and LE 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	16
311	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.19
312	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.00	0.19
313																		
314	GT 24.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
315	% of all valid observations for this stability class	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
316	% of all valid observations for this period	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
317																		
318	All Velocities	883	290	156	175	219	373	308	426	759	469	513	545	607	812	869	1238	8642
319	% of all valid observations for this stability class	10.22	3.36	1.81	2.02	2.53	4.32	3.56	4.93	8.78	5.43	5.94	6.31	7.02	9.40	10.06	14.33	100.00
320	% of all valid observations for this period	10.22	3.36	1.81	2.02	2.53	4.32	3.56	4.93	8.78	5.43	5.94	6.31	7.02	9.40	10.06	14.33	100.00

APPENDIX A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
Supplemental Information
for 2000

Facility: Vermont Yankee Nuclear Power Station

Licensee: Vermont Yankee Nuclear Power Corporation

1. OFF-SITE DOSE CALCULATION MANUAL (ODCM) - DOSE AND DOSE RATE

ODCM Control Number and Category	Limit
a. Noble Gases	
3.3.1.a Total body dose rate	500 mrem/yr
3.3.1.a Skin dose rate	3000 mrem/yr
3.3.2.a Gamma air dose	5 mrad in a quarter
3.3.2.b Gamma air dose	10 mrad in a year
3.3.2.a Beta air dose	10 mrad in a quarter
3.3.2.b 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	
3.3.1.b Organ dose rate	1500 mrem/yr
3.3.3.a Organ dose	7.5 mrem in a quarter
3.2.2.b Organ dose	15 mrem in a year
c. Liquids	
3.2.2.a Total body dose	1.5 mrem in a quarter
3.2.2.b Total body dose	3 mrem in a year
3.2.2.a Organ dose	5 mrem in a quarter
3.2.2.b Organ dose	10 mrem in a year

2. ODCM SECTION LIMITS CONCENTRATION

ODCM Control Number and Category	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

ODCM Control Number and Category	Limit
c. Liquids	
3.2.1 Total fraction of ECL excluding noble gases (10CFR20, Appendix B, Table 2, Column 2):	<1.0E+01
3.2.1 Total noble gas concentration:	<2E-04 uCi/ml

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 Control Table 4.1.2 requires as a minimum that grab samples from the plant stack be taken monthly and analyzed for tritium. The stack sampling design included a cold trap collection device for this sample collection. The error involved in this sample is approximately ±15 percent.

e. Used Oil

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

Monthly, samples from tanks that were issued burn permits are sent to the contracted laboratory for compositing and analysis. The laboratory 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 I-131 and gamma isotopic radioactivity prior to release. Once per month, one batch is analyzed prior to release for dissolved and entrained gases. 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 batch releases from burning used oil during the reporting period. The gaseous releases from burning used oil are treated as either batch or continuous releases based on the total hours of burning in a calendar quarter.

There was one gaseous batch release from the plant stack during the third quarter. At 1630 on 9/13/01, a manual reactor scram and turbine trip was inserted due to degrading condenser vacuum. The condenser was isolated and all gases were retained in the condenser. At 1704 on 9/13/01, the Mechanical Vacuum Pump was placed in service to maintain vacuum on the condenser. The Mechanical Vacuum Pump took suction on the condenser and discharged the gases to the plant stack after a ½ hour decay period. From review of the stack monitor trend plots, the levels returned to background levels seven hours later.

6. ABNORMAL RELEASES

a. Liquid

There were no nonroutine liquid releases during the reporting period.

b. Gaseous

There were no nonroutine 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 Control 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 Control Table 3.9.1 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 Control 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 10.1.

Response: Since the requirements of ODCM Control 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 3.5.1. With milk samples no longer available from one or more of the sample locations required by ODCM Control 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: One change was needed in the milk sampling locations specified in ODCM Control Table 3.5.1 due to sample unavailability during the reporting year. Meadow Crest Farm went out of business in 2000. The last sample was collected from Meadow Crest Farm in November of 2000. Vermont Yankee already had the Miller Farm included in the Radiological Environmental Monitoring Program as an additional, but not required, location. With the loss of Meadow Crest Farm, the Miller Farm became the ODCM required location in replacement of the Meadow Crest Farm for both milk samples and silage samples.

See Appendix H for the description of the revisions to the ODCM during 2000. The copies of the ODCM revisions are not included in this report but are submitted to the NRC separately. The ODCM figure(s) and table(s) reflecting the change in status for the Miller Farm and the elimination of Meadow Crest Farm were included in Revision 26.

APPENDIX F

LAND USE CENSUS

Requirement: A land use census is conducted in accordance with ODCM Control 3.5.2. With a land use census identifying a location(s) which yields at least a 20 percent greater dose or dose commitment than the values currently being calculated in ODCM Surveillance 4.3.3, ODCM 10.1 requires the identification of the new location(s) in the next annual Radioactive Effluent Release Report.

Response: The Land Use Census was completed in the third quarter of 2000. No locations yielded a 20 percent greater dose or dose commitment than the values currently being calculated in ODCM Surveillance 4.3.3.

APPENDIX G

PROCESS CONTROL PROGRAM

Requirement: Technical Requirements Manual (TRM) 6.12.A.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: In 1999, the PCP was put into a procedure, PP 7504. In 2000, changes were made to the Process Control Program (PCP) and issued as Revisions 1 and 2 to PP 7504. The following copies of the Procedure Revision Control Form for each revision supply the required documentation that each revision was reviewed by PORC and approved by the Vice President of Operations, as required by TRM 6.12.A.1.c. The attached copies of the memorandums to PORC describe the changes to the PCP (PP 7504) for each revision. The two revisions to the Process Control Program are included.

These changes to the PCP have not affected TRM Section 6.12.

A determination was made that the changes do not reduce the overall conformance of the dewatered spent resins/filter media waste product to existing criteria for solid waste shipments and disposals.

The revisions do not affect Technical Specifications and do not affect any system or process described in the FSAR and a review of VOQAM was done with no findings.

These changes were reviewed against AP 6002.02; it was determined that no safety evaluation was required for either revision.

MEMORANDUM

DATE: JULY 26, 2000

TO: PORC

CC: M. DESILETS

FROM: TIM MCCARTHY

RE: PP 7504, REV.1: PROCESS CONTROL PROGRAM

This procedure is required to be reviewed by PORC due to TRM 6.12.A.2. The complete review contains the following revisions due to commitment item INF_99015_00, QA surveillance (2000-12), transition issues and recommendations. The procedure was reviewed against the original design and operation, standing orders and procedure change recommendations per VYAPF 0095.01.

- Added to References: NRC Info Notice (IN) 97-51 and NRC Bulletin 96-02
- QA audit items: changed reference for dewatering procedure from OP2511 to OP 2153. AP 0619 (chemical control requirements) to PP 7602., reference appendix F to App. G.
- Title changes: VP Ops, Ops Superintendent
- Removed reference to the old procedure process. AP 0037

This revision does not affect Tech Specs and does not affect any system or process described in the FSAR or TRM. A review of VO QAM was done with no findings.

This change was reviewed against AP 6002.02; it was determined that no safety evaluation is required.

I have determined that the changes implemented in Rev. 1 of PP 7504 did not reduce the overall conformance of the dewatered spent resins/filter media waste product to existing criteria for solid waste shipments and disposal.

3

PROCEDURE REVISION CONTROL FORM

PART 1 - Initiation

A. Procedure No.	Revision No	Title
PP 7504	01amp	Process Control Program

B. Review Criteria: ☑ Partial ☐ Complete | C. Periodic Review Cycle: ☐ 2 Year ☐ 5 Year

D. Description and Reasons for Procedure/Changes:

VYAPF 0095.01 changes per INF 99015_00; see attached

VYAPF 0095.01 changes per QA Surveillance 2000-12; see attached

E. Originator Name (Print): John T McCarthy | Telephone Extension: 5476

PART 2 - Reviews

A. Technical Verification Reviewer (Print/Sign/Date) MPD / Michael Dailey / 3/29/00

B. Walk-Through Validation: ☐ Required ☐ N/A

☐ Field Walk-Through ☑ Table-Top ☐ Simulator Validation

C. Cross-Discipline Reviews: (Refer to Appendix A) ☐ N/A

Position	Name	Signature	Date
Ops Supt.	K. Bronson	K Bronson	3/20/00
VP Ops	S. Newton	Steve Newton	6/21/00

D. Safety Evaluation Per AP 6002, Preparing 50.59 Evaluations

☒ 50.59(a)(1) Screening completed and attached, Safety Evaluation NOT required.

☐ 50.59(a)(2) Safety Evaluation completed and attached.

E. 10CFR50.54(q) Evaluation: ☒ N/A

☐ Emergency Plan Implementing Procedure: 10CFR50.54(q) evaluation completed per AP 3532 and attached.

F. QUALIFIED REVIEWER: (Print/Sign/Date) John T McCarthy / JTMcCarthy / 7/11/00

G. ORIGINATOR:

☒ Comments Resolved ☐ Verify All LPCs Considered ☐ Procedure Clerk/Typist Final Type/Proofread

(Print/Sign/Date) JTM / JTMcCarthy / 7/11/00

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PROCEDURE REVISION CONTROL FORM (Continued)

PART 3 - Training/Notification Requirements

A. Indicate training or notifications required to implement procedure: (Required for Administrative Procedures)

☐ Include in formal training (TCR submitted):

☐ E-Mail notification:

☐ Crew Briefings:

☐ Other: NONE

PART 4 - PORC

Plant Operation Review Committee: ☒ Required ☐ N/A

Meeting No:	PORC Secretary:	Date:	Plant Manager:
2000-042	M.M. Houle	7/26/00	7/26/00

PART 5 - Approval

A. Responsible Procedure Owner: (Print/Signature/Date)

M. Desilets 7/28/00

B. Special Instructions: ☒ N/A

☐ Approved for Training

☐ Issue on DATE: _____

☐ Submit Surveillance Database Change per AP 4000

☐ Other:

PART 6 - Issuance

Procedure Change No.: 961

Date procedure issued: 8/1/00

Notes:

VERMONT YANKEE NUCLEAR POWER STATION

PROGRAM PROCEDURE

PP 7504

REVISION 1

PROCESS CONTROL PROGRAM

USE CLASSIFICATION: **INFORMATION**

LPC No.	Affected Pages

Implementation Statement: N/A

Issue Date: 08/08/00

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PURPOSE

The Vermont Yankee Nuclear Power Plant Process Control Program (PCP) describes the administrative and technical controls of the radioactive waste systems which provide assurance that Vermont Yankee meets federal shipping and burial site requirements.

The PCP complies with Technical Specification 3/4.8.N and TRM 6.12 by describing process parameters, controls, tests, sampling and analysis to ensure compliance with 10 CFR 20, 10 CFR 71, 10 CFR 61 (Energy), and 49 CFR 172-173 (Transportation); State and burial site regulatory requirements.

DISCUSSION

This procedure functions as the document for describing the current process for administrating radioactive waste which applies to Vermont Yankee. This procedure:

- Lists all of the current waste streams that have been identified, and processes that VY utilizes.
- Lists approved burial containers which comply with site criteria for stabilized waste.
- Describes waste class determination protocols which comply with burial site and federal regulations.
- States the regulations and procedures which implement the process control program.

REFERENCES

1. Technical Specifications
   a. 3/4.8.N
2. Technical Requirements Manual
   a. 6.12
3. Administrative Limits
   a. None
4. Other
   a. 49 CFR 172-173
   b. 10 CFR 20
   c. 10 CFR 71
   d. 10 CFR 61
   e. CNS Burial Site Criteria
   f. CNS RDS-1000 Dewatering System Manual
   g. VOQAM, Operational Quality Assurance Manual

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h. NRC Information Notice (IN) 97-51, Problems Experienced with Loading and Unloading Spent Fuel Storage and Transportation Casks, Issued July 11, 1997 (Accession Number 9707080365).
i. NRC Bulletin 96-02, Movement of Heavy Loads Over Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, April 11, 1996 (Accession Number 9604080259).
h. AP 0504, Shipment of Radioactive Materials
i. AP 0619, Chemical Material Control
j. OP 2151, Liquid Radwaste
k. OP 2153, Solid Radwaste
l. OP 2511, Radwaste Cask/Liner Handling
m. OP 2512, Radwaste Drum, Box and Sealand Handling
n. OP 2527, Sampling and Analysis for Radwaste Classification
o. AP 6805, Document Control
p. PP 7503, Hazardous Waste Program

APPENDICES, ATTACHMENTS AND FIGURES

1. None

PROGRAM SCOPE

1. Applicability

This program properly describes the processing of waste materials generated as part of plant operations and applies to activities which generate radioactive waste materials at Vermont Yankee.

2. Objectives

The objective of the Process Control Program is to maintain an effective program for identifying, controlling, testing, sampling and processing waste materials generated at VY, specifically;

a. To ensure personnel safety along with minimizing exposures through personnel knowledge, awareness and proper handling techniques / practices;

b. To properly identify, process and classify waste streams generated as a result of operations and maintenance activities at VY;

c. To conduct all waste activities in compliance with pertinent regulations, permits, and licenses.

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ORGANIZATION, AUTHORITIES AND RESPONSIBILITIES

1. Organization

Operations, Maintenance and Radiation Protection Departments' personnel are identified on the Vermont Yankee Organizational Chart. Specific individuals within the departments have varying degrees of involvement depending on their level and scope of training.

The size of the organization can expand temporarily as special needs arise or additional support or expertise is required. Permanent modifications to the organizational chart or increases in support personnel numbers beyond authorized resources require additional management approvals and shall be controlled by the appropriate corporate policies.

2. Responsibilities

A brief description of management level responsibilities is outlined below. More detailed responsibilities and specific authorities are defined in individual position descriptions or identified in approved policies, procedures or management directives.

a. VP of Operations - Ultimate responsibility for corporate and plant activities to ensure safe, effective and proper administrative controls concerning radioactive waste operations. Review required per TRM.

b. Plant Manager - Maintains responsibility for safe, orderly and efficient operation of the VY Plant and therefore maintains control of any and all radioactive waste operations.

This position reports to the VP of Operations.

c. Technical Services Superintendent (TSS) - Responsible for the proper conduct of radioactive waste activities to ensure personnel, public and environmental health and safety. The TSS shall ensure that goals which support the objectives of this program are established and performance indicators are defined to monitor the effectiveness of the Process Control Program.

This position reports to the Plant Manager.

d. Radiation Protection Manager (RPM) - Responsible for managing radioactive waste to ensure the health and safety of Plant personnel, the general public and the environment; and to ensure that all waste activities are performed in support of the objectives of this program.

This position reports to the TSS.

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e. Operations Superintendent (OS) - Responsible for the day to day operational activities of the solid and liquid waste streams. The OS ensures procedure implementation and compliance for all operational radioactive waste processes.

f. Radwaste Supervisor (RWS) - Responsible for development and implementation of the radioactive waste program, to ensure compliance with all regulatory requirements. The RWS shall keep abreast of amendments to existing waste regulations proposed by state and federal agencies and ensure applicable procedures are current.

This position reports to the RPM.

NOTE

Worker responsibilities are addressed through General Employee Training (GET) Requalification and Employee Continuing Training Programs.

IMPLEMENTING PROCEDURES AND DOCUMENTS

Generally, management approval and direction for hazardous waste activities is demonstrated in the review and approval process for plant procedures. Specific key elements of the program are outlined and described below with a basic philosophy or approach provided.

1. Procedures

a. Controls for waste activities are written in the form of administrative and operational procedures. Procedures are to be considered as management directives and are expected to be followed.

b. Written procedures shall contain sufficient detail to ensure satisfactory compliance with the work effort, but need not delineate basic skills normally possessed by qualified personnel as determined and described in the Training and Qualification Section of this procedure. Training prerequisites are outlined in AP 0504, Shipment of Radioactive Material.

c. Vendor technical information shall be used as reference material in the preparation of procedures and should be used as guidance in conjunction with specific tasks, if appropriate.

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2. Training and Qualification

a. Performance-based, accredited training programs are approved, in place and functional for Technical Staff and Managers, Supervisor Development, Operations, Maintenance and Radiation Protection Technicians.

Program performance monitoring and control of content is accomplished through direct interaction between department supervision and management, the Technical Services Superintendent and the Training Department.

b. Job posting and individual position descriptions establish the minimum qualifications. General knowledge and basic skill levels are demonstrated through testing of job applicants.

c. The RWS, integral with the Training Department, maintains and ensures the assignment of qualified personnel to perform duties in support of program objectives. This is accomplished through personnel observation, interaction and varying degrees of direct supervision. Training prerequisites are outlined in AP 0504, Shipment of Radioactive Material.

d. Contracted services, whether integrated with staff personnel or assigned specific tasks, are verified to have the necessary qualifications and training prior to commencement of work activities.

3. Performance Indicators

Performance indicators are an important element of any program which enable the program owner to conduct timely assessments of the effectiveness of a program.

The RWS shall monitor the effectiveness of the program efforts by generating and trending the following performance indicators, as a minimum:

- Number of event reports or observations generated as result of improper control of radioactive waste stream items.
- Number of event reports or observations generated as result of procedure violations concerning radioactive waste handling operations .
- Timeliness of program updates resulting from regulatory changes.

4. General Implementation

Implementation of this program is generally controlled by approved procedures. This section does not supersede or eliminate the need for specific procedures when appropriate. The topics contained in this section illustrate management approval and direction for those areas identified.

a. Solidification

Vermont Yankee Nuclear Power Corporation does not routinely solidify liquid waste. If the use of solidification to dispose of any liquid waste is required, it will be done by an outside vendor under the vendor's PCP. The vendor PCP will be reviewed and approved by the Plant Health Physicist, the Radiation Protection Manager, PORC, Plant Manager and VP of Operations prior to implementation. This review is to identify that there is sufficient supporting documentation of the vendor's PCP to give assurance that the final product will meet all requirements for transport and burial, and that sufficient procedural controls exist to assure safe operations. [TS 4.8.N]

b. Cartridge Filter Elements

Low activity cartridge filter elements (<200 mR/hr @ 30cm) will be air dried (~24hr or as determined by the Radwaste Supervisor) and handled as dry active waste. Filters determined to be above the dose limitations per 49 CFR, will be placed in casks. The liner shall be dewatered by the RDS-1000 System or a similar approved system and then shipped for disposal.

c. Resins

Normal operations produce radioactive waste in the form of depleted resins. These resins are processed in the burial container using a rapid dewatering system (RDS-1000) manufactured by Chem-Nuclear Systems, Inc. [OP 2153]

The system has been tested, by Chem-Nuclear, for certification in meeting the Barnwell Site Criteria and disposal requirement for free standing liquid. These tests are described in Chem-Nuclear's Topical Report on the RDS-1000 Radioactive Waste Dewatering System. In addition, to comply with the statement, "Any liquids present in waste packages shall be non-corrosive with respect to the container," Vermont Yankee tested the pH of various resin mixtures used by the plant in solution with water. The range was found to be 4.2 - 8.4. A solution is not considered corrosive if the pH is greater than 4.0 and less than 10.0.

A resin sample is taken from each liner prior to shipment. The sample is counted to determine the activity and waste classification. Class A resins that exceed 1.0 μCi/cc of isotopes with greater than 5 year half-lives and all Class B and C resins will be disposed of in an approved High Integrity Container (HIC).

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Vendor supplied or temporary methods of processing resins may be used in lieu of the above process provided that the vendor or temporary process meets the requirements of quality described above and does not conflict with accepted burial criteria or safety requirements. Such methods will be reviewed and approved by the personnel stated in 4.a prior to implementation.

d. Filter Liners

During refueling outages and normal operation, liquid radwaste processing may require use of a decanting filter on the condensate phase separators. A floating suction is used to decant the water and resin into a filter liner. Filtered water is pumped from the liner. The liner is dewatered in accordance with OP 2153 (MOOID9409-03) such that the burial site criterion for free-standing water is met. A resin sample is taken from the liner and analyzed to determine the activity and waste classification.

e. Dry Active Waste (DAW)

DAW is compacted, as practical, or shipped to a vendor that sorts the material for processing or recycling. All DAW is examined before being compacted or shipped. Any liquids or items found that would compromise the integrity of the package are removed and separated as specified by procedure [OP 2512]. DAW which includes compactable, incinerable and metal materials are segregated in the plant and transported to the applicable sealand container, then shipped to the appropriate/cost effective off-site processor. If deemed practical, the DAW will be surveyed and free-released onsite, if possible. Containers used for DAW shipments meet the criteria of 49 CFR 173.425a. or b. "No leakage of radioactive material," as specified in 49 CFR 173.425.b.1 will be met provided that no radioactive materials in quantities equal to or exceeding those specified in 49 CFR 173.443 are detected on the external surfaces of the package at any time during shipment.

f. Chelating Agents

In order to comply with 10 CFR 20 Appendix G, chelating agents are controlled by the plant chemistry department using procedure AP 7602.

g. Explosive Waste

No waste capable of detonation or of explosive decomposition or reaction will be disposed as per 10 CFR 61.56(a)(4). Refer to MSDS via AP 7602.

h. Toxic Waste

No waste capable of generating toxic gases, vapors, or fumes will be disposed as per 10 CFR 61.56(a)(5). Refer to MSDS via AP 7602.

i. Pyrophoric Waste

No waste that is pyrophoric will be disposed as per 10 CFR 61.56(a)(6). Refer to MSDS via AP 7602.

j. High Integrity Containers (HICs)

Vermont Yankee Nuclear Power Plant has contracted with various suppliers of approved HICs. South Carolina has approved PCPs for HICs used by Vermont Yankee. Any HIC Vermont Yankee may choose to use at some future time, will meet all applicable requirements.

k. Waste Class Determination

Along with an approved outside laboratory, Vermont Yankee periodically performs laboratory analysis on all waste streams to determine the activity of radionuclides listed in Tables 1 and 2 of 10 CFR 61. Correlation analysis verifies that the relative concentration of each radionuclide, with respect to the overall activity in a given Vermont Yankee waste stream, remains constant over time. A set of scaling factors is determined which allows the activity of 10 CFR 61 radionuclides to be estimated using the results of gamma spectrometric analysis or direct gamma dose rate measurements.

For resin wastes, analysis is performed on samples of each source of resin comprising the contents of a burial container. Scaling factors are applied to the activity of radionuclides identified by gamma spectrometry analysis to determine the activity of those radionuclides which are not detected in the gamma spectrum.

For DAW, dose rate-to-curie conversion calculations are performed to determine the total activity present in a container. Scaling factors are applied to the container's total curie content to determine the activity of individual radionuclides.

Specific procedures for determining 10 CFR 61 scaling factors are contained in OP 2527, "Sampling and Analysis for Radwaste Classification." Once the activity of each radionuclide in a burial container is estimated, the waste classification is derived using methods required by 10 CFR 61. Specific procedures for waste class determination are contained in AP 0504, "Shipment of Radioactive Material."

l. Mixed Waste

No mixed waste will be disposed as per 10 CFR 61.56(a)(8) unless properly treated. Refer to MSDS via AP 7602.

FINAL CONDITIONS

1. This procedure is retained per AP 6805.

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MEMORANDUM

DATE: SEPT. 18, 2000

TO: PORC

CC: J. GEYSTER

FROM: TIM MCCARTHY

RE: PP 7504, REV.2: PROCESS CONTROL PROGRAM

This procedure is required to be reviewed by PORC due to TRM 6.12.A.2. The partial review contains the following revisions due to commitment items. The procedure was reviewed against the original design and operation, standing orders and procedure change recommendations per VYAPF 0095.01.

- Added tech spec references to procedure under Purpose

This revision does not affect Tech Specs and does not affect any system or process described in the FSAR or TRM. A review of VO QAM was done with no findings.

This change was reviewed against AP 6002.02; it was determined that no safety evaluation is required.

I have determined that the changes implemented in Rev. 2 of PP 7504 did not reduce the overall conformance of the dewatered spent resins/filter media waste product to existing criteria for solid waste shipments and disposal.

NEW/REVISED PROCEDURE CONTROL FORM

PART 1 - Initiation

A. Procedure No.	New Revision No.	Title
PP7504	2	Process Control Program

B. Review Criteria: ☒ Partial ☐ Complete

C. Periodic Review Cycle: ☐ 2 Year ☐ 5 Year

D. List DIs & LPCs:

E. Description and Reasons for Procedure/Changes:

Add Tech Spec. References to procedure

F. Originator Name (Print): John T McCarthy

Telephone Extension: 5476

PART 2 - Reviews

A. Walk-Through Validation: ☐ Required ☐ N/A

☐ Field Walk-Through ☒ Table-Top ☐ Simulator Validation

B. Technical Verification Reviewer (Print/Sign/Date) 10/18/00

R. Morrissette R. Morrissette

C. Cross-Discipline Reviews: (Refer to Appendix B) ☐ N/A

Position	Name	Signature	Date
RPM	Geyster		10/18/00
VP Ops	Baldazzi		11/12/01

D. Safety Evaluation Per AP 6002, Preparing 50.59 Evaluations

☒ 50.59(a)(1) Screening completed and attached, Safety Evaluation NOT required.

☐ 50.59(a)(2) Safety Evaluation completed and attached.

E. 10CFR50.54(q) Evaluation: ☒ N/A

☐ Emergency Plan Implementing Procedure: 10CFR50.54(q) evaluation completed per AP 3532 and attached.

F. QUALIFIED REVIEWER: (Print/Sign/Date)

John T McCarthy 10/18/00

G. ORIGINATOR: ☐ Comments Resolved ☐ Verify All DIs & LPCs Considered

☑ Sent to Procedure Clerk/Typist for Final Type (Procedure Clerk/Typist Initial/Date KAH 10/12/00)

☐ Proofread

(Print/Sign/Date)

NEW/REVISED PROCEDURE CONTROL FORM (Continued)

PART 3 - Training/Notification Requirements

A. Indicate training or notifications required to implement procedure: (Required for Administrative Procedures)

☐ Include in formal training (TCR submitted):

☒ E-Mail notification:

☐ Crew Briefings:

☐ Other:

PART 4 - PORC

Plant Operation Review Committee: ☒ Required ☐ N/A

Meeting No: 2000-056 PORC Secretary: M.M. Howe Date: 10-18-00 Plant Manager: 10-19-00

PART 5 - Approval

A. Responsible Procedure Owner: (Print/Signature/Date)

Robert Sousa 10-25-00

B. Special Instructions: ☒ N/A

☐ Approved for Training

☐ Issue on DATE: _____

☐ Submit Surveillance Database Change per AP 4000

☐ Other:

PART 6 - Issuance

Procedure Change No.: 972

Date procedure issued: 11/1/00

Notes:

VERMONT YANKEE NUCLEAR POWER STATION

PROGRAM PROCEDURE

PP 7504

REVISION 2

PROCESS CONTROL PROGRAM

USE CLASSIFICATION: **INFORMATION**

LPC No.	Effective Date	Affected Pages

Implementation Statement: N/A

Issue Date: 11/03/00

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PURPOSE

The Vermont Yankee Nuclear Power Plant Process Control Program (PCP) describes the administrative and technical controls of the radioactive waste systems which provide assurance that Vermont Yankee meets federal shipping and burial site requirements.

The solid radwaste system shall be used in accordance with this procedure as described in TRM Section 6.12 to process wet radioactive waste (spent resins/filter sludge) to meet shipping and burial ground requirements. If these requirements are not satisfied, shipments of defectively processed or defectively packaged solidified wet radioactive wastes from site, will be suspended. Verification of solidification of wet waste shall be performed as required in accordance with this procedure.

Solidification is defined as the conversion of wet wastes into a form that meets shipping and burial ground requirements. Suitable forms include dewatered resins and filter sludge.

The PCP complies with TRM 6.12 by describing process parameters, controls, tests, sampling and analysis to ensure compliance with 10 CFR 20, 10 CFR 71, 10 CFR 61 (Energy), and 49 CFR 172-173 (Transportation); State and burial site regulatory requirements.

DISCUSSION

This procedure functions as the document for describing the current process for administrating radioactive waste which applies to Vermont Yankee. This procedure:

- Lists all of the current waste streams that have been identified, and processes that VY utilizes.
- Lists approved burial containers which comply with site criteria for stabilized waste.
- Describes waste class determination protocols which comply with burial site and federal regulations.
- States the regulations and procedures which implement the process control program.

REFERENCES

1. Technical Specifications
   a. None
2. Technical Requirements Manual
   a. 6.12
3. Administrative Limits
   a. None

4. Other

a. 49 CFR 172-173
b. 10 CFR 20
c. 10 CFR 71
d. 10 CFR 61
e. CNS Burial Site Criteria
f. CNS RDS-1000 Dewatering System Manual
g. VOQAM, Operational Quality Assurance Manual
h. NRC Information Notice (IN) 97-51, Problems Experienced with Loading and Unloading Spent Fuel Storage and Transportation Casks, Issued July 11, 1997 (Accession Number 9707080365).
i. NRC Bulletin 96-02, Movement of Heavy Loads Over Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment, April 11, 1996 (Accession Number 9604080259).
h. AP 0504, Shipment of Radioactive Materials
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j. OP 2151, Liquid Radwaste
k. OP 2153, Solid Radwaste
l. OP 2511, Radwaste Cask/Liner Handling
m. OP 2512, Radwaste Drum, Box and Sealand Handling
n. OP 2527, Sampling and Analysis for Radwaste Classification
o. AP 6805, Document Control
p. PP 7503, Hazardous Waste Program

APPENDICES, ATTACHMENTS AND FIGURES

1. None

PROGRAM SCOPE

1. Applicability

This program properly describes the processing of waste materials generated as part of plant operations and applies to activities which generate radioactive waste materials at Vermont Yankee.

2. Objectives

The objective of the Process Control Program is to maintain an effective program for identifying, controlling, testing, sampling and processing waste materials generated at VY, specifically;

a. To ensure personnel safety along with minimizing exposures through personnel knowledge, awareness and proper handling techniques / practices;

b. To properly identify, process and classify waste streams generated as a result of operations and maintenance activities at VY;

c. To conduct all waste activities in compliance with pertinent regulations, permits, and licenses.

ORGANIZATION, AUTHORITIES AND RESPONSIBILITIES

1. Organization

Operations, Maintenance and Radiation Protection Departments' personnel are identified on the Vermont Yankee Organizational Chart. Specific individuals within the departments have varying degrees of involvement depending on their level and scope of training.

The size of the organization can expand temporarily as special needs arise or additional support or expertise is required. Permanent modifications to the organizational chart or increases in support personnel numbers beyond authorized resources require additional management approvals and shall be controlled by the appropriate corporate policies.

2. Responsibilities

A brief description of management level responsibilities is outlined below. More detailed responsibilities and specific authorities are defined in individual position descriptions or identified in approved policies, procedures or management directives.

a. VP of Operations - Ultimate responsibility for corporate and plant activities to ensure safe, effective and proper administrative controls concerning radioactive waste operations. Review required per TRM.

b. Plant Manager - Maintains responsibility for safe, orderly and efficient operation of the VY Plant and therefore maintains control of any and all radioactive waste operations.

This position reports to the VP of Operations.

c. Technical Services Superintendent (TSS) - Responsible for the proper conduct of radioactive waste activities to ensure personnel, public and environmental health and safety. The TSS shall ensure that goals which support the objectives of this program are established and performance indicators are defined to monitor the effectiveness of the Process Control Program.

This position reports to the Plant Manager.

d. Radiation Protection Manager (RPM) - Responsible for managing radioactive waste to ensure the health and safety of Plant personnel, the general public and the environment; and to ensure that all waste activities are performed in support of the objectives of this program.

This position reports to the TSS.

e. Operations Superintendent (OS) - Responsible for the day to day operational activities of the solid and liquid waste streams. The OS ensures procedure implementation and compliance for all operational radioactive waste processes.

f. Radwaste Supervisor (RWS) - Responsible for development and implementation of the radioactive waste program, to ensure compliance with all regulatory requirements. The RWS shall keep abreast of amendments to existing waste regulations proposed by state and federal agencies and ensure applicable procedures are current.

This position reports to the RPM.

NOTE
Worker responsibilities are addressed through General Employee Training (GET) Requalification and Employee Continuing Training Programs.

IMPLEMENTING PROCEDURES AND DOCUMENTS

Generally, management approval and direction for hazardous waste activities is demonstrated in the review and approval process for plant procedures. Specific key elements of the program are outlined and described below with a basic philosophy or approach provided.

1. Procedures

   a. Controls for waste activities are written in the form of administrative and operational procedures. Procedures are to be considered as management directives and are expected to be followed.

   b. Written procedures shall contain sufficient detail to ensure satisfactory compliance with the work effort, but need not delineate basic skills normally possessed by qualified personnel as determined and described in the Training and Qualification Section of this procedure. Training prerequisites are outlined in AP 0504, Shipment of Radioactive Material.

   c. Vendor technical information shall be used as reference material in the preparation of procedures and should be used as guidance in conjunction with specific tasks, if appropriate.

2. Training and Qualification

   a. Performance-based, accredited training programs are approved, in place and functional for Technical Staff and Managers, Supervisor Development, Operations, Maintenance and Radiation Protection Technicians.

      Program performance monitoring and control of content is accomplished through direct interaction between department supervision and management, the Technical Services Superintendent and the Training Department.

   b. Job posting and individual position descriptions establish the minimum qualifications. General knowledge and basic skill levels are demonstrated through testing of job applicants.

c. The RWS, integral with the Training Department, maintains and ensures the assignment of qualified personnel to perform duties in support of program objectives. This is accomplished through personnel observation, interaction and varying degrees of direct supervision. Training prerequisites are outlined in AP 0504, Shipment of Radioactive Material.

d. Contracted services, whether integrated with staff personnel or assigned specific tasks, are verified to have the necessary qualifications and training prior to commencement of work activities.

3. Performance Indicators

Performance indicators are an important element of any program which enable the program owner to conduct timely assessments of the effectiveness of a program.

The RWS shall monitor the effectiveness of the program efforts by generating and trending the following performance indicators, as a minimum:

- Monthly and annual radwaste amounts generated for burial in cubic feet and cubic meters.
- Monthly radwaste generated prior to processing; accrual cost and cubic feet or pounds generated.

4. General Implementation

Implementation of this program is generally controlled by approved procedures. This section does not supersede or eliminate the need for specific procedures when appropriate. The topics contained in this section illustrate management approval and direction for those areas identified.

a. Solidification

Vermont Yankee Nuclear Power Corporation does not routinely solidify liquid waste. If the use of solidification to dispose of any liquid waste is required, it will be done by an outside vendor under the vendor's PCP. The vendor PCP will be reviewed and approved by the Plant Health Physicist, the Radiation Protection Manager, PORC, Plant Manager and VP of Operations prior to implementation. This review is to identify that there is sufficient supporting documentation of the vendor's PCP to give assurance that the final product will meet all requirements for transport and burial, and that sufficient procedural controls exist to assure safe operations.

b. Cartridge Filter Elements

Low activity cartridge filter elements (<200 mR/hr @ 30cm) will be air dried (~24hr or as determined by the Radwaste Supervisor) and handled as dry active waste. Filters determined to be above the dose limitations per 49 CFR, will be placed in casks. The liner shall be dewatered by the RDS-1000 System or a similar approved system and then shipped for disposal.

c. Resins

Normal operations produce radioactive waste in the form of depleted resins. These resins are processed in the burial container using a rapid dewatering system (RDS-1000) manufactured by Chem-Nuclear Systems, Inc. [OP 2153]

The system has been tested, by Chem-Nuclear, for certification in meeting the Barnwell Site Criteria and disposal requirement for free standing liquid. These tests are described in Chem-Nuclear's Topical Report on the RDS-1000 Radioactive Waste Dewatering System. In addition, to comply with the statement, "Any liquids present in waste packages shall be non-corrosive with respect to the container," Vermont Yankee tested the pH of various resin mixtures used by the plant in solution with water. The range was found to be 4.2 - 8.4. A solution is not considered corrosive if the pH is greater than 4.0 and less than 10.0.

A resin sample is taken from each liner prior to shipment. The sample is counted to determine the activity and waste classification. Class A resins that exceed 1.0 μCi/cc of isotopes with greater than 5 year half-lives and all Class B and C resins will be disposed of in an approved High Integrity Container (HIC).

Vendor supplied or temporary methods of processing resins may be used in lieu of the above process provided that the vendor or temporary process meets the requirements of quality described above and does not conflict with accepted burial criteria or safety requirements. Such methods will be reviewed and approved by the personnel stated in 4.a prior to implementation.

d. Filter Liners

During refueling outages and normal operation, liquid radwaste processing may require use of a decanting filter on the condensate phase separators. A floating suction is used to decant the water and resin into a filter liner. Filtered water is pumped from the liner. The liner is dewatered in accordance with OP 2153 (MOOID9409-03) such that the burial site criterion for free-standing water is met. A resin sample is taken from the liner and analyzed to determine the activity and waste classification.

e. Dry Active Waste (DAW)

DAW is compacted, as practical, or shipped to a vendor that sorts the material for processing or recycling. All DAW is examined before being compacted or shipped. Any liquids or items found that would compromise the integrity of the package are removed and separated as specified by procedure [OP 2512]. DAW which includes compactable, incinerable and metal materials are segregated in the plant and transported to the applicable sealand container, then shipped to the appropriate/cost effective off-site processor. If deemed practical, the DAW will be surveyed and free-released onsite, if possible. Containers used for DAW shipments meet the criteria of 49 CFR 173.425a. or b. "No leakage of radioactive material," as specified in 49 CFR 173.425.b.1 will be met provided that no radioactive materials in quantities equal to or exceeding those specified in 49 CFR 173.443 are detected on the external surfaces of the package at any time during shipment.

f. Chelating Agents

In order to comply with 10 CFR 20 Appendix G, chelating agents are controlled by the plant chemistry department using procedure AP 7602.

g. Explosive Waste

No waste capable of detonation or of explosive decomposition or reaction will be disposed as per 10 CFR 61.56(a)(4). Refer to MSDS via AP 7602.

h. Toxic Waste

No waste capable of generating toxic gases, vapors, or fumes will be disposed as per 10 CFR 61.56(a)(5). Refer to MSDS via AP 7602.

i. Pyrophoric Waste

No waste that is pyrophoric will be disposed as per 10 CFR 61.56(a)(6). Refer to MSDS via AP 7602.

j. High Integrity Containers (HICs)

Vermont Yankee Nuclear Power Plant has contracted with various suppliers of approved HICs. South Carolina has approved PCPs for HICs used by Vermont Yankee. Any HIC Vermont Yankee may choose to use at some future time, will meet all applicable requirements.

k. Waste Class Determination

Along with an approved outside laboratory, Vermont Yankee periodically performs laboratory analysis on all waste streams to determine the activity of radionuclides listed in Tables 1 and 2 of 10 CFR 61. Correlation analysis verifies that the relative concentration of each radionuclide, with respect to the overall activity in a given Vermont Yankee waste stream, remains constant over time. A set of scaling factors is determined which allows the activity of 10 CFR 61 radionuclides to be estimated using the results of gamma spectrometric analysis or direct gamma dose rate measurements.

For resin wastes, analysis is performed on samples of each source of resin comprising the contents of a burial container. Scaling factors are applied to the activity of radionuclides identified by gamma spectrometry analysis to determine the activity of those radionuclides which are not detected in the gamma spectrum.

For DAW, dose rate-to-curie conversion calculations are performed to determine the total activity present in a container. Scaling factors are applied to the container's total curie content to determine the activity of individual radionuclides.

Specific procedures for determining 10 CFR 61 scaling factors are contained in OP 2527, "Sampling and Analysis for Radwaste Classification." Once the activity of each radionuclide in a burial container is estimated, the waste classification is derived using methods required by 10 CFR 61. Specific procedures for waste class determination are contained in AP 0504, "Shipment of Radioactive Material."

l. Mixed Waste

No mixed waste will be disposed as per 10 CFR 61.56(a)(8) unless properly treated. Refer to MSDS via AP 7602.

FINAL CONDITIONS

1. This procedure is retained per AP 6805.

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: During the reporting period, two revisions (No. 26 and 27) to the ODCM were made.

The major changes included in Revision 26 to the ODCM are:

(26.A) Changes to the Current REMP Sampling Program (Milk and Silage)

Two new locations were added to the Radiological Environmental Monitoring Program. The Downey-Spencer Farm (location TM-25 & TC-25) and Cheney Hill Farm (location TM-26 & TC-26) have been added to the Radiological Environmental Monitoring Program (Table 4.1 and Figure 4-3) as an enhancement to the program and are not required locations.

(26.B) REMP Laboratory Intercomparison Program

The description of the Intercomparison Program was revised to reflect the program used by the current laboratory contracted to perform the environmental sample analyses. This program satisfies Technical Specification 4.9.E.1.

(26.C) N-16 Dose to the Maximum West Site Boundary Location

Due to the construction of a new on-site office building near the west site boundary, Vermont Yankee had to identify a new maximum west site boundary location in order to assess the dose to this location. Duke Engineering and Services (DE&S) evaluated the relationship between the N-16 dose contribution and plant power level in late 1999. The evaluation demonstrated that the constant used in Equation 3-27 needed to be revised. This equation is used to calculate the annual dose due to N-16 decay from steam flow during power operations to the maximum site boundary location. The same methodology as previously applied in this type of dose projection has been carried over to the revision. This revision reflects identified changes in the local environment and results in an improvement to the ability to project doses in order to demonstrate compliance with regulatory limits.

(26.D) Removal of Historical Information and Example Calculations

Appendices A, C, and E were removed from the ODCM. Appendix A consists of only example calculations and is not necessary for implementation of the ODCM. Appendices C and E are historical information. Appendix C is the NRC/EG&G Evaluation of the ODCM through Revision 4. Appendix E is the NRC Safety Evaluation for Disposal of the contaminated soil below the Chemistry Lab floor. The information about this contamination is included in the 10 CFR 50.75(g) file maintained by the Chemistry Department. Appendices C and E are accessible through the Electronic Document Management System maintained by Vermont Yankee. The Table of Contents of the ODCM has a footnote indicating where to find these 2 appendices.

(26.E) Editorial Changes

Several editorial corrections were made to the ODCM as part of revision 26. With this revision, the ODCM was converted from WordPerfect to Word. Each page was reviewed for corrections needed due to the conversion process. Consequently, several needed editorial changes and typographical errors were identified that were corrected in this revision. Other editorial changes include the following;

- Reference to 40 CFR 190 was added in Section 3.11.
- Equations in section 3.11 were renumbered to correspond to the text descriptions.
- References to all contractors were deleted from the ODCM in preparation for the sale of Vermont Yankee, except where such references occur in historical information.

Revision No. 27 to the ODCM included the following changes:

(27.A) Relocation of RETS (including REMP) to the ODCM

As part of Vermont Yankee's Technical Specification improvement process, the Radiological Effluent Technical Specifications (including the Radiological Environmental Monitoring Program) were relocated to the Offsite Dose Calculation Manual (ODCM). This relocation of effluent and environmental control requirements is consistent with the NRC guidance provided in Generic Letter 89-01. This relocation of these Technical Specifications was recently approved as License Amendment No. 193 to the VY Technical Specifications. The format of the ODCM has been changed with this revision to reflect that given in NUREG-1302, "Standard Radiological Effluent Controls for Boiling Water Reactors." A cross-reference table (1.1.8) was added to the ODCM to show the relationship between the old Technical Specification requirements and the corresponding new ODCM Control requirements.

(27.B) Correction to Technical Specification Surveillance Requirement

Technical Specification Table 4.9.2, item 3c addressed stack flow indicator calibration and testing requirements. This was revised on relocation of the table to the ODCM. This table, now ODCM Table 4.1.2 now includes a frequency to calibrate the stack flow indicator every 18 months (from no requirement) and a frequency of functional check to quarterly (also from no requirement). Since these changes add new assurances that the flow monitoring equipment is maintained properly, it is considered an enhancement to the original surveillance requirements.

All the above noted ODCM changes were determined to maintain the level of protection in the calculation of off-site doses resulting from radioactive gaseous and liquid effluents since no changes have been made to either the dose calculation or setpoint methodologies. It is therefore concluded that these revisions will maintain the level of radioactive effluent control required by 10CFR20.1302, 40CFR190, 10CFR50.36a, and Appendix I to 10CFR Part 50, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations.

Revisions 26 and 27 of the ODCM were submitted to the Nuclear Regulatory Commission separately but concurrently with this report.

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 WASTE AND COOLING TOWER SILT

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

Response: There was one on-site disposal of septic waste, one of cooling tower silt, and one of construction sand/soil during the reporting year. The total volume of the septage spread was approximately 11,000 gallons. Approximately 100 cubic yards of cooling tower silt and 33 cubic yards of construction sand/soil from re-paving activities were also disposed of. The total radioactivity spread on the 1.9 acres (southern) on-site disposal field from 2000 spreadings and from previous years was:

Nuclide	Activity Spread in 2000 (Ci)	All Past Spreading Decayed to10/00 plus 2000 Spreading (Ci)
Mn-54	2.22E-07	3.54E-07
Co-60	2.43E-06	1.34E-05
Zn-65	0.00E+00	1.17E-07
Cs-137	7.03E-06	6.59E-05

The maximum organ (including whole body) incremental dose from material spread in 2000 was estimated to be 1.08E-02 mrem/yr. The maximum organ dose from all past spreading operations, including the material spread in 2000, totaled 9.84E-02 mrem/yr. These calculated values are within the 1 mrem/yr 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 2.39E-01 mrem/yr versus a 5 mrem/yr dose limit.