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March 1, 1990

U. S. Nuclear Regulatory Commission  
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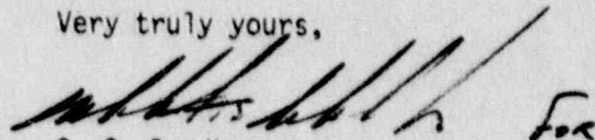
Subject: Virgil C. Summer Nuclear Station  
Docket No. 50/395  
Operating License No. NPF-12  
Semi-Annual Effluent and Waste  
Disposal Report

Gentlemen:

Enclosed is the South Carolina Electric & Gas Company (SCE&G) Semi-Annual Effluent and Waste Disposal Report as required by 10CFR50.36a and Sections 6.9.1.8 and 6.9.1.9 of the Virgil C. Summer Nuclear Station Technical Specifications.

Should there be any questions, please contact us at your convenience.

Very truly yours,



O. S. Bradham

CJM/OSB:lcd  
Enclosure

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# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

FOR THE OPERATING PERIOD

July 1, 1989 - December 31, 1989

February 1990



## V. C. SUMMER NUCLEAR STATION SOUTH CAROLINA ELECTRIC AND GAS COMPANY

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# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

July - December, 1989

Virgil C. Summer Nuclear Station  
South Carolina Electric & Gas

This report is being submitted as a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the Virgil C. Summer Nuclear Station. This report satisfies the requirements in Sections 6.9.1.8 and 6.9.1.9 of Technical Specifications and 10CFR50.36(a). Also included is an assessment of radiation doses from plant releases.

A brief discussion of the Supplemental Information and Tables 2 through 6 is presented in Sections A through D. An evaluation of the radiological impact on man due to operation of the Virgil C. Summer Nuclear Station is presented in Section E and Table 1. A summary of the meteorological data for 1989 is presented in Section F and Tables 9 and 10. Changes made to the Process Control Program are presented in Section G and Attachment I. Changes to previous reports are detailed in Section H and Tables 7 and 8.

## A. Supplemental Information

Regulatory limits for doses and maximum permissible concentrations presented in Supplemental Information are from the Virgil C. Summer Nuclear Station Technical Specifications and 40 CFR 190. Average energy (E) is not applicable to the method for determining release rate limits for fission and activation gaseous effluents; therefore, it has been omitted.

## B. Gaseous Effluents

Gaseous effluents released from ground level are summarized in Tables 2 and 3. An elevated release pathway does not exist at Virgil C. Summer Nuclear Station. Cumulative doses are discussed in Section E.

The errors for gaseous effluent totals are given as the square root of the sum of squares of counting errors and flow or volume measurement errors. A systematic error of 15% has been added to estimate total error.

## C. Liquid Effluents

Liquid effluents are summarized in Tables 4 and 5. Estimated total errors are expressed as in Section B above.

## D. Solid Waste Shipments

Solid waste shipments for burial or disposal are summarized in Table 6. Curie content of radioactive waste packages is determined by dose rates and/or analysis of samples by gamma spectroscopy. The total error for each type of Curie content determination is conservatively estimated to be the sum of a 15% systematic error and a 20% photon response error for the detector used.



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### E. Radiological Impact on Man

Potential doses to the maximum exposed individual in the unrestricted area were calculated using measured plant gaseous effluent and meteorological data in accordance with the Offsite Dose Calculation Manual. The source term involved eight (8) waste gas decay tank (WGDT) releases, 4.6 days of Reactor Building purge releases (2.53 hours through 6" purge and 107 hours through 36" purge), and a continuous six month main plant vent release. Doses are summarized in Table 1. The total Curies released are presented in Tables 2 and 3. Air doses to an individual due to noble gases were  $6.96\text{E-}2$  and  $1.77\text{E-}1$  mrad for gamma and beta, respectively. The maximum organ dose attributed to the releases was  $1.72\text{E-}2$  mrem for the six month period. Cumulative annual doses were  $1.40\text{E-}1$  mrad,  $3.52\text{E-}1$  mrad and  $2.30\text{E-}2$  mrem for gamma, beta and organ dose, respectively.

Measured plant liquid effluent data was used to calculate estimates of doses to individuals in accordance with the Offsite Dose Calculation Manual. The source term consisted of the isotopic contents of each of the 257 liquid effluent batch releases from Waste Monitor Tanks and six month continuous Turbine Building Sump and Steam Generator Blowdown releases. Doses are summarized in Table 1. The total radioactivity released is described in Tables 4 and 5. The total body dose to the maximally exposed individual due to the radioactive liquid released was  $8.25\text{E-}2$  mrem. The maximum organ dose was  $1.30\text{E-}1$  mrem to the Thyroid during the six month period. Cumulative annual doses for the hypothetical maximally exposed individual were  $1.07\text{E-}1$  mrem and  $2.01\text{E-}1$  mrem for the total body and Thyroid (maximum annual organ), respectively.

Radiation doses from nearby uranium fuel cycle sources were not assessed. Technical Specifications, Section 3/4.11.4, page B 3/4 11-6 establishes a five (5) mile limit beyond which doses from nearby plants are insignificant. There are no uranium fuel cycle plants within a five (5) mile radius of Virgil C. Summer Nuclear Station.

Radiation doses from radioactive effluents to members of the public due to their activities inside the site boundary were assessed in a manner different from that in the Offsite Dose Calculation Manual. Monthly thermoluminescent dosimetry data from eight (8) monitoring locations within the site boundary and ten (10) locations around the site boundary perimeter were analyzed and compared with respective pre-operational background and previous year history. Results showed that 1989 monthly dose rates did not differ significantly from the pre-operational or 1988 dose rates. It was concluded that doses to members of the public inside the site boundary were indistinguishable from normal background dose.

Radiation doses from radioactive effluents to workers at the Fairfield Hydro Station were calculated to be  $9.50\text{E-}3$  and  $2.42\text{E-}2$  mrad for gamma and beta, respectively. Annual cumulative doses were  $1.91\text{E-}2$  and  $4.81\text{E-}2$  mrad, respectively.



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Accumulative doses due to gaseous and liquid effluents and respective Technical Specification limits are summarized as follows:

Table 1

## GASEOUS AND LIQUID DOSES

Tech Spec Section	Gaseous Limits	Third Quarter, 1989		Fourth Quarter, 1989	
		Dose	Percent of Limit	Dose	Percent of Limit
3.11.2.2a,b	5 mrad gamma/qtr. 10 mrad gamma/yr.	6.11E-2 mrad	1.22E0 1.31E0*	8.52E-3 mrad	1.70E-1 1.40E0*
	(July-December total gamma air dose: 6.96E-2 mrad) (January-December total gamma air dose: 1.40E-1 mrad)				
	3.11.2.2a,b	10 mrad beta/qtr. 20 mrad beta/yr.	1.58E-1 mrad	1.58E0 1.67E0*	1.91E-2 mrad
(July-December total beta air dose: 1.77E-1 mrad) (January-December total beta air dose: 3.52E-1 mrad)					
3.11.2.3a,b		7.5 mrem/organ/qtr. 15 mrem/organ/yr.	1.06E-2 mrem	1.41E-1 1.09E-1*	6.62E-3 mrem
	(July-December maximum exposed organ dose: 1.72E-2 mrem) (January-December maximum exposed organ dose: 2.29E-2 mrem)				
	<u>Liquid Limits</u>				
3.11.1.2a,b	1.5 mrem/qtr. 3.0 mrem/yr.	2.11E-2 mrem	1.40E0 1.52E0*	6.14E-2 mrem	4.09E0 3.56E0*
	(July-December whole body dose: 8.25E-2 mrem) (January-December whole body dose: 1.07E-1 mrem)				
	3.11.1.2a,b	5 mrem/organ/qtr. 10 mrem/organ/yr.	5.15E-2 mrem	1.03E0× 1.23E0*†	8.09E-2 mrem
(July-December maximum exposed organ dose: 1.30E-1 mrem)† (January-December maximum exposed organ dose: 2.01E-1 mrem)†					

\* Includes contribution from previous quarters.

x Maximum exposed organ for quarter 3 was the Thyroid and quarter 4 was the Liver.

† Maximum exposed organ cumulative for quarters 3-4 and 1-4 was the Thyroid.

Dose rates and concentrations were below the limits specified in Supplemental Information, Section 2a, b and c during all the effluent releases.

# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

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Table 7

## CORRECTED SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (July - Dec., 1988)

### A. Solid Waste Shipped Offsite for Burial or Disposal (not irradiated fuel)

1. Type of waste	Unit	6-Month Period	Est. Total Error, %	1988 Total
a. Spent resins, filter sludges, evap. bottoms, process filters, etc.	m <sup>3</sup> Ci	5.08E + 1 1.05E + 2	3.50E + 1	5.08E + 1 1.05E + 2
b. Dry compressible waste, contaminated equip., etc.	m <sup>3</sup> Ci	1.10E + 2 1.70E + 1	3.50E + 1	1.10E + 2 1.70E + 1
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0 0	N/A	0 0
d. Other (describe)	m <sup>3</sup> Ci	0 0	N/A	0 0

### 2. Estimate of major nuclide composition (by type of waste)\*

a. Fe-55	%	5.19E + 1
Co-60	%	2.19E + 1
Co-58	%	7.57E + 0
H-3	%	7.03E + 0
Ni-63	%	4.69E + 0
Mn-54	%	2.64E + 0
Cs-134	%	1.40E + 0
Cs-137	%	1.10E + 0
b. Fe-55	%	4.56E + 1
Co-58	%	2.14E + 1
Co-60	%	7.55E + 0
Cs-134	%	5.99E + 0
Cs-137	%	5.10E + 0
Cr-51	%	3.69E + 0
H-3	%	3.41E + 0
C-14	%	1.42E + 0
Nb-95	%	1.23E + 0
Mn-54	%	1.14E + 0
c. None	%	N/A
d. None	%	N/A

\* All nuclides are listed in descending order by activity level.  
All nuclides with concentrations above 1.0% are listed.

### 3. Solid Waste Disposition (6 Month Period and 1988 Total)

Number of Shipments	Mode of Transportation	Destination
51 (6 mo.) / 51 (12 mo.)	Truck	Barnwell, S.C.

### B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
NONE	N/A	N/A

# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

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Table 8

## CORRECTED SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (Jan. - June, 1989)

### A. Solid Waste Shipped Offsite for Burial or Disposal (not irradiated fuel)

1. Type of waste	Unit	6-Month Period	Est. Total Error, %
a. Spent resins, filter sludges, evap. bottoms, process filters, etc.	m <sup>3</sup> Ci	1.51E + 1 3.73E + 2	3.50E + 1
b. Dry compressible waste, contaminated equip., etc.	m <sup>3</sup> Ci	8.73E + 1 1.71E + 0	3.50E + 1
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0 0	N/A
d. Other (describe)	m <sup>3</sup> Ci	0 0	N/A

### 2. Estimate of major nuclide composition (by type of waste)\*

a. Co-58	%	4.87E + 1
Fe-55	%	1.42E + 1
Cs-134	%	1.23E + 1
Cs-137	%	9.03E + 0
Co-60	%	6.65E + 0
H-3	%	5.09E + 0
Ni-63	%	2.30E + 0
b. Fe-55	%	4.56E + 1
Co-58	%	2.14E + 1
Co-60	%	7.55E + 0
Cs-134	%	5.99E + 0
Cs-137	%	5.10E + 0
Cr-51	%	3.69E + 0
H-3	%	3.41E + 0
C-14	%	1.42E + 0
Nb-95	%	1.23E + 0
Mn-54	%	1.14E + 0
c. None	%	N/A
d. None	%	N/A

\* All nuclides are listed in descending order by activity level.  
All nuclides with concentrations above 1.0% are listed.

### 3. Solid Waste Disposition (6 Month Period and 1989 Total)

Number of Shipments	Mode of Transportation	Destination
51†	Truck	Barnwell, S.C.

†NOTE: 48 of these are partial shipments of DAW from waste processor to Barnwell.

### B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
NONE	N/A	N/A



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## F. Meteorology

The meteorological data for 1989 is summarized in Table 9 by quarter. The data are shown as joint frequency distributions of wind direction and speed by atmospheric stability class. Table 10 provides the same information for those hours during which batch releases occurred. There were no batch releases during the fourth quarter.

The wind direction and wind speed data used in the summary were acquired from the 10 meter level of the primary monitoring tower. Stability was determined by the primary differential temperature (61 to 10 meter) when available; in the event primary differential temperatures were unavailable, 40-to-10 meter differential temperatures were substituted.

The combined annual data recovery for wind direction, wind speed, and stability was 87.1%. Data recovery rates for specific parameters were as follows: wind direction (10m) - 87.8%, wind speed (10 m) - 89.3%, and differential temperature (61-10m) - 90.7%. The wind direction (61m), wind speed (61m), and differential temperature (40-10m) recovery rates were 89.3%, 92.2%, and 88.6%, respectively. The comparatively low combined data recovery (87.1%) in 1989 stemmed from meteorological tower modifications, meteorological monitoring equipment upgrades, and computer hardware changes, all of which required system downtime. These modifications were made in order to improve system reliability.

## G. Process Control Program

The Virgil C. Summer Nuclear Station (VCSNS) Process Control Program (PCP) was modified once during the affected six month period. Revision 8 (9/15/89) was initiated to make the PCP plant specific and remove references to specific Chem-Nuclear Systems, Inc. (CNSI) operations. The overall conformance of the solidified waste product to existing criteria for solid wastes has not been adversely affected by the changes incorporated in the VCSNS PCP. Per Technical Specification requirement 6.13.2.1.c, the PSRC has reviewed and approved the revision which is enclosed as Attachment I. See the change and Procedure Development Form- A, Section VII, for the PSRC approval signatures.

## H. Changes to Previous Reports

Tables 7 and 8 give updated solid waste summaries for July - December, 1988 and January - June, 1989. Changes in these tables were required when data from these periods were reevaluated (subsequent to a detector efficiency calibration problem) by the vendor laboratory performing VCSNS 10CFR 61 sample analyses.

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## Supplemental Information

### 1. Regulatory Limits:

#### a. Fission and Activation Gases:

The air dose to an individual due to noble gases released in gaseous effluents shall be limited to less than or equal to 5 mrad for gamma radiation and 10 mrad for beta radiation during any calendar quarter and 10 mrad for gamma radiation and 20 mrad for beta radiation during any calendar year (Technical Specifications, Section 3.11.2.2).

#### b. Iodines, Particulates (half-lives > 8 days) and Tritium:

The dose to an individual from radioiodines, tritium and radioactive materials in particulate form with half-lives greater than 8 days in gaseous effluents shall be limited to less than or equal to 7.5 mrem to any organ during any calendar quarter and 15 mrem to any organ during any calendar year (Technical Specifications, Section 3.11.2.3).

#### c. Liquid Effluents:

The dose or dose commitment to an individual from radioactive materials in liquid effluents released shall be limited to less than or equal to 1.5 mrem to the total body and 5 mrem to any organ during any calendar quarter and 3 mrem to the total body and 10 mrem to any organ during any calendar year (Technical Specifications, Section 3.11.1.2).

#### d. All Sources:

The annual dose equivalent shall not exceed 25 mrem to the whole body, 75 mrem to the thyroid and 25 mrem to any other organ (40 CFR 190).

### 2. Maximum Permissible Concentrations:

#### a. Fission and Activation Gases:

The dose rate in unrestricted areas due to radioactive materials released in gaseous effluents shall be limited to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin (Technical Specifications, Section 3.11.2.1).

#### b. Iodines, Particulates (half-lives > 8 days) and Tritium:

The dose rate in unrestricted areas due to radioactive materials in effluents shall be limited to less than or equal to 1500 mrem/year to any organ (Technical Specifications, Section 3.11.2.1).

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### c. Liquid Effluents:

The concentration of radioactive materials released from the site shall be limited to the concentrations specified in 10 CFR 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $2\text{E-}4$  uCi/ml total activity (Technical Specifications, Section 3.11.1.1).

### 3. Average Energy:

Not Applicable

### 4. Measurements and Approximations of Total Radioactivity:

- a. Fission and activation gases: Gamma spectrometry [Ge(Li) or HPGe]
- b. Iodines: Gamma spectrometry [Ge(Li) or HPGe]
- c. Particulates: Gamma spectrometry [Ge(Li) or HPGe], beta proportional counting, alpha proportional counting
- d. Tritium: Liquid scintillation
- e. Liquid effluents: Gamma spectrometry [Ge(Li) or HPGe], liquid scintillation (H-3), beta proportional counting, alpha proportional counting

### 5. Batch Releases:

#### a. Liquid:

##### 1. Number of batch releases:

120 for third quarter, 1989  
137 for fourth quarter, 1989

##### 2. Total time period for batch releases:

$8.06\text{E} + 3$  min. for third quarter, 1989  
 $9.44\text{E} + 3$  min. for fourth quarter, 1989

##### 3. Maximum time period for a batch release:

$9.70\text{E} + 1$  min. for third quarter, 1989  
 $9.00\text{E} + 1$  min. for fourth quarter, 1989



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4. Average time period for batch releases:  
6.72E + 1 min. for third quarter, 1989  
6.89E + 1 min. for fourth quarter, 1989
  5. Minimum time period for a batch release:  
5.10E + 1 min. for third quarter, 1989  
4.20E + 1 min. for fourth quarter, 1989
  6. Average stream flow during periods of release of effluent into a flowing stream:  
4.54E + 6 gpm for third quarter, 1989  
3.39E + 6 gpm for fourth quarter, 1989
- b. Gaseous:
1. Number of batch releases: 8
  2. Total time period for batch releases: 3.72E + 3 min.
  3. Maximum time period for a batch release: 7.91E + 2 min.
  4. Average time period for a batch release: 4.64E + 2 min.
  5. Minimum time period for a batch release: 1.00E + 1 min.
6. Abnormal Releases:
- a. Liquid:
1. Number of releases: 0
  2. Total activity released: 0
- b. Gaseous:
1. Number of releases: 0
  2. Total activity released: 0

# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

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Table 2

## GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

		Third Quarter	Fourth Quarter	Est.Total Error, %
A. Fission & activation gases				
1. Total release	Ci	8.34E + 2	9.29E + 1	2.04E + 1
2. Average release rate for period	uCi/sec	1.05E + 2	1.17E + 1	
3. Percent of technical specification limit	%	*	*	
B. Iodines				
1. Total iodine-131	Ci	7.47E-4	4.61E-4	3.30E + 1
2. Average release rate for period	uCi/sec	9.41E-5	5.80E-5	
3. Percent of technical specification limit	%	**	**	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci	7.36E-8	0	N/A
2. Average release rate for period	uCi/sec	9.26E-9	0	
3. Percent of technical specification limit	%	**	**	
4. Gross alpha radioactivity	Ci	0	0	
D. Tritium				
1. Total release	Ci	4.94E-3	4.96E-2	6.14E + 1
2. Average release rate for period	uCi/sec	6.22E-4	6.24E-3	
3. Percent of technical specification limit	%	**	**	

\* Calculated as a percent of dose limits found in Supplemental Information, Section 1a. Third quarter values were 1.22% and 1.31% of the quarterly and cumulative annual gamma dose limits, respectively, and 1.58% and 1.67% of the quarterly and cumulative annual beta dose limits, respectively. Fourth quarter values were 1.70E-1% and 1.40% of the quarterly and cumulative annual gamma dose limits, respectively, and 1.91E-1% and 1.76% of the quarterly and cumulative annual beta dose limits, respectively.

\*\* Calculated as a percent of dose limits found in Supplemental Information, Section 1b. The sum of these values for the third quarter was 1.41E-1% and 1.09E-1% of the quarterly and cumulative annual organ dose limits, respectively. The sum of these values for the fourth quarter was 8.83E-2% and 1.53E-1% of the quarterly and cumulative annual organ dose limits, respectively.

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**Table 3**  
**GASEOUS EFFLUENTS-GROUND-LEVEL RELEASES**

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter

**1. Fission gases**

Krypton-85	Cl	0	0	1.35E+0	0
Krypton-85m	Cl	1.95E-1	2.05E+0	1.57E-1	0
Krypton-87	Cl	0	0	0	0
Krypton-88	Cl	1.21E-1	0	5.55E-2	0
Xenon-133	Cl	5.88E+2	8.06E+1	1.90E+2	0
Xenon-135	Cl	3.94E+1	1.03E+1	3.94E+0	0
Xenon-135m	Cl	0	0	0	0
Xenon-138	Cl	0	0	0	0
Others: Xenon-131m	Cl	2.33E+0	0	2.07E+0	0
Xenon-133m	Cl	4.89E+0	0	1.91E+0	0
Unidentified	Cl	0	0	0	0
Total for period	Cl	6.35E+2	9.29E+1	1.99E+2	0

**2. Iodines**

Iodine-131	Cl	7.47E-4	4.61E-4	0	0
Iodine-132	Cl	1.05E-4	4.39E-4	0	0
Iodine-133	Cl	5.14E-4	5.05E-4	0	0
Iodine-134	Cl	0	0	0	0
Iodine-135	Cl	3.25E-4	3.66E-4	0	0
Total for period	Cl	1.69E-3	1.77E-3	0	0

**3. Particulates**

Strontium-89	Cl	7.36E-8	0	0	0
Strontium-90	Cl	0	0	0	0
Cesium-134	Cl	0	0	0	0
Cesium-137	Cl	0	0	0	0
Barium-Lanth.-140	Cl	0	0	0	0
Others: Rb-88	Cl	6.39E-4	0	0	0
Unidentified	Cl	0	0	0	0
Total for period	Cl	6.39E-4	0	0	0



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Table 4

## LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

		Third Quarter	Fourth Quarter	Est.Total Error, %
A. Fission & activation products				
1. Total release(not including tritium,gases, alpha)	Ci	8.61E-2	1.03E + 0†	1.84E + 1
2. Average diluted concentration during period	uCi/ml	2.44E-10	2.92E-9	
3. Percent of applicable limit	%	*	*	
B. Tritium				
1. Total release	Ci	2.14E + 2	1.78E + 2	1.85E + 1
2. Average diluted concentration during period	uCi/ml	6.07E-7	5.01E-7	
3. Percent of applicable limit	%	*	*	
C. Dissolved and entrained gases				
1. Total release	Ci	1.85E-1	1.10E-1	1.90E + 1
2. Average diluted concentration during period	uCi/ml	5.25E-10	3.09E-10	
3. Percent of applicable limit	%	*	*	
D. Gross alpha radioactivity				
1. Total release	Ci	0	0	N/A
E. Volume of waste released (prior to dilution)				
1. Total release	liters	5.71E + 7	5.60E + 7	3.00E + 0
F. Volume of dilution water used during period				
1. Total release	liters	3.52E + 11	3.55E + 11	4.30E + 0

† Note: 8.48E-1 Ci of Na-24 from moisture carryover test included.

\* See following page.

## SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

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Table 4 (continued)

### LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

- \* Calculated as a percent of dose limits found in Supplemental Information, Section 1c. The sum of these values for the third quarter was 1.40% and 1.52% of the respective quarterly and cumulative annual whole body dose limits and 1.03% and 1.23% of the respective quarterly and cumulative annual organ dose limits. The sum of these values for the fourth quarter was 4.09% and 3.56% of the respective quarterly and cumulative annual whole body dose limits and 1.62% and 2.01% of the respective quarterly and cumulative annual organ dose limits. Dose to the Thyroid was the most limiting organ dose for the third quarter of 1989. Dose to the Liver was the most limiting for the fourth quarter of 1989.

**SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT**  
**July - December, 1989**

**Table 5**  
**LIQUID EFFLUENTS**

†Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
Strontium-89	Cl	0	0	0	0
Strontium-90	Cl	0	0	5.02E-5	0
Cesium-134	Cl	1.33E-3	2.95E-3	1.40E-3	1.76E-2
Cesium-137	Cl	2.30E-3	3.45E-3	1.70E-3	2.48E-2
Iodine-131	Cl	1.85E-2	2.72E-2	4.15E-3	9.97E-3
Cobalt-58	Cl	3.07E-4	0	2.88E-3	4.28E-3
Cobalt-60	Cl	2.72E-4	9.95E-5	2.60E-3	4.70E-3
Iron-59	Cl	0	0	7.32E-4	1.37E-4
Zinc-65	Cl	0	0	0	0
Manganese-54	Cl	0	0	4.27E-4	3.20E-4
Chromium-51	Cl	0	0	9.46E-4	8.54E-5
Zirconium-Niobium-95	Cl	0	0	1.12E-4	9.49E-5
Molybdenum-99	Cl	0	0	5.29E-4	3.22E-4
Technetium-99m	Cl	0	0	8.53E-4	4.00E-4
Barium-Lanth.-140	Cl	0	0	4.71E-4	3.75E-5
Cerium-141	Cl	0	0	1.95E-6	0
Other: *F-18	Cl	1.42E-3	8.07E-4	0	0
Na-24	Cl	1.63E-3	8.48E-1†	0	1.92E-6
Fe-55	Cl	0	0	4.35E-3	1.15E-2
*Co-57	Cl	0	0	1.45E-5	1.93E-5
Zr-97	Cl	0	0	0	8.56E-6
Ru-103	Cl	0	0	8.02E-7	0
Ru-106	Cl	0	0	8.75E-6	5.57E-4
Ag-110m	Cl	0	0	0	1.19E-4
*Sn-113	Cl	0	0	2.75E-6	0
*Sb-124	Cl	0	0	0	5.71E-4
*Sb-125	Cl	0	0	2.65E-4	8.79E-3
I-132	Cl	6.56E-3	1.05E-2	0	1.92E-5
I-133	Cl	1.76E-2	2.88E-2	2.60E-5	1.64E-3
I-134	Cl	4.45E-3	4.67E-3	0	0
I-135	Cl	8.18E-3	2.05E-2	0	4.12E-4
Cs-136	Cl	1.31E-4	0	1.05E-5	4.23E-5
Cs-138	Cl	1.85E-3	9.23E-4	0	0
Ce-144	Cl	0	0	6.23E-5	2.03E-4
Total for period (above)	Cl	6.45E-2	9.48E-1†	2.16E-2	8.66E-2



# SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

July - December, 1989

Table 5 (continued)

## LIQUID EFFLUENTS

†Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Third Quarter	Fourth Quarter	Third Quarter	Fourth Quarter
Xenon-133	Ci	1.96E-3	1.25E-3	1.78E-1	1.07E-1
Xenon-135	Ci	7.54E-4	5.92E-4	2.38E-4	3.17E-4
Other: Kr-85	Ci	4.84E-5	0	6.64E-6	2.08E-5
Xe-131m	Ci	4.64E-4	0	2.15E-3	5.72E-4
Xe-133m	Ci	0	0	1.25E-3	5.03E-4
Total Entrained Gases	Ci	3.22E-3	1.84E-3	1.82E-1	1.08E-1

† Tritium not included. See Table 4 for tritium numbers.

\* Dose factors for these trace radionuclides are not included in the ODCM or Regulatory Guide 1.109, consequently the cumulative dose attributed to these isotopes is not reported. The quantity of these isotopes comprised only 7.9E-4% and 5.7E-3% of the total curies released (including tritium) during the third and fourth quarter, respectively.

‡ Continuous mode Na-24 releases for fourth quarter are due to the moisture carryover study performed on the steam generators during November, 1989.

## SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

July - December, 1989

Table 6

## SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

## A. Solid Waste Shipped Offsite for Burial or Disposal (not irradiated fuel)

1. Type of waste	Unit	6-Month Period	Est. Total Error, %	1989 Total
a. Spent resins, filter sludges, evap. bottoms, process filters, etc.	m <sup>3</sup> Ci	2.93E + 1 8.85E-1	3.50E + 1	4.44E + 1 3.74E + 2
b. Dry compressible waste, contaminated equip., etc.	m <sup>3</sup> Ci	8.68E0 1.36E-1	3.50E + 1	9.60E + 1 1.85E0
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0 0	N/A	0 0
d. Other (describe)	m <sup>3</sup> Ci	0 0	N/A	0 0

## 2. Estimate of major nuclide composition (by type of waste)\*

a. Fe-55	%	4.96E + 1
Co-60	%	2.11E + 1
Ni-63	%	1.08E + 1
Co-58	%	6.57E + 0
Cs-137	%	3.81E + 0
Mn-54	%	2.36E + 0
Cs-134	%	2.24E + 0
Ce-144	%	1.13E + 0
b. Fe-55	%	4.90E + 1
Co-58	%	2.29E + 1
Co-60	%	8.12E + 0
Cs-134	%	6.43E + 0
Cs-137	%	5.48E + 0
Cr-51	%	3.95E + 0
C-14	%	1.53E + 0
Nb-95	%	1.32E + 0
Mn-54	%	1.22E + 0
c. None	%	N/A
d. None	%	N/A

\* All nuclides are listed in descending order by activity level.  
All nuclides with concentrations above 1.0% are listed.

## 3. Solid Waste Disposition (6 Month Period and 1989 Total)

Number of Shipments	Mode of Transportation	Destination
9† (6 mo.) / 60† (12 mo.)	Truck	Barnwell, S.C.

†Note: 6 (for the 6 month period) and 54 (for 1989 total) are partial shipments of DAW from waste processor to Barnwell.

## B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
NONE	N/A	N/A

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: A  $\Delta T / \Delta z$  61-10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: B  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	1	0	1	23.09
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	1	0	0	0	1	11.35
SW	0	0	1	0	0	0	1	10.21
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	2	0	1	0	3	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 9  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

Table 9

FIRST QUARTER 1989

SITE: V. C. SUMMER Nuclear Station UNIT 1

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: C  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	0	0	0	0	0	1	3.88
NNE	0	0	0	0	5	0	5	21.88
NE	0	2	0	1	4	0	7	16.45
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	1	2	0	0	0	3	8.74
SSW	1	1	2	0	0	0	4	7.33
SW	1	2	6	2	0	0	11	9.35
WSW	0	1	0	0	0	0	1	4.64
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	2	0	0	0	0	2	7.22
NNW	0	0	1	0	0	0	1	11.73
Total	3	9	11	3	9	0	35	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 5  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9

FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	3	14	12	11	0	0	40	9.30
NNE	3	34	69	37	19	0	162	11.81
NE	13	44	83	80	29	0	249	12.42
ENE	3	58	38	7	2	0	108	8.21
E	3	20	9	1	0	0	33	6.74
ESE	5	6	0	0	0	0	11	4.47
SE	5	6	0	0	0	0	11	4.31
SSE	2	6	2	1	0	0	11	7.79
S	4	15	17	6	0	0	42	8.47
SSW	7	22	23	6	0	0	58	8.27
SW	3	38	43	4	0	0	88	8.51
WSW	5	32	23	9	0	0	69	8.34
W	5	10	7	5	0	0	27	8.62
WNW	11	25	1	3	0	0	40	5.76
NW	4	9	6	1	0	0	20	7.06
NNW	3	18	10	7	0	0	38	8.60
Total	79	357	343	178	50	0	1007	

Hours of Calm : 4  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 80  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: E  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	8	23	18	1	0	0	50	7.06
NNE	9	23	8	3	0	0	43	6.72
NE	2	11	7	3	3	0	26	8.89
ENE	2	17	5	1	0	0	25	6.97
E	6	25	5	0	0	0	36	5.84
ESE	2	11	3	0	0	0	16	6.58
SE	4	9	2	0	0	0	15	5.38
SSE	3	26	12	2	0	0	43	7.13
S	7	33	39	1	0	0	80	7.82
SSW	10	73	10	0	0	0	93	6.21
SW	5	55	17	0	0	0	77	6.36
WSW	3	33	2	0	0	0	38	5.76
W	11	11	1	2	0	0	25	5.31
WNW	6	12	1	1	0	0	20	5.46
NW	7	7	3	0	0	0	17	5.65
NNW	2	2	2	3	0	0	9	9.22
Total	87	371	135	17	3	0	613	

Hours of Calm : 10  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 32  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

Table 9

SITE: V. C. SUMMER Nuclear Station UNIT 1

FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: F  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	4	1	0	0	0	6	5.63
NNE	1	5	0	0	0	0	6	5.35
NE	1	2	0	0	0	0	3	4.54
ENE	1	5	0	0	0	0	6	4.54
E	0	3	1	0	0	0	4	6.89
ESE	1	1	0	0	0	0	2	4.08
SE	1	17	1	0	0	0	19	6.21
SSE	4	20	0	0	0	0	24	5.45
S	7	28	4	0	0	0	39	5.63
SSW	4	16	0	0	0	0	20	4.84
SW	0	3	1	0	0	0	4	6.89
WSW	3	4	0	0	0	0	7	3.76
W	2	1	0	0	0	0	3	3.69
WNW	0	1	0	0	0	0	1	5.12
NW	1	6	0	0	0	0	7	5.91
NNW	2	0	1	0	0	0	3	5.46
Total	29	116	9	0	0	0	154	

Hours of Calm : 2  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 11  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

Table 9

SITE: V. C. SUMMER Nuclear Station UNIT 1

FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: G  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	1	0	0	0	0	1	4.55
NNE	1	3	0	0	0	0	4	4.75
NE	0	1	0	0	0	0	1	4.69
ENE	0	1	0	0	0	0	1	4.00
E	0	0	0	0	0	0	0	0.00
ESE	0	1	0	0	0	0	1	4.00
SE	1	6	1	0	0	0	8	5.49
SSE	3	8	0	0	0	0	11	4.88
S	6	6	0	0	0	0	12	4.16
SSW	13	2	0	0	0	0	15	3.30
SW	8	2	0	0	0	0	10	3.37
WSW	11	2	0	0	0	0	13	3.17
W	5	3	0	0	0	0	8	3.67
WNW	5	2	0	0	0	0	7	3.87
NW	3	1	0	0	0	0	4	3.60
NNW	2	0	0	0	0	0	2	3.00
Total	58	39	1	0	0	0	98	

Hours of Calm : 13  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 1  
 Hours of Missing Data for All : 138  
 Hours of No Stability Class : 83  
 Total hours of observation : 2160



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class:ALL delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	13	42	31	12	0	0	98	7.83
NNE	14	68	77	40	25	0	224	10.72
NE	16	67	93	84	36	0	296	11.92
ENE	6	87	43	8	2	0	146	7.76
E	10	61	15	1	0	0	87	6.05
ESE	8	19	3	0	0	0	30	5.55
SE	12	40	4	0	0	0	56	5.42
SSE	12	63	14	3	0	0	92	6.43
S	25	86	62	7	0	0	180	7.21
SSW	35	119	36	6	0	0	196	6.49
SW	18	108	68	6	0	0	200	7.27
WSW	23	87	25	9	0	0	144	6.58
W	23	30	8	7	0	0	68	6.36
WNW	22	43	2	4	0	0	71	5.52
NW	15	27	9	1	0	0	52	6.10
NNW	9	20	14	10	0	0	53	8.37
Total	261	967	504	198	63	0	1993	

Hours of Calm : 29

Hours of Varying Wind Direction : 0

Hours of Missing Data for All : 138

Hours of No Stability Class : 83

Total hours of observation : 2160

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: A  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	1	0	0	0	0	1	7.12
SSW	0	1	2	3	0	0	6	12.13
SW	0	5	9	0	0	0	14	8.80
WSW	0	6	4	0	0	0	10	7.46
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	13	15	3	0	0	31	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: B delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	1	0	0	0	0	1	4.09
ENE	0	3	1	0	0	0	4	6.23
E	0	0	1	0	0	0	1	9.96
ESE	0	0	1	0	0	0	1	8.23
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	1	1	0	0	0	2	6.85
SSW	1	1	5	0	0	0	7	8.06
SW	0	11	5	0	0	0	16	7.37
WSW	0	3	1	3	0	0	7	10.27
W	0	2	1	0	0	0	3	7.63
WNW	0	0	0	0	0	0	0	0.00
NW	1	0	3	0	0	0	4	9.44
NNW	1	0	0	0	0	0	1	2.75
Total	3	22	19	3	0	0	47	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 2  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station, UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: C  $\Delta T / \Delta z$  61- >10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	3	0	0	0	0	0	3	3.70
NE	1	1	0	0	0	0	2	5.25
ENE	0	2	2	0	0	0	4	8.69
E	0	0	1	0	0	0	1	11.18
ESE	0	1	0	0	0	0	1	4.73
SE	0	0	1	0	0	0	1	11.81
SSE	1	1	1	0	0	0	3	6.59
S	0	3	8	1	0	0	12	10.13
SSW	0	4	4	1	0	0	9	8.50
SW	0	9	5	0	0	0	14	7.11
WSW	0	5	1	2	0	0	8	8.57
W	0	4	1	0	0	0	5	7.29
WNW	0	1	0	0	0	0	1	4.38
NW	0	1	3	0	0	0	4	8.98
NNW	1	0	0	0	0	0	1	3.83
Total	6	32	27	4	0	0	69	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 6  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	4	11	9	1	0	0	25	6.95
NNE	6	18	12	3	0	0	39	7.57
NE	8	16	18	5	0	0	47	7.90
ENE	0	14	9	0	0	0	23	7.86
E	0	7	4	0	0	0	11	6.92
ESE	2	7	2	0	0	0	11	6.20
SE	1	19	11	0	0	0	31	7.25
SSE	2	20	9	1	0	0	32	7.09
S	2	17	13	3	1	0	36	8.53
SSW	5	38	18	4	0	0	65	7.89
SW	3	29	22	3	0	0	57	7.73
WSW	2	21	11	3	0	0	37	7.48
W	8	15	19	2	0	0	44	7.83
WNW	8	23	7	3	0	0	41	7.02
NW	3	8	8	3	0	0	22	8.38
NNW	6	5	3	2	0	0	16	6.35
Total	60	268	175	33	1	0	537	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 116  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: E delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	3	2	2	0	0	0	7	5.49
NNE	2	6	3	0	0	0	11	5.95
NE	4	7	1	0	0	0	12	4.80
ENE	3	9	0	0	0	0	12	4.93
E	4	8	0	0	0	0	12	5.48
ESE	0	7	1	0	0	0	8	6.38
SE	4	11	10	0	0	0	25	7.30
SSE	11	35	15	0	0	0	61	6.30
S	18	44	18	0	0	0	80	6.22
SSW	14	38	5	0	0	0	57	5.49
SW	15	34	2	0	0	0	51	4.89
WSW	10	31	5	0	0	0	46	5.45
W	6	14	3	0	0	0	23	5.40
WNW	7	17	2	0	0	0	26	5.14
NW	3	12	1	0	0	0	16	5.26
NNW	5	2	1	0	0	0	8	4.52
Total	109	277	69	0	0	0	455	

Hours of Calm : 1  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 70  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: F  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	3	0	0	0	0	0	3	2.68
ENE	2	0	0	0	0	0	2	3.39
E	1	1	0	0	0	0	2	3.78
ESE	3	1	0	0	0	0	4	3.92
SE	1	5	0	0	0	0	6	5.83
SSE	3	25	2	0	0	0	30	5.46
S	12	35	2	0	0	0	49	4.79
SSW	8	16	0	0	0	0	24	4.83
SW	10	14	0	0	0	0	24	3.90
WSW	7	6	0	0	0	0	13	3.89
W	8	3	0	0	0	0	11	3.48
WNW	5	6	0	0	0	0	11	4.05
NW	2	1	0	0	0	0	3	4.20
NNW	0	1	0	0	0	0	1	5.06
Total	65	114	4	0	0	0	183	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 16  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: G  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0-3	4-7	8-12	13-18	19-24	>24		
Calm	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	1	0	0	0	0	0	1	2.24
ESE	1	0	0	0	0	0	1	3.29
SE	1	4	1	0	0	0	6	6.12
SSE	2	14	0	0	0	0	16	5.27
S	2	7	0	0	0	0	9	4.44
SSW	5	1	0	0	0	0	6	3.38
SW	13	0	0	0	0	0	13	3.06
WSW	10	0	0	0	0	0	10	2.73
W	9	3	0	0	0	0	12	3.25
WNW	3	0	0	0	0	0	3	2.92
NW	1	0	0	0	0	0	1	3.94
NNW	1	0	0	0	0	0	1	2.13
Total	49	29	1	0	0	0	79	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 13  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class:ALL  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	7	13	11	1	0	0	32	6.63
NNE	12	24	15	3	0	0	54	6.94
NE	16	25	19	5	0	0	65	6.94
ENE	5	28	12	0	0	0	45	6.81
E	6	16	6	0	0	0	28	6.17
ESE	6	16	4	0	0	0	26	5.81
SE	7	39	23	0	0	0	69	7.11
SSE	19	95	27	1	0	0	142	6.19
S	34	108	42	4	1	0	189	6.48
SSW	33	99	34	8	0	0	174	6.71
SW	41	102	44	3	0	0	190	6.18
WSW	29	72	22	8	0	0	131	6.26
W	31	42	24	2	0	0	99	6.16
WNW	23	48	9	3	0	0	83	5.82
NW	10	22	15	3	0	0	50	7.18
NNW	14	8	4	2	0	0	28	5.41
Total	293	757	311	43	1	0	1405	

Hours of Calm : 1  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 778  
 Hours of No Stability Class : 559  
 Total hours of observation : 2184



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: A  $\Delta T / \Delta z$  61-10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	1	0	0	0	0	1	7.24
NNE	0	4	0	0	0	0	4	7.13
NE	0	3	1	0	0	0	4	6.99
ENE	0	1	0	0	0	0	1	5.99
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	1	0	0	0	0	1	7.21
SSE	0	1	1	0	0	0	2	9.12
S	0	0	0	0	0	0	0	0.00
SSW	0	1	0	0	0	0	1	7.58
SW	0	1	0	0	0	0	1	7.45
WSW	0	0	0	0	0	0	0	0.00
W	0	1	0	0	0	0	1	4.52
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	14	2	0	0	0	16	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: B  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	2	0	1	0	0	3	7.55
NNE	2	4	0	0	0	0	6	4.53
NE	2	2	1	0	0	0	5	5.39
ENE	0	3	0	0	0	0	3	6.19
E	0	0	0	0	0	0	0	0.00
ESE	0	2	3	0	0	0	5	8.85
SE	0	2	1	0	0	0	3	7.81
SSE	0	1	1	0	0	0	2	8.70
S	0	1	0	0	0	0	1	7.23
SSW	0	3	0	0	0	0	3	6.29
SW	0	11	1	0	0	0	12	5.83
WSW	1	4	4	0	0	0	9	7.54
W	0	1	0	0	0	0	1	4.43
WNW	0	1	0	0	0	0	1	4.75
NW	1	2	0	0	0	0	3	4.20
NNW	0	0	0	0	0	0	0	0.00
Total	6	39	11	1	0	0	57	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: C delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	5	4	0	1	0	0	10	5.14
NNE	4	7	0	0	3	0	14	7.74
NE	0	12	3	1	6	0	22	10.86
ENE	1	3	2	1	1	0	8	9.78
E	0	1	1	0	0	0	2	7.47
ESE	0	2	1	0	0	0	3	8.05
SE	0	1	1	0	0	0	2	8.39
SSE	0	6	1	0	0	0	7	7.18
S	1	10	1	0	0	0	12	6.41
SSW	0	12	1	0	0	0	13	6.33
SW	1	21	1	0	0	0	23	5.39
WSW	1	19	1	0	0	0	21	5.71
W	1	4	1	0	0	0	6	5.71
WNW	0	7	0	0	0	0	7	6.25
NW	2	4	0	0	0	0	6	4.64
NNW	2	2	0	0	0	0	4	4.22
Total	18	115	14	3	10	0	160	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	28	44	12	11	0	2	97	7.24
NNE	24	57	85	80	6	2	254	10.88
NE	6	42	95	83	4	0	230	11.58
ENE	6	37	55	10	0	0	108	8.85
E	3	36	13	1	0	0	53	7.08
ESE	3	35	8	0	0	0	46	6.56
SE	4	41	11	0	0	0	56	6.77
SSE	7	42	6	0	0	0	55	6.07
S	9	35	5	1	0	0	50	5.99
SSW	6	27	4	4	1	0	42	7.15
SW	6	43	2	1	0	2	54	6.51
WSW	15	36	4	0	0	0	55	5.10
W	10	15	1	0	0	0	26	4.86
WNW	9	14	0	0	0	0	23	4.30
NW	3	7	1	0	0	1	12	7.12
NNW	11	7	3	0	0	1	22	7.07
Total	150	518	305	191	11	8	1183	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 8  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: E delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	3	0	0	0	0	4	4.07
NNE	1	3	4	1	0	0	9	8.23
NE	2	3	2	2	0	0	9	8.34
ENE	5	11	2	0	0	0	18	5.38
E	2	18	4	0	0	0	24	5.93
ESE	2	17	0	0	0	0	19	5.10
SE	10	42	0	0	0	0	52	5.05
SSE	17	45	3	0	0	0	65	4.97
S	13	40	3	0	0	0	56	5.01
SSW	18	28	8	0	2	0	56	5.72
SW	28	45	1	0	0	0	74	4.43
WSW	33	37	0	0	1	0	71	4.49
W	27	25	0	0	0	0	52	3.81
WNW	15	3	1	0	0	0	19	3.65
NW	10	3	0	0	0	0	13	3.49
NNW	2	3	1	0	0	0	6	5.26
Total	186	326	29	3	3	0	547	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: F  $\Delta T / \Delta z$  61- >10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	0	0	0	0	0	1	2.90
NNE	0	1	0	0	0	0	1	4.40
NE	1	0	0	0	0	0	1	3.24
ENE	0	1	0	0	0	0	1	6.02
E	0	0	1	0	0	0	1	9.17
ESE	1	1	0	0	0	0	2	4.26
SE	2	7	0	0	0	0	9	5.05
SSE	8	17	0	0	0	0	25	4.94
S	14	16	0	0	0	0	30	4.03
SSW	8	6	0	0	0	0	14	3.83
SW	13	7	0	0	0	0	20	3.34
WSW	23	9	0	0	0	0	32	3.34
W	14	2	0	0	0	0	16	3.14
WNW	6	1	0	0	0	0	7	3.18
NW	3	1	0	0	0	0	4	3.18
NNW	1	0	0	0	0	0	1	1.70
Total	95	69	1	0	0	0	165	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: G  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	1	0	0	0	0	1	7.97
SSE	0	2	1	0	0	0	3	7.22
S	0	0	0	0	0	0	0	0.00
SSW	4	2	0	0	0	0	6	3.48
SW	1	2	0	0	0	0	3	3.98
WSW	9	1	0	0	0	0	10	3.45
W	5	1	0	0	0	0	6	3.43
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	19	9	1	0	0	0	29	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class:ALL delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	36	54	12	16	0	2	120	7.13
NNE	32	76	90	81	12	3	294	10.60
NE	11	62	102	86	10	0	271	11.20
ENE	12	56	60	11	1	0	140	8.38
E	5	55	19	1	0	0	80	6.77
ESE	6	57	12	0	0	0	75	6.35
SE	16	95	14	0	0	0	125	6.01
SSE	32	114	13	0	0	0	159	5.59
S	38	103	9	1	0	0	151	5.28
SSW	37	81	13	4	3	0	138	5.93
SW	52	134	5	1	0	2	194	5.12
WSW	84	106	9	0	1	0	200	4.67
W	57	52	2	0	0	0	111	4.11
WNW	30	27	1	0	0	0	58	4.20
NW	19	18	3	0	0	1	41	5.05
NNW	17	13	5	1	0	1	37	6.46
Total	484	1103	369	202	27	9	2194	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 14  
 Hours of No Stability Class : 43  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: A delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	2	0	0	2	15.52
NNE	0	0	0	0	2	0	2	20.22
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	1	0	0	1	15.60
SW	1	0	1	0	0	0	2	7.12
WSW	0	5	3	0	0	0	8	7.71
W	0	1	0	0	0	0	1	4.61
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	1	6	0	0	7	15.47
NNW	0	0	0	1	0	0	1	17.75
Total	1	6	5	10	2	0	24	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: B delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	1	3	0	4	19.45
NNE	0	0	0	7	6	0	13	19.03
NE	0	0	0	1	2	0	3	19.83
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	1	0	0	0	0	1	4.89
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	1	0	1	0	0	2	10.53
SW	0	0	8	0	0	0	8	10.49
WSW	1	3	9	1	0	0	14	9.28
W	0	1	3	3	0	0	7	11.77
WNW	0	1	0	0	0	0	1	6.57
NW	0	1	1	1	0	0	3	10.89
NNW	0	1	1	4	0	0	6	14.10
Total	1	9	22	19	11	0	62	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: C delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	1	2	1	0	4	16.66
NNE	0	0	0	11	10	0	21	17.95
NE	0	2	2	7	6	0	17	16.13
ENE	0	0	0	0	0	0	0	0.00
E	0	1	0	0	0	0	1	4.85
ESE	0	1	0	0	0	0	1	4.84
SE	0	0	0	0	0	0	0	0.00
SSE	0	1	0	0	0	0	1	4.94
S	0	1	0	0	0	0	1	4.47
SSW	0	4	1	1	0	0	6	8.56
SW	0	6	9	0	0	0	15	8.23
WSW	2	9	8	1	0	0	20	8.01
W	0	6	1	3	0	0	10	9.45
WNW	0	1	0	0	0	0	1	6.00
NW	0	1	3	0	0	0	4	10.69
NNW	2	2	2	6	0	0	12	11.87
Total	4	35	27	31	17	0	114	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 3  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	10	14	25	23	5	0	77	10.88
NNE	13	21	58	29	2	0	123	10.33
NE	3	23	62	39	2	0	129	11.36
ENE	0	14	48	6	1	0	69	9.93
E	0	22	12	3	0	0	37	8.07
ESE	2	8	9	0	0	0	19	7.20
SE	1	15	0	0	0	0	16	5.76
SSE	2	19	6	1	0	0	28	6.72
S	4	19	17	2	1	0	39	7.72
SSW	4	20	5	7	0	0	36	8.07
SW	7	34	20	3	0	0	64	7.28
WSW	5	32	36	1	0	0	74	8.03
W	5	17	10	8	0	0	40	8.71
WNW	3	22	0	0	0	0	25	5.02
NW	1	28	5	1	0	0	35	6.97
NNW	5	11	14	2	0	0	32	7.87
Total	65	319	323	125	11	0	843	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 47  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: E  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	7	12	4	0	0	0	23	5.53
NNE	4	6	12	0	0	0	22	6.91
NE	2	7	22	0	0	0	31	8.37
ENE	4	6	1	0	0	0	11	5.49
E	3	6	1	0	0	0	10	5.10
ESE	2	5	0	0	0	0	7	4.74
SE	0	20	2	0	0	0	22	5.84
SSE	11	30	1	0	0	0	42	5.00
S	11	23	8	0	0	0	42	5.71
SSW	5	20	3	0	0	0	28	5.50
SW	8	47	13	0	0	0	68	6.33
WSW	7	44	28	0	0	0	79	7.13
W	9	26	5	0	1	0	41	5.97
WNW	12	13	3	0	0	0	28	4.68
NW	6	3	0	0	0	0	9	4.03
NNW	6	5	3	0	0	0	14	5.68
Total	97	273	106	0	1	0	477	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 44  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: F delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	3	0	0	0	0	4	4.96
NNE	0	0	0	0	0	0	0	0.00
NE	0	3	4	0	0	0	7	7.15
ENE	1	1	0	0	0	0	2	3.39
E	3	2	0	0	0	0	5	4.09
ESE	3	2	0	0	0	0	5	3.79
SE	0	22	0	0	0	0	22	6.06
SSE	5	30	5	0	0	0	40	5.90
S	9	8	0	0	0	0	17	3.95
SSW	7	11	0	0	0	0	18	4.90
SW	14	20	0	0	0	0	34	4.45
WSW	14	14	0	0	0	0	28	4.27
W	5	6	0	0	0	0	11	3.95
WNW	10	6	0	0	0	0	16	3.43
NW	7	3	0	0	0	0	10	3.74
NNW	3	4	0	0	0	0	7	4.35
Total	82	135	9	0	0	0	226	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 6  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class: G  $\Delta T / \Delta z$  61->10 m  $\Delta T$  With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	1	0	0	0	0	2	3.30
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	1	0	0	0	0	0	1	1.79
E	1	0	0	0	0	0	1	1.82
ESE	1	1	0	0	0	0	2	4.22
SE	4	4	1	0	0	0	9	4.57
SSE	11	12	0	0	0	0	23	4.27
S	28	17	0	0	0	0	45	3.74
SSW	13	2	0	0	0	0	15	2.97
SW	25	10	0	0	0	0	35	3.57
WSW	39	15	0	0	0	0	54	3.37
W	16	9	0	0	0	0	25	3.61
WNW	9	1	0	0	0	0	10	3.41
NW	5	3	0	0	0	0	8	3.86
NNW	0	0	0	0	0	0	0	0.00
Total	154	75	1	0	0	0	230	

Hours of Calm : 5  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 12  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 9  
FOURTH QUARTER 1989

Report Date : 90-02-22

Data Period : 89-10- 1 00:00 to 89-12-31 23:00

Stability Class:ALL delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	19	30	30	28	9	0	116	10.06
NNE	17	27	70	47	20	0	181	11.53
NE	5	35	90	47	10	0	187	11.28
ENE	6	21	49	6	1	0	83	9.08
E	8	31	13	3	0	0	55	6.90
ESE	8	18	9	0	0	0	35	5.92
SE	5	62	3	0	0	0	70	5.73
SSE	34	99	12	1	0	0	146	5.41
S	53	69	21	2	1	0	146	5.40
SSW	31	58	9	10	0	0	108	6.21
SW	57	120	51	3	0	0	231	6.13
WSW	71	122	84	3	0	0	280	6.49
W	36	66	19	14	1	0	136	6.69
WNW	34	44	3	0	0	0	81	4.42
NW	19	39	10	8	0	0	76	7.00
NNW	16	23	20	13	0	0	72	8.42
Total	419	864	493	185	42	0	2003	

Hours of Calm : 5  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 200  
 Hours of No Stability Class : 115  
 Total hours of observation : 2208

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: A  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: B delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: C delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	1	0	0	0	0	1	7.33
WNW	0	1	0	0	0	0	1	6.76
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	2	0	0	0	0	2	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: E delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: F delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class: G delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
FIRST QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 1- 1 00:00 to 89- 3-31 23:00

Stability Class:ALL delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	1	0	0	0	0	1	5.00
SW	0	2	0	0	0	0	2	4.63
WSW	0	2	0	0	0	0	2	5.63
W	0	4	0	0	0	0	4	6.02
WNW	0	4	0	0	0	0	4	6.63
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	13	0	0	0	0	13	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 11  
 Total hours of observation : 13



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-21

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: A  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: B delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	3	0	0	0	3	9.36
SW	0	1	1	0	0	0	2	8.65
WSW	0	0	0	0	0	0	0	0.00
W	0	0	1	0	0	0	1	9.90
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	1	5	0	0	0	6	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: C delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	1	0	0	0	1	9.63
WSW	0	1	0	0	0	0	1	7.43
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	1	1	0	0	0	2	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	1	2	0	0	0	3	9.41
NE	0	1	0	0	0	0	1	7.65
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	1	0	0	0	0	1	6.33
SW	0	1	2	0	0	0	3	8.40
WSW	0	1	0	1	0	0	2	8.81
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	1	4	0	0	0	0	5	4.59
NNW	0	0	0	0	0	0	0	0.00
Total	1	9	4	1	0	0	15	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 1  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: E delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	1	0	0	0	0	1	4.63
S	0	0	0	0	0	0	0	0.00
SSW	1	2	0	0	0	0	3	4.17
SW	0	1	0	0	0	0	1	4.30
WSW	0	1	0	0	0	0	1	7.40
W	2	1	0	0	0	0	3	3.73
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	3	6	0	0	0	0	9	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: F delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	1	0	0	0	0	1	4.46
SSW	1	2	0	0	0	0	3	4.77
SW	2	4	0	0	0	0	6	4.32
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	3	7	0	0	0	0	10	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class: G delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	0	0	0	0	0	0	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
SECOND QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 4- 1 00:00 to 89- 6-30 23:00

Stability Class:ALL delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	1	2	0	0	0	3	9.41
NE	0	1	0	0	0	0	1	7.65
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	1	0	0	0	0	1	4.63
S	0	1	0	0	0	0	1	4.46
SSW	2	5	3	0	0	0	10	6.12
SW	2	7	4	0	0	0	13	6.33
WSW	0	3	0	1	0	0	4	8.11
W	2	1	1	0	0	0	4	5.27
WNW	0	0	0	0	0	0	0	0.00
NW	1	4	0	0	0	0	5	4.59
NNW	0	0	0	0	0	0	0	0.00
Total	7	24	10	1	0	0	42	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 1  
 Hours of No Stability Class : 0  
 Total hours of observation : 43

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: A  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Mean Total' Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24	
N	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0.00
NE	0	0	1	0	0	0	9.75
ENE	0	1	0	0	0	0	5.99
E	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0.00
Total	0	1	1	0	0	0	2

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: B  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	1	1	0	0	0	0	2	4.22
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	1	0	0	0	1	10.51
S	0	0	0	0	0	0	0	3.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	1	1	1	0	0	0	3	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: C delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	1	0	0	0	0	0	1	3.45
NNE	1	0	0	0	0	0	1	3.70
NE	0	1	0	0	0	0	1	4.15
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	2	0	0	0	0	2	5.13
SW	0	0	0	0	0	0	0	0.00
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	1	0	0	0	0	1	4.11
NNW	0	0	0	0	0	0	0	0.00
Total	2	4	0	0	0	0	6	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: D  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	2	2	0	0	0	0	4	5.03
NNE	1	2	3	4	0	0	10	11.00
NE	0	0	7	0	0	0	7	11.91
ENE	0	0	2	1	0	0	3	12.25
E	0	1	1	0	0	0	2	7.38
ESE	0	1	0	0	0	0	1	4.99
SE	1	0	0	0	0	0	1	3.99
SSE	0	1	0	0	0	0	1	7.56
S	0	1	0	0	0	0	1	5.33
SSW	1	1	0	0	0	0	2	4.20
SW	0	3	0	0	0	0	3	6.19
WSW	1	0	0	0	0	0	1	2.76
W	0	0	0	0	0	0	0	0.00
WNW	0	1	0	0	0	0	1	4.03
NW	0	0	0	0	0	0	0	0.00
NNW	1	0	0	0	0	0	1	3.52
Total	7	13	13	5	0	0	38	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: E  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	2	0	0	2	14.55
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	2	1	0	0	0	3	6.56
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	1	1	0	0	0	0	2	4.40
WSW	1	0	0	0	0	0	1	1.98
W	1	0	0	0	0	0	1	2.91
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	3	3	1	2	0	0	9	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: F  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	1	0	0	0	0	1	4.02
WSW	0	0	0	0	0	0	0	0.00
W	0	0	0	0	0	0	0	0.00
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	1	0	0	0	0	1	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61

## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class: G delta T/ delta z 61-&gt;10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total'	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	0	0	0	0	0	0	0	0.00
NNE	0	0	0	0	0	0	0	0.00
NE	0	0	0	0	0	0	0	0.00
ENE	0	0	0	0	0	0	0	0.00
E	0	0	0	0	0	0	0	0.00
ESE	0	0	0	0	0	0	0	0.00
SE	0	0	0	0	0	0	0	0.00
SSE	0	0	0	0	0	0	0	0.00
S	0	0	0	0	0	0	0	0.00
SSW	0	0	0	0	0	0	0	0.00
SW	0	0	0	0	0	0	0	0.00
WSW	0	1	0	0	0	0	1	4.30
W	0	1	0	0	0	0	1	4.35
WNW	0	0	0	0	0	0	0	0.00
NW	0	0	0	0	0	0	0	0.00
NNW	0	0	0	0	0	0	0	0.00
Total	0	2	0	0	0	0	2	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61



## JOINT WIND FREQUENCY DISTRIBUTION BY STABILITY CLASS

SITE: V. C. SUMMER Nuclear Station UNIT 1

Table 10  
THIRD QUARTER 1989

Report Date : 90-02-22

Data Period : 89- 7- 1 00:00 to 89- 9-30 23:00

Stability Class:ALL  $\Delta T / \Delta z$  61->10 m Delta T With Substitution

Wind Sensor Height : 10 meter +++ Batch Release Times Only +++

Hours at Each Wind Direction and Speed

Wind Direction	Wind Speed (miles/hour)						Total	Mean Speed
	0.75- <4	4- <8	8- <13	13- <19	19- 24	>24		
N	3	2	0	0	0	0	5	4.72
NNE	2	2	3	4	0	0	11	10.34
NE	1	2	8	2	0	0	13	10.37
ENE	0	1	2	1	0	0	4	10.69
E	0	1	1	0	0	0	2	7.38
ESE	0	1	0	0	0	0	1	4.99
SE	1	0	0	0	0	0	1	3.99
SSE	0	3	2	0	0	0	5	7.55
S	0	1	0	0	0	0	1	5.33
SSW	1	3	0	0	0	0	4	4.67
SW	1	5	0	0	0	0	6	5.23
WSW	2	1	0	0	0	0	3	3.01
W	1	1	0	0	0	0	2	3.63
WNW	0	1	0	0	0	0	1	4.03
NW	0	1	0	0	0	0	1	4.11
NNW	1	0	0	0	0	0	1	3.52
Total	13	25	16	7	0	0	61	

Hours of Calm : 0  
 Hours of Varying Wind Direction : 0  
 Hours of Missing Data for All : 0  
 Hours of No Stability Class : 0  
 Total hours of observation : 61

ATTACHMENT I

V. C. SUMMER NUCLEAR STATION

PROCESS CONTROL PROGRAM

REVISION 8

Procedure Development Form - A

I.	DATE: <u>8-16-89</u> PROC # <u>PCP-001</u> REV # <u>2</u> CHG _____ COMM # _____ TITLE: <u>Process Control Program for Processing Wet Waste</u> NEW PROC _____ REVISION <u>✓</u> SAFETY RELATED <u>✓</u> QUALITY RELATED _____ CHANGE _____ PERMANENT <u>✓</u> RESTRICTED _____ FROM _____ TO _____ TWO-YEAR REVIEW _____ NONSAFETY RELATED _____																																					
II.	DESCRIPTION: (See Section 6.4.3) <u>REMOVED ALL REFERENCES TO CDSI OPERATOR, MADE PROCEDURE PLANT-SPECIFIC, AND REVISED/ADDED ATTACHMENTS.</u> REASON FOR CHANGE: <u>INCORPORATION OF IMPROVEMENTS PER SCATG/QA AUDIT - 89-R, "RADWASTE", FINDING #</u>																																					
III.	WILL THIS REVISION/CHANGE/NEW PROCEDURE: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">*Yes</th> <th style="text-align: center;">No</th> <th style="text-align: center;">N/A</th> </tr> </thead> <tbody> <tr> <td>1. Represent a change to procedures as described in FSAR, FPER or REP? (50.59 review)</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>2. Represent a change to the facility as described in the FSAR, FPER or REP? (50.59 review)</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>3. Represent a test or experiment not described in FSAR, FPER or REP? (50.59 review)</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>4. Require a change to Technical Specifications? (50.59 review)</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>5. Result in significant increased personnel radiation exposure? (ALARA review)</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>6. Result in a release of effluents to the Environment?</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> <td style="text-align: center;">_____</td> </tr> <tr> <td>7. Degrade the safeguards effectiveness of the Physical Security Plan?</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> </tr> <tr> <td>8. Degrade the safeguards effectiveness of the Safeguards Contingency Plan?</td> <td style="text-align: center;">_____</td> <td style="text-align: center;">_____</td> <td style="text-align: center;"><u>✓</u></td> </tr> </tbody> </table> SUMMARY JUSTIFICATION: *If any question 1 through 8 is answered "yes," refer to Section 6.4.5 and 6.4.10 of procedure. <u>W. Black</u> Originator <u>Sandy J. Guy</u> 8/21/89 (Evaluated by Discipline Supervisor) (DATE) FSAR, FPER, REP or TS REFERENCES (See Section 6.4.4): <u>FSAR Chap 10, 11</u> <u>TS - See References.</u>			*Yes	No	N/A	1. Represent a change to procedures as described in FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____	2. Represent a change to the facility as described in the FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____	3. Represent a test or experiment not described in FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____	4. Require a change to Technical Specifications? (50.59 review)	_____	<u>✓</u>	_____	5. Result in significant increased personnel radiation exposure? (ALARA review)	_____	<u>✓</u>	_____	6. Result in a release of effluents to the Environment?	_____	<u>✓</u>	_____	7. Degrade the safeguards effectiveness of the Physical Security Plan?	_____	_____	<u>✓</u>	8. Degrade the safeguards effectiveness of the Safeguards Contingency Plan?	_____	_____	<u>✓</u>
	*Yes	No	N/A																																			
1. Represent a change to procedures as described in FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____																																			
2. Represent a change to the facility as described in the FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____																																			
3. Represent a test or experiment not described in FSAR, FPER or REP? (50.59 review)	_____	<u>✓</u>	_____																																			
4. Require a change to Technical Specifications? (50.59 review)	_____	<u>✓</u>	_____																																			
5. Result in significant increased personnel radiation exposure? (ALARA review)	_____	<u>✓</u>	_____																																			
6. Result in a release of effluents to the Environment?	_____	<u>✓</u>	_____																																			
7. Degrade the safeguards effectiveness of the Physical Security Plan?	_____	_____	<u>✓</u>																																			
8. Degrade the safeguards effectiveness of the Safeguards Contingency Plan?	_____	_____	<u>✓</u>																																			
IV.	TEMPORARY APPROVAL QUAL REVIEWER _____ Date _____ FOR SAPs, SPPs, EPPs: TELECON BY _____ GMNPO/MDS _____ DATE _____ SHIFT SUPERVISOR _____ Date _____ FINAL APPROVAL REQUIRED BY: DATE _____																																					
V.	REQUIRED REVIEW AND COMMENT <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">           ( ) Ops            ( ) Mnt            ( ) QA            ( ) QC            ( ) CHP            ( ) FA            ( ) RC         </td> <td style="width:33%;">           ( ) SM            ( ) NPS            ( ) GMSS            ( ) GMD&amp;M            ( ) GMES            ( ) GMNSF            ( ) GMNS         </td> <td style="width:33%;">           ( ) QR (HP)            ( ) _____            ( ) _____            ( ) _____            ( ) _____            ( ) _____            ( ) _____         </td> </tr> </table> P/CAP AFFECTED? YES _____ NO <u>✓</u> COMMENTS RESOLVED: <u>Sandy J. Guy</u> 9/7/89 Discipline Supervisor Date	( ) Ops ( ) Mnt ( ) QA ( ) QC ( ) CHP ( ) FA ( ) RC	( ) SM ( ) NPS ( ) GMSS ( ) GMD&M ( ) GMES ( ) GMNSF ( ) GMNS	( ) QR (HP) ( ) _____ ( ) _____ ( ) _____ ( ) _____ ( ) _____ ( ) _____	VI. RC REVIEW P/CAP ACCEPTABLE C. YES _____ NO <u>N/A</u> N. YES _____ NO _____ SUPV./RC _____ Date _____ RESP. MGR. _____ Date _____ VII. FINAL QA REVIEW (As Applicable) <u>S. Cook</u> 9-8-89 Concurrence Date VIII. APPROVAL AUTHORITY: <u>W. Black</u> 9/14/89 Approval/Concurrence Date																																	
( ) Ops ( ) Mnt ( ) QA ( ) QC ( ) CHP ( ) FA ( ) RC	( ) SM ( ) NPS ( ) GMSS ( ) GMD&M ( ) GMES ( ) GMNSF ( ) GMNS	( ) QR (HP) ( ) _____ ( ) _____ ( ) _____ ( ) _____ ( ) _____ ( ) _____																																				
IX.	PSRC REVIEW A. Reviewed By: <u>Gene D. Soult</u> 9/15/89 PSRC CHAIRMAN DATE Comments: YES _____ No <u>✓</u> B. PSRC Comments Resolved: MANAGER _____ DATE _____ PSRC CHAIRMAN _____ DATE _____																																					

MASTER COPY



SOUTH CAROLINA ELECTRIC & GAS COMPANY

VIRGIL C. SUMMER NUCLEAR STATION

NUCLEAR OPERATIONS

~~NUCLEAR OPERATIONS~~  
~~COPY NO. 33~~

PROCESS CONTROL PROGRAM

PCP-001

PROCESS CONTROL PROGRAM FOR PROCESSING WET WASTE

REVISION 8

SAFETY RELATED

Gary J. Gray  
DISCIPLINE SUPERVISOR

9/15/89  
DATE

William R. Black  
APPROVAL AUTHORITY

9/15/89  
DATE

RECORD OF CHANGES

CHANGE NO.	TYPE CHANGE	EFFECTIVE DATE	DATE CANCELLED	CHANGE NO.	TYPE CHANGE	EFFECTIVE DATE	DATE CANCELLED

Next Two Year Review Required No Later Than 4-15-90  
Date

TABLE OF CONTENTS

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4.0 <u>LIMITS AND PRECAUTIONS</u>	2
5.0 <u>PROCEDURE</u>	3
6.0 <u>RECORDS</u>	8

ATTACHMENTS

- Attachment I - Dewatering Requirements/Acceptance Requirements
- Attachment II - Dewatering Completion Record - Bead-Type Resins and Activated Carbon
- Attachment III - Dewatering Completion Record - Powdex/Ecodex
- Attachment IV - High Integrity Container Exposure Log

## 1.0 PURPOSE

- 1.1 The purpose of the Process Control Program for the Virgil C. Summer Nuclear Station is to establish and maintain a set of process parameters which provide reasonable assurance that packaged radioactive wastes meet 10 CFR 20, 61, and 71, state regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

## 2.0 SCOPE

- 2.1 The Process Control Program shall be used by all personnel responsible for the packaging of low level radioactive wastes.
- 2.2 The Process Control Program is applicable to all "wet wastes" (such as spent resins, activated carbon, etc.) and all wastes classified as Class B and Class C (in accordance with 10 CFR 61) which are to be disposed of in a radioactive waste disposal site.

## 3.0 REFERENCES

- 3.1 Virgil C. Summer Nuclear Station Final Safety Analysis Report, Chapters 10 and 11, FSAR Questions 321.17, through 321.23.
- 3.2 SCE&G Corporate ALARA Plan.
- 3.3 Virgil C. Summer Nuclear Station Technical Specifications 1.22, 6.9.1.8, 6.10, 6.13, 3/4.11.3, and 6.9.1.9.
- 3.4 Virgil C. Summer Nuclear Station Quality Assurance Program.
- 3.5 CNSI Quality Assurance Program, QA-AD-001.
- 3.6 CNSI Topical Report, 4313-01354-01.
- 3.7 NUREG 0472, Radiological Effluent Technical Specifications for PWR.
- 3.8 Branch Technical Position-ESTB 11-3, Design Guidance for Solid Radioactive Waste Management Systems Installed in Light-Water-Cooled Nuclear Power Reactor Plants.
- 3.9 ANSI 199, Liquid Radioactive Waste Processing Systems for Pressurized Water Reactor Plants.



- 3.10 NRC Regulatory Guide 1.143, Design Guides for Radioactive Waste Management Systems, Structures and Components Installed in Light-Water-Cooled Nuclear Power Plants.
- 3.11 SRF 11.4 Rev. 2 July, 1981 "Solid Waste Management Systems".
- 3.12 10 CFR 50, Appendix A.
- 3.13 10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste".
- 3.14 10 CFR 20.311, "Standards for Protection Against Radiation".
- 3.15 U.S.N.R.C., Branch Technical Position, "Final Waste Classification and Waste Form Technical Position Papers", dated May 11, 1983.

#### 4.0 LIMITS AND PRECAUTIONS

- 4.1 The radioactive effluent release reports shall include any changes to the Process Control Program (PCP) made during the reporting period.
- 4.2 Ensure that applicable radiological controls are established when sampling or processing radioactive waste.
- 4.3 Vendor-supplied operators are required to have a release to work from QA prior to performing any work on site.
- 4.4 Working copies of the PCP must be verified as current against the Master Control Copy of PCP-001 prior to their use.
- 4.5 The contents of a carbon steel liner must be dewatered to less than or equal to .5% free standing water by waste volume.
- 4.6 The contents of a High Integrity Container (HIC) must be dewatered to less than or equal to 1% free standing water by waste volume.

## 5.0 PROCEDURE

5.1 For each batch of "Wet Waste" or Class B or C waste, Health Physics shall determine the most appropriate method of processing to meet 10 CFR 61 waste form criteria.

5.2 Generally, acceptable waste processing methods include:

5.2.1 Solidification of:

- A. Waste evaporator concentrates.
- B. Filter sludges.
- C. Oils & chemicals.

NOTE:

For purposes of this document, "solidification" is defined as the conversion of radioactive wastes from liquid systems to a uniformly distributed, monolithic, immobilized solid with definite volume & shape, bounded a stable surface of distinct outline on all sides (free-standing).

5.2.2 Dewatering carbon steel liners of powdex, bead-type resins, charcoal, etc. with a specific activity of  $< 1 \mu\text{Ci/cc}$ .

5.2.3 Dewatering High Integrity Containers of powdex, bead-type resins, charcoal, etc. where the specific activity is expected to exceed or equal  $1 \mu\text{Ci/cc}$ .

5.3 If/when the need arises, solidification shall be accomplished in accordance with approved vendor's procedures/Process Control Program.

- 5.4 Dewatering liners or vessels containing water purification media such as Ecodex, Powdex, bead-type resins, activated carbon, etc.

NOTE:

This procedure applies to liners with a capacity of 215 cubic feet or smaller.

- 5.4.1 Equipment required for the dewatering process:
- A. Air-driven positive displacement pump.
  - B. Air supply hose(s) for air-driven pump.
  - C. Dewatering header equipped with vacuum/pressure gauge(s) and isolation valve(s) (4) for each suction line and one master vacuum/pressure gauge. (Four vacuum/pressure gauges and four isolation valves are required for dewatering liners containing Powdex/Ecodex purification media only.)
  - D. Suction line with compatible fittings for the liner to be dewatered and the dewatering header.
  - E. Pump suction and discharge hoses compatible with the type of air-driven pump and dewatering header being used.
  - F. Temperature monitoring device and associated indicator.
- 5.4.2 Procedure for dewatering bead-type resins and activated carbon.
- A. Prior to filling a liner with ion exchange material, ensure that the temperature monitoring device is installed in the liner. This will provide indication/warning of an impending exothermic reaction due to contact with strong oxidizing agents. Ion exchange media temperature shall be monitored during the filling operation and for the entire gross dewatering cycle (first cycle).



Note:

Any rapid temperature increase or a temperature measurement greater than or equal to 100°F indicates a potential exothermic reaction. If this occurs, immediately fill the container with water and notify the Radwaste Process Coordinator.

- B. Install the dewatering equipment required for the waste container. Prior to any dewatering steps, verify that a flowpath has been established for the discharge of the pump and the receiving vessel has sufficient capacity.

Note:

Verify pump operability by isolating the dewatering header from the liner. A minimum vacuum indication of 20"Hg is required in order to proceed.

- C. The waste will be transferred according to the applicable SOP. Control the level of water/media in the liner by operating the dewatering equipment as required.
- D. When the liner is filled with waste, the first dewatering cycle may commence. Due to the potential for an exothermic reaction to occur, a radwaste operator shall remain in the area during the first four hours of the initial dewatering cycle. In the event of a rapid temperature increase or resin temperature reaching  $\geq 100^{\circ}\text{F}$ , immediately perform the following:
1. Open XVD-9174, Backflush Supply Valve.
  2. Open MOV-5, Resin Transfer Valve.
  3. Monitor liner level until full of water.
  4. Close MOV-5, Resin Transfer Valve.
  5. Close XVD-9174, Backflush Supply Valve.
  6. Notify the Radwaste Process Coordinator.

NOTE:

The temperature of the makeup water used to fill the liner may be  $\geq 100^{\circ}\text{F}$ . This is a normal condition.

- E. The number of dewatering cycles required is dependent on the waste material and the type of waste container. Refer to Attachment I to determine the minimum number of cycles required in order to meet requirements and regulations for shipment and offsite disposal.
- F. For the collection cycle, place the dewatering pump discharge hose in a suitable container. Proceed with the final dewatering cycle. After a minimum of eight (8) hours, quantify the collected water. Verify the amount collected with the acceptance criteria in Attachment I. Failure to meet the acceptance criteria requires notification of the Radwaste Process Coordinator. Normally one or more additional collection cycles may be required.
- G. Document the dewatering information on Attachment II. A complete dewatering cycle consists of a minimum continuous pumping period of eight (8) hours followed by a minimum static period of eight (8) hours.

5.4.3 Procedure for dewatering Powdex, Ecodex, etc. purification media.

NOTE:

This procedure is only "required" for containers that are to be disposed of at a low-level burial facility.

- A. Connect the 3/4" hoses between the manifold and each of the dewatering legs in the liner. The valves on the manifold are numbered 1 through 4 and shall be connected to their respective dewatering legs in the receiving vessel. i.e., leg #1 corresponds to the bottom or lowest leg and shall be aligned with valve #1 on the dewatering header.

- B. Install the remaining dewatering equipment providing for a suitable discharge pathway. Verify the dewatering receiving vessel has sufficient capacity for dewatering operations.

NOTE:

Verify pump operability by isolating the dewatering header from the liner. A minimum vacuum indication of 20"Hg is required in order to proceed.

- C. The waste will be transferred according to the applicable SOP. During this time, control the level of water/media in the liner by operating the dewatering equipment.
- D. Upon filling the liner with waste, the first dewatering cycle may commence. The number of dewatering cycles required is determined using Attachment I.
1. After a minimum pumping time of 30 minutes and a vacuum indication on level #4 of < 4" mercury for the first dewatering cycle shut valve #4.
  2. Repeat step 5.4.3.D.1 for valves #3 and #2 respectively.
  3. A complete dewatering cycle consists of a minimum continuous pumping period of eight (8) hours followed by a minimum static period of sixteen (16) hours.
  4. The remaining dewatering cycles are performed in accordance with step 5.4.3.D.1-3.
- E. For the collection cycle, place the dewatering pump discharge hose in a suitable container. Proceed with the final dewatering cycle. After a minimum of eight (8) hours, quantify the collected water. Verify the amount collected with the acceptance criteria in Attachment I. Failure to meet the acceptance criteria requires notification of the Radwaste Process Coordinator. Normally, one or more additional collection cycles may be required.
- F. Document the dewatering information on Attachment III.



- 5.5 Cask/Container/Overpack handling will be performed in accordance with approved vendor's procedures. High Integrity Container sunlight exposure shall be documented using Attachment IV.

NOTE:

The High Integrity Container vendor may require further handling documentation to ensure adherence with the container's Certificate of Compliance. Refer to HPP-716 for additional requirements.

6.0 RECORDS

- 6.1 All records generated in accordance with this procedure and any related vendor-required procedures shall be maintained by Health Physics for subsequent transmittal to documents for retention.

DEWATERING REQUIREMENTS/ACCEPTANCE REQUIREMENTS

CONTAINER	MEDIA	DEWATERING CYCLES	COLLECTION CYCLES	TOTAL MINIMUM	ACCEPTANCE CRITERIA
*HIC	Bead Resin	2	1	3	< 5 gal.
*HIC	Charcoal	5	1	6	< 5 gal.
*Carbon Steel Liner	Bead Resin	5	1	6	< 2 gal.
*Carbon Steel Liner	Charcoal	8	1	9	< 2 gal.
*Carbon Steel Powdex Liner	Powdex/Ecodex	5	1	6	< 2 gal.
CNSI PV-24-51	Charcoal	6	1	7	$\leq 500$ ml
	Resins	3	1	4	
CNSI PV-24-72	Charcoal	6	1	7	$\leq 900$ ml
	Resins	3	1	4	
CNSI PV-24-79	Charcoal	6	1	7	$\leq 1000$ ml
	Resins	3	1	4	
CNSI FRP-24-72	Charcoal	6	1	7	$\leq 900$ ml
	Resins	3	1	4	
CNSI FRP-24-79	Charcoal	6	1	7	$\leq 1000$ ml
	Resins	3	1	4	
CNSI 76 in. dia. press. vessel	Bead Resin	4	1	5	$\leq 4$ liters

\*215 Ft<sup>3</sup> or smaller

Dewatering Completion Record for Bead-Type Resin and Activated Carbon

Vessel Type: \_\_\_\_\_ Serial # \_\_\_\_\_

Pump Suction Gauge  $\leq 20"$  Hg: YES: \_\_\_\_\_ NO: \_\_\_\_\_

Cycle #1

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #2

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #3

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #4

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #5

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #6

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #7

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Cycle #8

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Collection Cycle

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Volume Collected: \_\_\_\_\_

Temp. Exceeded 100°F: Yes \_\_\_ No \_\_\_

Collection Water pH: \_\_\_\_\_

Certifying Signature: \_\_\_\_\_ / \_\_\_\_\_  
Date

Note: Enter "N/A" for cycles not required.



Dewatering Completion Record for Powdex, Ecodex, etc. Purification Media

Vessel Type: \_\_\_\_\_ Serial # \_\_\_\_\_

Pump Suction Gauge  $\leq 20$ " Hg: YES: \_\_\_\_\_ NO: \_\_\_\_\_

Cycle #1

Date

Time

Pump Start:  
Close Valve #4  
Close Valve #3  
Close Valve #2  
Pump Stop:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Pumping Time: \_\_\_\_\_

Cycle #2

Pump Start:  
Close Valve #4  
Close Valve #3  
Close Valve #2  
Pump Stop:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Pumping Time: \_\_\_\_\_

Cycle #3

Pump Start:  
Close Valve #4  
Close Valve #3  
Close Valve #2  
Pump Stop:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Pumping Time: \_\_\_\_\_

Cycle #4

Pump Start:  
Close Valve #4  
Close Valve #3  
Close Valve #2  
Pump Stop:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Pumping Time: \_\_\_\_\_

Cycle #5

Pump Start:  
Close Valve #4  
Close Valve #3  
Close Valve #2  
Pump Stop:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Pumping Time: \_\_\_\_\_

Collection Cycle

Pump Start: \_\_\_\_\_ / \_\_\_\_\_ Pump Stop: \_\_\_\_\_ / \_\_\_\_\_ Total Pumping Time: \_\_\_\_\_  
Date Time Date Time

Volume Collected: \_\_\_\_\_ Temp. Exceeded 100°F: Yes \_\_\_\_\_ No \_\_\_\_\_

Collection Water pH: \_\_\_\_\_

Certifying Signature: \_\_\_\_\_ / \_\_\_\_\_  
Date

### HIGH INTEGRITY CONTAINER EXPOSURE LOG

Date \_\_\_\_\_ Time \_\_\_\_\_  
Serial Number \_\_\_\_\_  
Date of Manufacture \_\_\_\_\_  
Date Received \_\_\_\_\_ Initial \_\_\_\_\_

#### Direct Sunlight Exposure Record (Supplier)

Exposure \_\_\_\_\_ Days \_\_\_\_\_ Initial/Date \_\_\_\_\_

#### Direct Sunlight Exposure Record (V.C. Summer)

Beginning Date	End Date	Total Days	Initial/Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

HIC Total  
Exposure \_\_\_\_\_ Days \_\_\_\_\_ Initial/Date \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Reviewed By: \_\_\_\_\_