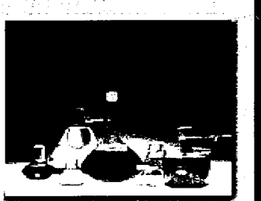
South Texas Project Electric Generating Station

Annual Radioactive Effluent Release Report



NUCLEAR OPERATING COMPANY
STP

1999

Completed by
Generation Support
in accordance with
Technical Specifications
for
United States Nuclear Regulatory Commission
License Nos.
NPF-76 & NPF-80
February 2000

Authored by:

Kim W. Reynolds
Staff Nuclear Chemist
Chemistry Division

Technical Review:

Gordon E. Williams, CHP
Health Physicist
Health Physics Division

Approved by:

Richard A. Gangluff
Manager
Chemistry Division

1999

Annual Radioactive Effluent Release Report

SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

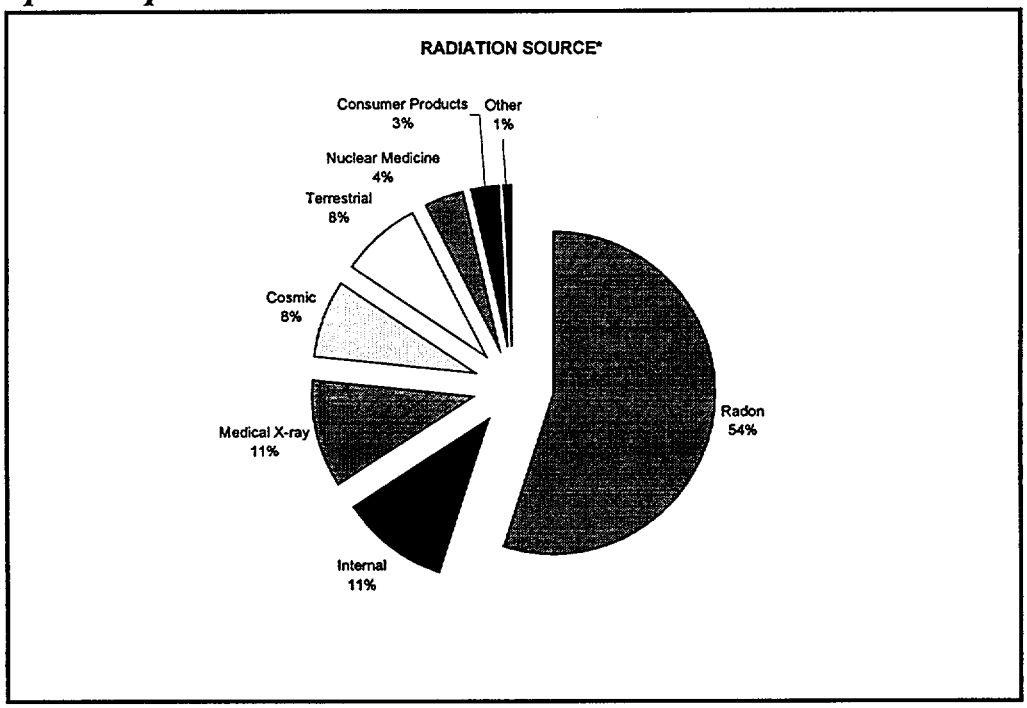
TABLE OF CONTENTS

TABLE OF CONTENTS

PAGE

Report Summary

During 1999, as in all previous years, operation of the South Texas Project created no adverse effects or health risks. The maximum radiation exposure calculated for a hypothetical person living at the boundary of the South Texas Project during 1999 due to operation of the South Texas Project was less than one millirem. For reference, this dose may be compared to the average annual radiation exposure of 360 millirem to people in the United States from all sources. Natural radiation sources in the environment contribute most of the radiation exposure to people; nuclear power operations contribute less than one millirem.



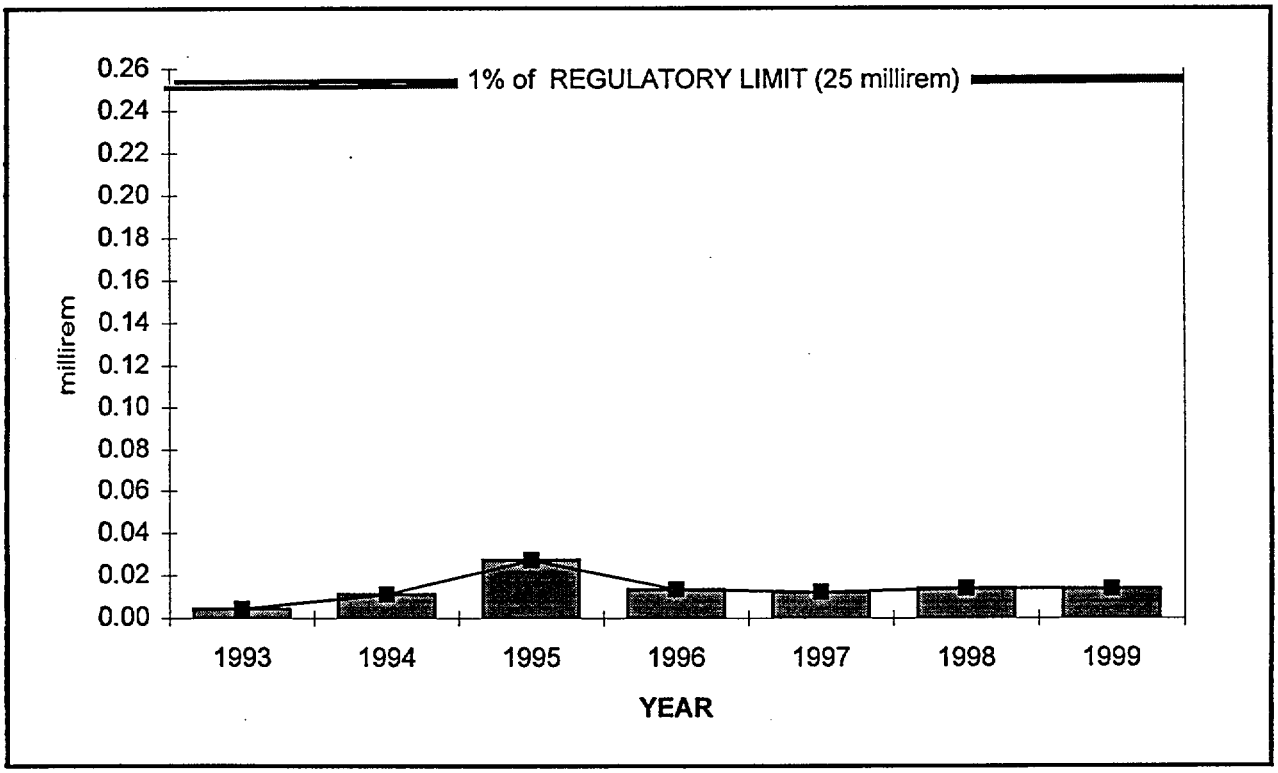
*NCRP (1987). National Council on Radiation Protection and Measurements, *Ionizing Radiation Exposure of the Population of the United States*, (Bethesda, Maryland), NCRP Report No. 93.

During 1999, the total body dose to the most exposed individual from radioactive effluents and direct radiation was 0.0140 millirem. This total represents approximately 0.06% of the limits of 40 C.F.R. §190. This theoretical individual, an adult, resides in the West by South-West Sector, approximately 4,000 meters (2.5 miles) from the site. For dose calculating purposes, this theoretical individual is characterized as the most exposed with regard to food consumption, occupancy, and other uses of the areas in the plant vicinity. This theoretical individual is not a real person and the dose model assumes that this theoretical individual will consume the

maximum amount of food with all the food being grown or grazed at the residence. This theoretical individual receives shoreline exposure from Little Robbins Slough for 12 hours per year and consumes 21 kilograms (48 pounds) of fish taken from Little Robbins Slough. This theoretical individual receives a submersion dose from noble gases and dose from inhaled radioactive particulates, radioiodines, and tritium. This adult consumes 64 kilograms (150 pounds) of vegetables grown at the residence and consumes 110 kilograms (250 pounds) of meat grazed at the residence.

Releases to the environment at the South Texas Project Electric Generating Station have historically been and continue to be well below regulatory limits as shown in the following table. Members of the public received negligible additional radiation due to the operation of the South Texas Project. This Annual Radioactive Effluent Release Report summarizes the data describing the radioactive liquid and gaseous releases from the South Texas Project Electric Generating Station during 1999. The radioactive effluents from the South Texas Project are effectively monitored and controlled in accordance with regulatory requirements.

THEORETICAL TOTAL BODY DOSE FOR ALL PATHWAYS



Liquid and gaseous discharges from the South Texas Project are continuously monitored for radioactive content. Samples are also collected from ventilation systems and liquid discharges and analyzed for radioactivity. The sample and analysis methods are verified and augmented using an environmental laboratory. Radioactivity monitors continuously sample the ventilation exhaust systems. On the liquid discharge lines, radioactivity monitors automatically divert or isolate liquid

effluents if the radioactivity is higher than expected. These monitors are also equipped with remote alarm indications in the control rooms and health physics offices.

The radiation monitors, and the sampling and analysis program, provide an accurate determination of the type and quantity of radioactive materials released in plant effluents. Liquid effluents are directed to the Main Cooling Reservoir that is located entirely within the site boundary. The South Texas Project continues to aggressively pursue the reduction of radioactive material in liquid effluents consistent with prudent industry practices.

Each year, the effluent monitoring results are summarized in this report and a hypothetical radiation dose to the population in the surrounding area is calculated based on gaseous radioactive effluents, meteorological conditions and liquid radioactive effluents. The hypothetical dose assumes all credible paths for radioactivity to reach a member of the public, such as consumption of vegetables from a garden, fish from the river, inhalation, and direct exposure. The highest potential hypothetical dose to an individual at the site boundary was calculated to be less than 1 millirem which is significantly less than an average person receives from natural sources annually. The information presented in this report demonstrates that plant operation is consistently controlled to ensure that radioactive effluents remain below regulatory limits and to ensure protection of the public and the environment.

INTRODUCTION

This Annual Radioactive Effluent Release Report is submitted for the period January 1, 1999, through December 31, 1999, in accordance with Appendix A of License Nos. NPF-76 and NPF-80, Technical Specifications and the Offsite Dose Calculation Manual.

A single submittal is made for both units combining those sections that are common. Separate tables of releases and release totals are included where separate processing systems exist.

This report includes an annual summary of hourly meteorological measurements taken during each quarter. This data appears as tables of wind direction and wind speed by atmospheric stability class. All assessments of radiation doses are performed in accordance with the Offsite Dose Calculation Manual.

Minimal quantities of radioactivity were released during 1999. Liquid effluents are discharged to the on-site Main Cooling Reservoir and subsequently released offsite. The radioactivity released in liquids beyond the site boundary was estimated using the South Texas Project Electric Generating Station Offsite Dose Calculation Manual. Solid radioactive waste is shipped offsite for disposal. The following table is a brief summary of the radioactive effluents and solid waste attributable to the station.

TYPE OF RADIOACTIVE MATERIAL	EFFLUENT TYPE	DESTINATION	VOLUME CUBIC METER	CURIES
NOBLE GAS	GAS	OFFSITE	6.0E+09	2.3E+2
PARTICULATE AND IODINES	GAS	OFFSITE	6.0E+09	2.3E-02
TRITIUM	GAS	OFFSITE	6.0E+09	9.8E+01
TRITIUM	LIQUID	OFFSITE	4.8E+06	2.1E+02
FISSION AND ACTIVATION PRODUCTS	LIQUID	OFFSITE	4.8E+06	2.1E-03
TRITIUM	LIQUID	ON-SITE	1.3E+04	1.6E+03
FISSION AND ACTIVATION PRODUCTS[1]	LIQUID	ON-SITE	1.3E+04	4.3E-01
SPENT RESINS AND FILTERS	SOLID	FOR BURIAL	3.4E+01	5.9E+02
DRY COMPRESSIBLE WASTE	SOLID	FOR BURIAL	1.8E+01	1.6E+00
OTHER WASTE (SECONDARY RESIN AND FILTER CAKE)	SOLID	FOR BURIAL	7.6E+01	1.1E-04

[1]Excludes 4.6 curies of dissolved and entrained gases.

Tritium accounted for the largest fraction of the radioactive effluents both liquid and gaseous. Tritium was the largest contributor to the offsite doses from radioactive effluents. The offsite doses are well below any regulatory limit and significantly less than the average annual radiation exposure to people in the United States from all sources (360 millirem).

Supplemental Information for Effluent and Waste Disposal

Supplemental Information for Effluent and Waste Disposal

The South Texas Project Electric Generating Station is located on 49,800,000 square meters (12,300 acres) in Matagorda County, Texas, approximately 24,000 meters (15 miles) southwest of Bay City along the west bank of the Colorado River. The South Texas Project is jointly owned by Reliant Energy HL&P, Central Power & Light Company, the City of Austin, and the City of San Antonio. Until late 1997, Reliant Energy HL&P was the designated licensee for the owners. On November 14, 1997, the station owners changed the licensee to STP Nuclear Operating Company which is responsible for implementation of the Radioactive Effluent Control Program.

The South Texas Project Electric Generating Station consists of two 1,250 megawatt-electric Westinghouse pressurized water reactors. Unit 1 received a low-power testing license on August 21, 1987, obtained initial criticality on March 8, 1988, and was declared commercially operational on August 25, 1988. Unit 2 received a low-power testing license on December 16, 1988, obtained initial criticality on March 12, 1989, and was declared commercially operational on June 19, 1989. Both units together produce enough electricity to serve half-a-million homes.

Regulatory Limits

Fission and Activation Gases

The **air dose** due to noble gases released in gaseous effluents from each unit to areas at and beyond the Site Boundary shall be limited to the following:

During any calendar quarter: Less than or equal to 5 millirads for gamma radiation and less than or equal to 10 millirads for beta radiation, and

During any calendar year: Less than or equal to 10 millirads for gamma radiation and less than or equal to 20 millirads for beta radiation.

Iodines and Particulates, Half-Lives > 8 days

The **dose** to a Member of the Public from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released, from each unit, to areas at and beyond the Site Boundary shall be limited to the following:

During any calendar quarter: Less than or equal to 7.5 millirems to any organ; and

During any calendar year: Less than or equal to 15 millirems to any organ.

Liquid Effluents

The **dose or dose commitment** to a Member of the Public from radioactive materials in liquid effluents released from each unit to Unrestricted Areas shall be limited to:

During any calendar quarter: Less than or equal to 1.5 millirems to the whole body and to less than or equal to 5 millirems to any organ; and

During any calendar year: Less than or equal to 3 millirems to the whole body and to less than or equal to 10 millirems to any organ.

Effluent Concentrations Limits

Gaseous Effluents

The **dose rate** due to radioactive materials released in gaseous effluents from the site to areas at and beyond the Site Boundary shall be limited to the following:

For noble gases: Less than or equal to 500 millirems/year to the whole body and less than or equal to 3000 millirems/year to the skin; and

For Iodine-131, Iodine-133, tritium and all radionuclides in particulate form with half-lives greater than eight days: Less than or equal to 1500 millirems/year to any organ.

Liquid Effluents

The concentration of radioactive material released in liquid effluents to Unrestricted Areas shall be limited to 10 times the concentrations specified in 10CFR, Part 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 2.0E-04 microcurie/milliliter total activity.

Average Energy (Million Electron Volts/Disintegration

The **Average Energy** (or E-bar) shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration for the isotopes other than Iodines, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant. The following average energy values are based on grab sample analyses from both units' reactor coolant systems collected during August of 1999.

E-bar (Million Electron Volts/Disintegration)	0.248 *	Unit 1
	0.691 *	Unit 2

* Includes tritium

The average energy (E-bar) values of the radionuclide mixture in gaseous releases of fission and activation gases are based on noble gases released during the reporting period.

E-bar (Million Electron Volts/Disintegration)	0.227	Unit 1
	0.277	Unit 2

Measurement and Approximations of Total Activity

The following discussions detail the methods used to measure and approximate total activity for the following:

Gaseous Effluents: Fission and Activation Gases, Iodines and Particulates
Liquid Effluents

Tables A3-1 and A4-1 of the South Texas Project Electric Generating Station Offsite Dose Calculation Manual give sampling frequencies and lower limit of detection requirements for the analysis of liquid and gaseous effluent streams.

Gaseous Effluents

Analytical Methods For Batch Gaseous Releases

Monthly pre-release grab samples are collected from the plant Reactor Containment Building atmosphere. These samples are analyzed on a Gamma Spectroscopy System utilizing high purity germanium detectors for noble gas, iodine and particulate activity. Tritium specific radioactivities are measured using Liquid Scintillation Counting techniques.

The radionuclide concentrations obtained are used in conjunction with the gross noble gas release rate monitoring data collected by the radiation monitoring system to estimate the release rate of each radionuclide in the effluent streams.

Analytical Methods For Continuous Gaseous Releases

Periodic noble gas and tritium grab samples are taken from the continuous release points such as the Unit Vent. Periodic tritium grab samples are used for quantifying secondary steam releases. Continuous sampling for particulates and iodine is also performed on the effluent streams. These samples are analyzed for tritium and gamma radionuclides, as described above for batch releases. Strontium-89, Strontium-90, and gross alpha analyses were performed by the on-site Radiological Services Laboratory.

Using noble gas grab sample results and the gross noble gas release rate monitor, the noble gases in effluent streams are quantified by the plant radiation monitoring system.

Liquid Effluents

Analytical Methods For Liquid Releases

Liquid effluents that are processed by the liquid waste processing system are released as batches. Liquid effluents resulting from primary to secondary leakage or other plant operations are tracked as continuous releases. For batch releases, representative pre-release grab samples are taken and analyzed in accordance with Table A3-1 of the Offsite Dose Calculation Manual. For continuous releases, representative samples are collected weekly and analyzed. Radionuclide analyses are performed using a Gamma Spectroscopy System.

Aliquots of each pre-release batch sample and of representative samples for continuous releases are composited in accordance with the requirements in Table A3-1 of the Offsite Dose Calculation Manual. Tritium concentrations are determined using Liquid Scintillation Counting techniques. Dissolved and entrained gas concentrations are determined by counting grab samples on the Gamma Spectroscopy System. Strontium-89, Strontium-90, gross alpha, and Iron-55 determinations are performed by the on-site Radiological Services Laboratory. The radionuclide concentrations obtained are used with the total volume for each batch release.

Batch Releases

Liquid and gaseous summaries are compiled from permits generated using computer-based effluent management system and plant procedures. Liquid batch releases are accounted for by individual permits. Gaseous batch releases are accounted for by monthly permits and consist of reactor containment purges for the purpose of reducing radioactivity concentrations. Batch times represent the actual period of releases and the periods that the purge valves were open.

Liquid (Unit 1)

Liquid (Unit 1)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	52	43	23	33
b. Total time period for batch releases (minutes)	3279	2612	1457	2107
c. Maximum time period for a batch release (minutes)	71	72	70	71
d. Average time period for batch releases (minutes)	63	61	63	64
e. Minimum time period for a batch release (minutes)	46	26	1	50

Gaseous (Unit 1)

Gaseous (Unit 1)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	7	13	2	0
b. Total time period for batch releases (minutes)	9629	30792	1507	0
c. Maximum time period for a batch release (minutes)	4206	21470	1423	0
d. Average time period for batch releases (minutes)	1376	2369	754	0
e. Minimum time period for a batch release (minutes)	56	223	84	0

Liquid (Unit 2)

Liquid (Unit 2)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	18	23	44	45
b. Total time period for batch releases (minutes)	988	1318	2647	2932
c. Maximum time period for a batch release (minutes)	64	62	72	78
d. Average time period for batch releases (minutes)	55	57	60	65
e. Minimum time period for a batch release (minutes)	17	44	46	40

Gaseous (Unit 2)

Gaseous (Unit 2)	Quarter 1	Quarter 2	Quarter 3	Quarter 4
a. Number of batch releases	1	0	1	13
b. Total time period for batch releases (minutes)	60	0	180	29155
c. Maximum time period for a batch release (minutes)	60	0	180	6529
d. Average time period for batch releases (minutes)	60	0	180	2243
e. Minimum time period for a batch release (minutes)	60	0	180	199

Abnormal (Unplanned) Releases

No abnormal releases occurred during this reporting period.

Estimate of Total Error

Estimate of Error for Liquid Effluents

The **maximum error** associated with volume and flow measurements, based upon plant calibration practice, is estimated to be ± 1.27%. The error associated with the flow measurement is small in relation to the counting uncertainty of the radionuclide concentration analysis.

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level.

The **error** associated with dilution volume is estimated to be ± 10%.

Estimate of Error for Gaseous Effluents

The **maximum error** associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedures are collectively estimated to be:

Fission and Activation Gases Low Activity (less than 10 microcurie per second)	± 100%
Fission and Activation Gases High Activity (greater than or equal to 10 microcurie per second)	± 20%
Iodines	± 25%
Particulates	± 25%
Tritium	± 50%

The **average uncertainty** associated with counting measurements is 10% or less at the 95% confidence level for fission and activation gases, iodines, particulates and tritium.

Estimate of Error for Solid Radioactive Waste

The **error** associated in determining the volume of solid radioactive waste shipments is estimated to be ± 1%. The **error** associated in determining the filter media and spent resins radioactivity is estimated to be within a factor of two of the real value and is due primarily to waste stream sampling uncertainty. The **error** associated in determining the radioactivity of other solid radioactive waste shipments is estimated to be within a factor of three of the real value.

Solid Waste Shipments

A total of twenty-five shipments of radioactive dry active waste, filter media, and spent resins were made during the reporting period. A summary of the data is provided in the Section 6, Solid Waste and Irradiated Fuel Shipments.

Radiological Impact on Man

The data for the period January 1, 1999, through December 31, 1999, is provided in the Dose Accumulation (Section 7) and the Summary of Direct Radiation Table 8-1 (Section 8). The following dilution factors and dilution water flows were used for assessing the radiation doses due to radioactive liquid effluents released to unrestricted areas.

Receptor Location	ODCM[1] Dilution Factor	Dilution Water Flow Cubic Feet/Second	Dilution Water Flow Liters/Year	Dilution Water Flow Liters/Quarter
Colorado River	1.00E+00	6.00E+02	5.36E+11	1.34E+11
Matagorda Bay	1.63E+02	9.78E+04	8.73E+13	2.18E+13
Little Robbins Slough Area	3.05E-02	1.83E+01	1.63E+10	4.08E+09

[1] Offsite Dose Calculation Manual factor

The dilution water flow used to estimate the individual dose due to ingestion of saltwater fish and saltwater invertebrates (shrimp) harvested from the Colorado River was 5.36E+11 liters per year for the years of 1989 through 1999. The dilution water flow used to estimate the individual dose due to ingestion of saltwater fish and saltwater invertebrates harvested from the Matagorda Bay was 8.73E+13 liters per year for the years of 1993 through 1999 as the result of a diversion channel that routes the Colorado River into Matagorda Bay. The dilution water flow used to estimate the individual dose due to ingestion of freshwater fish from the Little Robbins Slough Area was 1.63E+10 liters per year for the years 1989 through 1999. These dilution water flows were also used for estimating individual dose due to shoreline deposits. The radioactivity reported in the Liquid Effluent tables is the amount released to the Main Cooling Reservoir and does not contribute to dose until the radioactivity is released to unrestricted areas. In order to estimate the doses due to liquid effluents, the radioactivity reported must be adjusted by the values listed in the Offsite Dose Calculation Manual, Table B4-1, "Radionuclide Fraction Leaving STPEGS Via Liquid Routes".

Meteorological Data

The **1999 meteorological data** is presented in the form of joint frequency tables. Each quarter contains eight tables, one for each stability class and one for all classes combined.

A second set of joint frequency tables is provided for time periods when the gaseous effluent release rate was higher than background levels. Typical noble gas release rates seldom exceed 30 microcurie per second. These tables contain meteorological conditions during periods when the noble gas release rate exceeded 30 microcurie per second. The maximum release rate remained 100 times below the regulatory limit. These tables also contain meteorological conditions during batch releases from the Reactor Containment Building.

Lower Limit of Detection

The **Lower Limit of Detection** (an a priori limit) is defined as the smallest concentration of radioactive material in a sample that will yield a net count above system background that will be detected with 95% probability, and only a 5% probability of falsely concluding that a blank observation represents a "real" signal. A zero (0) value in the attached tables indicates no activity detected.

Dose to Member of the Public

Dose to Member of the Public from Direct Radiation

The Offsite Dose Calculation Manual includes the direct radiation from plant structures as a component to the dose to a hypothetical, highest exposed Member of the Public located off site due to plant operations. The only source of plant related direct radiation in 1999 originated from radioactive waste storage tanks south of Units 1 and 2 and the movement of radioactive waste in the same area. No dose due to direct radiation in 1999 was delivered to a Member of the Public located off site.

The Offsite Dose Calculation Manual allows measurements made near the plant structures to be used in these calculations following suitable adjustments for distance and exposure time. In 1999, numerous Thermoluminescent Dosimeters were placed along the protected area fence surrounding Units 1 and 2 of the South Texas Project as pictured in Figure 8-1 of Section 8. The results of these measurements are summarized in Table 8-1 of Section 8. The table shows that in 1999 two Thermoluminescent Dosimeter stations measured more exposure than typical of natural background determined prior to operation in the vicinity of the South Texas Project. These two measurements were on the south side of the protected area. Since no other dosimeters indicated exposure above natural background, only individuals south of the plant would be exposed. However, the reservoir embankment acts as a shield and blocks radiation directed south of the units from reaching any offsite person.

Hence no dose due to direct radiation in 1999 was delivered to a Member of the Public located off site.

A Member of the Public on site, but outside the protected area fence, could not have received more than about 0.3 millirem of direct radiation as calculated below (most exposed individual):

direct radiation dose = 0.00015 mR/hour * 1 mrem/mR *2000 hours/year

direct radiation dose = 0.3 mrem/year

Where: mR = milliroentgen, a unit of exposure for X and gamma rays.

Dose to Member of the Public from Radioactive Effluents

During 1999, the total body dose to the most exposed individual from radioactive effluents and direct radiation was 0.0140 millirem. This total represents approximately 0.06% of the limits of 40 C.F.R. §190. This theoretical individual, an adult, resides in the West by South-West Sector, approximately 4,000 meters (2.5 miles) from the site. For dose calculating purposes, this theoretical individual is characterized as the most exposed with regard to food consumption, occupancy, and other uses of the areas in the plant vicinity. This theoretical individual is not a real person and the dose model assumes that this theoretical individual may consume the maximum amount of food with all the food being grown or grazed at the residence. This theoretical individual receives shoreline exposure from Little Robbins Slough for 12 hours per year and consumes 21 kilograms (48 pounds) of fish taken from Little Robbins Slough. This theoretical individual receives a submersion dose from noble gases and dose from inhaled radioactive particulates, radioiodines, and tritium. This adult consumes 64 kilograms (150 pounds) of vegetables grown at the residence and consumes 110 kilograms (250 pounds) of meat grazed at the residence.

A hypothetical Member of the Public outside the protected area fence but inside the site boundary could receive approximately 0.55 millirem from radioactive effluents due to inhalation and immersion. This dose plus the direct radiation dose would yield 0.85 millirem, a small fraction of 10 C.F.R. §20.1301 annual limit.

Technical Specifications and Offsite Dose Calculation Manual Controls Reporting Requirements

Offsite Dose Calculation Manual Changes (reference, Technical Specifications, 6.13)

The ODCM was revised based on recommendations from the users. The methods used to calculate offsite dose in this revision remain the same as in the previous version. Some changes were made to the environmental sampling program with the addition of a new sample station location. A factor "K" was added to the Lower Limit of Detection (LLD) equations. Sewage Sludge Land Farming section was added. The following text describes these modifications and their bases.

LLD Calculations, Tables A3-1, A4-1, and A5-1:

Tables A3-1, A4-1, and A5-1 now contain a factor "K" with a value of 2.71 that may be added to the Lower Limit of Detection (LLD) equations. This factor is included in some of the software used to calculate LLDs and is appropriate when the background counts are small (less than about 25). The problem is most severe when the number of background counts is zero at which time the ODCM's LLD formula fails. The revised formula always calculates a Lower Limit of Detection. The revised formula is of the form of Equation 7.9 in NCRP #58, *A Handbook of Radioactivity Measurements Procedures,* although this formulation is documented in numerous publications addressing the calculation of LLDs and Minimum Detectable Activities (MDAs).

Soil Sampling, Section B5.2.2:

This section was renamed "Sediment Sampling" since soil sampling has not been performed as part of the ODCM program in several years. Sediment samples are still collected and were described in this section as well. Now the section only addresses sediment sampling.

Sewage Sludge Land Farming, Section B5.2.10:

A section was added to mention land farming of sewage sludge within the site boundary. Although the sludge may contain traces of radioactive material, no pathway exists for the material to migrate off site as an effluent.

Sampling Frequency, Section B5.3:

A comment was made that the ODCM does not use the same definitions for annually, quarterly, monthly, and weekly that appear in the Technical Specifications for surveillance testing of equipment. Since the environmental monitoring program is designed to identify long term trends and not operability of safety equipment, the sampling periods need not be as rigorous. Section B5-3 now describes the frequency requirements as normal frequencies to be respected on average. Therefore, annual means sometime during the calendar year but normally about a year from the previous sample. The monthly, quarterly, and weekly frequencies are to be interpreted likewise.

Simplification of Tables B5-2 and B5-3:

Table B5-2 contains sample type designations no longer used and whose future use is not anticipated. The extra sample type designators were removed in this draft to simplify the table. Likewise, a number of sample stations that have not been used in years were deleted from Table B5-3. One sample station was added (#250) for a soil sample in the area where sewage sludge is land farmed. Although not part of the environmental monitoring program described in the ODCM, this sample location needs a number for use in the computer software.

Annual Land Use Census (reference, Offsite Dose Calculation Manual Controls, 3.12.2.a)

The Land Use Census did not identify any new locations for dose calculations.

Radioactive Waste Treatment System Design Modification Description (reference, Offsite Dose Calculation Manual Controls, 6.15)

No major design modifications were made to the gaseous, liquid, or solid radioactive waste treatment systems during this reporting period.

Inoperable Effluent Monitoring Instrumentation Explanation (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

For 1999, inoperable liquid effluent monitoring instruments were corrected within the time specified in Sections 3.3.3.10 of Offsite Dose Calculation Manual Controls.

For 1999, inoperable gaseous effluent monitoring instruments were corrected within the time specified in Sections 3.3.3.11 of Offsite Dose Calculation Manual Controls.

Gas Storage Tank Curie Limit Violation Description (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

The Reactor Coolant System Vacuum Degassing System was not used during this reporting period. Therefore, the quantity of radioactive material in the Reactor Coolant System Vacuum Degassing System Storage Tanks did not exceed the limits set forth in Section 3.11.2.6 of Technical Specifications.

Unprotected Outdoor Tank Curie Limit Violation Description (reference, Offsite Dose Calculation Manual Controls, 6.9.1.4)

There are no Unprotected Outdoor Tanks at South Texas Project Electric Generating Station.

Abnormal (Unplanned) Release Description (reference, Offsite Dose Calculation Manual, 6.9.1.4)

No abnormal (unplanned) releases occurred during this reporting period.

Radioactive Waste Process Control Program Changes (reference, Technical Specifications, 6.13)

There were no changes to the Radioactive Waste Process Control Program during this reporting period.

GASEOUS EFFLUENTS

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 1
Starting : 1-Jan-1999 Ending : 30-Jun-1999

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE	CURIES	5.215E+01	2.149E+01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	6.706E+00	2.734E+00	
3. PERCENT OF LIMIT (2.70E+05 uCi/sec)	%	2.484E-03	1.012E-03	
B. RADIOIODINES				
1. TOTAL IODINE-131 + IODINE-133	CURIES	5.082E-03	7.140E-03	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	6.536E-04	9.081E-04	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	1.634E+00	2.270E+00	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	9.787E-05	1.462E-03	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.258E-05	1.860E-04	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	4.195E-03	6.200E-02	
4. GROSS ALPHA RADIOACTIVITY	CURIES	0.000E+00	0.000E+00	
D. TRITIUM				
1. TOTAL RELEASE	CURIES	5.592E+00	3.893E+00	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	7.191E-01	4.952E-01	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	3.995E-04	2.751E-04	

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 1999

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	**UNIT**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
FISSION GASES					
Argon-41	CURIES	0.00E+00	0.00E+00	5.99E+00	2.66E-08
Krypton-85m	CURIES	0.00E+00	0.00E+00	3.82E-02	0.00E+00
Xenon-133	CURIES	4.31E+01	2.12E+01	0.00E+00	1.07E-06
Xenon-133m	CURIES	3.57E-01	7.27E-02	1.09E+00	1.41E-08
Xenon-135	CURIES	1.41E+00	1.29E-01	1.88E-02	2.57E-09
Xenon-135m	CURIES	8.04E-02	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	4.50E+01	2.15E+01	7.15E+00	1.11E-06
IODINES					
Iodine-131	CURIES	4.63E-03	7.08E-03	0.00E+00	0.00E+00
Iodine-133	CURIES	4.51E-04	5.83E-05	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	5.08E-03	7.14E-03	0.00E+00	0.00E+00
PARTICULATES					
Cobalt-58	CURIES	4.83E-06	6.17E-05	3.52E-05	5.36E-04
Cobalt-60	CURIES	1.02E-06	6.35E-06	1.61E-05	1.05E-04
Chromium-51	CURIES	5.59E-06	7.07E-05	0.00E+00	5.18E-04
Cesium-134	CURIES	0.00E+00	8.03E-09	0.00E+00	0.00E+00
Cesium-137	CURIES	0.00E+00	7.93E-09	1.58E-07	0.00E+00
Iron-59	CURIES	0.00E+00	0.00E+00	0.00E+00	1.62E-05
Manganese-54	CURIES	0.00E+00	2.40E-06	0.00E+00	4.23E-05
Niobium-95	CURIES	0.00E+00	6.01E-06	1.73E-05	5.16E-05
Zirconium-97	CURIES	0.00E+00	3.01E-06	1.75E-05	4.16E-05
TOTAL FOR PERIOD	CURIES	1.14E-05	1.50E-04	8.64E-05	1.31E-03
OTHER					
Gross Alpha	CURIES	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	5.53E+00	3.89E+00	5.55E-02	0.00E+00
TOTAL FOR PERIOD	CURIES	5.53E+00	3.89E+00	5.55E-02	0.00E+00

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 1

Starting : 1-Jul-1999 Ending : 31-Dec-1999

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE	CURIES	2.148E+01	1.223E+01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.702E+00	1.539E+00	
3. PERCENT OF LIMIT (2.70E+05 uCi/sec)	%	1.001E-03	5.700E-04	
B. RADIOIODINES				
1. TOTAL IODINE-131 + IODINE-133	CURIES	1.636E-05	1.126E-06	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	2.058E-06	1.417E-07	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	5.145E-03	3.543E-04	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	9.194E-09	0.000E+00	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.156E-09	0.000E+00	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	3.855E-07	0.000E+00	
4. GROSS ALPHA RADIOACTIVITY	CURIES	0.000E+00	6.490E-07	
D. TRITIUM				
1. TOTAL RELEASE	CURIES	7.221E+00	6.931E+01	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	9.085E-01	8.720E+00	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	5.047E-04	4.844E-03	

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 1999

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	**UNIT**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
FISSION GASES					
Argon-41	CURIES	1.09E-01	0.00E+00	1.27E-02	0.00E+00
Krypton-85m	CURIES	1.70E-03	0.00E+00	0.00E+00	0.00E+00
Xenon-131m	CURIES	1.20E-01	0.00E+00	4.40E-03	0.00E+00
Xenon-133	CURIES	2.11E+01	1.22E+01	0.00E+00	0.00E+00
Xenon-133m	CURIES	5.79E-02	0.00E+00	2.97E-03	0.00E+00
Xenon-135	CURIES	1.75E-02	0.00E+00	1.92E-03	0.00E+00
TOTAL FOR PERIOD	CURIES	2.14E+01	1.22E+01	2.20E-02	0.00E+00
IODINES					
Iodine-131	CURIES	1.63E-05	1.12E-06	0.00E+00	0.00E+00
Iodine-133	CURIES	1.41E-08	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.63E-05	1.12E-06	0.00E+00	0.00E+00
PARTICULATES					
Cesium-134	CURIES	4.00E-09	0.00E+00	0.00E+00	0.00E+00
Cesium-137	CURIES	5.19E-09	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	9.19E-09	0.00E+00	0.00E+00	0.00E+00
OTHER					
Gross Alpha	CURIES	0.00E+00	6.49E-07	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	7.22E+00	6.93E+01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	7.22E+00	6.93E+01	0.00E+00	0.00E+00

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 2
Starting : 1-Jan-1999 Ending : 30-Jun-1999

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE	CURIES	1.453E+01	1.223E+01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.869E+00	1.555E+00	
3. PERCENT OF LIMIT (2.70E+05 uCi/sec)	%	6.798E-04	5.656E-04	
B. RADIOIODINES				
1. TOTAL IODINE-131 + IODINE-133	CURIES	1.091E-06	1.344E-05	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	1.403E-07	1.710E-06	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	3.508E-04	4.276E-03	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	2.611E-06	0.000E+00	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	3.358E-07	0.000E+00	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	1.119E-04	0.000E+00	
4. GROSS ALPHA RADIOACTIVITY	CURIES	2.281E-07	0.000E+00	
D. TRITIUM				
1. TOTAL RELEASE	CURIES	7.448E-01	4.677E+00	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	9.578E-02	5.949E-01	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	5.321E-05	3.305E-04	

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 1999

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	**UNIT**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
FISSION GASES					
Argon-41	CURIES	0.00E+00	0.00E+00	8.99E-03	0.00E+00
Xenon-133	CURIES	1.45E+01	1.22E+01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.45E+01	1.22E+01	8.99E-03	0.00E+00
IODINES					
Iodine-131	CURIES	1.09E-06	2.50E-06	0.00E+00	0.00E+00
Iodine-133	CURIES	0.00E+00	1.09E-05	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	1.09E-06	1.34E-05	0.00E+00	0.00E+00
PARTICULATES					
Cobalt-58	CURIES	2.61E-06	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	2.61E-06	0.00E+00	0.00E+00	0.00E+00
OTHER					
Gross Alpha	CURIES	2.28E-07	0.00E+00	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	7.44E-01	4.67E+00	2.58E-04	0.00E+00
TOTAL FOR PERIOD	CURIES	7.44E-01	4.67E+00	2.58E-04	0.00E+00

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL AIRBORNE EFFLUENTS
Unit: 2
Starting : 1-Jul-1999 Ending : 31-Dec-1999

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE	CURIES	3.422E+01	6.415E+01	100
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	4.305E+00	8.071E+00	
3. PERCENT OF LIMIT (2.70E+05 uCi/sec)	%	1.565E-03	2.934E-03	
B. RADIOIODINES				
1. TOTAL IODINE-131 + IODINE-133	CURIES	5.448E-05	7.100E-03	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	6.854E-06	8.932E-04	
3. PERCENT OF LIMIT (4.00E-02 uCi/sec)	%	1.713E-02	2.233E+00	
C. PARTICULATES				
1. PARTICULATES(HALF-LIVES>8 DAYS)	CURIES	5.978E-06	2.238E-03	25
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	7.521E-07	2.816E-04	
3. PERCENT OF LIMIT (3.00E-01 uCi/sec)	%	2.507E-04	9.388E-02	
4. GROSS ALPHA RADIOACTIVITY	CURIES	0.000E+00	5.900E-07	
D. TRITIUM				
1. TOTAL RELEASE	CURIES	2.902E+00	4.150E+00	50
2. AVERAGE RELEASE RATE FOR PERIOD	uCi/sec	3.651E-01	5.221E-01	
3. PERCENT OF LIMIT (1.80E+05 uCi/sec)	%	2.028E-04	2.901E-04	

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL AIRBORNE GROUND LEVEL CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: FISSION GASES, IODINES, AND PARTICULATES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 1999

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	**UNIT**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
FISSION GASES					
Argon-41	CURIES	0.00E+00	0.00E+00	2.87E-02	2.76E-08
Xenon-131m	CURIES	0.00E+00	5.80E-01	0.00E+00	0.00E+00
Xenon-133	CURIES	3.42E+01	6.14E+01	1.40E-08	0.00E+00
Xenon-133m	CURIES	0.00E+00	9.14E-01	0.00E+00	0.00E+00
Xenon-135	CURIES	1.99E-06	9.04E-01	0.00E+00	0.00E+00
Xenon-135m	CURIES	0.00E+00	2.89E-01	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	3.42E+01	6.41E+01	2.87E-02	2.76E-08
IODINES					
Iodine-131	CURIES	4.63E-05	6.79E-03	0.00E+00	0.00E+00
Iodine-133	CURIES	8.13E-06	3.04E-04	0.00E+00	0.00E+00
TOTAL FOR PERIOD	CURIES	5.44E-05	7.10E-03	0.00E+00	0.00E+00
PARTICULATES					
Cobalt-58	CURIES	3.49E-06	1.05E-04	0.00E+00	8.98E-04
Cobalt-60	CURIES	2.48E-06	5.22E-06	0.00E+00	7.86E-05
Chromium-51	CURIES	0.00E+00	4.79E-05	0.00E+00	5.54E-04
Cesium-134	CURIES	5.80E-10	0.00E+00	0.00E+00	0.00E+00
Cesium-137	CURIES	4.19E-10	0.00E+00	0.00E+00	0.00E+00
Iron-59	CURIES	0.00E+00	0.00E+00	0.00E+00	9.49E-06
Manganese-54	CURIES	0.00E+00	1.67E-06	0.00E+00	3.79E-05
Niobium-95	CURIES	0.00E+00	4.98E-06	0.00E+00	2.86E-04
Tin-113	CURIES	0.00E+00	0.00E+00	0.00E+00	5.34E-06
Zirconium-95	CURIES	0.00E+00	3.33E-06	0.00E+00	1.99E-04
TOTAL FOR PERIOD	CURIES	5.97E-06	1.69E-04	0.00E+00	2.07E-03
OTHER					
Gross Alpha	CURIES	0.00E+00	5.90E-07	0.00E+00	0.00E+00
Hydrogen-3 (Tritium)	CURIES	2.90E+00	3.59E+00	7.36E-09	5.60E-01
TOTAL FOR PERIOD	CURIES	2.90E+00	3.59E+00	7.36E-09	5.60E-01

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1 plus 2 Total

REPORT CATEGORY: ANNUAL AIRBORNE GROUND LEVEL RELEASES. TOTALS FOR EACH NUCLIDE RELEASED. FOR ALL OF 1999

NUCLIDES RELEASED	UNIT	UNIT 1 1999	UNIT 2 1999	TOTAL 1999
FISSION GASES				
Argon-41	CURIES	6.112E+00	3.769E-02	6.149E+00
Krypton-85m	CURIES	3.990E-02	0.000E+00	3.990E-02
Xenon-131m	CURIES	1.244E-01	5.800E-01	7.044E-01
Xenon-133	CURIES	9.760E+01	1.223E+02	2.199E+02
Xenon-133m	CURIES	1.581E+00	9.140E-01	2.495E+00
Xenon-135	CURIES	1.577E+00	9.040E-01	2.481E+00
Xenon-135m	CURIES	8.040E-02	2.890E-01	3.694E-01
TOTAL FOR PERIOD	CURIES	1.073E+02	1.250E+02	2.323E+02
IODINES				
Iodine-131	CURIES	1.173E-02	6.840E-03	1.857E-02
Iodine-133	CURIES	5.093E-04	3.230E-04	8.323E-04
TOTAL FOR PERIOD	CURIES	1.224E-02	7.169E-03	1.941E-02
PARTICULATES				
Cobalt-58	CURIES	6.377E-04	1.009E-03	1.647E-03
Cobalt-60	CURIES	1.285E-04	8.630E-05	2.148E-04
Chromium-51	CURIES	5.943E-04	6.019E-04	1.196E-03
Cesium-134	CURIES	1.203E-08	5.800E-10	1.261E-08
Cesium-137	CURIES	1.711E-07	4.190E-10	1.715E-07
Iron-59	CURIES	1.620E-05	9.490E-06	2.569E-05
Manganese-54	CURIES	4.470E-05	3.957E-05	8.427E-05
Niobium-95	CURIES	7.491E-05	2.910E-04	3.659E-04
Tin-113	CURIES	0.000E+00	5.340E-06	5.340E-06
Zirconium-95	CURIES	0.000E+00	2.023E-04	2.023E-04
Zirconium-97	CURIES	6.211E-05	0.000E+00	6.211E-05
TOTAL FOR PERIOD	CURIES	1.558E-03	2.248E-03	3.805E-03
OTHER				
Gross Alpha	CURIES	6.490E-07	8.180E-07	1.467E-06
Hydrogen-3 (Tritium)	CURIES	8.600E+01	1.246E+01	9.846E+01
TOTAL FOR PERIOD	CURIES	8.600E+01	1.246E+01	9.846E+01

LIQUID EFFLUENTS

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 1
Starting : 1-Jan-1999 Ending : 30-Jun-1999

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	4.178E-02	1.110E-01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.036E-08	3.052E-08	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	1.546E-01	1.035E+00	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	3.908E+02	5.659E+01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	9.691E-05	1.555E-05	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	9.691E-01	1.555E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	8.775E-01	1.801E-01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	2.175E-07	4.950E-08	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	1.087E-01	2.475E-02	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.000E+00	0.000E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	1.017E+07	6.731E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	2.647E+06	1.985E+06	1
F. VOLUME OF DILUTION WATER USED**	LITERS	4.022E+09	3.632E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
ALL NUCLIDES					
Silver-110m	CURIES	0.00E+00	0.00E+00	1.46E-03	1.00E-04
Cobalt-57	CURIES	0.00E+00	0.00E+00	1.11E-04	4.41E-05
Cobalt-58	CURIES	0.00E+00	0.00E+00	1.50E-03	2.59E-02
Cobalt-60	CURIES	0.00E+00	0.00E+00	1.17E-02	4.08E-03
Chromium-51	CURIES	0.00E+00	0.00E+00	5.05E-04	3.14E-02
Cesium-134	CURIES	0.00E+00	5.66E-05	2.62E-04	2.76E-04
Cesium-137	CURIES	8.24E-05	5.42E-05	3.31E-04	2.14E-04
Iron-55	CURIES	0.00E+00	0.00E+00	1.39E-02	1.79E-02
Iron-59	CURIES	0.00E+00	0.00E+00	2.53E-05	1.32E-03
Hydrogen-3 (Tritium)	CURIES	2.12E-02	2.26E-02	3.90E+02	5.65E+01
Iodine-131	CURIES	0.00E+00	5.23E-06	1.56E-03	1.09E-02
Iodine-132	CURIES	0.00E+00	0.00E+00	0.00E+00	8.38E-05
Iodine-133	CURIES	0.00E+00	0.00E+00	1.85E-04	3.44E-04
Krypton-85	CURIES	0.00E+00	0.00E+00	1.84E-02	1.90E-03
Krypton-85m	CURIES	0.00E+00	0.00E+00	1.96E-05	1.97E-05
Manganese-54	CURIES	0.00E+00	0.00E+00	1.51E-03	1.39E-03
Niobium-95	CURIES	0.00E+00	0.00E+00	1.35E-04	5.50E-03
Antimony-122	CURIES	0.00E+00	0.00E+00	2.01E-04	1.27E-03
Antimony-124	CURIES	0.00E+00	0.00E+00	2.02E-04	2.55E-03
Antimony-125	CURIES	0.00E+00	0.00E+00	2.58E-03	2.16E-03
Antimony-126	CURIES	0.00E+00	0.00E+00	0.00E+00	2.99E-05
Selenium-75	CURIES	0.00E+00	0.00E+00	0.00E+00	5.94E-05
Tin-113	CURIES	0.00E+00	0.00E+00	0.00E+00	1.82E-05
Tin-117m	CURIES	0.00E+00	0.00E+00	7.19E-04	1.53E-03
Strontium-89	CURIES	0.00E+00	0.00E+00	2.40E-05	1.11E-05
Strontium-90	CURIES	0.00E+00	0.00E+00	6.33E-05	3.32E-06
Technetium-99m	CURIES	0.00E+00	0.00E+00	1.73E-05	3.07E-05
Tellurium-125m	CURIES	0.00E+00	0.00E+00	4.56E-03	0.00E+00
Tellurium-132	CURIES	0.00E+00	0.00E+00	0.00E+00	6.05E-05
Xenon-131m	CURIES	0.00E+00	0.00E+00	8.29E-03	3.07E-03
Xenon-133	CURIES	0.00E+00	0.00E+00	8.28E-01	1.72E-01
Xenon-133m	CURIES	0.00E+00	0.00E+00	1.68E-02	1.03E-03
Xenon-135	CURIES	0.00E+00	0.00E+00	5.54E-03	1.43E-03

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
ALL NUCLIDES					
Zirconium-95	CURIES	0.00E+00	0.00E+00	2.58E-05	3.54E-03
Zirconium-97	CURIES	0.00E+00	0.00E+00	5.32E-06	0.00E+00
TOTAL FOR PERIOD	CURIES	2.13E-02	2.27E-02	3.91E+02	5.68E+01

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 1
Starting : 1-Jul-1999 Ending : 31-Dec-1999

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	1.603E-02	2.073E-02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	6.411E-09	7.162E-09	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	1.104E-02	1.331E-02	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	6.955E+01	2.978E+02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	2.780E-05	1.028E-04	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	2.780E-01	1.028E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	7.739E-02	7.630E-01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	3.094E-08	2.635E-07	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	1.547E-02	1.317E-01	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.000E+00	0.000E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	7.814E+06	3.875E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	1.191E+06	1.695E+06	1
F. VOLUME OF DILUTION WATER USED**	LITERS	2.493E+09	2.890E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
ALL NUCLIDES					
Silver-110m	CURIES	0.00E+00	0.00E+00	8.72E-05	6.83E-05
Cobalt-57	CURIES	0.00E+00	0.00E+00	0.00E+00	1.15E-06
Cobalt-58	CURIES	0.00E+00	0.00E+00	2.21E-03	1.69E-03
Cobalt-60	CURIES	0.00E+00	0.00E+00	1.36E-03	4.36E-03
Chromium-51	CURIES	0.00E+00	0.00E+00	5.22E-04	9.87E-05
Cesium-134	CURIES	5.84E-05	0.00E+00	2.64E-04	5.26E-04
Cesium-137	CURIES	1.15E-04	0.00E+00	2.85E-04	6.78E-04
Iron-55	CURIES	0.00E+00	0.00E+00	2.78E-03	5.41E-03
Iron-59	CURIES	0.00E+00	0.00E+00	5.59E-05	1.05E-05
Hydrogen-3 (Tritium)	CURIES	2.16E-02	1.39E-02	6.95E+01	2.97E+02
Iodine-131	CURIES	1.85E-06	0.00E+00	0.00E+00	0.00E+00
Iodine-133	CURIES	9.39E-07	0.00E+00	0.00E+00	0.00E+00
Krypton-85	CURIES	0.00E+00	0.00E+00	4.12E-03	3.21E-02
Krypton-85m	CURIES	0.00E+00	0.00E+00	4.64E-06	0.00E+00
Manganese-54	CURIES	0.00E+00	0.00E+00	2.73E-04	3.04E-04
Sodium-24	CURIES	0.00E+00	0.00E+00	5.44E-06	0.00E+00
Niobium-95	CURIES	0.00E+00	0.00E+00	5.36E-04	3.50E-04
Rubidium-88	CURIES	0.00E+00	0.00E+00	0.00E+00	5.24E-05
Antimony-122	CURIES	0.00E+00	0.00E+00	0.00E+00	4.47E-06
Antimony-124	CURIES	0.00E+00	0.00E+00	1.00E-03	8.28E-04
Antimony-125	CURIES	0.00E+00	0.00E+00	5.96E-03	6.14E-03
Tin-117m	CURIES	0.00E+00	0.00E+00	1.87E-04	4.42E-05
Strontium-89	CURIES	0.00E+00	0.00E+00	1.70E-13	1.52E-05
Strontium-90	CURIES	0.00E+00	0.00E+00	3.60E-06	1.13E-13
Tellurium-132	CURIES	0.00E+00	0.00E+00	0.00E+00	6.75E-06
Xenon-131m	CURIES	0.00E+00	0.00E+00	2.91E-03	2.64E-02
Xenon-133	CURIES	0.00E+00	0.00E+00	6.91E-02	6.99E-01
Xenon-133m	CURIES	0.00E+00	0.00E+00	9.27E-04	4.56E-03
Xenon-135	CURIES	0.00E+00	0.00E+00	2.82E-04	3.21E-04
Zirconium-95	CURIES	0.00E+00	0.00E+00	2.91E-04	1.29E-04
TOTAL FOR PERIOD	CURIES	2.18E-02	1.39E-02	6.96E+01	2.98E+02

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 2
Starting : 1-Jan-1999 Ending : 30-Jun-1999

TYPE OF EFFLUENT	UNITS	QUARTER 1	QUARTER 2	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	3.007E-02	5.008E-02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	2.366E-08	2.405E-08	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	2.475E-02	2.580E-02	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	1.060E+02	2.389E+02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	8.347E-05	1.147E-04	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	8.347E-01	1.147E+00	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	1.227E-03	1.816E-03	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	9.660E-10	8.725E-10	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	4.830E-04	4.362E-04	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.000E+00	0.000E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	2.673E+06	3.277E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	7.109E+05	9.304E+05	1
F. VOLUME OF DILUTION WATER USED**	LITERS	1.267E+09	2.078E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
Unit 2
REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.
TYPE OF ACTIVITY: ALL RADIONUCLIDES
REPORTING PERIOD: QUARTER # 1 AND QUARTER # 2 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 1**	**QUARTER 2**	**QUARTER 1**	**QUARTER 2**
ALL NUCLIDES					
Silver-110m	CURIES	0.00E+00	0.00E+00	9.67E-05	1.18E-03
Argon-41	CURIES	0.00E+00	0.00E+00	0.00E+00	7.23E-06
Cobalt-57	CURIES	0.00E+00	0.00E+00	6.55E-05	1.49E-04
Cobalt-58	CURIES	0.00E+00	0.00E+00	1.12E-02	1.04E-02
Cobalt-60	CURIES	0.00E+00	0.00E+00	2.32E-03	8.23E-03
Chromium-51	CURIES	0.00E+00	0.00E+00	9.23E-04	8.67E-05
Cesium-134	CURIES	0.00E+00	0.00E+00	0.00E+00	1.39E-05
Cesium-137	CURIES	0.00E+00	0.00E+00	0.00E+00	1.73E-05
Iron-55	CURIES	0.00E+00	0.00E+00	7.42E-03	2.46E-02
Iron-59	CURIES	0.00E+00	0.00E+00	1.65E-04	2.73E-05
Hydrogen-3 (Tritium)	CURIES	3.54E-02	5.35E-02	1.06E+02	2.38E+02
Krypton-85	CURIES	0.00E+00	0.00E+00	0.00E+00	4.96E-04
Lanthanum-140	CURIES	0.00E+00	0.00E+00	0.00E+00	4.80E-06
Manganese-54	CURIES	0.00E+00	0.00E+00	4.49E-03	2.87E-03
Sodium-24	CURIES	0.00E+00	0.00E+00	8.96E-07	0.00E+00
Niobium-95	CURIES	0.00E+00	0.00E+00	5.94E-04	7.82E-04
Antimony-124	CURIES	0.00E+00	0.00E+00	8.94E-05	2.10E-05
Antimony-125	CURIES	0.00E+00	0.00E+00	1.18E-03	1.28E-03
Tin-113	CURIES	0.00E+00	0.00E+00	4.47E-06	0.00E+00
Tin-117m	CURIES	0.00E+00	0.00E+00	4.55E-05	4.57E-06
Strontium-89	CURIES	0.00E+00	0.00E+00	3.80E-05	5.11E-05
Tellurium-125m	CURIES	0.00E+00	0.00E+00	1.04E-03	0.00E+00
Xenon-131m	CURIES	0.00E+00	0.00E+00	0.00E+00	5.30E-05
Xenon-133	CURIES	0.00E+00	0.00E+00	1.22E-03	1.26E-03
Zinc-65	CURIES	0.00E+00	0.00E+00	2.92E-06	0.00E+00
Zirconium-95	CURIES	0.00E+00	0.00E+00	3.21E-04	3.52E-04
TOTAL FOR PERIOD	CURIES	3.54E-02	5.35E-02	1.06E+02	2.39E+02

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY
SEMIANNUAL SUMMATION OF ALL RELEASES BY QUARTER
ALL LIQUID EFFLUENTS
Unit: 2
Starting : 1-Jul-1999 Ending : 31-Dec-1999

TYPE OF EFFLUENT	UNITS	QUARTER 3	QUARTER 4	EST. TOT ERROR %
A. FISSION & ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CURIES	7.932E-02	8.467E-02	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	1.892E-08	2.341E-08	
3. PERCENT OF EC* LIMIT (FRACTIONAL)	%	2.629E-02	2.572E+00	
B. TRITIUM				
1. TOTAL RELEASE	CURIES	3.953E+02	8.833E+01	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	9.432E-05	2.442E-05	
3. % OF LIMIT (1.00E-02 uCi/mL)	%	9.432E-01	2.442E-01	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CURIES	1.181E+00	1.545E+00	10
2. AVERAGE DILUTED CONCENTRATION DURING PERIOD	uCi/mL	2.819E-07	4.273E-07	
3. PERCENT OF LIMIT (2.00E-04 uCi/mL)	%	1.409E-01	2.136E-01	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CURIES	0.000E+00	0.000E+00	10
E. WASTE VOL RELEASED				
1. TOTAL PRE-DILUTION VOLUME	LITERS	5.314E+06	8.134E+06	1
2. BATCH PRE-DILUTION VOLUME	LITERS	2.075E+06	2.119E+06	1
F. VOLUME OF DILUTION WATER USED**	LITERS	4.186E+09	3.608E+09	10

*EC= Effluent Concentration

**"Volume of dilution water used" means the volume of water circulated through the main condenser during the actual time of release. Liquid effluent releases ultimately dilute into the volume of the onsite main cooling reservoir and then into offsite water bodies as described in Section 2, subsection Radiological Impact on Man of this report.

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
ALL NUCLIDES					
Silver-110m	CURIES	0.00E+00	0.00E+00	2.38E-03	1.27E-04
Cobalt-57	CURIES	0.00E+00	0.00E+00	2.42E-04	7.99E-05
Cobalt-58	CURIES	0.00E+00	0.00E+00	1.22E-02	2.57E-02
Cobalt-60	CURIES	7.52E-06	0.00E+00	1.40E-02	4.01E-03
Chromium-51	CURIES	0.00E+00	0.00E+00	0.00E+00	2.87E-03
Cesium-134	CURIES	3.87E-07	1.39E-04	1.21E-04	2.04E-06
Cesium-137	CURIES	2.79E-07	1.19E-04	1.19E-04	1.14E-05
Iron-55	CURIES	0.00E+00	0.00E+00	3.37E-02	5.67E-03
Iron-59	CURIES	0.00E+00	0.00E+00	0.00E+00	6.40E-05
Hydrogen-3 (Tritium)	CURIES	2.93E-02	1.65E-02	3.95E+02	8.83E+01
Iodine-131	CURIES	1.13E-05	5.40E-05	4.07E-05	2.74E-02
Iodine-132	CURIES	1.50E-06	0.00E+00	0.00E+00	0.00E+00
Iodine-133	CURIES	1.23E-06	0.00E+00	0.00E+00	7.17E-04
Krypton-85	CURIES	0.00E+00	0.00E+00	9.08E-03	2.45E-02
Krypton-85m	CURIES	0.00E+00	0.00E+00	8.82E-06	0.00E+00
Lanthanum-140	CURIES	0.00E+00	0.00E+00	4.16E-06	0.00E+00
Manganese-54	CURIES	0.00E+00	0.00E+00	2.03E-03	1.14E-03
Molybdenum-99	CURIES	0.00E+00	0.00E+00	0.00E+00	4.40E-04
Sodium-24	CURIES	0.00E+00	0.00E+00	0.00E+00	3.78E-06
Niobium-95	CURIES	0.00E+00	0.00E+00	4.22E-04	5.02E-04
Antimony-122	CURIES	0.00E+00	0.00E+00	0.00E+00	8.34E-04
Antimony-124	CURIES	0.00E+00	0.00E+00	1.46E-05	1.52E-03
Antimony-125	CURIES	7.96E-05	0.00E+00	7.94E-03	7.51E-03
Antimony-126	CURIES	0.00E+00	0.00E+00	0.00E+00	1.03E-04
Tin-117m	CURIES	0.00E+00	0.00E+00	6.20E-05	8.87E-05
Strontium-89	CURIES	0.00E+00	0.00E+00	5.08E-05	5.49E-05
Technetium-99m	CURIES	5.14E-08	0.00E+00	0.00E+00	4.25E-04
Tellurium-125m	CURIES	0.00E+00	0.00E+00	5.67E-03	4.71E-03
Tellurium-132	CURIES	0.00E+00	0.00E+00	0.00E+00	2.88E-05
Xenon-131m	CURIES	0.00E+00	0.00E+00	1.85E-02	2.14E-02
Xenon-133	CURIES	0.00E+00	0.00E+00	1.13E+00	1.47E+00
Xenon-133m	CURIES	0.00E+00	0.00E+00	1.62E-02	1.88E-02
Xenon-135	CURIES	0.00E+00	0.00E+00	4.37E-03	3.64E-03
Zirconium-95	CURIES	0.00E+00	0.00E+00	1.10E-04	2.70E-04

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 2

REPORT CATEGORY: SEMIANNUAL LIQUID CONTINUOUS AND BATCH RELEASES. TOTALS FOR EACH NUCLIDE RELEASED.

TYPE OF ACTIVITY: ALL RADIONUCLIDES

REPORTING PERIOD: QUARTER # 3 AND QUARTER # 4 YEAR 1999

		CONTINUOUS RELEASES		BATCH RELEASES	
NUCLIDES RELEASED	**UNIT**	**QUARTER 3**	**QUARTER 4**	**QUARTER 3**	**QUARTER 4**
TOTAL FOR PERIOD	CURIES	2.94E-02	1.68E-02	3.96E+02	8.99E+01

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1 plus 2 Total

REPORT CATEGORY: ANNUAL LIQUID RELEASES. TOTALS FOR EACH NUCLIDE RELEASED. FOR ALL OF 1999

NUCLIDES RELEASED	UNIT	UNIT 1 1999	UNIT 2 1999	TOTAL 1999
ALL NUCLIDES				
Silver-110m	CURIES	1.716E-03	3.784E-03	5.499E-03
Argon-41	CURIES	0.000E+00	7.230E-06	7.230E-06
Cobalt-57	CURIES	1.563E-04	5.364E-04	6.927E-04
Cobalt-58	CURIES	3.130E-02	5.950E-02	9.080E-02
Cobalt-60	CURIES	2.150E-02	2.857E-02	5.007E-02
Chromium-51	CURIES	3.253E-02	3.880E-03	3.641E-02
Cesium-134	CURIES	1.443E-03	2.763E-04	1.719E-03
Cesium-137	CURIES	1.760E-03	2.670E-04	2.027E-03
Iron-55	CURIES	3.999E-02	7.139E-02	1.114E-01
Iron-59	CURIES	1.412E-03	2.563E-04	1.668E-03
Hydrogen-3 (Tritium)	CURIES	8.131E+02	8.274E+02	1.641E+03
Iodine-131	CURIES	1.247E-02	2.751E-02	3.997E-02
Iodine-132	CURIES	8.380E-05	1.500E-06	8.530E-05
Iodine-133	CURIES	5.299E-04	7.182E-04	1.248E-03
Krypton-85	CURIES	5.652E-02	3.408E-02	9.060E-02
Krypton-85m	CURIES	4.394E-05	8.820E-06	5.276E-05
Lanthanum-140	CURIES	0.000E+00	8.960E-06	8.960E-06
Manganese-54	CURIES	3.477E-03	1.053E-02	1.401E-02
Molybdenum-99	CURIES	0.000E+00	4.400E-04	4.400E-04
Sodium-24	CURIES	5.440E-06	4.676E-06	1.012E-05
Niobium-95	CURIES	6.521E-03	2.300E-03	8.821E-03
Rubidium-88	CURIES	5.240E-05	0.000E+00	5.240E-05
Antimony-122	CURIES	1.475E-03	8.340E-04	2.309E-03
Antimony-124	CURIES	4.580E-03	1.645E-03	6.225E-03
Antimony-125	CURIES	1.684E-02	1.799E-02	3.483E-02
Antimony-126	CURIES	2.990E-05	1.030E-04	1.329E-04
Selenium-75	CURIES	5.940E-05	0.000E+00	5.940E-05
Tin-113	CURIES	1.820E-05	4.470E-06	2.267E-05
Tin-117m	CURIES	2.480E-03	2.008E-04	2.681E-03
Strontium-89	CURIES	5.030E-05	1.948E-04	2.451E-04
Strontium-90	CURIES	7.022E-05	0.000E+00	7.022E-05
Technetium-99m	CURIES	4.800E-05	4.251E-04	4.731E-04
Tellurium-125m	CURIES	4.560E-03	1.142E-02	1.598E-02
Tellurium-132	CURIES	6.725E-05	2.880E-05	9.605E-05
Xenon-131m	CURIES	4.067E-02	3.995E-02	8.062E-02
Xenon-133	CURIES	1.768E+00	2.602E+00	4.371E+00

SOUTH TEXAS PROJECT NUCLEAR OPERATING COMPANY

Unit 1 plus 2 Total

REPORT CATEGORY: ANNUAL LIQUID RELEASES. TOTALS FOR EACH NUCLIDE RELEASED. FOR ALL OF 1999

NUCLIDES RELEASED	UNIT	UNIT 1 1999	UNIT 2 1999	TOTAL 1999
ALL NUCLIDES				
Xenon-133m	CURIES	2.332E-02	3.500E-02	5.832E-02
Xenon-135	CURIES	7.573E-03	8.010E-03	1.558E-02
Zinc-65	CURIES	0.000E+00	2.920E-06	2.920E-06
Zirconium-95	CURIES	3.986E-03	1.053E-03	5.039E-03
Zirconium-97	CURIES	5.320E-06	0.000E+00	5.320E-06
TOTAL	CURIES	8.155E+02	8.310E+02	1.647E+03
TOTAL Noble Gases	CURIES	1.896E+00	2.720E+00	4.616E+00
TOTAL Excluding Tritium & Noble Gases	CURIES	1.892E-01	2.439E-01	4.331E-01

Solid Waste and Irradiated Fuel Shipments

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel)

1. Type of Waste	Units	12-Month Period Shipped	12-Month Period Buried	Est. Total Error, %	
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	3.41E+01 5.91E+02	3.41E+01 5.91E+02	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	5.05E+02 1.60E+00	1.77E+01 1.64E+00	-1.0E+00 -6.6E+01	+1.0E+00 +2.0E+02
c. Irradiated components, control rods, etc.	m^3 Ci	0.00E+00 0.00E+00	0.00E+00 0.00E+00	N/A	N/A
d. Other (low level secondary resin and oily waste filter cake)	m^3 Ci	7.63E+01 1.10E-04	7.63E+01 1.10E-04	-1.0E+00 -5.0E+01	+1.0E+00 +1.0E+02

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

a. Spent resins, filter sludges, evaporator bottoms, etc.		
Iron-55	%	3.62E+01
Nickel-63	%	4.30E+01
Cobalt-60	%	1.52E+01
Cobalt-58	%	4.34E+00
b. Dry compressible waste, contaminated equip., etc.		
Cobalt-58	%	4.32E+01
Iron-55	%	1.66E+01
Cromium-51	%	1.62E+01
Nickel-63	%	9.12E+00
Cobalt-60	%	4.78E+00
Niobium-95	%	2.69E+00
Zirconium-95	%	2.10E+00
Antimony-124	%	1.88E+00
Manganese-54	%	1.15E+00
c. N/A	N/A	N/A
d. Other (low level secondary resin and oily waste filter cake)		
Cobalt-60	%	8.98E+01
Cesium-137	%	3.17E+00
Cesium-134	%	2.80E+00
Antimony-125	%	2.34E+00
Manganese-54	%	1.50E+00

3. Solid Waste Disposition:

Number of Shipments	Mode of Transportation	Destination
8	Truck	Chem-Nuclear Systems Barnwell Waste Management Facility 740 Osborn Rd. Barnwell, SC 29812
2	Truck	Chem-Nuclear Systems, LLC Chem-Nuclear Consolidating HWY 64 (1 mile of Snelling) Barnwell, SC 29812
8	Truck	GTS-Duratek 1560 Bear Creek Road Oak Ridge, TN 37830
7	Truck	GTS-Duratek Gallaher Road Facility 628 Gallaher Rd. Kingston, TN 37763

4. Class of Solid Waste:
   A, B & C

5. Type of Containers Used for Shipment:
   Strong Tight, High-Integrity Containers, Type A and B casks

6. Solidifying Agent:
   N/A

B. IRRADIATED FUEL SHIPMENTS (Disposal)
   No shipments made during this period.

DOSE ACCUMULATIONS

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 1
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS AND AIR
Starting: 1-Jan-1999 Ending: 31-Dec-1999

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (mrad or mrem)
LIQUID	TOTAL BODY	4.81E-03	ADULT	RECEPTOR 3(5)	1.6E-01	3.0
LIQUID	GI-TRACT	5.51E-03	ADULT	RECEPTOR 3(5)	5.5E-02	10.0
NOBLE GAS	AIR DOSE (gamma-mrad)	5.37E-03		1720m NW	5.4E-02	10.0
NOBLE GAS	AIR DOSE (beta-mrad)	8.08E-03		1720m NW	4.0E-02	20.0
NOBLE GAS	TOTAL BODY	1.97E-03	ALL(1)	1720m NW	3.9E-02	5.0
NOBLE GAS	TOTAL BODY	2.19E-04	ALL(2)	7200m NW	4.4E-03	5.0
NOBLE GAS	SKIN	4.22E-03	ALL(1)	1720m NW	2.8E-02	15.0
NOBLE GAS	SKIN	5.24E-04	ALL(2)	4000m WSW	3.5E-03	15.0
IODINE, PARTICULATES & TRITIUM	THYROID	1.24E-01	CHILD(1)	1720m NW	8.3E-01	15.0
IODINE, PARTICULATES & TRITIUM	THYROID	1.39E-02	CHILD(2)	5600m NNW	9.3E-02	15.0

SUMMARY OF POPULATION DOSES FOR 1999			
EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (person-rem)	AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	1.8E-03	7.8E-08(3)
GASEOUS	TOTAL BODY	1.6E-02	5.6E-08(4)

NOTES:

(1)Doses were calculated for HYPOTHETICAL receptors at the site boundary.

(2)Highest dose for REAL individual or receptor.

(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 18,500 for salt water sport fish ingestion.

(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project Electric Generating Station.

(5)Receptor 3 is an individual ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 2
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS, AND AIR
Starting: 1-Jan-1999 Ending: 31-Dec-1999

EFFLUENT	APPLICABLE ORGAN	ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)	% OF APPLICABLE LIMIT	LIMIT (mrad or mrem)
LIQUID	TOTAL BODY	4.87E-03	ADULT	RECEPTOR 3(5)	1.6E-01	3.0
LIQUID	GI-TRACT	5.44E-03	ADULT	RECEPTOR 3(5)	5.4E-02	10.0
NOBLE GAS	AIR DOSE (gamma-mrad)	6.17E-03		1850m WNW	6.2E-02	10.0
NOBLE GAS	AIR DOSE (beta-mrad)	1.74E-02		1850m WNW	8.7E-02	20.0
NOBLE GAS	TOTAL BODY	2.03E-03	ALL(1)	1850m WNW	4.1E-02	5.0
NOBLE GAS	TOTAL BODY	3.74E-04	ALL(2)	4000m WSW	7.5E-03	5.0
NOBLE GAS	SKIN	5.78E-03	ALL(1)	1850m WNW	3.9E-02	15.0
NOBLE GAS	SKIN	1.07E-03	ALL(2)	4000m WSW	7.1E-03	15.0
IODINE, PARTICULATES & TRITIUM	THYROID	3.72E-02	CHILD(1)	1850m WNW	2.5E-01	15.0
IODINE, PARTICULATES & TRITIUM	THYROID	7.79E-03	CHILD(2)	4000m WSW	5.2E-02	15.0

SUMMARY OF POPULATION DOSES FOR 1999			
EFFLUENT	APPLICABLE ORGAN	ESTIMATED POPULATION DOSE (person-rem)	AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	2.0E-03	8.2E-08(3)
GASEOUS	TOTAL BODY	3.5E-03	1.2E-08(4)

NOTES:

(1)Doses were calculated for HYPOTHETICAL receptors at the site boundary.

(2)Highest dose for REAL individual or receptor.

(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 18,500 for salt water sport fish ingestion.

(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project Electric Generating Station.

(5)Receptor 3 is an individual ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

STP NUCLEAR OPERATING COMPANY
SUMMARY OF MAXIMUM INDIVIDUAL DOSES
Unit: 1 PLUS 2
TOTAL ACCUMULATION FOR PERIODS:
for LIQUID, GASEOUS, AND AIR
Starting: 1-Jan-1999 Ending: 31-Dec-1999

EFFLUENT	APPLICABLE ORGAN	UNIT 1 ESTIMATED DOSE (mrem)	UNIT 2 ESTIMATED DOSE (mrem)	TOTAL 1+2 ESTIMATED DOSE (mrem)	AGE GROUP	LOCATION DIST DIR (m) (TOWARD)
LIQUID	TOTAL BODY	4.81E-03	4.87E-03	9.67E-03	ADULT	RECEPTOR 3(5)
LIQUID	GI-TRACT	5.51E-03	5.44E-03	1.09E-02	ADULT	RECEPTOR 3(5)
NOBLE GAS	AIR DOSE (gamma-mrad)	3.77E-03	6.17E-03	9.94E-03		1850m WNW
NOBLE GAS	AIR DOSE (beta-mrad)	5.70E-03	1.74E-02	2.31E-02		1850m WNW
NOBLE GAS	TOTAL BODY	1.41E-03	2.03E-03	3.44E-03	ALL(1)	1850m WNW
NOBLE GAS	TOTAL BODY	2.16E-04	3.74E-04	5.90E-04	ALL(2)	4000m WSW
NOBLE GAS	SKIN	3.00E-03	5.78-03	8.78E-03	ALL(1)	1850m WNW
NOBLE GAS	SKIN	5.24E-04	1.07E-03	1.59E-03	ALL(2)	4000m WSW
IODINE, PARTICULATES & TRITIUM	THYROID	1.24E-01	2.70E-02	1.51E-01	CHILD(1)	1720m NW
IODINE, PARTICULATES & TRITIUM	THYROID	1.00E-02	7.79E-03	1.78E-02	CHILD(2)	4000m WSW
IODINE, PARTICULATES & TRITIUM	TOTAL BODY	3.22E-03	4.00E-04	3.62E-03	ADULT(2)	4000m WSW

SUMMARY OF POPULATION DOSES FOR 1999			
EFFLUENT	APPLICABLE ORGAN	TOTAL 1+2 ESTIMATED POPULATION DOSE (person-rem)	TOTAL 1+2 AVERAGE DOSE TO POPULATION (rem per person)
LIQUID	TOTAL BODY	3.8E-03	1.6E-07(3)
GASEOUS	TOTAL BODY	2.0E-02	6.8E-08(4)

NOTES:

(1)Doses were calculated for HYPOTHETICAL receptors at the site boundary.

(2)Highest dose for REAL individual or receptor.

(3) Calculation based on a population of 303,500 for shore line exposure and for salt water invertebrate ingestion and 18,500 for salt water sport fish ingestion.

(4) Calculation based on a population of 299,000 within fifty (50) miles of South Texas Project Electric Generating Station.

(5)Receptor 3 is an individual ingesting fresh water sport fish and receiving shoreline exposure from the Little Robbins Slough Area.

RESULTS OF THE PROTECTED AREA DIRECT RADIATION MEASUREMENTS PROGRAM

Table 8-1

1999 STPEGS PROTECTED AREA THERMOLUMINESCENT DOSIMETER MONITORING STATIONS						
Station Number	1st Qtr Average [2](mR)	2nd Qtr Average [2](mR)	3rd Qtr Average [2](mR)	4th Qtr Average [2](mR)	Quarterly Average [2](mR)	Average[1] Net Rate (mR/hour)
1	12.7	15.7	13.8	14.0	14.1	-0-
2	12.2	14.1	13.8	13.5	13.4	-0-
3	12.1	14.1	13.7	13.2	13.3	-0-
4	12.1	14.4	13.9	13.1	13.4	-0-
5	13.2	16.3	14.5	14.2	14.6	-0-
6	14.9	16.5	15.3	16.2	15.7	0.00015
7	14.1	15.4	15.5	17.4	15.6	0.00009
8	13.1	14.5	14.1	14.0	13.9	-0-
9	12.8	13.7	13.2	13.4	13.3	-0-
10	11.9	13.5	13.2	13.2	13.0	-0-
11	11.1	12.7	12.0	11.9	11.9	-0-
12	11.7	13.6	12.6	12.6	12.6	-0-
13	11.5	13.0	12.8	12.2	12.4	-0-
14	11.7	13.6	13.4	12.7	12.9	-0-
15	12.6	14.0	13.7	13.5	13.5	-0-
16	12.1	13.7	13.9	12.9	13.2	-0-

Notes:
Individual values normalized to a 91 day quarter.
Only the calcium sulfate elements were used in these averages.

(1) Net Rate:
Difference between the exposure rate in 1999 and the rate measured in 1986 due to natural background ([average rate] - 15.4 mR background) / 91 days / 24 hours per day

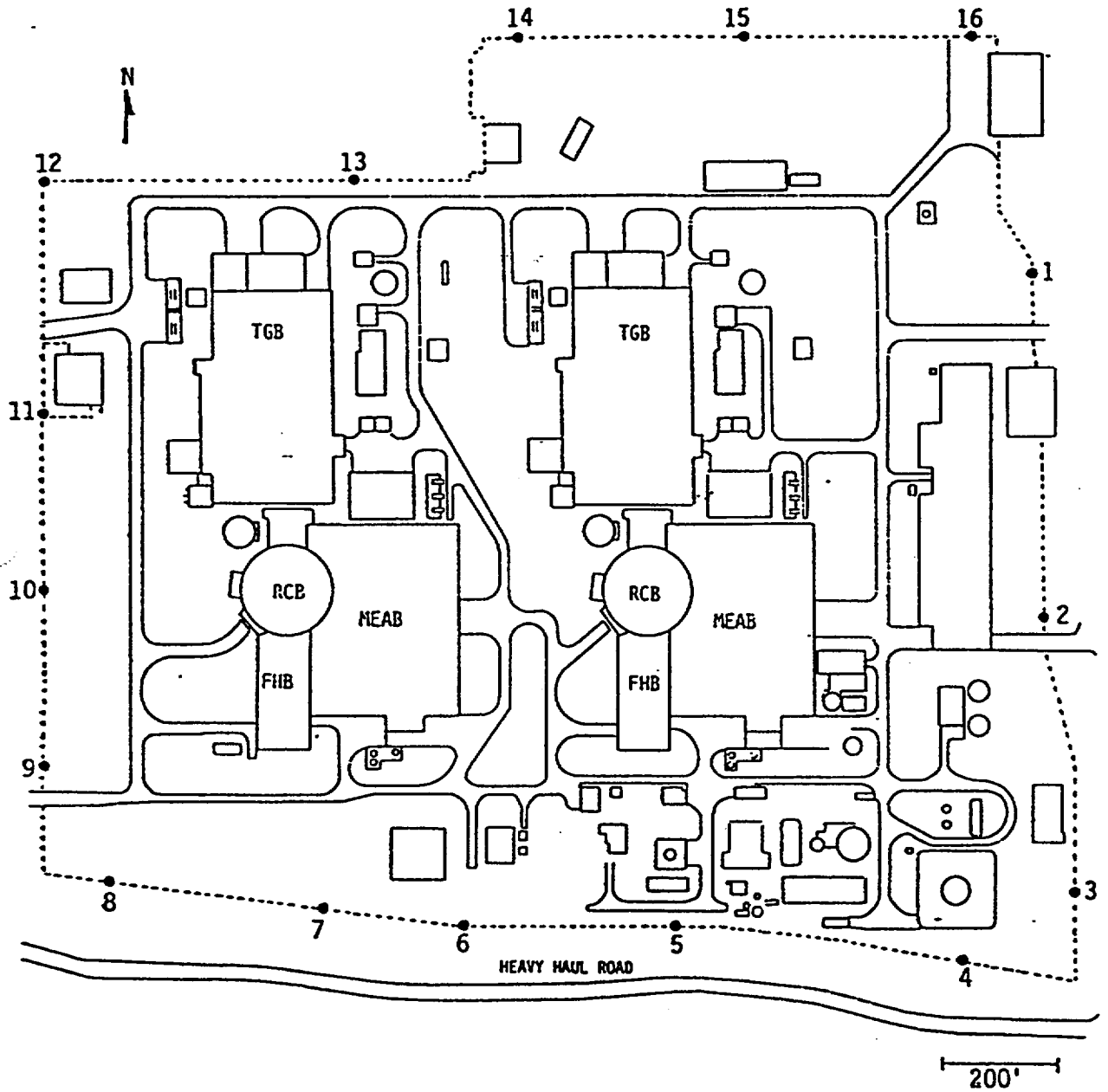
The 1986 background rate of 15.4 milliroentgen per quarter at the site boundary has been used to reflect the pre-operational baseline exposure rate for STP. Historically the exposure rate measured near the protected area fence has been lower than the site boundary's historical background. This year, dosimeter stations 6 and 7 had exposure rates above the site boundary's background rate. These two stations along with station 5 typically have the highest rates due to radioactive waste handling activities on the south sides of each Unit.

Zero (0) indicates background levels.

(2) mR = milliroentgen, a unit of exposure for X and gamma rays

FIGURE 8-1

PROTECTED AREA MONITORING STATIONS



JOINT FREQUENCY TABLES

First Quarter 1999

Joint Frequency Tables

JOINT FREQUENCY TABLE

STABILITY CLASS -A-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	2	2	1	0	0	5	3.0	14.8
NNE	0	0	1	0	0	0	0	0	1	0.6	6.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	1	1	2	0	0	0	4	2.4	11.7
ESE	0	0	1	0	4	5	0	0	10	6.1	17.0
SE	0	0	0	7	3	5	0	0	15	9.1	14.2
SSE	0	0	1	4	18	2	0	0	25	15.2	15.2
S	0	0	0	30	29	2	0	0	61	37.2	12.8
SSW	0	0	0	12	10	0	0	0	22	13.4	13.1
SW	0	0	0	3	4	0	0	0	7	4.3	12.8
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	1	0	0	0	1	0.6	16.0
WNW	0	0	0	4	0	0	0	0	4	2.4	10.3
NW	0	0	0	3	1	4	0	0	8	4.9	15.5
NNW	0	0	0	0	1	0	0	0	1	0.6	15.3
TOTAL	0	0	4	66	75	19	0	0	164	100.0	
%	0.0	0.0	2.4	40.2	45.7	11.6	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 13.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -B-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	3	2	3	0	0	0	8	7.8	10.1
NNE	0	0	0	0	1	0	0	0	1	1.0	14.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	2	1	0	0	3	2.9	15.5
ESE	0	0	0	0	2	3	1	0	6	5.8	20.0
SE	0	0	1	9	10	1	0	0	21	20.4	13.0
SSE	0	0	1	5	12	2	0	0	20	19.4	13.7
S	0	0	1	9	7	0	0	0	17	16.5	11.5
SSW	0	0	1	3	1	1	0	0	6	5.8	11.3
SW	0	0	1	1	2	0	0	0	4	3.9	11.2
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	2	0	0	2	1.9	21.1
WNW	0	0	1	2	0	0	0	0	3	2.9	8.5
NW	0	0	2	3	2	1	0	0	8	7.8	11.4
NNW	0	0	1	0	1	2	0	0	4	3.9	16.7
TOTAL	0	0	12	34	43	13	1	0	103	100.0	
%	0.0	0.0	11.7	33.0	41.7	12.6	1.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 13.0 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -C-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	2	5	6	3	0	0	16	11.0	13.8
NNE	0	0	1	3	1	0	0	0	5	3.4	8.9
NE	0	0	0	1	0	0	0	0	1	0.7	9.6
ENE	0	0	1	0	0	0	0	0	1	0.7	7.0
E	0	0	5	3	2	0	0	0	10	6.9	9.3
ESE	0	0	0	2	2	4	2	0	10	6.9	18.8
SE	0	0	0	8	7	2	0	0	17	11.7	13.2
SSE	0	0	3	7	9	1	0	0	20	13.8	12.4
S	0	0	3	11	7	0	0	0	21	14.5	10.8
SSW	0	0	3	5	1	0	0	0	9	6.2	9.0
SW	0	0	3	1	0	0	0	0	4	2.8	7.5
WSW	0	0	0	2	0	0	0	0	2	1.4	10.4
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	1	0	0	0	1	0.7	13.8
NW	0	0	3	1	3	3	0	0	10	6.9	14.2
NNW	0	0	4	5	7	2	0	0	18	12.4	12.2
TOTAL	0	0	28	54	46	15	2	0	145	100.0	
%	0.0	0.0	19.3	37.2	31.7	10.3	1.4	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -D-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	11	20	42	14	2	0	89	13.8	13.9
NNE	0	0	10	17	3	0	0	0	30	4.7	9.0
NE	0	2	4	5	1	0	0	0	12	1.9	8.0
ENE	0	1	6	4	6	3	0	0	20	3.1	11.4
E	0	1	5	15	11	6	0	0	38	5.9	12.4
ESE	0	0	2	34	19	8	0	0	63	9.8	12.9
SE	0	0	4	43	41	1	0	0	89	13.8	12.2
SSE	0	0	3	43	30	1	1	0	78	12.1	12.4
S	0	0	10	38	14	1	0	0	63	9.8	10.8
SSW	0	0	4	12	3	0	0	0	19	3.0	10.7
SW	0	0	0	4	0	0	0	0	4	0.6	9.4
WSW	0	0	3	0	0	0	0	0	3	0.5	5.3
W	0	0	3	0	0	1	0	0	4	0.6	8.8
WNW	0	1	3	4	1	0	0	0	9	1.4	9.2
NW	0	0	4	3	11	3	0	0	21	3.3	13.3
NNW	0	6	10	39	27	16	3	0	101	15.7	13.0
TOTAL	0	11	82	281	209	54	6	0	643	100.0	
%	0.0	1.7	12.8	43.7	32.5	8.4	0.9	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -E-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	15	21	9	7	0	0	52	8.2	11.2
NNE	0	0	14	7	2	0	0	0	23	3.6	7.5
NE	0	3	13	3	0	0	0	0	19	3.0	5.2
ENE	0	1	8	9	0	0	0	0	18	2.8	8.0
E	0	1	11	5	1	0	0	0	18	2.8	7.1
ESE	0	5	32	16	0	1	0	0	54	8.5	6.9
SE	0	6	20	37	10	0	0	0	73	11.5	8.7
SSE	0	3	37	90	18	2	0	0	150	23.6	9.6
S	0	2	40	60	12	1	0	0	115	18.1	8.9
SSW	0	1	17	11	3	0	0	0	32	5.0	7.7
SW	0	0	5	3	1	0	0	0	9	1.4	8.0
WSW	0	0	3	0	1	0	0	0	4	0.6	6.8
W	0	1	0	0	0	0	0	0	1	0.2	3.3
WNW	0	1	3	3	3	0	0	0	10	1.6	9.8
NW	0	0	3	10	7	2	0	0	22	3.5	11.5
NNW	0	0	8	19	6	2	1	0	36	5.7	10.7
TOTAL	0	24	229	294	73	15	1	0	636	100.0	
%	0.0	3.8	36.0	46.2	11.5	2.4	0.2	0.0	100.0		

AVE SPEED FOR THIS TABLE= 8.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -F-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	12	4	0	0	0	0	18	8.9	5.7
NNE	0	0	9	2	0	0	0	0	11	5.4	5.9
NE	0	7	3	3	0	0	0	0	13	6.4	4.6
ENE	0	5	9	0	0	0	0	0	14	6.9	4.5
E	0	1	11	2	0	0	0	0	14	6.9	5.8
ESE	0	3	20	2	1	0	0	0	26	12.8	5.6
SE	0	2	21	0	0	0	0	0	23	11.3	5.0
SSE	0	3	25	5	0	0	0	0	33	16.3	5.8
S	0	2	8	12	0	0	0	0	22	10.8	7.3
SSW	0	1	0	1	0	0	0	0	2	1.0	5.1
SW	0	0	1	0	0	0	0	0	1	0.5	7.5
WSW	0	0	0	0	1	0	0	0	1	0.5	12.8
W	0	0	1	0	0	0	0	0	1	0.5	7.4
WNW	0	2	0	0	1	0	0	0	3	1.5	6.4
NW	0	2	5	1	0	0	0	0	8	3.9	5.2
NNW	0	0	10	3	0	0	0	0	13	6.4	5.7
TOTAL	0	30	135	35	3	0	0	0	203	100.0	
%	0.0	14.8	66.5	17.2	1.5	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 5.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

STABILITY CLASS -G-
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	4	0	0	0	0	0	6	3.4	4.4
NNE	0	2	6	0	0	0	0	0	8	4.5	4.1
NE	0	2	8	0	0	0	0	0	10	5.6	3.9
ENE	0	7	11	0	0	0	0	0	18	10.1	3.6
E	0	16	29	1	0	0	0	0	46	25.7	4.1
ESE	0	7	23	0	0	0	0	0	30	16.8	4.0
SE	0	2	18	0	0	0	0	0	20	11.2	4.3
SSE	0	1	11	0	0	0	0	0	12	6.7	5.4
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	2	0	0	0	0	0	2	1.1	4.8
WNW	0	1	9	0	0	0	0	0	10	5.6	4.2
NW	0	1	6	0	0	0	0	0	7	3.9	4.5
NNW	0	4	6	0	0	0	0	0	10	5.6	4.1
TOTAL	0	45	133	1	0	0	0	0	179	100.0	
%	0.0	25.1	74.3	0.6	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED
FROM 1/ 1/99 0:00 TO 3/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	4	47	54	62	25	2	0	194	9.4	12.0
NNE	0	2	41	29	7	0	0	0	79	3.8	7.7
NE	0	14	28	12	1	0	0	0	55	2.7	5.5
ENE	0	14	35	13	6	3	0	0	71	3.4	7.1
E	0	19	62	27	18	7	0	0	133	6.4	7.9
ESE	0	15	78	54	28	21	3	0	199	9.6	9.7
SE	0	10	64	104	71	9	0	0	258	12.4	10.2
SSE	0	7	81	154	87	8	1	0	338	16.3	10.6
S	0	4	62	160	69	4	0	0	299	14.4	10.3
SSW	0	2	25	44	18	1	0	0	90	4.3	10.0
SW	0	0	10	12	7	0	0	0	29	1.4	9.7
WSW	0	0	6	2	2	0	0	0	10	0.5	7.7
W	0	1	6	0	1	3	0	0	11	0.5	10.3
WNW	0	5	16	13	6	0	0	0	40	1.9	8.1
NW	0	3	23	21	24	13	0	0	84	4.1	11.5
NNW	0	10	39	66	42	22	4	0	183	8.8	11.5
TOTAL	0	110	623	765	449	116	10	0	2073	100.0	
%	0.0	5.3	30.1	36.9	21.7	5.6	0.5	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.0 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 87
TOTAL NUMBER OF VALID HOURS= 2073
TOTAL NUMBER OF HOURS FOR PERIOD= 2160

Second Quarter 1999

Joint Frequency Tables

JOINT FREQUENCY TABLE

STABILITY CLASS -A-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	1	0	0	0	0	0	1	0.5	5.3
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	2	0	0	0	0	2	1.1	8.9
SSE	0	1	2	22	18	6	0	0	49	25.9	13.2
S	0	0	1	52	69	1	0	0	123	65.1	13.0
SSW	0	1	1	0	8	0	0	0	10	5.3	12.0
SW	0	0	4	0	0	0	0	0	4	2.1	6.7
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	2	9	76	95	7	0	0	189	100.0	
%	0.0	1.1	4.8	40.2	50.3	3.7	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -B-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	2	0	0	0	0	0	2	2.5	5.3
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	1	1	8	0	0	0	10	12.7	14.3
SSE	0	0	0	9	14	0	0	0	23	29.1	13.2
S	0	0	2	17	10	1	0	0	30	38.0	11.9
SSW	0	0	3	1	1	0	0	0	5	6.3	7.7
SW	0	0	2	1	0	0	0	0	3	3.8	8.2
WSW	0	0	1	0	0	0	0	0	1	1.3	6.4
W	0	0	2	0	0	0	0	0	2	2.5	5.5
WNW	0	0	1	0	0	0	0	0	1	1.3	5.1
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	1	0	0	1	0	0	2	2.5	12.8
TOTAL	0	0	15	29	33	2	0	0	79	100.0	
%	0.0	0.0	19.0	36.7	41.8	2.5	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 11.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -C-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	1	0	0	0	0	1	0.9	9.8
NNE	0	0	1	0	0	0	0	0	1	0.9	5.2
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	1	0	0	0	0	0	1	0.9	3.7
E	0	0	2	0	1	0	0	0	3	2.7	7.5
ESE	0	0	2	2	2	0	0	0	6	5.3	10.5
SE	0	0	0	20	14	0	0	0	34	30.1	12.4
SSE	0	0	1	18	11	2	0	0	32	28.3	12.5
S	0	0	2	6	9	1	0	0	18	15.9	12.2
SSW	0	1	2	2	1	0	0	0	6	5.3	8.0
SW	0	0	1	0	0	0	0	0	1	0.9	7.4
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	2	0	0	0	0	0	2	1.8	4.7
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	1	0	0	0	0	0	1	0.9	7.2
NNW	0	0	0	2	0	5	0	0	7	6.2	16.7
TOTAL	0	1	15	51	38	8	0	0	113	100.0	
%	0.0	0.9	13.3	45.1	33.6	7.1	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 11.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -D-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	3	19	8	0	0	0	30	4.0	10.8
NNE	0	4	8	18	4	0	0	0	34	4.5	8.5
NE	0	0	10	13	3	1	0	0	27	3.6	9.1
ENE	0	0	7	15	7	0	0	0	29	3.9	10.3
E	0	1	10	19	13	1	0	0	44	5.9	10.7
ESE	0	0	6	55	40	2	0	0	103	13.7	12.4
SE	0	2	9	107	120	5	6	0	249	33.2	13.0
SSE	0	0	5	67	61	4	0	0	137	18.3	12.4
S	0	0	4	37	13	0	0	0	54	7.2	10.7
SSW	0	0	4	6	4	0	0	0	14	1.9	10.0
SW	0	0	2	2	0	1	0	0	5	0.7	10.3
WSW	0	0	1	0	2	0	0	0	3	0.4	10.2
W	0	2	1	0	0	0	0	0	3	0.4	3.1
WNW	0	0	1	1	0	0	0	0	2	0.3	7.9
NW	0	3	4	1	1	0	0	0	9	1.2	5.7
NNW	0	0	2	2	3	0	0	0	7	0.9	12.4
TOTAL	0	12	77	362	279	14	6	0	750	100.0	
%	0.0	1.6	10.3	48.3	37.2	1.9	0.8	0.0	100.0		

AVE SPEED FOR THIS TABLE= 11.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -E-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	6	12	11	2	0	0	0	31	4.1	7.2
NNE	0	3	18	10	1	0	0	0	32	4.2	6.8
NE	0	5	21	4	2	0	0	0	32	4.2	6.2
ENE	0	1	17	8	1	0	0	0	27	3.5	6.7
E	0	4	30	19	1	0	0	0	54	7.1	7.3
ESE	0	3	41	27	2	0	0	0	73	9.5	7.2
SE	0	3	92	70	16	0	0	1	182	23.8	8.4
SSE	0	2	44	103	33	1	0	0	183	23.9	9.5
S	0	1	19	72	9	0	0	0	101	13.2	9.7
SSW	0	0	7	11	0	0	0	0	18	2.4	8.0
SW	0	0	1	0	0	0	0	0	1	0.1	7.0
WSW	0	2	1	1	0	0	0	0	4	0.5	5.4
W	0	0	0	1	0	0	0	0	1	0.1	9.5
WNW	0	0	3	1	0	0	0	0	4	0.5	6.2
NW	0	0	0	3	0	0	0	0	3	0.4	10.1
NNW	0	3	8	8	0	0	0	0	19	2.5	6.8
TOTAL	0	33	314	349	67	1	0	1	765	100.0	
%	0.0	4.3	41.0	45.6	8.8	0.1	0.0	0.1	100.0		

AVE SPEED FOR THIS TABLE= 8.3 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -F-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	2	2	0	0	0	0	6	3.2	5.7
NNE	0	11	13	2	0	0	0	0	26	13.8	4.8
NE	0	5	21	0	0	0	0	0	26	13.8	4.3
ENE	0	8	9	0	0	0	0	0	17	9.0	3.8
E	0	11	10	0	0	0	0	0	21	11.2	3.8
ESE	0	5	10	1	0	0	0	0	16	8.5	4.4
SE	0	6	34	1	0	0	0	0	41	21.8	5.0
SSE	0	2	6	0	0	0	0	0	8	4.3	5.4
S	0	0	1	0	0	0	0	0	1	0.5	6.8
SSW	0	0	1	0	0	0	0	0	1	0.5	5.8
SW	0	0	2	0	0	0	0	0	2	1.1	6.0
WSW	0	0	0	1	0	0	0	0	1	0.5	7.7
W	0	0	1	1	0	0	0	0	2	1.1	6.3
WNW	0	4	2	0	0	0	0	0	6	3.2	3.8
NW	0	5	3	0	0	0	0	0	8	4.3	3.5
NNW	0	3	3	0	0	0	0	0	6	3.2	3.4
TOTAL	0	62	118	8	0	0	0	0	188	100.0	
%	0.0	33.0	62.8	4.3	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.5 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

STABILITY CLASS -G-
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	1	0	0	0	0	0	3	3.2	3.2
NNE	0	14	12	1	0	0	0	0	27	28.7	4.4
NE	0	5	14	1	0	0	0	0	20	21.3	4.6
ENE	0	4	5	0	0	0	0	0	9	9.6	3.5
E	0	10	3	0	0	0	0	0	13	13.8	2.8
ESE	0	2	3	0	0	0	0	0	5	5.3	3.6
SE	0	2	6	0	0	0	0	0	8	8.5	4.4
SSE	0	0	2	0	0	0	0	0	2	2.1	5.5
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	1	0	0	1	1.1	22.3
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	1	0	0	0	0	0	0	1	1.1	1.7
NW	0	3	0	0	0	0	0	0	3	3.2	2.0
NNW	0	1	1	0	0	0	0	0	2	2.1	2.5
TOTAL	0	44	47	2	0	1	0	0	94	100.0	
%	0.0	46.8	50.0	2.1	0.0	1.1	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.1 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED
FROM 4/ 1/99 0:00 TO 6/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	10	18	33	10	0	0	0	71	3.3	8.5
NNE	0	32	54	31	5	0	0	0	122	5.6	6.3
NE	0	15	66	18	5	1	0	0	105	4.8	6.2
ENE	0	13	40	23	8	0	0	0	84	3.9	6.9
E	0	26	55	38	15	1	0	0	135	6.2	7.4
ESE	0	10	62	85	44	2	0	0	203	9.3	9.6
SE	0	13	142	201	158	5	6	1	526	24.2	10.6
SSE	0	5	60	219	137	13	0	0	434	19.9	11.2
S	0	1	29	184	110	3	0	0	327	15.0	11.4
SSW	0	2	18	20	14	0	0	0	54	2.5	9.2
SW	0	0	12	3	0	2	0	0	17	0.8	8.9
WSW	0	2	3	2	2	0	0	0	9	0.4	7.4
W	0	2	6	2	0	0	0	0	10	0.5	5.2
WNW	0	5	7	2	0	0	0	0	14	0.6	5.0
NW	0	11	8	4	1	0	0	0	24	1.1	5.1
NNW	0	7	15	12	3	6	0	0	43	2.0	8.9
TOTAL	0	154	595	877	512	33	6	1	2178	100.0	
%	0.0	7.1	27.3	40.3	23.5	1.5	0.3	0.0	100.0		

AVE SPEED FOR THIS TABLE= 9.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2178
TOTAL NUMBER OF HOURS FOR PERIOD= 2184

Third Quarter 1999

Joint Frequency Tables

JOINT FREQUENCY TABLE

STABILITY CLASS -A-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	2	0	0	0	0	0	2	1.0	5.8
NNE	0	0	2	2	0	0	0	0	4	1.9	7.5
NE	0	0	1	1	0	0	0	0	2	1.0	7.1
ENE	0	0	2	0	0	0	0	0	2	1.0	7.1
E	0	0	1	0	0	0	0	0	1	0.5	5.3
ESE	0	0	2	3	7	0	0	0	12	5.8	12.2
SE	0	0	1	14	9	0	0	0	24	11.7	11.7
SSE	0	0	0	19	6	0	0	0	25	12.1	11.1
S	0	0	8	50	13	0	0	0	71	34.5	10.3
SSW	0	0	9	27	10	0	0	0	46	22.3	10.1
SW	0	0	3	5	1	0	0	0	9	4.4	8.8
WSW	0	0	2	0	0	0	0	0	2	1.0	5.4
W	0	0	4	0	0	0	0	0	4	1.9	6.4
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	2	0	0	0	0	2	1.0	8.1
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	37	123	46	0	0	0	206	100.0	
%	0.0	0.0	18.0	59.7	22.3	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -B-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	1	0	1	0	0	0	2	1.4	8.7
NNE	0	0	1	1	0	0	0	0	2	1.4	7.3
NE	0	0	1	2	0	0	0	0	3	2.1	6.7
ENE	0	0	2	1	0	0	0	0	3	2.1	6.8
E	0	0	1	3	0	0	0	0	4	2.8	7.9
ESE	0	0	0	1	4	0	0	0	5	3.5	14.2
SE	0	0	2	10	9	0	0	0	21	14.6	12.1
SSE	0	0	3	25	4	0	0	0	32	22.2	10.0
S	0	0	7	36	5	0	0	0	48	33.3	10.0
SSW	0	0	5	9	1	0	0	0	15	10.4	8.1
SW	0	0	0	6	0	0	0	0	6	4.2	9.3
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	0	0	0	0	0	1	0.7	6.6
NW	0	0	1	0	0	0	0	0	1	0.7	4.2
NNW	0	1	0	0	0	0	0	0	1	0.7	3.5
TOTAL	0	1	25	94	24	0	0	0	144	100.0	
%	0.0	0.7	17.4	65.3	16.7	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 9.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -C-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	1	0	1	0	0	0	3	2.5	7.1
NNE	0	0	2	3	0	0	0	0	5	4.2	8.5
NE	0	0	3	1	0	0	0	0	4	3.3	7.1
ENE	0	0	3	3	0	0	0	0	6	5.0	7.6
E	0	0	1	3	0	0	0	0	4	3.3	8.5
ESE	0	0	0	5	13	0	0	0	18	15.0	14.2
SE	0	0	1	13	1	0	0	0	15	12.5	11.2
SSE	0	0	4	12	1	0	0	0	17	14.2	9.5
S	0	0	6	18	0	0	0	0	24	20.0	9.0
SSW	0	0	4	5	1	0	0	0	10	8.3	8.6
SW	0	0	0	2	0	0	0	0	2	1.7	11.3
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	2	1	0	0	0	0	3	2.5	6.4
WNW	0	1	1	0	0	0	0	0	2	1.7	4.2
NW	0	1	1	0	0	0	0	0	2	1.7	4.3
NNW	0	0	4	1	0	0	0	0	5	4.2	5.7
TOTAL	0	3	33	67	17	0	0	0	120	100.0	
%	0.0	2.5	27.5	55.8	14.2	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 9.5 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -D-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	9	10	4	7	0	0	0	30	6.4	7.5
NNE	0	3	12	12	0	0	0	0	27	5.8	6.6
NE	0	1	6	8	0	0	0	0	15	3.2	7.6
ENE	0	0	4	3	0	0	0	0	7	1.5	6.2
E	0	2	11	7	2	0	0	0	22	4.7	7.7
ESE	0	2	11	20	11	0	0	0	44	9.4	10.2
SE	0	0	8	34	7	0	0	0	49	10.5	10.0
SSE	0	2	19	46	4	0	0	0	71	15.2	8.6
S	0	0	27	64	6	0	0	0	97	20.8	9.2
SSW	0	0	18	24	0	0	0	0	42	9.0	8.2
SW	0	0	1	4	0	0	0	0	5	1.1	8.6
WSW	0	0	2	0	0	0	0	0	2	0.4	3.9
W	0	0	3	0	0	0	0	0	3	0.6	5.4
WNW	0	3	13	0	0	0	0	0	16	3.4	5.0
NW	0	2	19	0	0	0	0	0	21	4.5	4.7
NNW	0	4	9	2	0	0	0	0	15	3.2	4.9
TOTAL	0	28	173	228	37	0	0	0	466	100.0	
%	0.0	6.0	37.1	48.9	7.9	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 8.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -E-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	3	5	4	1	1	0	0	14	2.8	7.2
NNE	0	3	13	5	0	0	0	0	21	4.2	6.4
NE	0	1	10	4	0	0	0	0	15	3.0	5.8
ENE	0	1	9	2	0	0	0	0	12	2.4	5.1
E	0	2	13	4	2	0	0	0	21	4.2	6.7
ESE	0	3	17	20	5	0	0	0	45	9.0	8.2
SE	0	1	56	13	0	0	0	0	70	13.9	6.4
SSE	0	0	58	30	3	0	0	0	91	18.1	7.6
S	0	0	34	76	3	0	0	0	113	22.5	8.5
SSW	0	0	22	39	0	0	0	0	61	12.2	8.2
SW	0	1	5	9	0	0	0	0	15	3.0	7.4
WSW	0	0	2	0	0	0	0	0	2	0.4	5.9
W	0	0	2	0	0	0	0	0	2	0.4	5.1
WNW	0	1	4	0	0	0	0	0	5	1.0	4.0
NW	0	2	6	0	0	0	0	0	8	1.6	4.2
NNW	0	3	4	0	0	0	0	0	7	1.4	4.1
TOTAL	0	21	260	206	14	1	0	0	502	100.0	
%	0.0	4.2	51.8	41.0	2.8	0.2	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 7.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -F-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	4	10	1	0	0	0	0	15	4.2	4.8
NNE	0	18	12	1	0	0	0	0	31	8.8	3.7
NE	0	14	19	0	0	0	0	0	33	9.3	3.8
ENE	0	7	19	0	0	0	0	0	26	7.3	4.2
E	0	16	14	0	0	0	0	0	30	8.5	4.0
ESE	0	14	26	0	0	0	0	0	40	11.3	4.2
SE	0	11	53	1	0	0	0	0	65	18.4	4.7
SSE	0	2	53	1	0	0	0	0	56	15.8	5.5
S	0	2	2	0	0	0	0	0	4	1.1	4.3
SSW	0	0	2	0	0	0	0	0	2	0.6	4.2
SW	0	0	1	1	0	0	0	0	2	0.6	6.1
WSW	0	1	0	0	0	0	0	0	1	0.3	3.3
W	0	2	4	0	0	0	0	0	6	1.7	4.1
WNW	0	9	3	0	0	0	0	0	12	3.4	3.4
NW	0	8	14	0	0	0	0	0	22	6.2	3.5
NNW	0	6	3	0	0	0	0	0	9	2.5	3.4
TOTAL	0	114	235	5	0	0	0	0	354	100.0	
%	0.0	32.2	66.4	1.4	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.3 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -G-
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	15	15	0	0	0	0	0	30	14.9	3.8
NNE	0	16	19	3	0	0	0	0	38	18.9	4.4
NE	0	24	15	0	0	0	0	0	39	19.4	3.5
ENE	0	19	6	0	0	0	0	0	25	12.4	3.1
E	0	9	9	0	0	0	0	0	18	9.0	3.6
ESE	0	4	9	0	0	0	0	0	13	6.5	4.0
SE	0	3	5	0	0	0	0	0	8	4.0	4.2
SSE	0	1	0	0	0	0	0	0	1	0.5	3.2
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	2	2	0	0	0	0	0	4	2.0	3.8
NW	0	5	6	0	0	0	0	0	11	5.5	3.7
NNW	0	11	3	0	0	0	0	0	14	7.0	2.9
TOTAL	0	109	89	3	0	0	0	0	201	100.0	
%	0.0	54.2	44.3	1.5	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 3.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED
FROM 7/ 1/99 0:00 TO 9/30/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	32	44	9	10	1	0	0	96	4.8	5.8
NNE	0	40	61	27	0	0	0	0	128	6.4	5.3
NE	0	40	55	16	0	0	0	0	111	5.6	4.8
ENE	0	27	45	9	0	0	0	0	81	4.1	4.6
E	0	29	50	17	4	0	0	0	100	5.0	5.7
ESE	0	23	65	49	40	0	0	0	177	8.9	8.5
SE	0	15	126	85	26	0	0	0	252	12.6	7.9
SSE	0	5	137	133	18	0	0	0	293	14.7	8.1
S	0	2	84	244	27	0	0	0	357	17.9	9.2
SSW	0	0	60	104	12	0	0	0	176	8.8	8.6
SW	0	1	10	27	1	0	0	0	39	2.0	8.3
WSW	0	1	6	0	0	0	0	0	7	0.4	4.8
W	0	2	15	1	0	0	0	0	18	0.9	5.3
WNW	0	16	24	0	0	0	0	0	40	2.0	4.3
NW	0	18	47	2	0	0	0	0	67	3.4	4.2
NNW	0	25	23	3	0	0	0	0	51	2.6	4.0
TOTAL	0	276	852	726	138	1	0	0	1993	100.0	
%	0.0	13.8	42.7	36.4	6.9	0.1	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 7.3 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 215
TOTAL NUMBER OF VALID HOURS= 1993
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

Fourth Quarter 1999

Joint Frequency Tables

JOINT FREQUENCY TABLE

STABILITY CLASS -A-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	6	11	10	5	0	0	33	7.0	12.5
NNE	0	0	9	23	5	0	0	0	37	7.8	9.6
NE	0	0	18	24	8	0	0	0	50	10.6	9.0
ENE	0	0	10	17	0	0	0	0	27	5.7	8.4
E	0	0	7	10	0	0	0	0	17	3.6	8.1
ESE	0	1	5	15	4	0	0	0	25	5.3	10.0
SE	0	0	4	50	16	0	0	0	70	14.8	10.8
SSE	0	0	4	12	11	1	0	0	28	5.9	11.4
S	0	0	12	17	14	0	0	0	43	9.1	10.7
SSW	0	0	11	7	15	0	0	0	33	7.0	10.8
SW	0	0	3	1	3	0	0	0	7	1.5	11.1
WSW	0	0	4	0	1	0	0	0	5	1.1	6.1
W	0	0	3	7	2	0	0	0	12	2.5	10.2
WNW	0	0	8	6	0	0	0	0	14	3.0	7.6
NW	0	0	4	11	14	0	0	0	29	6.1	12.1
NNW	0	0	9	15	16	3	0	0	43	9.1	11.6
TOTAL	0	2	117	226	119	9	0	0	473	100.0	
%	0.0	0.4	24.7	47.8	25.2	1.9	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -B-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	0	3	1	0	0	0	5	6.3	9.2
NNE	0	0	2	3	2	0	0	0	7	8.9	9.7
NE	0	0	1	3	0	0	0	0	4	5.1	9.2
ENE	0	0	2	0	0	0	0	0	2	2.5	6.5
E	0	0	1	3	0	0	0	0	4	5.1	9.0
ESE	0	0	0	10	2	0	0	0	12	15.2	11.4
SE	0	0	1	13	3	2	0	0	19	24.1	11.8
SSE	0	0	1	3	3	0	0	0	7	8.9	11.8
S	0	0	3	2	2	0	0	0	7	8.9	10.1
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	1	0	0	0	0	1	1.3	11.7
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	1	0	0	0	0	2	2.5	6.9
NW	0	0	1	0	1	0	0	0	2	2.5	11.8
NNW	0	1	2	2	1	1	0	0	7	8.9	10.8
TOTAL	0	2	15	44	15	3	0	0	79	100.0	
%	0.0	2.5	19.0	55.7	19.0	3.8	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -C-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	2	1	0	0	3	6.4	16.0
NNE	0	0	1	3	2	0	0	0	6	12.8	9.9
NE	0	0	1	2	1	0	0	0	4	8.5	9.1
ENE	0	0	0	2	0	0	0	0	2	4.3	9.1
E	0	0	1	0	1	0	0	0	2	4.3	10.4
ESE	0	0	0	2	0	0	0	0	2	4.3	11.4
SE	0	1	0	3	6	2	0	0	12	25.5	14.1
SSE	0	0	1	3	1	0	0	0	5	10.6	10.0
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	1	2	1	0	0	0	4	8.5	10.9
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	2	0	0	0	0	2	4.3	9.1
NW	0	0	0	3	0	0	0	0	3	6.4	11.8
NNW	0	0	0	1	1	0	0	0	2	4.3	14.9
TOTAL	0	1	5	23	15	3	0	0	47	100.0	
%	0.0	2.1	10.6	48.9	31.9	6.4	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 11.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -D-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	8	18	20	0	0	0	47	19.3	11.0
NNE	0	0	5	7	7	0	0	0	19	7.8	10.7
NE	0	0	3	5	1	0	0	0	9	3.7	8.7
ENE	0	0	3	2	0	0	0	0	5	2.1	6.9
E	0	0	1	4	1	0	0	0	6	2.5	9.7
ESE	0	0	1	16	3	0	0	0	20	8.2	10.6
SE	0	0	6	19	12	0	0	0	37	15.2	11.4
SSE	0	0	4	7	11	0	0	0	22	9.1	11.7
S	0	0	3	9	2	0	0	0	14	5.8	10.4
SSW	0	0	1	2	2	0	0	0	5	2.1	10.2
SW	0	0	0	2	0	0	0	0	2	0.8	8.9
WSW	0	0	1	1	0	0	0	0	2	0.8	8.6
W	0	0	1	1	0	0	0	0	2	0.8	8.6
WNW	0	0	1	1	1	0	0	0	3	1.2	10.3
NW	0	0	2	4	8	1	0	0	15	6.2	13.0
NNW	0	0	5	17	13	0	0	0	35	14.4	11.2
TOTAL	0	1	45	115	81	1	0	0	243	100.0	
%	0.0	0.4	18.5	47.3	33.3	0.4	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -E-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	17	16	21	0	0	0	56	12.3	10.6
NNE	0	1	17	29	2	0	0	0	49	10.8	8.2
NE	0	0	8	8	2	0	0	0	18	4.0	8.6
ENE	0	0	10	10	0	0	0	0	20	4.4	7.9
E	0	2	9	15	0	0	0	0	26	5.7	7.2
ESE	0	1	22	20	1	0	0	0	44	9.7	7.4
SE	0	1	11	25	16	0	0	0	53	11.6	10.1
SSE	0	1	9	34	26	2	0	0	72	15.8	11.6
S	0	0	13	9	1	0	0	0	23	5.1	7.9
SSW	0	0	1	7	0	0	0	0	8	1.8	8.8
SW	0	0	2	7	0	0	0	0	9	2.0	8.7
WSW	0	0	0	8	0	0	0	0	8	1.8	9.6
W	0	0	0	1	0	0	0	0	1	0.2	8.3
WNW	0	0	2	4	0	0	0	0	6	1.3	8.4
NW	0	0	7	5	3	0	0	0	15	3.3	9.3
NNW	0	3	11	27	6	0	0	0	47	10.3	9.7
TOTAL	0	11	139	225	78	2	0	0	455	100.0	
%	0.0	2.4	30.5	49.5	17.1	0.4	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 9.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -F-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	5	14	4	0	0	0	0	23	7.5	5.7
NNE	0	7	10	6	0	0	0	0	23	7.5	5.3
NE	0	2	18	5	0	0	0	0	25	8.2	5.3
ENE	0	6	15	0	0	0	0	0	21	6.9	4.5
E	0	4	30	5	0	0	0	0	39	12.7	5.7
ESE	0	2	35	2	0	0	0	0	39	12.7	5.5
SE	0	2	14	6	0	0	0	0	22	7.2	6.2
SSE	0	3	15	3	0	0	0	0	21	6.9	5.5
S	0	1	10	4	1	0	0	0	16	5.2	6.7
SSW	0	0	1	1	0	0	0	0	2	0.7	7.7
SW	0	0	2	4	0	0	0	0	6	2.0	8.2
WSW	0	0	6	2	0	0	0	0	8	2.6	6.8
W	0	0	6	0	0	0	0	0	6	2.0	4.9
WNW	0	1	9	0	0	0	0	0	10	3.3	4.2
NW	0	2	12	8	0	0	0	0	22	7.2	6.3
NNW	0	1	18	4	0	0	0	0	23	7.5	6.0
TOTAL	0	36	215	54	1	0	0	0	306	100.0	
%	0.0	11.8	70.3	17.6	0.3	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 5.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

STABILITY CLASS -G-
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	22	31	3	0	0	0	0	56	9.3	4.4
NNE	0	19	46	1	0	0	0	0	66	11.0	4.1
NE	0	32	71	0	0	0	0	0	103	17.2	4.1
ENE	0	20	62	0	0	0	0	0	82	13.7	4.1
E	0	18	47	1	0	0	0	0	66	11.0	4.3
ESE	0	18	42	1	0	0	0	0	61	10.2	4.4
SE	0	5	17	0	0	0	0	0	22	3.7	4.4
SSE	0	5	10	0	0	0	0	0	15	2.5	4.4
S	0	3	0	0	0	0	0	0	3	0.5	1.8
SSW	0	2	1	0	0	0	0	0	3	0.5	3.5
SW	0	2	0	0	0	0	0	0	2	0.3	1.6
WSW	1	1	0	0	0	0	0	0	2	0.3	1.3
W	0	6	7	0	0	0	0	0	13	2.2	3.8
WNW	0	7	27	0	0	0	0	0	34	5.7	4.2
NW	0	10	21	2	0	0	0	0	33	5.5	4.5
NNW	0	14	24	0	0	0	0	0	38	6.3	4.1
TOTAL	1	184	406	8	0	0	0	0	599	100.0	
%	0.2	30.7	67.8	1.3	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.2 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED
FROM 10/ 1/99 0:00 TO 12/31/99 23:00

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	32	76	55	54	6	0	0	223	10.1	9.0
NNE	0	27	90	72	18	0	0	0	207	9.4	7.1
NE	0	34	120	47	12	0	0	0	213	9.7	6.2
ENE	0	26	102	31	0	0	0	0	159	7.2	5.6
E	0	24	96	38	2	0	0	0	160	7.3	5.9
ESE	0	22	105	66	10	0	0	0	203	9.2	7.1
SE	0	9	53	116	53	4	0	0	235	10.7	10.0
SSE	0	9	44	62	52	3	0	0	170	7.7	10.2
S	0	4	41	41	20	0	0	0	106	4.8	9.2
SSW	0	2	16	19	18	0	0	0	55	2.5	10.0
SW	0	2	7	15	3	0	0	0	27	1.2	8.8
WSW	1	1	11	11	1	0	0	0	25	1.1	7.3
W	0	6	17	9	2	0	0	0	34	1.5	6.6
WNW	0	8	48	14	1	0	0	0	71	3.2	5.7
NW	0	12	47	33	26	1	0	0	119	5.4	8.7
NNW	0	19	69	66	37	4	0	0	195	8.9	9.0
TOTAL	1	237	942	695	309	18	0	0	2202	100.0	
%	0.0	10.8	42.8	31.6	14.0	0.8	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 7.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 2202
TOTAL NUMBER OF HOURS FOR PERIOD= 2208

First Quarter 1999

Batch Release

Joint Frequency Table

The following periods represent times during which the release rates from one of the units was significantly higher than normal (>30 uCi/s). Consequently, these meteorological data are submitted as batch release periods.

FROM	1/ 5/99	4:00	TO	1/ 5/ 0	4:00
FROM	1/25/99	14:00	TO	1/25/99	14:00
FROM	1/26/99	14:00	TO	1/26/99	14:00
FROM	1/29/99	0:00	TO	1/29/99	13:00
FROM	2/ 5/99	7:00	TO	2/ 5/99	7:00
FROM	3/ 1/99	11:00	TO	3/ 1/99	11:00
FROM	3/ 2/99	21:00	TO	3/ 2/99	22:00
FROM	3/ 3/99	0:00	TO	3/ 3/99	1:00
FROM	3/ 4/99	6:00	TO	3/ 4/99	10:00
FROM	3/25/99	0:00	TO	3/27/99	22:00
FROM	3/28/99	3:00	TO	3/31/99	23:00

JOINT FREQUENCY TABLE

STABILITY CLASS -A-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	1	0	0	0	1	10.0	14.2
ESE	0	0	1	0	2	0	0	0	3	30.0	12.7
SE	0	0	0	0	0	1	0	0	1	10.0	19.3
SSE	0	0	0	1	2	0	0	0	3	30.0	14.7
S	0	0	0	1	1	0	0	0	2	20.0	11.8
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	1	2	6	1	0	0	10	100.0	
%	0.0	0.0	10.0	20.0	60.0	10.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 13.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -B-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	2	0	0	0	2	20.0	15.6
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	2	0	0	0	2	20.0	13.8
ESE	0	0	0	0	1	0	1	0	2	20.0	22.6
SE	0	0	0	0	0	1	0	0	1	10.0	18.6
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	3	0	0	0	0	3	30.0	9.5
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	0	3	5	1	1	0	10	100.0	
%	0.0	0.0	0.0	30.0	50.0	10.0	10.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 15.1 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -C-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	1	0	0	0	1	5.9	14.7
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	1	1	0	0	0	2	11.8	12.9
ESE	0	0	0	0	0	2	2	0	4	23.5	23.9
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	2	0	0	0	2	11.8	14.7
S	0	0	0	1	1	0	0	0	2	11.8	10.9
SSW	0	0	1	1	0	0	0	0	2	11.8	7.4
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	1	1	2	0	0	0	4	23.5	11.8
TOTAL	0	0	2	4	7	2	2	0	17	100.0	
%	0.0	0.0	11.8	23.5	41.2	11.8	11.8	0.0	100.0		

AVE SPEED FOR THIS TABLE= 14.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -D-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	3	5	3	0	0	0	11	12.2	9.9
NNE	0	0	2	3	0	0	0	0	5	5.6	7.9
NE	0	0	1	0	0	0	0	0	1	1.1	6.2
ENE	0	0	1	1	0	0	0	0	2	2.2	7.8
E	0	0	0	0	2	1	0	0	3	3.3	18.5
ESE	0	0	0	2	8	5	0	0	15	16.7	16.6
SE	0	0	0	3	4	0	0	0	7	7.8	13.5
SSE	0	0	0	1	2	0	0	0	3	3.3	12.6
S	0	0	1	0	0	0	0	0	1	1.1	4.4
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	1	0	0	0	0	1	1.1	8.5
WSW	0	0	1	0	0	0	0	0	1	1.1	6.2
W	0	0	1	0	0	0	0	0	1	1.1	3.7
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	2	1	1	0	0	0	4	4.4	8.2
NNW	0	5	4	22	4	0	0	0	35	38.9	8.9
TOTAL	0	5	16	39	24	6	0	0	90	100.0	
%	0.0	5.6	17.8	43.3	26.7	6.7	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -E-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	5	2	2	0	0	0	9	17.6	9.6
NNE	0	0	3	4	0	0	0	0	7	13.7	8.5
NE	0	0	0	1	0	0	0	0	1	2.0	9.0
ENE	0	0	0	1	0	0	0	0	1	2.0	9.8
E	0	0	2	3	1	0	0	0	6	11.8	9.8
ESE	0	1	3	5	0	0	0	0	9	17.6	8.0
SE	0	2	2	1	1	0	0	0	6	11.8	6.9
SSE	0	0	2	1	3	0	0	0	6	11.8	10.1
S	0	2	0	0	0	0	0	0	2	3.9	2.3
SSW	0	1	0	0	0	0	0	0	1	2.0	3.1
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	1	0	2	0	0	0	3	5.9	11.6
TOTAL	0	6	18	18	9	0	0	0	51	100.0	
%	0.0	11.8	35.3	35.3	17.6	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 8.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -F-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	1	0	0	0	0	0	1	8.3	4.3
NNE	0	0	0	1	0	0	0	0	1	8.3	8.7
NE	0	2	0	0	0	0	0	0	2	16.7	2.8
ENE	0	1	1	0	0	0	0	0	2	16.7	4.8
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	1	0	0	0	0	0	1	8.3	6.5
SE	0	0	2	0	0	0	0	0	2	16.7	4.8
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	1	0	0	0	0	0	0	1	8.3	2.5
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	1	0	0	0	0	0	0	1	8.3	2.1
NW	0	1	0	0	0	0	0	0	1	8.3	3.4
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	6	5	1	0	0	0	0	12	100.0	
%	0.0	50.0	41.7	8.3	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

STABILITY CLASS -G-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	2	0	0	0	0	0	2	100.0	4.8
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	2	0	0	0	0	0	2	100.0	
%	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	9	7	8	0	0	0	24	12.5	10.2
NNE	0	0	5	8	0	0	0	0	13	6.8	8.3
NE	0	2	1	1	0	0	0	0	4	2.1	5.2
ENE	0	1	2	2	0	0	0	0	5	2.6	7.0
E	0	0	4	4	7	1	0	0	16	8.3	11.9
ESE	0	1	5	7	11	7	3	0	34	17.7	14.9
SE	0	2	4	4	5	2	0	0	17	8.9	10.8
SSE	0	0	2	3	9	0	0	0	14	7.3	12.3
S	0	3	1	5	2	0	0	0	11	5.7	7.8
SSW	0	1	1	1	0	0	0	0	3	1.6	5.9
SW	0	0	0	1	0	0	0	0	1	0.5	8.5
WSW	0	0	1	0	0	0	0	0	1	0.5	6.2
W	0	0	1	0	0	0	0	0	1	0.5	3.7
WNW	0	1	0	0	0	0	0	0	1	0.5	2.1
NW	0	1	2	1	1	0	0	0	5	2.6	7.3
NNW	0	5	6	23	8	0	0	0	42	21.9	9.4
TOTAL	0	17	44	67	51	10	3	0	192	100.0	
%	0.0	8.9	22.9	34.9	26.6	5.2	1.6	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.5 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 192
TOTAL NUMBER OF HOURS FOR PERIOD= 192

Second Quarter 1999

Batch Release

Joint Frequency Table

The following periods represent times during which the release rates from one of the units was significantly higher than normal (>30 uCi/s). Consequently, these meteorological data are submitted as batch release periods.

FROM	4/ 1/99	0:00	TO	4/12/99 20:00
FROM	4/13/99	5:00	TO	4/28/99 8:00
FROM	5/23/99	13:00	TO	5/23/99 13:00
FROM	5/27/99	1:00	TO	5/27/99 1:00
FROM	5/28/99	13:00	TO	5/28/99 13:00
FROM	5/29/99	17:00	TO	5/29/99 17:00

JOINT FREQUENCY TABLE

STABILITY CLASS -A-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	2	4	6	0	0	12	24.0	17.7
S	0	0	1	5	23	0	0	0	29	58.0	14.0
SSW	0	0	0	0	8	0	0	0	8	16.0	13.8
SW	0	0	1	0	0	0	0	0	1	2.0	6.3
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	2	7	35	6	0	0	50	100.0	
%	0.0	0.0	4.0	14.0	70.0	12.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 14.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -B-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	2	0	0	0	0	0	2	6.7	5.3
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	4	0	0	0	4	13.3	16.2
SSE	0	0	0	0	5	0	0	0	5	16.7	16.4
S	0	0	0	6	6	0	0	0	12	40.0	12.9
SSW	0	0	1	1	1	0	0	0	3	10.0	8.7
SW	0	0	0	1	0	0	0	0	1	3.3	11.4
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	0	0	0	0	0	1	3.3	5.1
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	1	0	0	1	0	0	2	6.7	12.8
TOTAL	0	0	5	8	16	1	0	0	30	100.0	
%	0.0	0.0	16.7	26.7	53.3	3.3	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -C-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	1	0	0	0	0	1	2.7	9.8
NNE	0	0	1	0	0	0	0	0	1	2.7	5.2
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	1	0	0	0	0	0	1	2.7	3.7
E	0	0	0	0	1	0	0	0	1	2.7	12.8
ESE	0	0	0	2	2	0	0	0	4	10.8	12.5
SE	0	0	0	4	5	0	0	0	9	24.3	14.1
SSE	0	0	0	2	3	2	0	0	7	18.9	15.4
S	0	0	0	0	2	1	0	0	3	8.1	17.1
SSW	0	0	2	1	1	0	0	0	4	10.8	9.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	1	0	0	0	0	0	1	2.7	4.2
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	5	0	0	5	13.5	20.0
TOTAL	0	0	5	10	14	8	0	0	37	100.0	
%	0.0	0.0	13.5	27.0	37.8	21.6	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 13.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -D-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	1	9	7	0	0	0	17	6.0	12.0
NNE	0	1	3	3	0	0	0	0	7	2.5	6.8
NE	0	0	3	2	0	0	0	0	5	1.8	7.2
ENE	0	0	0	3	1	0	0	0	4	1.4	11.7
E	0	1	1	8	4	0	0	0	14	4.9	10.7
ESE	0	0	1	18	6	1	0	0	26	9.2	12.1
SE	0	1	4	27	54	5	6	0	97	34.3	14.3
SSE	0	0	2	19	43	3	0	0	67	23.7	13.8
S	0	0	3	14	8	0	0	0	25	8.8	10.9
SSW	0	0	0	2	3	0	0	0	5	1.8	12.4
SW	0	0	1	0	0	0	0	0	1	0.4	4.3
WSW	0	0	1	0	2	0	0	0	3	1.1	10.2
W	0	1	0	0	0	0	0	0	1	0.4	3.2
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	3	2	0	0	0	0	0	5	1.8	3.2
NNW	0	0	1	2	3	0	0	0	6	2.1	13.5
TOTAL	0	7	23	107	131	9	6	0	283	100.0	
%	0.0	2.5	8.1	37.8	46.3	3.2	2.1	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -E-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	2	5	0	0	0	0	8	4.6	7.9
NNE	0	2	6	4	0	0	0	0	12	6.9	6.2
NE	0	1	2	2	0	0	0	0	5	2.9	5.9
ENE	0	1	7	2	0	0	0	0	10	5.8	5.9
E	0	1	3	1	0	0	0	0	5	2.9	5.7
ESE	0	1	6	1	0	0	0	0	8	4.6	5.0
SE	0	0	12	11	10	0	0	1	34	19.7	10.4
SSE	0	0	1	6	26	1	0	0	34	19.7	13.3
S	0	1	3	32	0	0	0	0	36	20.8	9.7
SSW	0	0	1	7	0	0	0	0	8	4.6	8.3
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	1	0	0	0	0	1	0.6	8.8
W	0	0	0	1	0	0	0	0	1	0.6	9.5
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	3	0	0	0	0	3	1.7	10.1
NNW	0	0	3	5	0	0	0	0	8	4.6	9.0
TOTAL	0	8	46	81	36	1	0	1	173	100.0	
%	0.0	4.6	26.6	46.8	20.8	0.6	0.0	0.6	100.0		

AVE SPEED FOR THIS TABLE= 9.5 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -F-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	2	1	0	0	0	0	0	3	8.6	4.1
NE	0	3	3	0	0	0	0	0	6	17.1	3.8
ENE	0	3	1	0	0	0	0	0	4	11.4	3.1
E	0	1	0	0	0	0	0	0	1	2.9	1.9
ESE	0	1	1	0	0	0	0	0	2	5.7	4.7
SE	0	1	9	0	0	0	0	0	10	28.6	5.0
SSE	0	0	3	0	0	0	0	0	3	8.6	6.1
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	1	0	0	0	0	0	1	2.9	5.8
SW	0	0	1	0	0	0	0	0	1	2.9	6.2
WSW	0	0	0	1	0	0	0	0	1	2.9	7.7
W	0	0	0	1	0	0	0	0	1	2.9	8.0
WNW	0	1	0	0	0	0	0	0	1	2.9	2.1
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	1	0	0	0	0	0	1	2.9	4.0
TOTAL	0	12	21	2	0	0	0	0	35	100.0	
%	0.0	34.3	60.0	5.7	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

STABILITY CLASS -G-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	1	1	0	0	0	0	0	2	5.1	3.7
NNE	0	3	5	0	0	0	0	0	8	20.5	4.6
NE	0	0	9	0	0	0	0	0	9	23.1	5.0
ENE	0	1	1	0	0	0	0	0	2	5.1	3.1
E	0	3	1	0	0	0	0	0	4	10.3	2.9
ESE	0	1	0	0	0	0	0	0	1	2.6	2.4
SE	0	2	4	0	0	0	0	0	6	15.4	4.3
SSE	0	0	2	0	0	0	0	0	2	5.1	5.5
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	1	0	0	0	0	0	0	1	2.6	1.7
NW	0	3	0	0	0	0	0	0	3	7.7	2.0
NNW	0	1	0	0	0	0	0	0	1	2.6	1.2
TOTAL	0	16	23	0	0	0	0	0	39	100.0	
%	0.0	41.0	59.0	0.0	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.0 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	4	15	7	0	0	0	28	4.3	10.2
NNE	0	8	18	7	0	0	0	0	33	5.1	5.7
NE	0	4	17	4	0	0	0	0	25	3.9	5.3
ENE	0	5	10	5	1	0	0	0	21	3.2	6.1
E	0	6	5	9	5	0	0	0	25	3.9	8.2
ESE	0	3	8	21	8	1	0	0	41	6.3	10.2
SE	0	4	29	42	73	5	6	1	160	24.7	12.6
SSE	0	0	8	29	81	12	0	0	130	20.1	13.9
S	0	1	7	57	39	1	0	0	105	16.2	11.7
SSW	0	0	5	11	13	0	0	0	29	4.5	10.6
SW	0	0	3	1	0	0	0	0	4	0.6	7.1
WSW	0	0	1	2	2	0	0	0	5	0.8	9.4
W	0	1	1	2	0	0	0	0	4	0.6	6.2
WNW	0	2	1	0	0	0	0	0	3	0.5	3.0
NW	0	6	2	3	0	0	0	0	11	1.7	4.8
NNW	0	1	6	7	3	6	0	0	23	3.6	12.3
TOTAL	0	43	125	215	232	25	6	1	647	100.0	
%	0.0	6.6	19.3	33.2	35.9	3.9	0.9	0.2	100.0		

AVE SPEED FOR THIS TABLE= 11.1 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 6
TOTAL NUMBER OF VALID HOURS= 647
TOTAL NUMBER OF HOURS FOR PERIOD= 653

Third Quarter 1999

Batch Release

Joint Frequency Table

The following periods represent times during which the release rates from one of the units was significantly higher than normal (>30 uCi/s). Consequently, these meteorological data are submitted as batch release periods.

FROM	7/31/99	15:00	TO	7/31/99	15:00
FROM	8/ 4/99	1:00	TO	8/ 4/99	1:00
FROM	8/ 5/99	2:00	TO	8/ 5/99	2:00
FROM	8/ 6/99	15:00	TO	8/ 6/99	15:00
FROM	8/ 8/99	13:00	TO	8/ 8/99	14:00
FROM	8/10/99	14:00	TO	8/10/99	21:00
FROM	8/11/99	7:00	TO	8/13/99	7:00
FROM	8/16/99	13:00	TO	8/16/99	13:00
FROM	8/23/99	9:00	TO	8/23/99	9:00
FROM	9/14/99	19:00	TO	9/14/99	19:00
FROM	9/20/99	1:00	TO	9/21/99	13:00

JOINT FREQUENCY TABLE

STABILITY CLASS -A-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	1	5	0	0	0	6	31.6	12.7
SSW	0	0	0	5	8	0	0	0	13	68.4	12.7
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	0	6	13	0	0	0	19	100.0	
%	0.0	0.0	0.0	31.6	68.4	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -B-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	1	1	0	0	0	2	66.7	12.3
SSW	0	0	0	0	1	0	0	0	1	33.3	13.9
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	0	1	2	0	0	0	3	100.0	
%	0.0	0.0	0.0	33.3	66.7	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 12.8 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -C-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	1	0	0	0	0	1	50.0	11.3
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	1	0	0	0	0	1	50.0	10.4
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	0	2	0	0	0	0	2	100.0	
%	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -D-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	1	0	0	0	0	1	9.1	9.6
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	1	0	0	0	1	9.1	15.2
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	1	0	0	0	0	1	9.1	11.7
S	0	0	0	3	3	0	0	0	6	54.5	12.3
SSW	0	0	0	2	0	0	0	0	2	18.2	10.1
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	0	7	4	0	0	0	11	100.0	
%	0.0	0.0	0.0	63.6	36.4	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 11.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -E-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	1	0	0	0	0	1	3.7	9.4
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	4	3	0	0	0	0	7	25.9	8.1
S	0	0	0	14	0	0	0	0	14	51.9	10.2
SSW	0	0	0	5	0	0	0	0	5	18.5	10.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	0	4	23	0	0	0	0	27	100.0	
%	0.0	0.0	14.8	85.2	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 9.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -F-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	2	0	0	0	0	0	2	50.0	6.3
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	1	0	0	0	0	0	0	1	25.0	3.3
NW	0	0	1	0	0	0	0	0	1	25.0	5.7
NNW	0	0	0	0	0	0	0	0	0	0.0	0.0
TOTAL	0	1	3	0	0	0	0	0	4	100.0	
%	0.0	25.0	75.0	0.0	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 5.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

STABILITY CLASS -G-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	1	0	0	0	0	0	0	1	14.3	2.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	0	0	0	0	0	0	0.0	0.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	0	0	0	0	0	1	14.3	5.3
NW	0	0	3	0	0	0	0	0	3	42.9	5.2
NNW	0	2	0	0	0	0	0	0	2	28.6	2.2
TOTAL	0	3	4	0	0	0	0	0	7	100.0	
%	0.0	42.9	57.1	0.0	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 3.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	0	0	0	0	0	0.0	0.0
NNE	0	0	0	0	0	0	0	0	0	0.0	0.0
NE	0	0	0	1	0	0	0	0	1	1.4	9.6
ENE	0	1	0	0	0	0	0	0	1	1.4	2.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	2	1	0	0	0	3	4.1	12.0
SE	0	0	0	0	0	0	0	0	0	0.0	0.0
SSE	0	0	6	4	0	0	0	0	10	13.7	8.1
S	0	0	0	20	9	0	0	0	29	39.7	11.3
SSW	0	0	0	12	9	0	0	0	21	28.8	11.9
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	1	1	0	0	0	0	0	2	2.7	4.3
NW	0	0	4	0	0	0	0	0	4	5.5	5.3
NNW	0	2	0	0	0	0	0	0	2	2.7	2.2
TOTAL	0	4	11	39	19	0	0	0	73	100.0	
%	0.0	5.5	15.1	53.4	26.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.1 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 0
TOTAL NUMBER OF INVALID HOURS= 30
TOTAL NUMBER OF VALID HOURS= 73
TOTAL NUMBER OF HOURS FOR PERIOD= 103

Fourth Quarter 1999

Batch Release

Joint Frequency Table

The following periods represent times during which the release rates from one of the units was significantly higher than normal (>30 uCi/s). Consequently, these meteorological data are submitted as batch release periods.

FROM	10/ 6/99 7:00	TO	10/ 6/99 7:00
FROM	10/ 9/99 15:00	TO	10/ 9/99 16:00
FROM	10/10/99 4:00	TO	10/10/99 12:00
FROM	10/10/99 16:00	TO	10/10/99 16:00
FROM	10/11/99 15:00	TO	10/11/99 15:00
FROM	10/12/99 6:00	TO	10/19/99 14:00
FROM	10/20/99 8:00	TO	10/21/99 20:00
FROM	10/22/99 0:00	TO	10/27/99 0:00
FROM	10/30/99 12:00	TO	10/30/99 15:00
FROM	10/31/99 0:00	TO	11/ 7/99 19:00

JOINT FREQUENCY TABLE

STABILITY CLASS -A-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	1	7	1	4	0	0	13	9.9	13.8
NNE	0	0	3	6	2	0	0	0	11	8.4	10.0
NE	0	0	6	5	2	0	0	0	13	9.9	8.6
ENE	0	0	3	4	0	0	0	0	7	5.3	8.3
E	0	0	2	3	0	0	0	0	5	3.8	7.1
ESE	0	0	3	6	0	0	0	0	9	6.9	8.8
SE	0	0	1	16	5	0	0	0	22	16.8	10.7
SSE	0	0	1	7	3	0	0	0	11	8.4	10.3
S	0	0	2	3	0	0	0	0	5	3.8	7.4
SSW	0	0	0	2	1	0	0	0	3	2.3	10.3
SW	0	0	1	0	2	0	0	0	3	2.3	12.9
WSW	0	0	0	0	1	0	0	0	1	0.8	13.7
W	0	0	1	4	2	0	0	0	7	5.3	11.5
WNW	0	0	5	3	0	0	0	0	8	6.1	7.8
NW	0	0	1	3	1	0	0	0	5	3.8	9.3
NNW	0	0	1	0	5	2	0	0	8	6.1	15.1
TOTAL	0	0	31	69	25	6	0	0	131	100.0	
%	0.0	0.0	23.7	52.7	19.1	4.6	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.3 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -B-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	2	0	0	0	0	2	8.7	9.7
NNE	0	0	0	1	0	0	0	0	1	4.3	9.0
NE	0	0	1	1	0	0	0	0	2	8.7	7.3
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	1	0	0	0	0	1	4.3	8.6
ESE	0	0	0	3	1	0	0	0	4	17.4	11.6
SE	0	0	0	3	1	0	0	0	4	17.4	11.2
SSE	0	0	1	2	1	0	0	0	4	17.4	10.7
S	0	0	1	1	0	0	0	0	2	8.7	7.8
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	0	0	0	0	0	1	4.3	6.2
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	0	1	1	0	0	2	8.7	19.0
TOTAL	0	0	4	14	4	1	0	0	23	100.0	
%	0.0	0.0	17.4	60.9	17.4	4.3	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.7 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -C-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	0	0	1	1	0	0	2	28.6	16.9
NNE	0	0	0	0	1	0	0	0	1	14.3	14.2
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	0	0	0	0	0	0	0.0	0.0
E	0	0	0	0	0	0	0	0	0	0.0	0.0
ESE	0	0	0	1	0	0	0	0	1	14.3	10.7
SE	0	0	0	1	1	0	0	0	2	28.6	13.8
SSE	0	0	0	0	0	0	0	0	0	0.0	0.0
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	0	0	0	0	0	0	0	0.0	0.0
NNW	0	0	0	1	0	0	0	0	1	14.3	11.4
TOTAL	0	0	0	3	3	1	0	0	7	100.0	
%	0.0	0.0	0.0	42.9	42.9	14.3	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 13.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -D-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	3	10	5	0	0	0	18	26.1	10.9
NNE	0	0	2	0	0	0	0	0	2	2.9	6.2
NE	0	0	2	1	0	0	0	0	3	4.3	7.6
ENE	0	0	1	1	0	0	0	0	2	2.9	7.5
E	0	0	0	1	0	0	0	0	1	1.4	9.2
ESE	0	0	0	4	1	0	0	0	5	7.2	11.4
SE	0	0	1	5	2	0	0	0	8	11.6	10.6
SSE	0	0	2	5	0	0	0	0	7	10.1	8.2
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	1	2	0	0	0	0	3	4.3	8.2
SW	0	0	0	0	0	0	0	0	0	0.0	0.0
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	1	0	0	0	0	2	2.9	8.2
NW	0	0	0	1	0	0	0	0	1	1.4	8.3
NNW	0	0	1	6	10	0	0	0	17	24.6	12.7
TOTAL	0	0	14	37	18	0	0	0	69	100.0	
%	0.0	0.0	20.3	53.6	26.1	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 10.4 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -E-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	0	5	3	1	0	0	0	9	13.2	8.5
NNE	0	0	5	5	0	0	0	0	10	14.7	7.7
NE	0	0	0	0	0	0	0	0	0	0.0	0.0
ENE	0	0	0	1	0	0	0	0	1	1.5	7.9
E	0	0	1	1	0	0	0	0	2	2.9	6.3
ESE	0	0	5	5	0	0	0	0	10	14.7	8.0
SE	0	0	8	5	0	0	0	0	13	19.1	7.2
SSE	0	0	1	0	0	0	0	0	1	1.5	5.4
S	0	0	1	0	0	0	0	0	1	1.5	5.9
SSW	0	0	0	2	0	0	0	0	2	2.9	8.4
SW	0	0	0	1	0	0	0	0	1	1.5	10.7
WSW	0	0	0	0	0	0	0	0	0	0.0	0.0
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	0	0	0	0	0	0	0	0.0	0.0
NW	0	0	1	2	0	0	0	0	3	4.4	8.8
NNW	0	0	1	13	1	0	0	0	15	22.1	11.3
TOTAL	0	0	28	38	2	0	0	0	68	100.0	
%	0.0	0.0	41.2	55.9	2.9	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 8.5 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -F-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	2	4	1	0	0	0	0	7	9.9	6.1
NNE	0	1	1	2	0	0	0	0	4	5.6	6.4
NE	0	0	4	1	0	0	0	0	5	7.0	5.4
ENE	0	2	2	0	0	0	0	0	4	5.6	4.0
E	0	1	8	0	0	0	0	0	9	12.7	5.3
ESE	0	0	17	1	0	0	0	0	18	25.4	5.6
SE	0	0	6	3	0	0	0	0	9	12.7	6.4
SSE	0	0	1	0	0	0	0	0	1	1.4	3.9
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	1	0	0	0	0	1	1.4	9.0
SW	0	0	0	2	0	0	0	0	2	2.8	10.1
WSW	0	0	0	1	0	0	0	0	1	1.4	7.8
W	0	0	0	0	0	0	0	0	0	0.0	0.0
WNW	0	0	1	0	0	0	0	0	1	1.4	3.6
NW	0	0	3	2	0	0	0	0	5	7.0	6.4
NNW	0	0	2	2	0	0	0	0	4	5.6	6.8
TOTAL	0	6	49	16	0	0	0	0	71	100.0	
%	0.0	8.5	69.0	22.5	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 5.9 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

STABILITY CLASS -G-

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	10	6	2	0	0	0	0	18	10.5	4.2
NNE	0	3	16	1	0	0	0	0	20	11.6	4.0
NE	0	14	16	0	0	0	0	0	30	17.4	3.7
ENE	0	7	16	0	0	0	0	0	23	13.4	4.0
E	0	7	11	0	0	0	0	0	18	10.5	3.7
ESE	0	7	9	0	0	0	0	0	16	9.3	3.9
SE	0	0	4	0	0	0	0	0	4	2.3	5.3
SSE	0	1	1	0	0	0	0	0	2	1.2	3.7
S	0	0	0	0	0	0	0	0	0	0.0	0.0
SSW	0	0	0	0	0	0	0	0	0	0.0	0.0
SW	0	1	0	0	0	0	0	0	1	0.6	1.4
WSW	1	0	0	0	0	0	0	0	1	0.6	0.6
W	0	4	3	0	0	0	0	0	7	4.1	3.4
WNW	0	3	15	0	0	0	0	0	18	10.5	4.5
NW	0	2	3	1	0	0	0	0	6	3.5	5.1
NNW	0	2	6	0	0	0	0	0	8	4.7	4.8
TOTAL	1	61	106	4	0	0	0	0	172	100.0	
%	0.6	35.5	61.6	2.3	0.0	0.0	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 4.0 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541

JOINT FREQUENCY TABLE

ALL CLASSES COMBINED

PRIMARY TOWER

WIND SPEED (MPH)

DIR (FROM)	CALM	CALM+ - 3.5	3.6 - 7.5	7.6 -12.5	12.6 -18.5	18.6 -24.5	24.6 -32.5	32.6+	TOTAL	%	AVE SPEED
N	0	12	19	25	8	5	0	0	69	12.8	9.1
NNE	0	4	27	15	3	0	0	0	49	9.1	6.7
NE	0	14	29	8	2	0	0	0	53	9.8	5.4
ENE	0	9	22	6	0	0	0	0	37	6.8	5.1
E	0	8	22	6	0	0	0	0	36	6.7	5.0
ESE	0	7	34	20	2	0	0	0	63	11.6	6.9
SE	0	0	20	33	9	0	0	0	62	11.5	9.1
SSE	0	1	7	14	4	0	0	0	26	4.8	8.9
S	0	0	4	4	0	0	0	0	8	1.5	7.3
SSW	0	0	1	7	1	0	0	0	9	1.7	9.0
SW	0	1	1	3	2	0	0	0	7	1.3	10.1
WSW	1	0	0	1	1	0	0	0	3	0.6	7.4
W	0	4	4	4	2	0	0	0	14	2.6	7.4
WNW	0	3	23	4	0	0	0	0	30	5.5	5.6
NW	0	2	8	9	1	0	0	0	20	3.7	7.2
NNW	0	2	11	22	17	3	0	0	55	10.2	11.3
TOTAL	1	67	232	181	52	8	0	0	541	100.0	
%	0.2	12.4	42.9	33.5	9.6	1.5	0.0	0.0	100.0		

AVE SPEED FOR THIS TABLE= 7.6 MPH
HOURS IN ABOVE TABLE WITH VARIABLE DIRECTION= 0
TOTAL NUMBER OF CALMS= 1
TOTAL NUMBER OF INVALID HOURS= 0
TOTAL NUMBER OF VALID HOURS= 541
TOTAL NUMBER OF HOURS FOR PERIOD= 541