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Nuclear LLC

Technical Specification Section 6.9.1.7 (Hope Creek)
Technical Specification Section 6.9.1.8 (Salem)

APR 2 6 2013

LR-N13-0093

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Hope Creek Generating Station
Facility Operating License No. NPF-57
NRC Docket No. 50-354

Salem Nuclear Generating Station, Unit Nos. 1 and 2
Facility Operating Licenses DPR-70 and DPR-75
NRC Docket Nos. 50-272 and 50-311

Subject: 2012 Annual Radioactive Effluent Release Report

In accordance with Section 6.9.1.7 of Appendix A to the Operating License NPF-57 for Hope Creek Generating Station, and Section 6.9.1.8 of Appendix A to the Operating Licenses DPR-70 and DPR-75 for Salem Generating Station Unit Nos. 1 and 2, PSEG Nuclear hereby transmits one copy of the combined 2012 Annual Radioactive Effluent Release Report (Attachment). The report is RERR-35 for Hope Creek and RERR-61 for Salem Unit Nos. 1 and 2. This report summarizes liquid and gaseous releases and solid waste shipments from the Hope Creek Generating Station and the Salem Generating Station for the period of January 1, 2012, to December 31, 2012.

There are no regulatory commitments contained in this correspondence.

IE48
NRR

If you have any questions or comments on this transmittal, please contact Jeffrey Pantazes at (856) 339-7900.

Sincerely,

Eric S. Carr
Plant Manager – Hope Creek

Lawrence M. Wagner
Plant Manager - Salem

Attachment – 2012 Annual Radioactive Effluent Release Report for Salem and Hope Creek Generating Stations

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Corporate Commitment Coordinator (N21) w/o Attachment

PSEG NUCLEAR LLC

2012 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

FOR

THE SALEM AND HOPE CREEK

GENERATING STATIONS

SGS RERR-61

DOCKET NO. 50-272

DOCKET NO. 50-311

OPERATING LICENSE NO. DPR-070

OPERATING LICENSE NO. DPR-075

HCGS RERR-35

DOCKET NO. 50-354

OPERATING LICENSE NO. NPF-057

May 2013

Table of Contents

SALEM AND HOPE CREEK GENERATING STATIONS

RADIOACTIVE EFFLUENT RELEASE REPORT: JANUARY - DECEMBER 2012

INTRODUCTION

This report, SGS-RERR-61/HCGS-RERR-35, summarizes information pertaining to the releases of radioactive materials in liquid, gaseous and solid form from the Salem Generating Station (SGS) and the Hope Creek Generating Station (HCGS) for the period January 1, 2012, to December 31, 2012.

Salem Unit 1 is a Westinghouse Pressurized Water Reactor that has a licensed core thermal power of 3459 MWt and an approximate net electrical output of 1180 MWe. Salem Unit 1 achieved initial criticality on December 11, 1976, and went into commercial operation on June 30, 1977.

Salem Unit 2 is a Westinghouse Pressurized Water Reactor that has a licensed core thermal power of 3459 MWt and an approximate net electrical output of 1177 MWe. Salem Unit 2 achieved initial criticality on August 2, 1980, and went into commercial operation on October 13, 1981.

The Hope Creek Generating Station is a General Electric (GE) Boiling Water Reactor that has an up rated core thermal power of 3840 MWt and an approximate net electrical output of 1213 MWe. The HCGS achieved initial criticality on June 28, 1986 and went into commercial operation on December 20, 1986.

The electrical energy (net) output for 2012 was as follows:

> 9,896,783 megawatt-hours of electrical energy (net) were generated by Salem Unit 1, 9,028,564 megawatt-hours of electrical energy (net) were generated by Salem Unit 2, and 9,586,248 megawatt-hours of electrical energy (net) were generated by Hope Creek Generating Station.

This report is prepared in the format of Regulatory Guide 1.21, Appendix B, as required by Control 6.9.1.8 of the Salem Units 1 and 2 Offsite Dose Calculation Manual (ODCM) and Control 6.9.1.7 of the Hope Creek ODCM. The responses to parts A-F of the "Supplemental Information" section of Regulatory Guide 1.21, Appendix B, are included in the following pages.

As required by Regulatory Guide 1.21, the ODCM limits are described in detail within this report. In addition, summaries describing methods for measuring and determining associated approximations of total radioactivity are included in this report.

PART A. SUPPLEMENTAL INFORMATION

1.0 REGULATORY LIMITS

1.1 Fission and Activation Gas Release Limits

The dose rate due to radioactive materials released *in gaseous effluents* from the site (i.e. Salem Units 1 and 2, and Hope Creek) to areas at and beyond the site boundary, shall be limited to the following:

> For noble gases: Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.

In addition, the air dose due to noble gases released *in gaseous effluents* from each reactor unit (i.e. Salem Units 1 and 2, or Hope Creek) to areas at and beyond the site boundary shall be limited to the following:

> During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,
>
> During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

Notwithstanding the limits above, the estimated annual external dose from gaseous effluent to any individual in an unrestricted area should not exceed 5 mrem, as set forth in 10CFR50, Appendix I. In addition, the 10CFR50 Appendix I ALARA requirement for gaseous effluent will have been met if it is demonstrated that the estimated annual external dose from gaseous effluent to any individual in unrestricted areas does not exceed 5 mrem to the total body or 15 mrem to the skin.

1.2 Iodine, Particulates, and Tritium

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 iodine-131, iodine-133, tritium and all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

In addition, 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 8 days in gaseous effluents released, from each reactor 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 mrem to any organ and,
>
> During any calendar year: Less than or equal to 15 mrem to any organ.

1.3 Liquid Effluents Release Limits

The concentration of radioactive material released *in liquid effluents* to unrestricted areas shall be limited to the concentrations specified in 10CFR20, 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 2E-04 microcurie per milliliter.

In addition, the dose or dose commitment to a member of the public from radioactive materials *in liquid effluents* released to unrestricted areas shall be limited to:

During any calendar quarter: Less than or equal to 1.5 mrem to the total body, and less than or equal to 5 mrem to any organ, and

During any calendar year: Less than or equal to 3 mrem to the total body, and less than or equal to 10 mrem to any organ.

1.4 Total Dose Limit

The annual (calendar year) dose or dose commitment to any member of the public, due to releases of radioactivity and radiation, from uranium fuel cycle sources shall be limited to less than or equal to 25 mrem to the total body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mrem).

2.0 MAXIMUM PERMISSIBLE CONCENTRATIONS (MPC)

Regulatory Guide 1.21 requires that the licensee provide the MPCs used in determining allowable release rates or concentrations for radioactive releases.

a. MPC values are not used for gaseous releases. Determination of maximum release rates for noble gases, Iodine-131, Iodine-133, tritium, and for all radionuclides in particulate form (with half-lives >8 days), are based on dose rate calculations as specified in the ODCM.
b. According to current Technical Specifications, MPC values as stated in 10CFR20, Appendix B, Table II, Column 2 are to be used for liquid effluents. Since the MPC values were removed from 10CFR20 effective 1/1/94, the MPC values are now contained in the ODCM. These MPC values are added as Appendix B of this report.
c. The MPC value used for dissolved or entrained noble gases *in liquid effluents* is 2E-04 microcurie per milliliter.

3.0 AVERAGE ENERGY

Regulatory Guide 1.21 requires that the licensee provide the average energy of the radionuclide mixture in releases of fission and activation gases, if applicable. Release limits for the Salem and Hope Creek Generating Stations are not based upon average energy. Therefore this section is not applicable to the Salem and Hope Creek Generating Stations.

4.0 MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

4.1 Liquid Effluents

Liquid effluents are monitored in accordance with Table 4.11-1 of the Salem ODCM and Table 4.11.1.1.1-1 of the Hope Creek ODCM.

During the period of record, all batch liquid wastes were routed to the sampling tanks for monitoring prior to release. The ODCM requires these tanks to be uniformly mixed for sampling and analysis before being released.

Batch releases are defined as:

- For Hope Creek, releases from the Equipment Sample Tanks, Floor Drain Sample tanks, and Detergent Drain Tanks.
- For Salem, releases from the Service Water Drums, which are collected and disposed via the Chemical Waste Basin, and the Chemical Volume Control System (CVCS) Monitor Tanks. During the period of record, all batch liquid wastes from the Chemical Drain Tank and Laundry and Hot Shower Tanks were routed to Waste Monitor Holdup Tanks for monitoring prior to release. For process flexibility of liquid effluents, the Salem Unit 1 and 2 Liquid Radwaste System is cross-connected.

Continuous releases are defined as:

- For Hope Creek, a continuous liquid effluent release path exists through the Circulating Water Dewatering Sump Discharge.
- For Salem, continuous liquid release pathways include condensate releases for blow-down of the Steam Generators, and through the Chemical Waste Basin.

Representative samples were obtained in accordance with Table 4.11-1 of the Salem ODCM for the Salem Generating Stations and Table 4.11.1.1.1-1 of the Hope Creek ODCM for Hope Creek Generating Station. The total liquid activity discharged is determined by multiplying specific activities from the analyses by the volume of effluent discharged to the environment.

The detection requirements of Table 4.11-1 (SGS) and Table 4.11.1.1.1-1 (HCGS) of the ODCM are achieved. Radionuclides that are measured at concentrations below the ODCM-specified lower limit of detection (LLD) are considered present. A radionuclide for which no activity was detected while meeting the required LLD is considered absent.

4.2 Gaseous Effluents

Salem Units 1 and 2:

Gaseous effluent streams at Salem Generating Stations are monitored and sampled in accordance with Table 4.11-2 of the ODCM. The plant vent is the final release point for planned gaseous effluent releases and is continuously monitored by installed radiation monitors. The vent is also continuously sampled for iodine and particulates with a charcoal cartridge and filter paper. The filter and charcoal are normally changed weekly, and analyzed on a multi-channel analyzer.

Sampling is also performed on all gas decay tanks and the containment atmosphere prior to release to the environment. The plant vent is normally sampled weekly for noble gases, particulates, radioiodine, and tritium.

The detection requirements of Table 4.11-2 of the ODCM are achieved or exceeded. A radionuclide detected at a concentration below the ODCM LLD is considered present. A radionuclide for which no activity was detected while meeting the required LLD is considered absent.

Continuous Mode gaseous releases are quantified by routine sampling and isotopic analyses of the plant vent, as required by the ODCM. Specific activities for detected

isotopes are multiplied by the total vent flow volume for the entire sampling period in order to determine the normal continuous release of radioactivity through the plant vent.

Batch Mode noble gas releases are quantified by sampling each decay tank or containment atmosphere prior to release. The total activity in a batch release was determined by multiplying the specific activities for detected isotopes by the total volume of the discharged gas in that batch release.

Elevated plant vent radiation monitoring system readings while the channel is in an alarm state are treated as batch mode releases. If specific activity data from grab samples are not available, then the release is quantified by the use of the plant vent radiation monitors. The monitor response is converted to "specific activity" using historical efficiency factors. The total activity discharged is determined by multiplying the "specific activity" by the volume of effluent discharged while the channel was in an alarm state.

Hope Creek:

Gaseous effluent streams at Hope Creek Generating Station are monitored and sampled in accordance with Table 4.11.2.1.2-1 of the ODCM. The North Plant Vent (NPV) and South Plant Vent (SPV) are the final release points for planned gaseous effluent releases. The NPV and SPV are continuously monitored for iodine, particulates and noble gases. These monitors have fixed particulate and charcoal filters. The particulate filters and charcoal cartridges are normally replaced and analyzed weekly. These analyses are performed on a multi-channel analyzer. The NPV and SPV are also normally sampled weekly for noble gases and tritium.

A small quantity of gaseous effluent is released via the Filtration, Recirculation, and Ventilation System (FRVS) vent during FRVS testing periods. The FRVS is continuously monitored for noble gases when in service, and has fixed particulate and charcoal filters. When the system is in vent mode for greater than two hours, samples are collected at the end of the release period. During periods of extended runs, samples are normally taken weekly.

The detection requirements of Tables 4.11.2.1.2-1 of the ODCM are achieved or exceeded. A radionuclide detected at a concentration below the ODCM detection limit (LLD) is considered present. A radionuclide for which no activity was detected while meeting the required LLD is considered absent.

Batch Mode noble gas releases (i.e. primary containment purge) are quantified by pre-release sampling and isotopic analysis. The total radioactivity released was estimated by multiplying the specific activities for detected isotopes by the containment volume.

4.3 Estimated Total Error

The estimated total error reported for continuous and batch liquid releases for all three plants is within 27%. The estimated total error for continuous and batch gaseous releases, and solid waste is within 35%.

These errors are primarily due to variability of waste stream flow rates and changes in isotopic distributions of waste streams between sampling periods. Error estimates for

releases where sample activity is below the detectable concentration levels are not included because error estimates at the LLD are not defined.

5.0 BATCH RELEASES

Gaseous and liquid effluent batch releases are summarized in Tables 4A and 4B.

6.0 UNPLANNED RELEASES

There were no unplanned releases from Salem Units 1 and 2 or the Hope Creek Generating Station in 2012.

7.0 ELEVATED RADIATION MONITOR RESPONSES

During this reporting period, none of the effluent radiation monitors elicited an elevated response during the discharge of liquid and gaseous effluent from either of the Salem Units 1 and 2 or from the Hope Creek Generating Station.

8.0 MODIFICATION TO PREVIOUS RADIOACTIVE EFFLUENT RELEASE REPORTS –ERRATTA DATA SECTION

Correction to the 2011 Annual Radioactive Effluent Release Report: The 2011 Land Use Census incorrectly identified a receptor location used for estimated carbon-14 doses as being in the ENE sector instead of the NE sector. The incorrect location was carried over in the carbon-14 doses reported in 2011 ARERR. An investigation revealed that the sector identification error did not result in an under-estimation of the annual C-14 doses reported for this receptor location.

PART B. GASEOUS EFFLUENTS

See Summary Tables 1A through 1C.

PART C. LIQUID EFFLUENTS

See Summary Tables 2A through 2B.

PART D. SOLID WASTE

See Summary in Tables 3A and 3B.

PART E. RADIOLOGICAL IMPACT ON MAN

1.0 EFFLUENT DOSES:

The estimated doses from liquid and gaseous effluent represent the maximum potential radiation dose for a member of the general public. The total body and organ doses from gaseous effluent were calculated using the GASPAR computer program included in the NRCDose computer program package (version 2.3.20). Estimated doses from liquid effluent were calculated using the methodology described in the Salem and Hope Creek ODCMs. The methods used to determine gaseous and liquid doses are consistent with the methods described in Salem and Hope Creek ODCMs and in Regulatory Guide 1.109.

The doses presented in the tables below represent calculations for the four quarters of 12-month reporting interval. The radiological impacts from liquid and gaseous effluent discharges from the Salem Unit 1 and 2 and the Hope Creek Generating Station are presented in Tables 5A and 5B, respectively, and demonstrate compliance with applicable regulatory limits. Dose limit values presented in bold font are regulatory limits. The quarterly doses must not exceed the quarterly limit in any quarter and the summation of two or more quarterly doses must not exceed the annual dose limit.

Doses from Liquid Effluent

Quarterly doses from liquid effluent were calculated using the methodology described in the Salem and Hope Creek ODCMs. Usage factors and dose conversion factors used in the liquid dose calculations are those presented in the Salem and Hope Creek ODCMs.

Table 5A: Doses from Liquid Effluent

Salem Unit 1					
Liquid Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Total Body Dose Limit (mrem)	**1.50E+00**	**1.50E+00**	**1.50E+00**	**1.50E+00**	**3.00E+00**
Maximum Total Body Dose (mrem)	1.87E-06	5.15E-06	2.78E-06	2.42E-06	1.22E-05
% Dose Limit	1.25E-04	3.43E-04	1.85E-04	1.62E-04	4.07E-04
Organ Dose Limit (mrem)	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Organ Dose (mrem)	4.67E-06	7.63E-06	4.15E-06	3.88E-06	2.03E-05
% Dose Limit	9.34E-05	1.53E-04	8.30E-05	7.75E-05	2.03E-04
Salem Unit 2					
Liquid Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Total Body Dose Limit (mrem)	**1.50E+00**	**1.50E+00**	**1.50E+00**	**1.50E+00**	**3.00E+00**
Maximum Total Body Dose (mrem)	3.08E-06	8.47E-06	1.40E-06	3.70E-06	1.67E-05
% Dose Limit	2.06E-04	5.64E-04	9.30E-05	2.47E-04	5.57E-04
Organ Dose Limit (mrem)	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Organ Dose (mrem)	6.48E-06	1.07E-05	2.96E-06	8.21E-06	2.84E-05
% Dose Limit	1.30E-04	2.15E-04	5.92E-05	1.64E-04	2.84E-04

Hope Creek Generating Station					
Liquid Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Total Body Dose Limit (mrem)	**1.50E+00**	**1.50E+00**	**1.50E+00**	**1.50E+00**	**3.00E+00**
Maximum Total Body Dose (mrem)	1.01E-05	4.61E-06	1.90E-06	4.38E-06	2.10E-05
% Dose Limit	6.70E-04	3.08E-04	1.27E-04	2.92E-04	7.00E-04
Organ Dose Limit (mrem)	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Organ Dose (mrem)	2.80E-05	2.08E-05	3.74E-06	9.64E-06	6.22E-05
% Dose Limit	5.60E-04	4.17E-04	7.48E-05	1.93E-04	6.22E-04
Salem-Hope Creek Site Total					
Liquid Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Total Body Dose Limit (mrem)	**1.50E+00**	**1.50E+00**	**1.50E+00**	**1.50E+00**	**3.00E+00**
Maximum Total Body Dose (mrem)	1.51E-05	1.82E-05	6.08E-06	1.05E-05	4.99E-05
% Dose Limit	1.01E-03	1.21E-03	4.05E-04	7.00E-04	1.66E-03
Organ Dose Limit (mrem)	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Organ Dose (mrem)	3.92E-05	3.91E-05	1.09E-05	2.17E-05	1.11E-04
% Dose Limit	7.84E-04	7.82E-04	2.18E-04	4.35E-04	1.11E-03

The population dose impact from liquid effluents is based on a summation of the calculated maximum total body doses resulting from the discharge of liquid effluent from each unit, which was conservatively applied to the population within 50 miles of the Salem-Hope Creek site to obtain a maximum population dose from all liquid effluent discharged from the site. The maximum total body dose resulting from liquid effluent discharged from Salem Units 1 and 2 and Hope Creek Generating Station is 4.99E-05 mrem, which yields a maximum population dose equal 2.25E-01 person-rem.

Doses from Gaseous Effluent

The individual doses from gaseous effluent (presented in Table 5B) are calculated for (i) the controlling locations described in the Salem and Hope Creek ODCMs and (ii) real receptors and pathways identified by the 2012 Land Use Census (LUC). The receptor locations and active (real) exposure pathways at each location as identified in the 2012 LUC are summarized below. Figures 1 and 2 provide visual representations of site meteorology and receptor locations in relation to the Salem-Hope Creek site.

Description	Location	Basis	Active Exposure Pathways
Site Boundary	N sector[a]	ODCM	Plume immersion Ground deposition Inhalation
Dairy	4.9mi W	ODCM and 2012 LUC	Plume immersion Ground deposition Inhalation Milk ingestion
Resident[b]	3.7mi NW	2012 LUC	Plume immersion Ground Deposition Inhalation
Resident[c]	4.4mi WSW	2012 LUC	Plume immersion Ground Deposition Inhalation Vegetable ingestion
Meat[d]	4.2mi NNE	2012 LUC	Plume immersion Ground Deposition Inhalation Meat ingestion
Meat[e]	4.6mi SW	2012 LUC	Plume immersion Ground Deposition Inhalation Meat ingestion Vegetable ingestion

[a] 0.5 mile from Hope Creek Generating Station and 0.83 mile from the Salem Units; hypothetical receptor.

[b] Nearest resident (real receptor) in predominant downwind sector as identified in 2012 LUC. In 2012, this receptor location had the highest atmospheric dispersion factor values among the "nearest resident" locations for each sector.

[c] Nearest resident (real receptor) with a real garden as identified in the 2012 LUC.

[d] Nearest meat animal location (real receptor) as identified in the 2012 LUC.

[e] Meat animal location with a garden (real receptor) as identified in the 2012 LUC.

The quarterly doses from gaseous effluent were calculated using the average quarterly meteorological dispersion factors determined from site meteorological data recorded during 2012. The 2012 quarterly atmospheric dispersion factors used in the dose calculations are summarized below.

Location	Q	Undepleted X/Q	Depleted X/Q	D/Q
HCGS SB, 0.5mi N	1	2.0E-06	1.8E-06	1.1E-08
	2	1.4E-06	1.2E-06	9.2E-09
	3	1.6E-06	1.5E-06	1.5E-08
	4	1.0E-06	9.5E-07	7.1E-09
SGS SB, 0.83mi N	1	9.5E-07	8.4E-07	5.0E-09
	2	6.4E-07	5.7E-07	4.0E-09
	3	7.8E-07	6.9E-07	6.7E-09
	4	4.9E-07	4.4E-07	3.1E-09
Dairy, 4.9mi W	1	6.5E-08	4.8E-08	1.2E-10
	2	6.6E-08	5.1E-08	2.1E-10
	3	7.2E-08	5.3E-08	1.4E-10
	4	7.8E-08	5.8E-08	1.1E-10
Resident, 3.7mi NW	1	1.8E-07	1.4E-07	5.8E-10
	2	1.3E-07	1.0E-07	7.1E-10
	3	8.5E-08	6.6E-08	5.0E-10
	4	1.6E-07	1.2E-07	5.3E-10
Resident, 4.4mi WSW	1	6.6E-08	5.0E-08	1.3E-10
	2	7.5E-08	5.7E-08	2.0E-10
	3	9.3E-08	7.1E-08	1.7E-10
	4	8.6E-08	6.5E-08	1.4E-10
Meat, 4.2mi NNE	1	9.8E-08	7.5E-08	3.7E-10
	2	6.6E-08	5.1E-08	2.1E-10
	3	9.5E-08	7.2E-08	4.3E-10
	4	5.5E-08	4.2E-08	1.9E-10
Meat, 4.6mi SW	1	6.6E-08	5.0E-08	1.9E-10
	2	5.5E-08	4.2E-08	2.0E-10
	3	1.4E-07	1.0E-07	2.8E-10
	4	1.1E-07	8.0E-08	2.9E-10

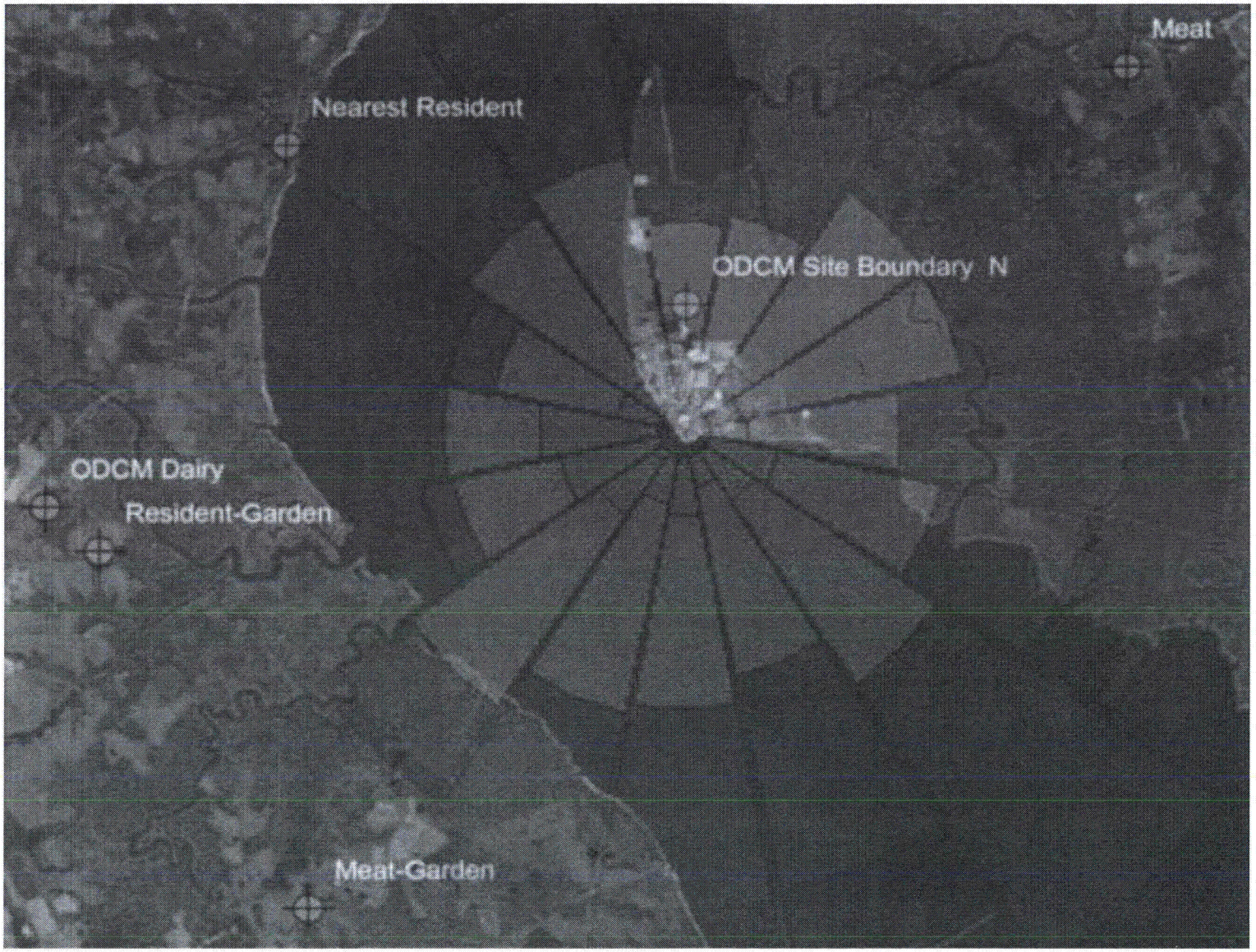
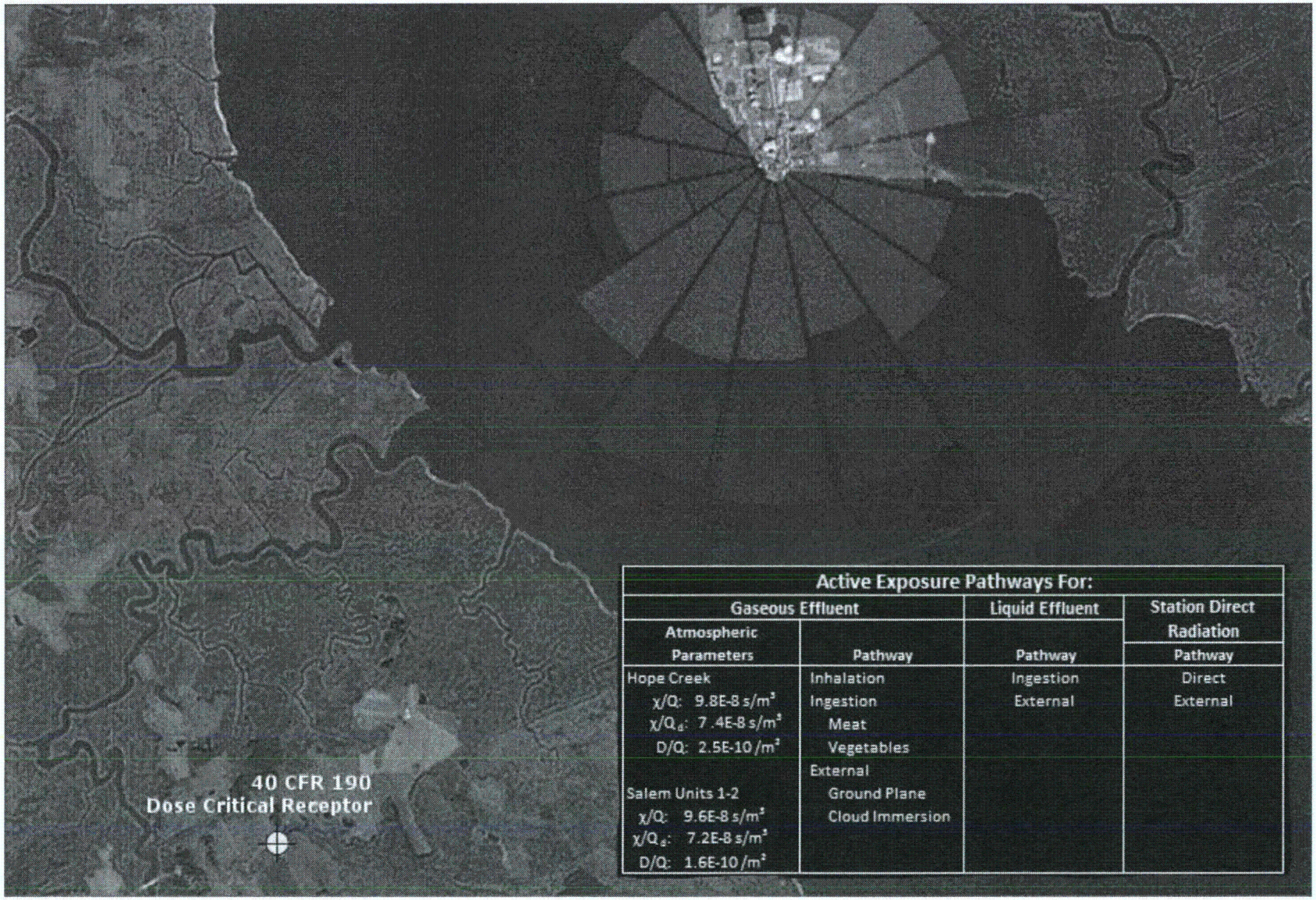


Figure 1: Locations of Dose Calculation Receptors with Wind Rose Overlay

Note: Wind rose depicts fraction of time wind transports gaseous effluents towards each of the sixteen compass sectors.



Active Exposure Pathways For:			
Gaseous Effluent		Liquid Effluent	Station Direct Radiation
Atmospheric Parameters	Pathway	Pathway	Pathway
Hope Creek χ/Q: 9.8E-8 s/m³ χ/Q_d: 7.4E-8 s/m³ D/Q: 2.5E-10 /m²	Inhalation Ingestion Meat Vegetables	Ingestion External	Direct External
Salem Units 1-2 χ/Q: 9.6E-8 s/m³ χ/Q_d: 7.2E-8 s/m³ D/Q: 1.6E-10 /m²	External Ground Plane Cloud Immersion		

Figure 2: Map of ODCM 40CFR190 Dose Receptor with Wind Rose Overlay

Note: Wind rose depicts fraction of time wind transports gaseous effluents towards each of the sixteen compass sectors.

Table 5B: Doses from Gaseous Effluent

Salem Unit 1					
Gaseous Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Limit for Gamma Air Dose (mrad) from Noble Gases	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Gamma Air Dose (mrad)	4.56E-06	3.25E-04[a]	4.59E-06	6.43E-06	3.41E-04
% Dose Limit	9.12E-05	6.48E-03	9.18E-05	1.29E-04	3.41E-03
Limit for Beta Air Dose (mrad) for Noble Gases	**1.00E+01**	**1.00E+01**	**1.00E+01**	**1.00E+01**	**2.00E+01**
Maximum Beta Air Dose (mrad)	1.82E-06	1.47E-03[a]	2.31E-06	2.90E-06	1.48E-03
% Dose Limit	1.82E-05	1.47E-02	2.31E-05	2.90E-05	7.40E-03
Limit for Organ Dose (mrem) from I-131, I-133, Tritium, C-14, and particulate nuclides (>8 days half-life)	**7.50E+00**	**7.50E+00**	**7.50E+00**	**7.50E+00**	**1.50E+01**
ODCM location: Site Boundary (0.8 mile N)	6.61E-05	1.76E-04	6.94E-04	1.86E-04	1.12E-03
% Dose Limit	8.81E-04	2.35E-03	9.25E-03	2.48E-03	1.49E-02
ODCM location: Dairy (4.9 miles W)	1.88E-02	1.45E-02	2.08E-02	2.25E-02	7.66E-02
% Dose Limit	2.51E-01	1.93E-01	2.77E-01	3.00E-01	5.11E-01
Nearest Resident (3.7 miles NW)	1.26E-05	3.59E-05	7.56E-05	6.07E-05	1.85E-04
% Dose Limit	1.68E-04	4.79E-04	1.01E-03	8.09E-04	1.23E-03
Maximum dose to a resident with a garden (4.4 miles WSW)	2.07E-02	2.35E-02	2.92E-02	2.70E-02	1.00E-01
% Dose Limit	2.76E-01	3.13E-01	3.89E-01	3.60E-01	6.67E-01
Resident-meat animal location (4.2 miles NNE)	1.24E-02	1.05E-02	1.45E-02	9.16E-03	4.66E-02
% Dose Limit	1.65E-01	1.40E-01	1.93E-01	1.22E-01	3.11E-01
Maximum dose at resident-meat animal location with a garden (4.6 miles SW)	2.42E-02	2.03E-02	5.06E-02	3.97E-02	1.35E-01
% Dose Limit	3.23E-01	2.71E-01	6.75E-01	2.29E-01	9.00E-01

Salem Unit 2					
Gaseous Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Limit for Gamma Air Dose (mrad) from Noble Gases	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Gamma Air Dose (mrad)	1.08E-05	5.86E-06	9.00E-06	5.69E-06	3.14E-05
% Dose Limit	2.16E-04	1.17E-04	1.80E-04	1.14E-04	3.14E-04
Limit for Beta Air Dose (mrad) for Noble Gases	**1.00E+01**	**1.00E+01**	**1.00E+01**	**1.00E+01**	**2.00E+01**
Maximum Beta Air Dose (mrad)	4.73E-06	2.30E-06	3.86E-06	7.57E-06	1.85E-05
% Dose Limit	4.73E-05	2.30E-05	3.86E-05	7.57E-05	9.25E-05
Limit for Organ Dose (mrem) from I-131, I-133, Tritium, C-14, and particulate nuclides (>8 days half-life)	**7.50E+00**	**7.50E+00**	**7.50E+00**	**7.50E+00**	**1.50E+01**
ODCM location: Site Boundary (0.8 mile N)	2.12E-03	5.38E-06	1.06E-05	1.67E-04	2.30E-03
% Dose Limit	2.83E-02	7.17E-05	1.41E-04	2.23E-03	1.53E-02
ODCM location: Dairy (4.9 miles W)	1.74E-02	1.34E-02	1.93E-02	2.09E-02	7.10E-02
% Dose Limit	2.32E-01	1.79E-01	2.57E-01	2.79E-01	4.73E-01
Nearest Resident (3.7 miles NW)	4.00E-04	1.09E-06	1.15E-06	5.43E-05	4.57E-04
% Dose Limit	5.33E-03	1.45E-05	1.53E-05	7.24E-04	3.05E-03
Maximum dose to a resident with a garden (4.4 miles WSW)	2.07E-02	2.19E-02	2.71E-02	2.51E-02	9.48E-02
% Dose Limit	2.76E-01	2.92E-01	3.61E-01	3.35E-01	6.32E-01
Resident-meat animal location (4.2 miles NNE)	1.24E-02	9.77E-03	1.35E-02	8.49E-03	4.42E-02
% Dose Limit	1.65E-01	1.30E-01	1.80E-01	1.13E-01	2.95E-01
Maximum dose at resident-meat animal location with a garden (4.6 miles SW)	2.42E-02	1.88E-02	4.70E-02	3.69E-02	1.27E-01
% Dose Limit	3.23E-01	2.51E-01	6.27E-01	4.92E-01	8.47E-01

Hope Creek Generating Station					
Gaseous Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Limit for Gamma Air Dose (mrad) from Noble Gases	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Gamma Air Dose (mrad)	1.54E-06	7.45E-03[b]	0.00E+00	2.53E-05	7.48E-03
% Dose Limit	3.08E-05	1.49E-01	0.00E+00	5.06E-04	7.48E-02
Limit for Beta Air Dose (mrad) for Noble Gases	**1.00E+01**	**1.00E+01**	**1.00E+01**	**1.00E+01**	**2.00E+01**
Maximum Beta Air Dose (mrad)	4.18E-06	1.42E-02[b]	0.00E+00	3.24E-05	1.42E-02
% Dose Limit	4.18E-05	1.42E-01	0.00E+00	3.24E-04	7.10E-02
Limit for Organ Dose (mrem) from I-131, I-133, Tritium, C-14, and particulate nuclides (>8 days half-life)	**7.50E+00**	**7.50E+00**	**7.50E+00**	**7.50E+00**	**1.50E+01**
ODCM location: Site Boundary (0.8 mile N)	3.17E-03	7.66E-03	1.80E-03	1.25E-03	1.39E-02
% Dose Limit	4.23E-02	1.02E-01	2.40E-02	1.67E-02	9.27E-02
ODCM location: Dairy (4.9 miles W)	2.75E-02	2.14E-02	3.05E-02	3.30E-02	1.12E-01
% Dose Limit	3.67E-01	2.85E-01	4.07E-01	4.40E-01	7.47E-01
Nearest Resident (3.7 miles NW)	2.66E-04	6.89E-04	7.94E-05	1.31E-04	1.17E-03
% Dose Limit	3.55E-03	9.19E-03	1.06E-03	1.75E-03	7.80E-03
Maximum dose to a resident with a garden (4.4 miles WSW)	3.03E-02	3.48E-02	4.28E-02	3.95E-02	1.47E-01
% Dose Limit	4.04E-01	4.64E-01	5.71E-01	5.27E-01	9.80E-01
Resident-meat animal location (4.2 miles NNE)	1.80E-02	1.56E-02	2.12E-02	1.32E-02	6.81E-02
% Dose Limit	2.40E-01	2.08E-01	2.83E-01	1.76E-01	4.54E-01
Maximum dose at resident-meat animal location with a garden (4.6 miles SW)	3.49E-02	2.93E-02	7.41E-02	5.83E-02	1.97E-01
% Dose Limit	4.65E-01	3.91E-01	9.88E-01	7.77E-01	1.31E+00

Salem-Hope Creek Site Total					
Gaseous Effluent Parameter	**1Q2012**	**2Q2012**	**3Q2012**	**4Q2012**	**Annual**
Limit for Gamma Air Dose (mrad) from Noble Gases	**5.00E+00**	**5.00E+00**	**5.00E+00**	**5.00E+00**	**1.00E+01**
Maximum Gamma Air Dose (mrad)	1.69E-05	7.78E-03	1.36E-05	3.74E-05	7.85E-03
% Dose Limit	3.38E-04	1.56E-01	2.72E-04	7.48E-04	7.85E-02
Limit for Beta Air Dose (mrad) for Noble Gases	**1.00E+01**	**1.00E+01**	**1.00E+01**	**1.00E+01**	**2.00E+01**
Maximum Beta Air Dose (mrad)	1.07E-05	1.57E-02	6.17E-06	4.29E-05	1.57E-02
% Dose Limit	1.07E-04	1.57E-01	6.17E-05	4.29E-04	7.85E-02
Limit for Organ Dose (mrem) from I-131, I-133, Tritium, C-14, and particulate nuclides (>8 days half-life)	**7.50E+00**	**7.50E+00**	**7.50E+00**	**7.50E+00**	**1.50E+01**
ODCM location: Site Boundary (0.8 mile N)	5.35E-03	7.84E-03	2.50E-03	1.60E-03	1.73E-02
% Dose Limit	7.13E-02	1.05E-01	3.33E-02	2.13E-02	1.15E-01
ODCM location: Dairy (4.9 miles W)	6.37E-02	4.93E-02	7.06E-02	7.64E-02	2.60E-01
% Dose Limit	8.49E-01	6.57E-01	9.41E-01	1.02E+00	1.73E+00
Nearest Resident (3.7 miles NW)	6.79E-04	7.26E-04	1.56E-04	2.46E-04	1.81E-03
% Dose Limit	9.05E-03	9.68E-03	2.08E-03	3.28E-03	1.21E-02
Maximum dose to a resident with a garden (4.4 miles WSW)	7.17E-02	8.02E-02	9.91E-02	9.16E-02	3.43E-01
% Dose Limit	9.56E-01	1.07E+00	1.32E+00	1.22E+00	2.29E+00
Resident-meat animal location (4.2 miles NNE)	4.28E-02	3.59E-02	4.92E-02	3.09E-02	1.59E-01
% Dose Limit	5.71E-01	4.79E-01	6.56E-01	4.12E-01	1.06E+00
Maximum dose at resident-meat animal location with a garden (4.6 miles SW)	8.32E-02	6.83E-02	1.72E-01	1.35E-01	4.58E-01
% Dose Limit	1.11E+00	9.11E-01	2.29E+00	1.80E+00	3.05E+00

[a] For Salem Unit 1, the second quarter gamma and beta air doses were due to single Noble Gas sample with an associated high analysis error. The sample results were conservatively included in the estimated doses from noble gases.

[b] For Hope Creek, the second quarter gamma and beta air doses were due to noble gas released during Hope Creek outage 1R17.

As set forth in 10CFR50 Appendix I, the estimated annual external dose from gaseous effluent to any individual in an unrestricted area should not exceed 5 mrem. In addition, the 10CFR50 Appendix I ALARA requirement for gaseous effluent is met if a licensee demonstrates that the estimated annual external dose from gaseous effluent to any individual in unrestricted areas does not exceed 5 mrem to the total body or 15 mrem to the skin. Compliance to these limits is demonstrated for 2012 gaseous effluents by the calculated total body and skin doses from external exposure pathways (i.e., plume and ground deposition) at the controlling site boundary location in the north sector. The calculated total body dose and skin dose from the combined gaseous releases for the three generating stations represent less than 0.25% and less than 0.14% of the respective dose limits, which confirm that no single unit release effluent that exceeded the Appendix I dose limits. These doses (presented below) were calculated using the GASPAR computer program, which is consistent with the methods described in Regulatory Guide 1.109.

Dose Parameter	Annual Dose
Total Body Dose from Noble Gases – Site Boundary:	1.10E-02 mrem
Percent of Appendix I Annual Limit (5 mrem):	2.20E-01%
Skin Dose from Noble Gases – Site Boundary:	1.97E-02 mrem
Percent of Appendix I Annual Limit (15 mrem):	1.31E-01%

The GASPAR computer program was also used to calculate the annual population dose from gaseous effluents from the Salem Units and Hope Creek Generating Station. The population dose provided below is based on (i) a summation of effluent discharges from the three units, (ii) the assumptions prescribed in Regulatory Guide 1.109, (iii) site-specific data (i.e., food production, milk production, and meat production) based on information gathered in the 2012 Land Use Census, and (iii) the annual meteorological dispersion factors determined from site meteorological data recorded during 2012.

Dose Parameter	Annual Dose
Average Dose from Gaseous Effluent to Population:	1.38E-04 mrem
Population Dose from Gaseous Effluent:	6.21E-01 person-rem

1.1 Total Dose Resulting from Radioactive Effluent Releases and Radiation from Uranium Fuel Cycle Sources

An annual dose to a member of the public due to effluent releases and all other uranium fuel cycle sources presented on site was calculated as required by section 3.11.4 of the Salem and Hope Creek ODCMs. This calculation was performed to demonstrate compliance with radiation limits established in 40CFR190 and 10CFR72.104.

Doses from radioactive effluent releases were calculated as described previously. The direct radiation dose from sources present onsite, such as operation of the Independent Spent Fuel Storage Installation (ISFSI), was estimated using environmental dosimeter measurements. The ISFSI is a closed system and the only exposure is direct radiation, which would be measured by the site dosimeters. The spent fuel is stored in a sealed unit

and no radioactive materials were released. Therefore, there is no dose from effluents from the facility.

Control REMP dosimeters historically have been less than or equal to pre-operational dose (55 mrem). However, Landauer was contracted to provide environmental dosimeter services in late 2010 and their dosimeter technology produces higher results than the previous dosimeter service provider making it difficult for a direct comparison with the pre-operational data. Because the control REMP dosimeter data were historically consistent with the pre-operational data, the Landauer results for the control REMP dosimeters are considered equivalent to the pre-operational dose. The control REMP dosimeters provide a means of comparison to pre-operational-equivalent radiation levels as measured by Landauer dosimeters.

In 2012, the average dose for the six control REMP dosimeters (located 10 miles or more from the site) was 67.6 mrem. The average dose for the 15 dosimeters inside, or closest to, the site boundary in all sectors except sector 8, was 66.8 mrem. Sector 8 has no environmental dosimeter assigned to it because it is made up entirely of the Delaware River for at least 10 miles from the site. Although public access to the actual site boundary locations in many sectors is not probable due to the terrain surrounding the site (i.e., river to the west and south, marsh and wet land to the north and east), environmental dosimeters have been placed at or inside the site boundary during this report period to permit dose estimations at the site boundary in all sectors.

The dosimeter at location 15S2 was installed to monitor the potential radiological impact at the site boundary due to the ISFSI. It is located near the river's edge in the NW sector. The approach for determining the direct dose component incorporated the following decision: if measured direct dose at REMP location 15S2 is less than or equal to the average dose measured at the control REMP locations, then no direct dose from the ISFSI is observed. If the measured dose at REMP location 15S2 is greater than the average dose measured at the control REMP locations, then the difference is assumed due to station operation of the ISFSI.

The REMP environmental dosimeter data at location 15S2 for the 2012 reporting period is given below:

Dosimeter Location	Basis for Selection	Average Reading (mrem/quarter)	Annual Dose (mrem)
15S2	Installed to monitor ISFSI; 0.59 mile NW – near river, the most likely location a member would gain access to the site boundary	16.04	60.16

40CFR190 and 10CFR72.104 restrict the total dose to members of the public due to radioactivity and radiation from uranium fuel cycle sources (including the ISFSI facility). Because the REMP environmental dosimeter data indicated that there was no contribution at the site boundary via direct radiation from the ISFSI site in 2012, compliance with the regulatory requirements for total dose was demonstrated by summing direct dose (zero), the total body doses, organ doses, and the thyroid doses from all liquid effluent and all gaseous effluent from the Salem Units 1 and 2 and the Hope Creek Generating Station. The critical receptor for the 40CFR190 total dose was a child receptor at a real resident-meat animal-

garden location at 4.6 miles in the SW sector, the location of the highest dose from gaseous effluent. The total body, organ, and thyroid doses (including the estimated contributions from carbon-14) from gaseous effluent at this location were summed with the total body, organ, and thyroid doses from liquid effluents, and the resulting sums were evaluated against the respective regulatory dose limits. The total body, organ, and thyroid doses to members of the public due to radioactivity and radiation from uranium fuel cycle sources are bounded by the total dose to a child receptor at 4.6 miles in the SW sector. Table 6 presents the bounding 40CFR190 total doses.

Table 6: 40CFR190 Total Dose to a Member of the Public

Parameter	Annual Dose
40CFR190/10CFR72.104 Dose Limit: Total Body or Any Organ (mrem) Thyroid (mrem)	 2.50E+01 7.50E+01
40CFR190 Total Body Dose (mrem) at 4.6mile SW % Total Body/Any Organ Dose Limit	9.36E-02 3.74E-01
40CFR190 Organ Dose (mrem) at 4.6mile SW % Organ Dose Limit	4.58E-01 1.83E+00
40CFR190 Thyroid Dose (mrem) at 4.6mile SW % Thyroid Limit	9.57E-02 1.28E-01

1.2 Dose to Members of the Public Due to Activities Inside the Site Boundary

Dose to members of the public is limited to 100 mrem total effective dose equivalent (TEDE) in a year in accordance with 10CFR20.1301. The dose from radioactive liquid and gaseous effluents to a member of the public performing activities inside the site boundary was calculated as required by ODCM 6.9.1.8 (SGS) and 6.9.1.7 (HCGS). For the purpose of these dose calculations, an adult member of the public was assumed to be a full-time employee whose assigned duties do not involve exposure to radiation or to radioactive material (i.e., an unmonitored employee working 2000 hours in a year). The active exposure pathways to a member of the public inside the site boundary are external exposure due to plume immersion and ground deposition and inhalation of airborne radioactivity in gaseous effluent. The onsite receptor was assumed to be located 0.25 miles from the gaseous release points for Salem Units 1 and 2 and Hope Creek Generating Station. The SE sector was determined to have the highest atmospheric dispersion factors for an onsite location. The GASPAR computer program was used to calculate the doses. The atmospheric dispersion factors used in the dose calculations are provided below.

Q	Undepleted X/Q	Depleted X/Q	D/Q
1	7.8E-06	7.4E-06	6.0E-08
2	7.6E-06	7.1E-06	6.7E-08
3	7.6E-06	7.2E-06	4.5E-08
4	7.3E-06	6.9E-06	7.5E-08

For the 12-month reporting period, January 1, 2012 to December 31, 2012 the calculated site dose and percent of limit are:

Parameter	
Total Body Dose from radioactive liquid and gaseous effluents to Member of the Public Inside Site Boundary	1.75E-02 mrem
% Limit	1.75E-02

1.3 Assessment of Carbon-14 Releases

The NRC has identified carbon-14 (C-14) as a potential principal radionuclide for gaseous effluent because analytical methods for determining C-14 have improved since the publication of Revision 1 to Regulatory Guide 1.21 and, over the same period of time, the radioactive effluents from commercial nuclear power plants have decreased to the point that C-14 is likely to be a principal radionuclide in gaseous effluents (refer to Regulatory Position 1.9 in Revision 2 of Regulatory Guide 1.21). Because gaseous effluent releases from a boiling water reactor (BWR), such as the Hope Creek Generating Station, and pressurized water reactor (PWR), such as the Salem Units, can contain significant quantities of C-14, the NRC has recommended that licensees evaluate C-14 as a potential principal radionuclide for gaseous releases from their facility. Those evaluations have determined that C-14 is a "principal radionuclide" in gaseous effluent from each of the three stations.

The assessment methodology used to estimate the quantity of C-14 discharged in gaseous effluent from the Salem and Hope Creek Stations involved the use of a normalized C-14 source term and scaling factors based on power generation from EPRI Technical Report 1021106. This method was selected based on guidance offered in Regulatory Guide 1.21, and incorporates dose models described in Regulatory Guide 1.109, *Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I*, and approach recommendations offered from industry peers and the NRC staff during the 20th Annual RETS-REMP Workshop San Jose, CA (June 2010).

The following assumptions are incorporated into the method:

- Only C-14 in the form of CO_2 is incorporated into vegetation through photosynthesis, which causes dose via the ingestion exposure pathways.
- The concentration of C-14 in vegetation is proportional to the concentration of C-14 in air (per equation C-8 in RG 1.109).
- 95% of C-14 released from a BWR (i.e., Hope Creek) and 30% of C-14 released from a PWR (i.e., Salem Units 1 and 2) is in the form of CO_2 (EPRI Technical Report 1021106).

Using scaling factors and 2012 power generation data, the estimated total C-14 released in 2012 was 11.3 Ci from Salem Unit 1, 10.3 Ci from Salem Unit 2, and 16.4 Ci from the Hope Creek Generating Station.

The GASPAR computer program was used to determine doses resulting from C-14 in gaseous effluent from the Salem Units and Hope Creek Generating Station. The maximum total body and organ (bone) doses from C-14 occurred for a child receptor at 4.6 mile SW. The doses from the estimated C-14 in gaseous effluents are less than 3.1% of the annual dose limit specified in the Salem and Hope Creek ODCMs (3.11.2.3).

The annual total body and organ doses due to the estimated C-14 releases in 2012 are:

Generating Station	ODCM Site Boundary[a] N		ODCM Dairy[b] 4.9mi W	
	Organ (mrem)	Total Body (mrem)	Organ (mrem)	Total Body (mrem)
Salem Unit 1	0.00E+00	0.00E+00	7.66E-02	1.64E-02
Salem Unit 2	0.00E+0	0.00E+00	7.10E-02	1.52E-02
Hope Creek	0.00E+00	0.00E+00	1.12E-01	2.40E-02
Site Total	0.00E+00	0.00E+00	2.60E-01	5.55E-02
Generating Station	Nearest Resident[c] 3.7mi NW		Nearest Resident with Garden[d] 4.4mi WSW	
	Organ (mrem)	Total Body (mrem)	Organ (mrem)	Total Body (mrem)
Salem Unit 1	0.00E+00	0.00E+00	1.00E-01	2.01E-02
Salem Unit 2	0.00E+00	0.00E+00	9.33E-02	1.87E-02
Hope Creek	0.00E+00	0.00E+00	1.47E-01	2.94E-02
Site Total	0.00E+00	0.00E+00	3.41E-01	6.82E-02
Generating Station	Meat Animal[e] 4.2mi NNE		Meat Animal + Garden[f] 4.6mi SW	
	Organ (mrem)	Total Body (mrem)	Organ (mrem)	Total Body (mrem)
Salem Unit 1	4.66E-02	9.30E-03	1.35E-01	2.70E-02
Salem Unit 2	4.33E-02	8.64E-03	1.25E-01	2.50E-02
Hope Creek	6.80E-02	1.36E-02	1.96E-01	3.93E-02
Site Total	1.58E-01	3.15E-02	4.56E-01	9.13E-02

[a, c] Receptor = child; active pathways (based on 2012 Land Use Census): plume, ground, and inhalation; the C-14 dose via these exposure pathways is negligible.

[b] Receptor = infant; active pathways (based on 2012 Land Use Census): plume, ground, milk ingestion, and inhalation

[d] Receptor = child; active pathways (based on 2012 Land Use Census): plume, ground, vegetable ingestion, and inhalation

[e] Receptor = child; active pathways (based on 2012 Land Use Census): plume, ground, meat ingestion, and inhalation

[f] Receptor = child; active pathways (based on 2012 Land Use Census): plume, ground, meat and vegetable ingestion, and inhalation

1.4 Effluent Assessment

Liquids:

Liquid effluents released from the Salem and Hope Creek Generating Stations resulted in doses to a hypothetical maximally exposed individual that were within all applicable regulatory limits (Salem Unit 1: 4.07E-04% of the Total Body Limit, Salem Unit 2: 5.57E-04% of the Total Body Limit, and Hope Creek: 7.00E-04% of the Total Body Limit).

When compared to releases in the previous reporting period, the fission & activation product activity in the liquid effluents decreased slightly for the Salem Unit 1, Salem Unit 2, and Hope Creek Generating Station. The estimated doses from liquid effluent also decreased from the previous reporting period. The liquid effluent releases from the Salem Units and the Hope Creek Generating Station continue to remain well within Federal limits.

Gaseous:

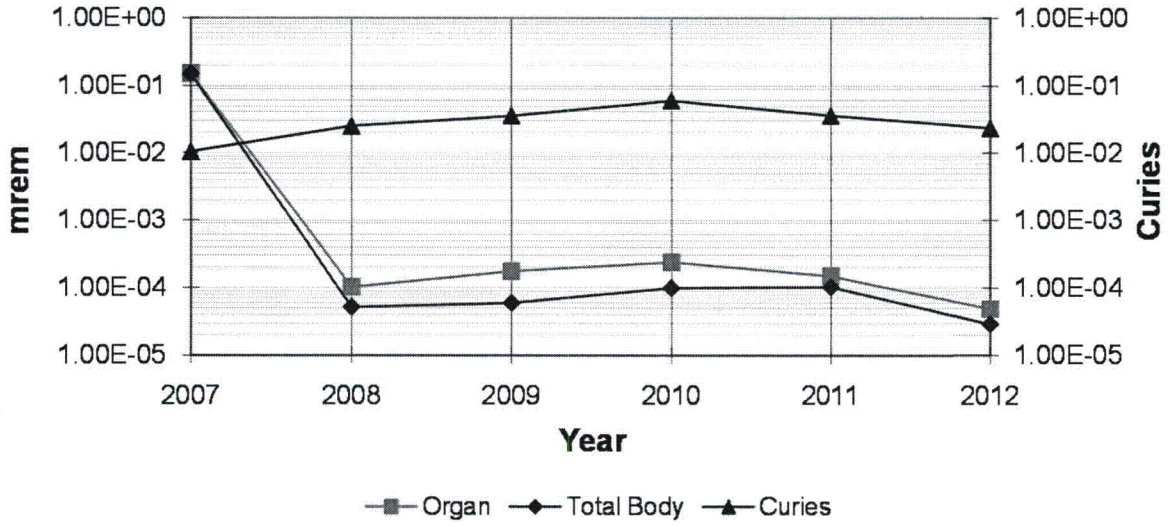
Gaseous effluents released from the Salem and Hope Creek Generating Stations resulted in doses to a maximally exposed individual that were within all applicable regulatory limits. The doses for the 12-month period from all radionuclides present in gaseous effluent, including C-14, were small fractions of all applicable limits (Salem Unit 1: 9.00E-01% of the annual organ (including total body) dose limit, Salem Unit 2: 8.47E-01% of the annual organ (including total body) dose limit, and Hope Creek: 1.31E+00% of the annual organ (including total body) dose limit).

When compared to releases in the previous reporting period, the Salem noble gas effluent activity and Hope Creek noble gas effluent activity increased. However, gaseous effluent releases for the site continue to remain well within Federal limits and are comparable to other nuclear utilities. Fuel integrity and gaseous effluent processing equipment continue to be maintained in order to ensure that all releases of gaseous radioactivity are As-Low-As-Reasonably-Achievable (ALARA).

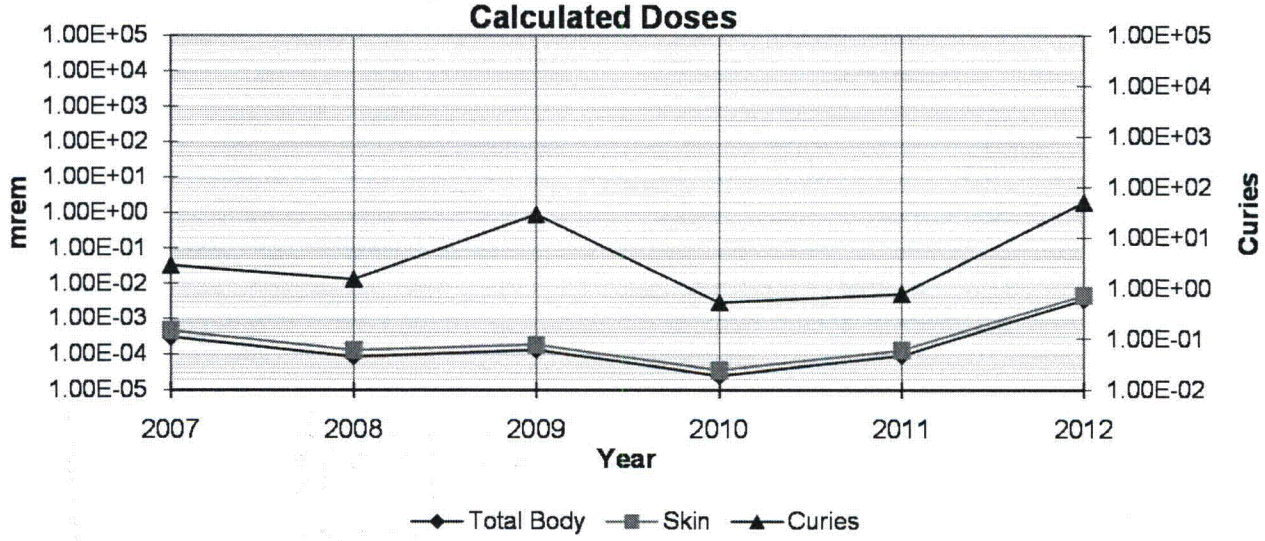
1.5 Effluent Trends

The following two trend graphs show the total curies of liquid and gaseous effluents released for Salem from 2007 through 2012. Calculated doses in the graphs are to the hypothetical maximum exposed individual.

Liquid Releases (SGS) Fission & Activation Products Curies Released and Calculated Doses

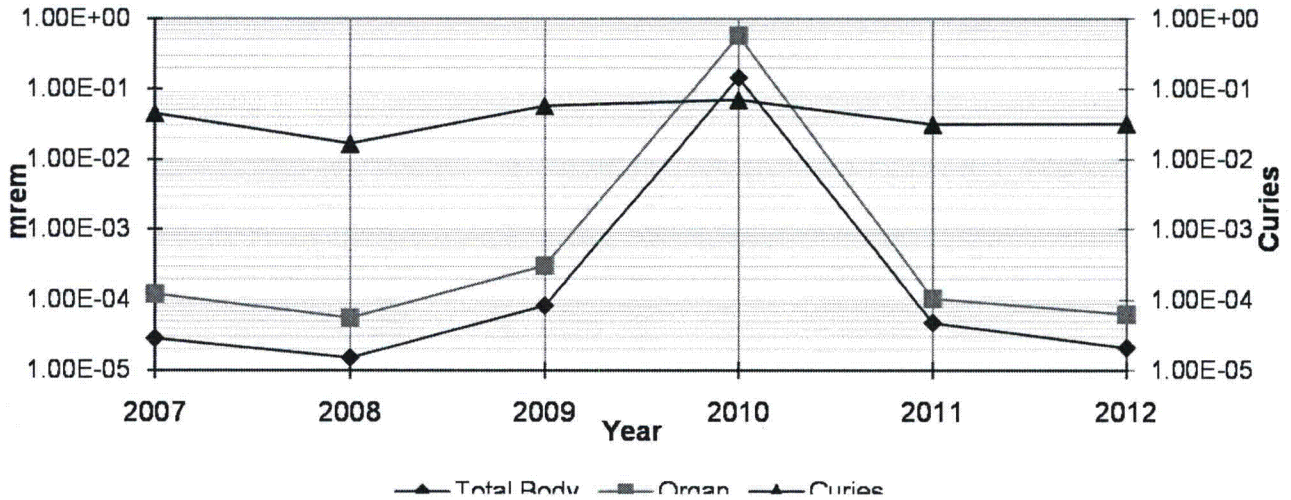


Gaseous Releases (SGS) Curies of Noble Gases Released and Calculated Doses

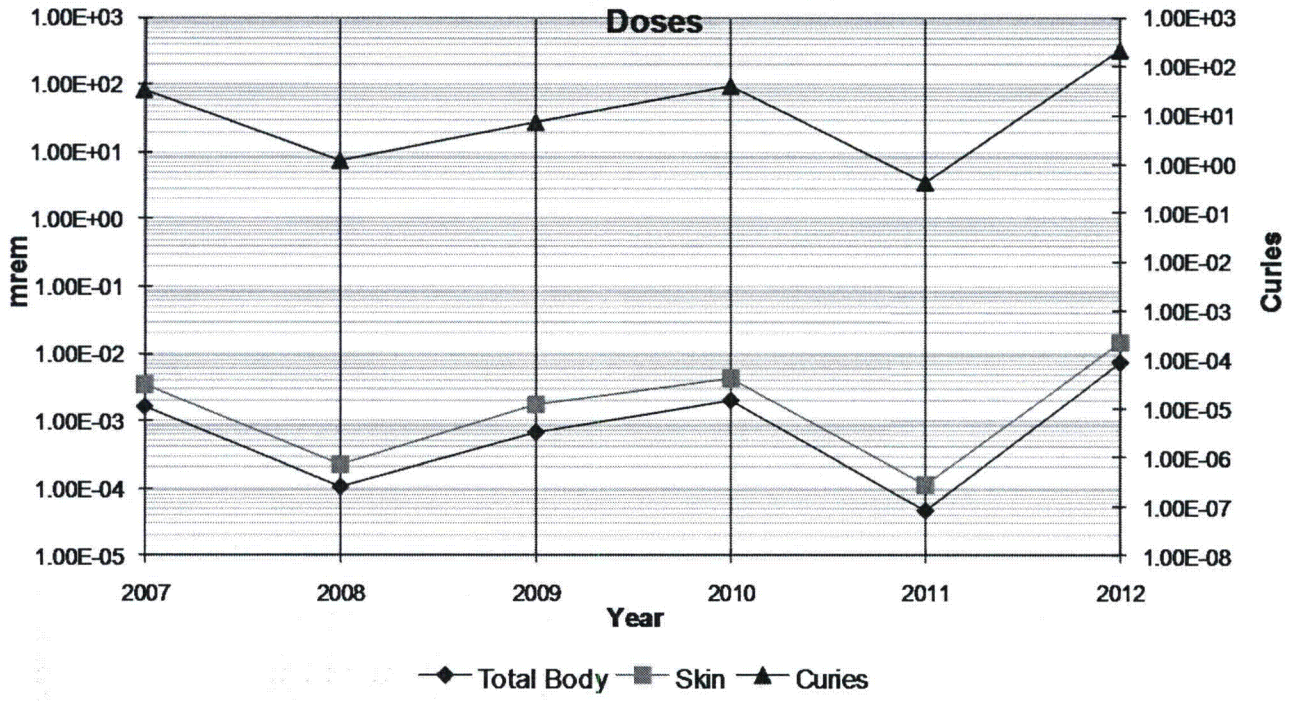


The following two trend graphs show the total curies of liquid and gaseous effluents released for Hope Creek from 2007 through 2012. Calculated doses in the graphs are to the hypothetical maximum exposed individual.

Liquid Releases (HCGS) Fission & Activation Products Curies Released and Calculated Doses



Gaseous Releases Curies of Noble Gases Released and Calculated Doses



PART F. METEOROLOGICAL DATA

Cumulative joint wind frequency distributions by atmospheric stability class for the reporting period are provided in Appendix A.

PART G. OFFSITE DOSE CALCULATION MANUAL CHANGES

During the reporting period, there were no revisions to either the Salem or Hope Creek ODCM.

PART H. INOPERABLE MONITORS

Salem Unit 1 and 2: Gross Activity Radiation Monitors 1R13 and 2 R13, which monitor Containment Fan Coolers Service Water Line Discharge, were inoperable from January to June due to the completion of a Design Change Package. Required compensatory actions were implemented through completion of the new installation.

The 2R19 A – D monitors were declared inoperable for more than 30 days. The inoperability was caused by the 2R19 refueling outage.

Hope Creek: There were no inoperable effluent radiation monitors at the Hope Creek Generating Station during the reporting period.

PART I. PROCESS CONTROL PROGRAM (PCP) CHANGES

During the reporting period, there were no technical or programmatic changes to either the Salem or Hope Creek PCPs.

PART J. ENVIRONMENTAL MONITORING LOCATION CHANGES

In July 2012, there was a change to the direct radiation environmental monitoring program where a new dosimetry vendor was selected. As a result of the vendor change, the type of dosimeter deployed in the field changed from the Landauer Optically Stimulated Luminescent (OSL) to the Mirion Thermo-Luminescent Dosimeter (TLD).

PART K. GROUNDWATER SAMPLING DATA

Groundwater sampling data collected during the implementation of the Radiological Groundwater Protection Program (RGPP) during the reporting period are presented in Appendix C.

TABLE 1A-1
SALEM GENERATING STATION - UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES

A. *Fission & Activation Gases*	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release	Ci	2.37E-02	4.90E+01[a]	4.70E-02	8.54E-02	4.92E+01	3.40E+01
Average release rate for the period	µCi/sec	3.01E-03	6.23E+00	5.92E-03	1.07E-02	1.56E+00	
Percent of limit (ODCM 3.11.2.2(a))	%	9.12E-05	6.48E-03	9.18E-05	1.29E-04	3.41E-03	
B. Iodine[b]							
Total Iodine – 131.	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+01
Average release rate for the period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	3.13E-01	6.75E-01	3.60E-01	9.00E-01	
C. Particulates[b]							
Particulates with half-lives > 8 days	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+01
Average release rate for the period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	3.13E-01	6.75E-01	3.60E-01	9.00E-01	
Gross alpha radioactivity	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D. Tritium[b]							
Total Release	Ci	2.89E+00	1.22E-01	3.85E+01	1.61E+01	5.76E+01	3.10E+01
Average release rate for the period	µCi/sec	3.68E-01	1.55E-02	4.85E+00	2.03E+00	1.82E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	3.13E-01	6.75E-01	3.60E-01	9.00E-01	
E. Carbon-14[b]							
Total Release	Ci	2.80E+00	2.80E+00	2.80E+00	2.80E+00	1.12E+01	N/A[c]
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	3.13E-01	6.75E-01	3.60E-01	9.00E-01	

[a] For Salem Unit 1, the second quarter data includes a single Noble Gas sample with an associated high analysis error.

[b] Iodine, Tritium, Carbon-14, and Particulates are treated as a group. Although listed separately in the above table, the percent ODCM Limit is based on most limiting nuclide and organ dose for the group (even in cases when a sub-group member was not identified in effluent).

[c] It is not necessary to calculate uncertainties for C-14 or to include C-14 uncertainty in any subsequent calculation of overall uncertainty. (Regulatory Guide 1.21 revision 2)

TABLE 1A-2
SALEM GENERATING STATION - UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES

A. *Fission & Activation Gases*	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release	Ci	6.85E-02	4.29E-02	6.79E-02	3.48E-01	5.27E-01	3.40E+01
Average release rate for the period	µCi/sec	8.71E-03	5.45E-03	8.55E-03	4.38E-02	1.66E-02	
Percent of limit (ODCM 3.11.2.2(a))	%	2.16E-04	1.17E-04	1.80E-04	1.14E-02	3.14E-04	
B. Iodine[a]							
Total Iodine – 131.	Ci	0.00E+00	0.00E+00	0.00E+00	3.52E-05	3.52E-05	3.00E+01
Average release rate for the period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	4.43E-06	1.11E-06	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	2.92E-01	6.27E-01	4.92E-01	8.47E-01	
C. Particulates[a]							
Particulates with half-lives > 8 days	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E+01
Average release rate for the period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	2.92E-01	6.27E-01	4.92E-01	8.47E-01	
Gross alpha radioactivity	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D. Tritium[a]							
Total Release	Ci	9.66E+01	1.01E-01	2.57E-01	1.38E+01	1.11E+02	3.10E+01
Average release rate for the period	µCi/sec	1.23E+01	1.28E-02	3.23E-02	1.73E+00	3.52E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	2.92E-01	6.27E-01	4.92E-01	8.47E-01	
E. Carbon-14[a]							
Total Release	Ci	2.60E+00	2.60E+00	2.60E+00	2.60E+00	1.04E+01	N/A[b]
Percent of limit (ODCM 3.11.2.3(a))	%	3.23E-01	2.92E-01	6.27E-01	4.92E-01	8.47E-01	

[a] Iodine, Tritium, Carbon-14, and Particulates are treated as a group. Although listed separately in the above table, the percent ODCM Limit is based on most limiting nuclide and organ dose for the group (even in cases when a sub-group member was not identified in effluent).

[b] It is not necessary to calculate uncertainties for C-14 or to include C-14 uncertainty in any subsequent calculation of overall uncertainty. (Regulatory Guide 1.21 revision 2)

TABLE 1A-3
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES

A. *Fission & Activation Gases*	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release	Ci	6.22E-02	2.62E+02[a]	0.00E+00	4.15E-01	2.62E+02	3.40E+001
Average release rate for the period	µCi/sec	7.92E-03	3.33E+01	0.00E+00	5.22E-02	8.34E+00	
Percent of limit (ODCM 3.11.2.2(a))	%	3.08E-05	1.49E-01	0.00E+00	3.24E-04	7.48E-02	
B. Iodine[b]							
Total Iodine – 131.	Ci	5.56E-04	6.42E-04	2.86E-04	3.87E-04	1.87E-03	3.00E+01
Average release rate for the period	µCi/sec	7.07E-05	8.16E-05	3.60E-05	4.87E-05	5.93E-05	
Percent of limit (ODCM 3.11.2.3(a))	%	4.65E-01	4.64E-01	9.88E-01	7.77E-01	1.31E+00	
C. Particulates[b]							
Particulates with half-lives > 8 days	Ci	3.54E-07	2.36E-04	7.33E-05	1.37E-04	4.47E-04	3.00E+01
Average release rate for the period	µCi/sec	4.50E-08	3.01E-05	9.22E-06	1.72E-05	1.41E-05	
Percent of limit (ODCM 3.11.2.3(a))	%	4.65E-01	4.64E-01	9.88E-01	7.77E-01	1.31E+00	
Gross alpha radioactivity	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
D. Tritium[b]							
Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E+01
Average release rate for the period	µCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Percent of limit (ODCM 3.11.2.3(a))	%	4.65E-01	4.64E-01	9.88E-01	7.77E-01	1.31E+00	
E. Carbon-14[b]							
Total Release	Ci	4.10E+00	4.10E+00	4.10E+00	4.10E+00	1.64E+01	N/A[b]
Percent of limit (ODCM 3.11.2.3(a))	%	4.65E-01	4.64E-01	9.88E-01	7.77E-01	1.31E+00	

[a] For Hope Creek, the second quarter gamma and beta air doses were due to noble gas released during Hope Creek outage 1R17.

[b] Iodine, Tritium, Carbon-14, and Particulates are treated as a group. Although listed separately in the above table, the percent ODCM Limit is based on most limiting nuclide and organ dose for the group (even in cases when a sub-group member was not identified in effluent).

[c] It is not necessary to calculate uncertainties for C-14 or to include C-14 uncertainty in any subsequent calculation of overall uncertainty. (Regulatory Guide 1.21 revision 2)

TABLE 1B

SALEM AND HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – ELEVATED RELEASES

Salem and Hope Creek Generating Stations have no elevated release points.

TABLE 1C-1
SALEM GENERATING STATION - UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – GROUND LEVEL RELEASES

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**7.73E-03**	**5.79E-02**	**2.67E-02**	**4.12E-02**	**1.34E-01**
Xe-133m	Ci	0.00E+00	**4.89E+01**	0.00E+00	0.00E+00	**4.89E+01**	0.00E+00	**1.25E-03**	0.00E+00	0.00E+00	**1.25E-03**
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.86E-03**	**1.77E-03**	**1.56E-03**	**5.19e-03**
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.02E-04**	0.00E+00	0.00E+00	**8.02E-04**
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.60E-02**	**1.32E-02**	**1.86E-02**	**4.26E-02**	**9.04E-02**
Total	Ci	0.00E+00	**4.89E+01**	0.00E+00	0.00E+00	**4.89E+01**	**2.37E-02**	**7.50E-02**	**4.70E-02**	**8.54E-02**	**2.31E-01**
2. Iodines											
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates											
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Tritium	Ci	**2.86E+00**	0.00E+00	**3.80E+01**	**1.52E+01**	**5.61E+01**	**3.07E-02**	**1.22E-01**	**5.75E-01**	**9.36E-01**	**1.66E+00**
5. Carbon-14	Ci	**2.80E+00**	**2.80E+00**	**2.80E+00**	**2.80E+00**	**1.12E+01**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 1C-2
SALEM GENERATING STATION - UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – GROUND LEVEL RELEASES

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.25E-04**	0.00E+00	0.00E+00	**7.71E-04**	**8.96E-04**
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.95E-02**	**1.22E-02**	**2.99E-02**	**2.66E-01**	**3.38E-01**
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.18E-04**	0.00E+00	0.00E+00	**6.01E-03**	**6.33E-03**
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.35E-03**	0.00E+00	0.00E+00	**5.76E-02**	**5.90E-02**
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.72E-02**	**3.06E-02**	**3.80E-02**	**1.71E-02**	**1.23E-01**
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.85E-02**	**4.29E-02**	**6.79E-02**	**3.48E-01**	**5.27E-01**
2. Iodines											
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	**3.52E-05**	**3.52E-05**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates											
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Tritium	Ci	**9.65E+01**	0.00E+00	0.00E+00	**1.36E+01**	**1.10E+02**	**6.10E-02**	**1.01E-01**	**2.56E-01**	**2.09E-01**	**6.27E-01**
5. Carbon-14	Ci	**2.60E+00**	**2.60E+00**	**2.60E+00**	**2.60E+00**	**1.04E+01**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 1C-3
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
GASEOUS EFFLUENTS – GROUND LEVEL RELEASES

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Kr-85m	Ci	0.00E+00	**2.76E+00**	0.00E+00	0.00E+00	**2.76E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-133	Ci	**6.20E-02**	**2.16E+02**	0.00E+00	0.00E+00	**2.16E+02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-133m	Ci	0.00E+00	**4.15E+00**	0.00E+00	0.00E+00	**4.15E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-135	Ci	0.00E+00	**3.11E+01**	0.00E+00	**4.15E-01**	**3.15E+01**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-135m	Ci	0.00E+00	**8.09E+00**	0.00E+00	0.00E+00	**8.09E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xe-131m	Ci	0.00E+00	**2.97E-04**	0.00E+00	**2.78E-05**	**3.25E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.62E-04**	0.00E+00	0.00E+00	0.00E+00	**2.62E-04**
Total	Ci	**6.20E-02**	**2.62E+02**	0.00E+00	**4.15E-01**	**2.62E+02**	**2.62E-04**	0.00E+00	0.00E+00	0.00E+00	**2.62E-04**
2. Iodines											
I-131	Ci	**5.55E-04**	**6.42E-04**	**2.86E-04**	**3.87E-04**	**1.87E-03**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	Ci	**1.13E-02**	**6.56E-03**	**5.50E-03**	**2.81E-03**	**2.62E-02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	**1.18E-02**	**7.20E-03**	**5.79E-03**	**3.19E-03**	**2.80E-02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates											
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57	Ci	**3.54E-07**	0.00E+00	0.00E+00	0.00E+00	**3.54E-07**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C0-60	Ci	0.00E+00	**1.48E-04**	**4.55E-05**	**1.36E-04**	**3.30E-04**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	**7.79E-07**	**7.79E-07**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr-51	Ci	0.00E+00	**8.84E-05**	0.00E+00	0.00E+00	**8.84E-05**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-24	Ci	0.00E+00	0.00E+00	**3.37E-03**	0.00E+00	**3.37E-03**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	Ci	**3.54E-07**	**2.36E-04**	**3.44E-03**	0.00E+00	**3.68E-03**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4. Tritium	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.44E-03**	0.00E+00	0.00E+00	**1.44E-03**
5. Carbon-14	Ci	**4.10E+00**	**4.10E+00**	**4.10E+00**	**4.10E+00**	**1.64E+01**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 2A-1
SALEM GENERATING STATION –UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release (not including tritium, gases & alpha)	Ci	2.53E-03	2.46E-03	1.81E-03	3.11E-03	9.91E-03	2.70E+01
Average diluted concentration during period	µCi/ml	2.80E-12	2.65E-12	2.01E-12	4.44E-12	2.90E-12	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	1.25E-04	3.43E-04	1.85E-04	1.62E-04	4.07E-04	

B. Tritium							
Total Release	Ci	7.12E+01	3.28E+02	1.57E+02	8.23E+01	6.38E+02	2.70E+01
Average diluted concentration during period	µCi/ml	7.97E-08	3.54E-07	1.74E-07	1.18E-07	1.86E-07	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	1.25E-04	3.43E-04	1.85E-04	1.62E-04	4.07E-04	

C. Dissolved & Entrained Gases							
Total Release	Ci	0.00E+00	8.20E-06	1.61E-05	7.28E-05	9.71 E-05	2.70E+01
Average diluted concentration during period	µCi/ml	0.00E+00	8.84E-15	1.79E-14	1.04E-13	2.84E-14	
Percent of applicable limit (ODCM 3.11.1.1)	%	0.00E+00	4.42E-09	8.95E-09	5.20E-08	1.42E-08	

D. Gross Alpha Activity							
Total Release	Ci	0.00 E+00	0.00 E+00	0.00E+00	0.00E+00	0.00E+00	2.70E+01

E. Volume Of Waste Released (prior to dilution)	Liters	5.05E+07	5.07E+07	5.11E+07	5.15E+07

F. Volume Of Dilution Water Used During Period	Liters	8.93E+11	9.27E+11	9.01E+11	7.00E+11

TABLE 2A-1
SALEM GENERATING STATION –UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release (not including tritium, gases & alpha)	Ci	2.16E-03	1.24E-03	2.18E-03	7.92E-03	1.35E-02	2.70E+01
Average diluted concentration during period	µCi/Ml	4.88E-12	2.75E-12	2.42E-12	1.13E-11	5.41E-12	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	2.06E-04	5.64E-04	9.30E-05	2.47E-04	5.57E-04	

B. Tritium							
Total Release	Ci	9.07E+01	2.88E+02	9.95E+01	1.07E+02	5.85E+02	2.70E+01
Average diluted concentration during period	µCi/Ml	2.05E-07	6.39E-07	1.10E-07	1.52E-07	2.35E-07	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	2.06E-04	5.64E-04	9.30E-05	2.47E-04	5.57E-04	

C. Dissolved & Entrained Gases							
Total Release	Ci	0.00E+00	1.51E-05	7.15E-06	1.99E-05	4.22E-05	2.70E+01
Average diluted concentration during period	µCi/Ml	0.00E+00	3.35E-14	7.94E-15	2.84E-14	1.69E-14	
Percent of applicable limit (ODCM 3.11.1.1)	%	0.00E+00	1.68E-08	3.97E-09	1.42E-08	8.45E-09	

D. Gross Alpha Activity							
Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.70E+01

E. Volume Of Waste Released (prior to dilution)	Liters	5.02E+07	5.04E+07	5.09E+07	4.07E+07

F. Volume Of Dilution Water Used During Period	Liters	4.43E+11	4.50E+11	9.01E+11	7.04E+11

TABLE 2A-1
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
Total Release (not including tritium, gases & alpha)	Ci	1.81 E-02	8.85 E-03	2.84 E-03	2.07 E-03	3.19E-02	2.70E+01
Average diluted concentration during period	µCi/mL	1.44 E-09	5.13 E-10	1.45 E-10	1.56 E-10	5.07E-10	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	6.70E-04	4.67E-04	1.27E-04	2.92E-04	7.05E-04	
B. Tritium							
Total Release	Ci	1.30 E+01	1.29 E+01	3.47 E+00	5.44E-01	2.99E+01	2.70E+01
Average diluted concentration during period	µCi/mL	1.03 E-06	7.48 E-07	1.78 E-07	4.12E-08	4.75E-07	
Percent of applicable limit (ODCM 3.11.1(a) & (b))	%	6.70E-04	4.67E-04	1.27E-04	2.92E-04	7.05E-04	
C. Dissolved & Entrained Gases							
Total Release	Ci	6.81E-06	6.27E-04	2.07E-06	8.84E-07	6.37E-04	2.70E+01
Average diluted concentration during period	µCi/Ml	5.31 E-13	3.64 E-11	1.06 E-13	6.68E-14	1.01E-11	
Percent of applicable limit (ODCM 3.11.1.1)	%	2.66E-07	1.82E-07	5.30E-08	3.34E-08	5.05E-08	
D. Gross Alpha Activity							
Total Release	Ci	0.00 E+00	0.00 E+00	0.00E+00	0.00E+00	0.00E+00	2.70E+01
E. Volume Of Waste Released (prior to dilution)	Liters	5.04 E+07	4.05 E+07	5.09E+07	5.08E+07		
F. Volume Of Dilution Water Used During Period	Liters	1.26 E+10	1.73 E+10	1.96E+10	1.32E+10		

TABLE 2B-1
SALEM GENERATING STATION – UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS

Nuclides Released		Continuous Mode					Batch Mode				
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
H-3	Ci	4.47 E-01	1.79 E-01	3.09 E-01	2.01 E-01	1.14 E+00	7.07 E+01	3.28 E+02	1.57 E+02	8.21 E+01	6.38 E+02
Total for Period	Ci	4.47 E-01	1.79 E-01	3.09 E-01	2.01 E-01	1.14 E+00	7.07 E+01	3.28 E+02	1.57 E+02	8.21 E+01	6.38 E+02
Fission and Activation Products											
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51 E-05	1.41E-05	0.00E+00	2.92E-05
Au-199	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-143	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29 E-05	0.00E+00	1.29 E-05
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-03	1.88E-03	1.29 E-03	5.36 E-04	6.14E-03
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.28 E-05	3.39 E-04	3.99 E-04	1.20 E-04	9.51 E-04
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	8.76 E-05	8.76E-05
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20 E-04	1.27 E-05	0.00E+00	2.33 E-04
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.33 E-06	1.98 E-05	0.00 E+00	2.41 E-05
Rb-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-105	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.03 E-05	7.48 E-05	1.05 E-04
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	3.46E-04	3.46 E-04
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.89 E-05	1.80 E-03	1.83 E-03
Sb-126	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52 E-05	1.52 E-05
Sn-117m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46 E-06	0.00E+00	0.00E+00	4.70 E-05	5.05 E-05

Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.16 E-05**	**8.16 E-05**
Y-91m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-69m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.53 E-03**	**2.46 E-03**	**1.81 E-03**	**3.11 E-03**	**9.91 E-03**
Dissolved and Entrained Noble Gases											
Kr-85M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.49 E-06**	**3.49 E-06**
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	**8.19 E-06**	**1.61 E-05**	**5.18 E-05**	**7.61 E-05**
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.76 E-05**	**1.76 E-05**
Total for Period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.19 E-06**	**1.61 E-05**	**7.29 E-05**	**9.72 E-05**

TABLE 2B-1
SALEM GENERATING STATION – UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS

Nuclides Released		Continuous Mode					Batch Mode				
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
H-3	Ci	1.70 E-01	6.82 E-03	9.17E-03	0.00E+00	1.86 E-01	9.05 E+01	2.88 E+02	9.94 E+01	1.06 E+02	5.83 E+02
Total for Period	Ci	1.70 E-01	6.82 E-03	9.17E-03	0.00E+00	1.86 E-01	9.05 E+01	2.88 E+02	9.94 E+01	1.06 E+02	5.83 E+02
Fission and Activation Products											
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93 E-06	1.58 E-05	0.00E+00	2.27 E-05
Au-199	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92 E-06	0.00E+00	0.00E+00	0.00E+00	1.92 E-06
Ba-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53 E-04	0.00E+00	5.53 E-04
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-143	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-57	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.56 E-06	0.00E+00	3.56 E-06
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08 E-03	6.27 E-04	1.71 E-03
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74 E-04	1.87 E-04	6.61 E-04
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.73 E-05	9.73 E-05
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.90 E-06	8.90 E-06
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.76 E-06	6.76 E-06
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	1.39 E-04	1.39 E-04
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50 E-05	0.00E+00	1.50 E-05
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81 E-06	0.00E+00	0.00E+00	0.00E+00	5.81 E-06
Nb-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50 E-05	6.11E-06	4.12 E-06	0.00 E+00	2.52 E-05
Rb-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-105	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.04 E-06	0.00E+00	2.56 E-05	1.82 E-04	2.14 E-04
Sb-122	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59 E-05	1.59 E-05

Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	**1.21 E-03**	**1.21 E-03**
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.16 E-05**	**5.13 E-03**	**5.14 E-03**
Sb-126	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.29 E-05	4.29 E-05
Sn-117m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.16 E-04**	**1.16 E-04**
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-101	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**9.36 E-06**	**9.36 E-06**
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.40 E-04**	**1.40 E-04**
Y-91m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-69m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.21 E-06**	0.00E+00	0.00E+00	0.00E+00	**3.21E-06**
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.16 E-03**	**1.24 E-03**	**2.18 E-03**	**7.29 E-03**	**1.29 E-02**
Dissolved and Entrained Noble Gases											
Kr-85M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00 E+00	**1.51 E-05**	**7.14 E-06**	**5.89 E-06**	**2.81 E-05**
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.40 E-05**	**1.40 E-05**
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total for Period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.51 E-05**	**7.14 E-06**	**1.99E-05**	**4.21 E-05**

TABLE 2B-1
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
LIQUID EFFLUENTS

Nuclides Released		Continuous Mode					Batch Mode				
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
H-3	Ci	**3.05E-01**	**3.24E-01**	**6.95E-01**	**5.44E-01**	**1.87E+00**	**1.26E+01**	**1.26E+01**	**2.78E+00**	**8.18E-04**	**2.80E+01**
Total for Period	Ci	**3.05E-01**	**3.24E-01**	**6.95E-01**	**5.44E-01**	**1.87E+00**	**1.26E+01**	**1.26E+01**	**2.78E+00**	**8.18E-04**	**2.80E+01**
Fission and Activation Products											
Ag-110m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Other[a]	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.21E-05**	0.00E+00	**5.21E-05**
Ba-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**7.79E-06**	**1.23E-06**	0.00E+00	**9.02E-06**
Ce-143	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.17E-06**	0.00E+00	0.00E+00	**2.17E-06**
Ce-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.61E-06**	0.00E+00	0.00E+00	0.00E+00	**6.61E-06**
Co-58	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.69E-05**	**5.38E-05**	**1.29E-05**	**1.44E-05**	**1.38E-04**
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.29E-03**	**6.82E-03**	**2.34E-03**	**1.54E-03**	**1.90E-02**
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**9.76E-05**	**1.86E-05**	**2.68E-05**	**1.43E-04**
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.92E-04**	**2.45E-05**	**2.82E-07**	0.00E+00	**2.17E-04**
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**4.44E-03**	**5.88E-04**	**2.65E-05**	**7.49E-07**	**5.06E-03**
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**4.15E-03**	0.00E+00	0.00E+00	**8.29E-04**	**4.98E-03**
Fe-59	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.85E-06**	**6.01E-06**	0.00E+00	**9.86E-06**
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.09E-06**	0.00E+00	0.00E+00	**3.09E-06**
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.28E-06**	0.00E+00	**1.28E-06**
La-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**7.33E-04**	**9.70E-04**	**3.04E-04**	**3.69E-04**	**2.38E-03**
Mo-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.48E-05**	0.00E+00	0.00E+00	0.00E+00	**3.48E-05**
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.98E-07**	0.00E+00	0.00E+00	0.00E+00	**1.98E-07**
Rb-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.18E-06**	0.00E+00	0.00E+00	**3.18E-06**
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.10E-06**	0.00E+00	**1.10E-06**
Ru-105	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.90E-07**	0.00E+00	0.00E+00	**8.90E-07**
Sb-124	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.93E-05**	**3.32E-07**	0.00E+00	**1.96E-05**
Sb-125	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.31E-05**	0.00E+00	**2.86E-06**	**1.60E-05**
Sr-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.51E-08**	0.00E+00	0.00E+00	**5.51E-08**
Y-91m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.50E-06**	0.00E+00	0.00E+00	0.00E+00	**2.50E-06**

Zn-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.11E-04**	**2.44E-04**	**7.67E-05**	**1.08E-04**	**6.40E-04**
Zn-69m	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.11E-06**	**1.19E-06**	0.00E+00	0.00E+00	**6.30E-06**
Zr-95	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.44E-07**	0.00E+00	0.00E+00	**1.44E-07**
Total for Period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.81E-02**	**8.85E-03**	**2.84E-03**	**2.06E-03**	**3.19E-02**
Dissolved and Entrained Noble Gases											
Xe-133	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.24E-04**	**2.07E-06**	0.00E+00	**6.26E-04**
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.81E-06**	**3.11E-06**	0.00E+00	**8.84E-07**	**1.08E-05**
Total for Period		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.81E-06**	**6.27E-04**	**2.07E-06**	**8.84E-07**	**6.37E-04**

[a] "Other" was assigned to an unconfirmed peak appearing in the gamma analysis of a third quarter effluent sample. Doses associated with the activity were assessed using the most conservative dose conversion factors listed in the ODCM.

TABLE 3A-1
SALEM GENERATING STATION – UNITS 1 AND 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
SOLID RADWASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
(Not Irradiated Fuel)

a. Waste Stream; Resins, Filters, and Evaporator Bottoms
U/1 CVCS Bead Resin Dewatered Charcoal, Liquid Waste Processing Resin

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	6.94E+02	1.97E+01	1.21E+01	3.50E+01
B	2.80E+02	7.93E+00	3.24E+02	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	9.74E+02	2.76E+01	3.36E+02	3.50E+01

Major Nuclides for Above Table:

Resins, Filters and Evaporator Bottoms		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Fe-55	80.29 %	9.75E+00
Co-58	7.36 %	8.94E-01
Co-60	2.05 %	2.48E-01
Ni-63	7.47 %	9.07E-01

Resins, Filters and Evaporator Bottoms		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
Fe-55	6.80 %	2.20E+01
Co-60	14.58 %	4.72E+01
Ni-59	1.39 %	4.50E+00
Ni-63	72.15 %	2.34E+02
Cs-137	3.55 %	1.15E+01

Resins, Filters and Evaporator Bottoms		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Fe-55	9.45 %	2.97E+01
Co-60	14.13 %	4.75E+01
Ni-59	1.36 %	4.56E+00
Ni-63	69.81 %	2.35E+02
Cs-137	3.42 %	1.15E+01

b. Waste Stream; Dry Active Waste
Seavan DAW

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	2.26E+04	6.40E+02	1.84E+00	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	2.26E+04	6.40E+02	1.84E+00	3.50E+01

Major Nuclides for Above Table:

Dry Active Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	2.42 %	4.44E-02
Fe-55	49.57 %	9.10E-01
Co-58	12.92 %	2.37E-01
Co-60	7.52 %	1.38E-01
Ni-63	19.78%	3.63E-01
Cs-137	4.72%	8.67E-02

Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	2.42 %	4.44E-02
Fe-55	49.57 %	9.10E-01
Co-58	12.92 %	2.37E-01
Co-60	7.52 %	1.38E-01
Ni-63	19.78%	3.63E-01
Cs-137	4.72%	8.67E-02

c. Waste Stream; Irradiated Components

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	0.00E+00	0.00E+00	0.00E+00	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	0.00E+00	0.00E+00	0.00E+00	3.50E+01

Major Nuclides for Above Table: None

d. Waste Stream; Other Waste

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	0.00E+00	0.00E+00	0.00E+00	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	0.00E+00	0.00E+00	0.00E+00	3.50E+01

Major Nuclides for Above Table: None

e. Waste Stream; Sum of All 4 Categories
U/1 CVCS Bead Resin Seavan DAW, Dewatered Charcoal/Liquid Waste Processing Resin

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	2.33E+04	6.60E+02	1.40E+01	3.50E+01
B	2.80E+02	7.93E+00	3.23E+02	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	2.36E+04	6.68E+02	3.38E+02	3.50E+01

Major Nuclides for Above Table:

Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	1.10 %	1.54E-01
Fe-55	76.26 %	1.07E+01
Co-58	8.09 %	1.13E+00
Co-60	2.76 %	3.87E-01
Ni-63	9.08 %	1.27E+00

Sum of All 4 Categories		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
Fe-55	6.80 %	2.20E+01
Co-60	14.58 %	4.72E+01
Ni-59	1.39 %	4.50E+00
Ni-63	72.15 %	2.34E+02
Cs-137	3.55 %	1.15E+01

Sum of all 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Fe-55	9.67 %	3.27E+01
Co-60	14.09 %	4.76E+01
Ni-59	1.35 %	4.56E+00
Ni-63	69.54 %	2.35E+02
Cs-137	3.43 %	1.16E+01

Number of Shipments	Mode Of Transportation	Destination
7	Hittman Transport Services, Inc.	Barnwell Processing Facility, Barnwell, SC
10	R & R Trucking, Inc.	Studsvik Processing Facility, Memphis, Tennessee

TABLE 3B-1
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – JUNE 2012
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
SOLID RADWASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL
(Not Irradiated Fuel)

a. Waste Stream; Resins, Filters, and Evaporator Bottoms

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	2.28E+03	6.45E+01	4.00E+02	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	2.28E+03	6.45E+01	4.00E+02	3.50E+01

Major Nuclides for Above Table:

Resins, Filters and Evaporator Bottoms		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Mn-54	1.97 %	7.91E+00
Fe-55	79.36 %	3.18E+02
Co-60	14.60 %	5.85E+01
Ni-63	2.95 %	1.18E+01

Resins, Filters and Evaporator Bottoms		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Mn-54	1.97 %	7.91E+00
Fe-55	79.36 %	3.18E+02
Co-60	14.60 %	5.85E+01
Ni-63	2.95 %	1.18E+01

b. Waste Stream; Dry Active Waste
Seavan DAW

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	1.80E+04	5.10E+02	6.70E-01	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	1.80E+04	5.10E+02	6.70E-01	3.50E+01

Major Nuclides for Above Table:

Dry Active Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Mn-54	9.05 %	6.06E-02
Fe-55	44.96 %	3.01E-01
Co-60	43.03 %	2.88E-01

Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Mn-54	9.05 %	6.06E-02
Fe-55	44.96 %	3.01E-01
Co-60	43.03 %	2.88E-01

c. Waste Stream; Irradiated Components

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	0.00E+00	0.00E+00	0.00E+00	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	0.00E+00	0.00E+00	0.00E+00	3.50E+01

Major Nuclides for Above Table: None

d. Waste Stream; Other Waste

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	0.00E+00	0.00E+00	0.00E+00	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	0.00E+00	0.00E+00	0.00E+00	3.50E+01

Major Nuclides for Above Table: None

e. Waste Stream; Sum of All 4 Categories

Waste Class	Volume ft^3	Volume m^3	Curies Shipped	% Error (Ci)
A	2.03E+04	5.74E+02	4.01E+02	3.50E+01
B	0.00E+00	0.00E+00	0.00E+00	3.50E+01
C	0.00E+00	0.00E+00	0.00E+00	3.50E+01
All	2.03E+04	5.74E+02	4.01E+02	3.50E+01

Major Nuclides for Above Table:

Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
Mn-54	1.99 %	7.97E+00
Fe-55	79.31 %	3.18E+02
Co-60	14.65 %	5.88E+01
Ni-63	2.94 %	1.18E+01

Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
Mn-54	1.99 %	7.97E+00
Fe-55	79.31 %	3.18E+02
Co-60	14.65 %	5.88E+01
Ni-63	2.94 %	1.18E+01

Number of Shipments	Mode Of Transportation	Destination
17	Hittman Transport Services, Inc.	Barnwell Processing Facility, Barnwell, SC
8	R & R Trucking, Inc.	Studsvik Processing Facility, Memphis, Tennessee

TABLE 4A-1
SALEM GENERATING STATION - UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012 – June 30, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	234	
4.	Total time duration for all releases of type listed above:	1.87E+04	Min.
5.	Maximum duration for release of type listed above:	4.50E+02	Min.
6.	Average duration for release of type listed above:	8.01E+01	Min.
7.	Minimum duration for release of type listed above:	2.40E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – December 31, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	247	
4.	Total time duration for all releases of type listed above:	3.87E+04	Min.
5.	Maximum duration for release of type listed above:	4.85E+03	Min.
6.	Average duration for release of type listed above:	1.56E+02	Min.
7.	Minimum duration for release of type listed above:	1.20E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

TABLE 4A-2
SALEM GENERATING STATION - UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – DECEMBER 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012 – June 30, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	176	
4.	Total time duration for all releases of type listed above:	1.29E+04	Min.
5.	Maximum duration for release of type listed above:	1.30E+02	Min.
6.	Average duration for release of type listed above:	7.32E+01	Min.
7.	Minimum duration for release of type listed above:	7.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – December 31, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	169	
4.	Total time duration for all releases of type listed above:	1.32E+04	Min.
5.	Maximum duration for release of type listed above:	1.69E+02	Min.
6.	Average duration for release of type listed above:	7.79E+01	Min.
7.	Minimum duration for release of type listed above:	3.30E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

TABLE 4A-3
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – JUNE 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012 – June 30, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	5	
4.	Total time duration for all releases of type listed above:	3.72E+03	Min.
5.	Maximum duration for release of type listed above:	1.51E+03	Min.
6.	Average duration for release of type listed above:	7.45E+02	Min.
7.	Minimum duration for release of type listed above:	3.50E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – December 31, 2012	
2.	Type of release:	**Gaseous**	
3.	Number of releases:	0	
4.	Total time duration for all releases of type listed above:	0.00E+00	Min.
5.	Maximum duration for release of type listed above:	0.00E+00	Min.
6.	Average duration for release of type listed above:	0.00E+00	Min.
7.	Minimum duration for release of type listed above:	0.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	N/A	

TABLE 4B-1
SALEM GENERATING STATION - UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY - JUNE 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012 – March 31, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	11	
4.	Total time duration for all releases of type listed above:	2.57E+03	Min.
5.	Maximum duration for release of type listed above:	3.80E+02	Min.
6.	Average duration for release of type listed above:	2.33E+02	Min.
7.	Minimum duration for release of type listed above:	1.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	1.80E+06	GPM

BATCH RELEASES ONLY

1.	Dates:	April 1, 2012 – June 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	24	
4.	Total time duration for all releases of type listed above:	5.85E+03	Min.
5.	Maximum duration for release of type listed above:	5.79E+02	Min.
6.	Average duration for release of type listed above:	2.44E+02	Min.
7.	Minimum duration for release of type listed above:	1.00E+00E	Min.
8.	Average stream flow (dilution flow) during period of release:	1.87E+06	GPM

TABLE 4B-1 (continued)
SALEM GENERATING STATION - UNIT 1
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JULY – DECEMBER 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – September 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	16	
4.	Total time duration for all releases of type listed above:	5.25E+03	Min.
5.	Maximum duration for release of type listed above:	4.87E+02	Min.
6.	Average duration for release of type listed above:	3.28E+02	Min.
7.	Minimum duration for release of type listed above:	2.13E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	1.82E+06	GPM

BATCH RELEASES ONLY

1.	Dates:	October1, 2012 – December 31, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	15	
4.	Total time duration for all releases of type listed above:	4.30E+03	Min.
5.	Maximum duration for release of type listed above:	5.82E+03	Min.
6.	Average duration for release of type listed above:	2.86E+02	Min.
7.	Minimum duration for release of type listed above:	1.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	1.41E+06	GPM

TABLE 4B-2
SALEM GENERATING STATION - UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – JUNE 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012 – March 31, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	11	
4.	Total time duration for all releases of type listed above:	3.92E+03	Min.
5.	Maximum duration for release of type listed above:	6.81E+02	Min.
6.	Average duration for release of type listed above:	3.57E+02	Min.
7.	Minimum duration for release of type listed above:	1.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	8.93E+05	GPM

BATCH RELEASES ONLY

1.	Dates:	April 1, 2012 – June 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	13	
4.	Total time duration for all releases of type listed above:	4.37E+03	Min.
5.	Maximum duration for release of type listed above:	4.95E+02	Min.
6.	Average duration for release of type listed above:	3.36E+02	Min.
7.	Minimum duration for release of type listed above:	2.27E+02	Min.
8.	Average stream flow (dilution flow) during period of release:	9.08E+05	GPM

TABLE 4B-2 (continued)
SALEM GENERATING STATION - UNIT 2
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JULY – DECEMBER 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – September 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	12	
4.	Total time duration for all releases of type listed above:	4.71E+03	Min.
5.	Maximum duration for release of type listed above:	5.33E+02	Min.
6.	Average duration for release of type listed above:	3.92E+02	Min.
7.	Minimum duration for release of type listed above:	2.90E+02	Min.
8.	Average stream flow (dilution flow) during period of release:	1.82E+06	GPM

BATCH RELEASES ONLY

1.	Dates:	October 1, 2012 – December 31, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	36	
4.	Total time duration for all releases of type listed above:	1.44E+04	Min.
5.	Maximum duration for release of type listed above:	1.01E+03	Min.
6.	Average duration for release of type listed above:	4.01E+02	Min.
7.	Minimum duration for release of type listed above:	1.04E+02	Min.
8.	Average stream flow (dilution flow) during period of release:	1.41E+06	GPM

TABLE 4B-3
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JANUARY – JUNE 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	January 1, 2012– March 31, 2012	
2.	Type of release:	**Liquids**	
3.	Number of releases during quarter:	36	
4.	Total time duration for all releases of type listed above:	2.07E+03	Min.
5.	Maximum duration for release of type listed above:	8.30E+01	Min.
6.	Average duration for release of type listed above:	5.75E+01	Min.
7.	Minimum duration for release of type listed above:	2.70E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	2.59E+04	GPM

BATCH RELEASES ONLY

1.	Dates:	April 1, 2012 – June 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	66	
4.	Total time duration for all releases of type listed above:	3.67E+03	Min.
5.	Maximum duration for release of type listed above:	8.34E+01	Min.
6.	Average duration for release of type listed above:	5.57E+01	Min.
7.	Minimum duration for release of type listed above:	1.00E+00	Min.
8.	Average stream flow (dilution flow) during period of release:	3.48E+04	GPM

TABLE 4B-3 (continued)
HOPE CREEK GENERATING STATION
EFFLUENTS AND WASTE DISPOSAL ANNUAL REPORT
JULY – DECEMBER 2012
SUMMARY SHEET FOR RADIOACTIVE EFFLUENTS RELEASED
IN A BATCH MODE

BATCH RELEASES ONLY

1.	Dates:	July 1, 2012 – September 30, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	26	
4.	Total time duration for all releases of type listed above:	1.61E+03	Min.
5.	Maximum duration for release of type listed above:	8.21E+01	Min.
6.	Average duration for release of type listed above:	6.18E+01	Min.
7.	Minimum duration for release of type listed above:	1.80E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	3.95E+04	GPM

BATCH RELEASES ONLY

1.	Dates:	October 1, 2012 – December 31, 2012	
2.	Type of release:	**Liquid**	
3.	Number of releases during quarter:	23	
4.	Total time duration for all releases of type listed above:	1.50E+03	Min.
5.	Maximum duration for release of type listed above:	8.13E+01	Min.
6.	Average duration for release of type listed above:	6.53E+01	Min.
7.	Minimum duration for release of type listed above:	2.11E+01	Min.
8.	Average stream flow (dilution flow) during period of release:	2.67E+04	GPM

APPENDIX A

METEOROLOGICAL DATA

Lapse Rate
Wind Distributions
300 – 33 foot

1/2012 – 3/2012

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	1	3	3	0	0	0	7
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	0	1	0	0	0	0	0	1
56.25 - 78.75	ENE	0	0	0	0	0	1	0	0	0	0	0	1
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	2	0	0	0	0	0	2
123.75 - 146.25	SE	0	0	0	0	0	0	1	1	0	0	0	2
146.25 - 168.75	SSE	0	0	0	0	1	0	0	0	0	0	0	1
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	0	0
191.25 - 213.75	SSW	0	0	0	0	0	0	0	0	0	0	0	0
213.75 - 236.25	SW	0	0	0	0	0	2	1	0	0	0	0	3
236.25 - 258.75	WSW	0	0	0	0	0	0	3	2	0	0	0	5
258.75 - 281.25	W	0	0	0	0	0	0	1	2	2	0	0	5
281.25 - 303.75	WNW	0	0	0	0	0	1	0	1	0	0	0	2
303.75 - 326.25	NW	0	0	0	0	1	0	1	2	4	0	0	8
326.25 - 348.75	NNW	0	0	0	0	0	1	3	3	3	6	1	17

Total 54

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.140	0.000	0.000	0.000	0.33
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.05
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.05
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.09
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.09
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.05
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.14
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.094	0.000	0.000	0.000	0.23
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.094	0.094	0.000	0.000	0.23
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.047	0.000	0.000	0.000	0.09
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.047	0.000	0.047	0.094	0.187	0.000	0.000	0.37
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.140	0.140	0.281	0.047	0.80

Total 2.53

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	5	6	3	0	0	0	14
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	1	0	0	0	0	0	0	1
56.25 - 78.75	ENE	0	0	0	0	0	2	0	0	0	0	0	2
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	1	0	0	0	0	0	1
123.75 - 146.25	SE	0	0	0	0	0	1	3	2	1	0	0	7
146.25 - 168.75	SSE	0	0	0	0	0	1	0	2	0	0	0	3
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	0	0
191.25 - 213.75	SSW	0	0	0	0	1	1	0	0	0	0	0	2
213.75 - 236.25	SW	0	0	0	0	1	0	0	2	0	0	0	3
236.25 - 258.75	WSW	0	0	0	0	0	1	2	1	0	0	0	4
258.75 - 281.25	W	0	0	0	0	0	1	3	5	1	2	2	14
281.25 - 303.75	WNW	0	0	0	0	2	2	0	1	1	2	0	8
303.75 - 326.25	NW	0	0	0	0	0	5	7	2	3	2	0	19
326.25 - 348.75	NNW	0	0	0	0	0	1	3	3	2	0	0	9

Total 87

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.234	0.281	0.140	0.000	0.000	0.000	0.66
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.05
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.09
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.05
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.094	0.047	0.000	0.000	0.33
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.094	0.000	0.000	0.000	0.14
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.09
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.094	0.000	0.000	0.000	0.14
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.047	0.094	0.047	0.000	0.000	0.000	0.19
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.234	0.047	0.094	0.094	0.66
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.094	0.094	0.000	0.047	0.047	0.094	0.000	0.37
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.234	0.328	0.094	0.140	0.094	0.000	0.89
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.140	0.094	0.000	0.000	0.42

Total 4.07

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	3	2	5	2	0	0	0	12
11.25 - 33.75	NNE	0	0	0	0	3	1	0	1	0	0	0	5
33.75 - 56.25	NE	0	0	0	0	3	1	1	0	0	0	0	5
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	1	0	0	0	0	0	0	1
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	2	0	0	0	1	0	0	3
146.25 - 168.75	SSE	0	0	0	0	3	0	0	0	1	0	0	4
168.75 - 191.25	S	0	0	0	0	0	0	0	1	1	0	0	2
191.25 - 213.75	SSW	0	0	1	0	3	0	0	0	0	0	0	4
213.75 - 236.25	SW	0	0	0	0	1	2	2	0	0	0	0	5
236.25 - 258.75	WSW	0	0	0	0	1	5	3	1	0	1	0	11
258.75 - 281.25	W	0	0	0	0	0	1	3	3	0	1	4	12
281.25 - 303.75	WNW	0	0	0	1	1	3	5	1	2	2	0	15
303.75 - 326.25	NW	0	0	0	1	2	3	8	0	3	2	0	19
326.25 - 348.75	NNW	0	0	0	0	2	7	2	4	3	2	0	20

Total 118

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.140	0.094	0.234	0.094	0.000	0.000	0.000	0.56
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.140	0.047	0.000	0.047	0.000	0.000	0.000	0.23
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.140	0.047	0.047	0.000	0.000	0.000	0.000	0.23
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.05
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.047	0.000	0.000	0.14
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.140	0.000	0.000	0.000	0.047	0.000	0.000	0.19
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.047	0.000	0.000	0.09
191.25 - 213.75	SSW	0.000	0.000	0.047	0.000	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.19
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.047	0.094	0.094	0.000	0.000	0.000	0.000	0.23
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.047	0.234	0.140	0.047	0.000	0.047	0.000	0.51
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.047	0.140	0.140	0.000	0.047	0.187	0.56
281.25 - 303.75	WNW	0.000	0.000	0.000	0.047	0.047	0.140	0.234	0.047	0.094	0.094	0.000	0.70
303.75 - 326.25	NW	0.000	0.000	0.000	0.047	0.094	0.140	0.374	0.000	0.140	0.094	0.000	0.89
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.094	0.328	0.094	0.187	0.140	0.094	0.000	0.94

Total 5.52

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	1	7	11	8	4	7	1	0	0	39
11.25 - 33.75	NNE	0	0	1	3	8	11	13	1	1	0	0	38
33.75 - 56.25	NE	0	2	0	3	16	20	8	0	0	0	0	49
56.25 - 78.75	ENE	0	0	4	4	14	7	2	1	0	0	0	32
78.75 - 101.25	E	0	1	5	4	11	6	1	0	0	0	0	28
101.25 - 123.75	ESE	0	0	4	2	6	4	5	3	0	0	0	24
123.75 - 146.25	SE	0	0	1	4	5	6	7	6	11	2	0	42
146.25 - 168.75	SSE	0	0	3	0	11	5	3	3	9	2	1	37
168.75 - 191.25	S	0	0	5	3	9	1	6	14	9	0	0	47
191.25 - 213.75	SSW	0	0	0	4	3	11	8	8	1	0	0	35
213.75 - 236.25	SW	0	0	2	5	10	5	1	5	1	0	0	29
236.25 - 258.75	WSW	0	0	1	3	9	18	8	4	1	0	0	44
258.75 - 281.25	W	0	0	0	2	7	15	20	29	23	9	1	106
281.25 - 303.75	WNW	0	1	0	3	11	7	11	9	8	6	4	60
303.75 - 326.25	NW	0	1	0	3	10	11	20	15	15	3	0	78
326.25 - 348.75	NNW	0	0	0	3	6	9	9	8	9	7	0	51

Total 739

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.047	0.328	0.515	0.374	0.187	0.328	0.047	0.000	0.000	1.82
11.25 - 33.75	NNE	0.000	0.000	0.047	0.140	0.374	0.515	0.608	0.047	0.047	0.000	0.000	1.78
33.75 - 56.25	NE	0.000	0.094	0.000	0.140	0.749	0.936	0.374	0.000	0.000	0.000	0.000	2.29
56.25 - 78.75	ENE	0.000	0.000	0.187	0.187	0.655	0.328	0.094	0.047	0.000	0.000	0.000	1.50
78.75 - 101.25	E	0.000	0.047	0.234	0.187	0.515	0.281	0.047	0.000	0.000	0.000	0.000	1.31
101.25 - 123.75	ESE	0.000	0.000	0.187	0.094	0.281	0.187	0.234	0.140	0.000	0.000	0.000	1.12
123.75 - 146.25	SE	0.000	0.000	0.047	0.187	0.234	0.281	0.328	0.281	0.515	0.094	0.000	1.97
146.25 - 168.75	SSE	0.000	0.000	0.140	0.000	0.515	0.234	0.140	0.140	0.421	0.094	0.047	1.73
168.75 - 191.25	S	0.000	0.000	0.234	0.140	0.421	0.047	0.281	0.655	0.421	0.000	0.000	2.20
191.25 - 213.75	SSW	0.000	0.000	0.000	0.187	0.140	0.515	0.374	0.374	0.047	0.000	0.000	1.64
213.75 - 236.25	SW	0.000	0.000	0.094	0.234	0.468	0.234	0.047	0.234	0.047	0.000	0.000	1.36
236.25 - 258.75	WSW	0.000	0.000	0.047	0.140	0.421	0.842	0.374	0.187	0.047	0.000	0.000	2.06
258.75 - 281.25	W	0.000	0.000	0.000	0.094	0.328	0.702	0.936	1.357	1.076	0.421	0.047	4.96
281.25 - 303.75	WNW	0.000	0.047	0.000	0.140	0.515	0.328	0.515	0.421	0.374	0.281	0.187	2.81
303.75 - 326.25	NW	0.000	0.047	0.000	0.140	0.468	0.515	0.936	0.702	0.702	0.140	0.000	3.65
326.25 - 348.75	NNW	0.000	0.000	0.000	0.140	0.281	0.421	0.421	0.374	0.421	0.328	0.000	2.39

Total 34.58

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	2	2	7	24	9	1	0	2	0	0	47
11.25 - 33.75	NNE	0	3	4	6	18	6	0	0	1	0	0	38
33.75 - 56.25	NE	0	0	3	3	20	1	0	1	0	0	0	28
56.25 - 78.75	ENE	0	1	2	1	6	1	0	0	0	0	0	11
78.75 - 101.25	E	0	1	4	2	8	5	4	0	0	0	0	24
101.25 - 123.75	ESE	0	0	3	2	7	1	0	0	0	0	0	13
123.75 - 146.25	SE	0	1	4	5	11	18	16	8	5	0	0	68
146.25 - 168.75	SSE	0	2	6	10	11	15	8	4	1	0	0	57
168.75 - 191.25	S	0	3	8	5	19	12	4	3	2	1	0	57
191.25 - 213.75	SSW	0	3	0	5	14	25	23	11	13	4	0	98
213.75 - 236.25	SW	0	1	3	7	12	15	7	7	6	6	0	64
236.25 - 258.75	WSW	0	1	3	4	18	14	9	4	2	0	0	55
258.75 - 281.25	W	0	2	4	5	10	2	8	2	1	0	0	34
281.25 - 303.75	WNW	0	2	4	2	5	15	5	7	8	5	0	53
303.75 - 326.25	NW	0	3	0	10	9	31	10	15	4	0	0	82
326.25 - 348.75	NNW	0	2	1	3	20	14	16	9	3	0	0	68

Total 797

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.094	0.094	0.328	1.123	0.421	0.047	0.000	0.094	0.000	0.000	2.20
11.25 - 33.75	NNE	0.000	0.140	0.187	0.281	0.842	0.281	0.000	0.000	0.047	0.000	0.000	1.78
33.75 - 56.25	NE	0.000	0.000	0.140	0.140	0.936	0.047	0.000	0.047	0.000	0.000	0.000	1.31
56.25 - 78.75	ENE	0.000	0.047	0.094	0.047	0.281	0.047	0.000	0.000	0.000	0.000	0.000	0.51
78.75 - 101.25	E	0.000	0.047	0.187	0.094	0.374	0.234	0.187	0.000	0.000	0.000	0.000	1.12
101.25 - 123.75	ESE	0.000	0.000	0.140	0.094	0.328	0.047	0.000	0.000	0.000	0.000	0.000	0.61
123.75 - 146.25	SE	0.000	0.047	0.187	0.234	0.515	0.842	0.749	0.374	0.234	0.000	0.000	3.18
146.25 - 168.75	SSE	0.000	0.094	0.281	0.468	0.515	0.702	0.374	0.187	0.047	0.000	0.000	2.67
168.75 - 191.25	S	0.000	0.140	0.374	0.234	0.889	0.562	0.187	0.140	0.094	0.047	0.000	2.67
191.25 - 213.75	SSW	0.000	0.140	0.000	0.234	0.655	1.170	1.076	0.515	0.608	0.187	0.000	4.59
213.75 - 236.25	SW	0.000	0.047	0.140	0.328	0.562	0.702	0.328	0.328	0.281	0.281	0.000	2.99
236.25 - 258.75	WSW	0.000	0.047	0.140	0.187	0.842	0.655	0.421	0.187	0.094	0.000	0.000	2.57
258.75 - 281.25	W	0.000	0.094	0.187	0.234	0.468	0.094	0.374	0.094	0.047	0.000	0.000	1.59
281.25 - 303.75	WNW	0.000	0.094	0.187	0.094	0.234	0.702	0.234	0.328	0.374	0.234	0.000	2.48
303.75 - 326.25	NW	0.000	0.140	0.000	0.468	0.421	1.451	0.468	0.702	0.187	0.000	0.000	3.84
326.25 - 348.75	NNW	0.000	0.094	0.047	0.140	0.936	0.655	0.749	0.421	0.140	0.000	0.000	3.18

Total 37.30

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	1	1	5	2	0	0	0	0	0	9
11.25 - 33.75	NNE	0	0	0	1	10	1	0	0	0	0	0	12
33.75 - 56.25	NE	0	1	1	1	2	0	0	0	0	0	0	5
56.25 - 78.75	ENE	0	3	4	1	2	1	0	0	0	0	0	11
78.75 - 101.25	E	0	4	4	4	0	0	0	0	0	0	0	12
101.25 - 123.75	ESE	0	3	3	6	4	0	0	0	0	0	0	16
123.75 - 146.25	SE	0	1	5	4	5	11	4	7	4	0	0	41
146.25 - 168.75	SSE	0	1	0	2	11	7	10	3	0	0	0	34
168.75 - 191.25	S	0	0	1	2	1	2	1	2	3	2	0	14
191.25 - 213.75	SSW	0	0	2	3	1	3	3	1	2	0	0	15
213.75 - 236.25	SW	0	0	2	4	7	5	5	3	0	0	0	26
236.25 - 258.75	WSW	0	0	2	1	7	4	2	0	0	0	0	16
258.75 - 281.25	W	0	2	3	1	3	2	1	0	0	0	0	12
281.25 - 303.75	WNW	0	2	1	1	3	1	0	0	0	0	0	8
303.75 - 326.25	NW	0	4	1	1	3	3	0	0	0	0	0	12
326.25 - 348.75	NNW	0	2	1	0	8	2	0	0	0	0	0	13

Total 256

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.047	0.047	0.234	0.094	0.000	0.000	0.000	0.000	0.000	0.42
11.25 - 33.75	NNE	0.000	0.000	0.000	0.047	0.468	0.047	0.000	0.000	0.000	0.000	0.000	0.56
33.75 - 56.25	NE	0.000	0.047	0.047	0.047	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.23
56.25 - 78.75	ENE	0.000	0.140	0.187	0.047	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.51
78.75 - 101.25	E	0.000	0.187	0.187	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.56
101.25 - 123.75	ESE	0.000	0.140	0.140	0.281	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.75
123.75 - 146.25	SE	0.000	0.047	0.234	0.187	0.234	0.515	0.187	0.328	0.187	0.000	0.000	1.92
146.25 - 168.75	SSE	0.000	0.047	0.000	0.094	0.515	0.328	0.468	0.140	0.000	0.000	0.000	1.59
168.75 - 191.25	S	0.000	0.000	0.047	0.094	0.047	0.094	0.047	0.094	0.140	0.094	0.000	0.66
191.25 - 213.75	SSW	0.000	0.000	0.094	0.140	0.047	0.140	0.140	0.047	0.094	0.000	0.000	0.70
213.75 - 236.25	SW	0.000	0.000	0.094	0.187	0.328	0.234	0.234	0.140	0.000	0.000	0.000	1.22
236.25 - 258.75	WSW	0.000	0.000	0.094	0.047	0.328	0.187	0.094	0.000	0.000	0.000	0.000	0.75
258.75 - 281.25	W	0.000	0.094	0.140	0.047	0.140	0.094	0.047	0.000	0.000	0.000	0.000	0.56
281.25 - 303.75	WNW	0.000	0.094	0.047	0.047	0.140	0.047	0.000	0.000	0.000	0.000	0.000	0.37
303.75 - 326.25	NW	0.000	0.187	0.047	0.047	0.140	0.140	0.000	0.000	0.000	0.000	0.000	0.56
326.25 - 348.75	NNW	0.000	0.094	0.047	0.000	0.374	0.094	0.000	0.000	0.000	0.000	0.000	0.61

Total 11.98

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	1	0	2	3	0	0	0	0	0	0	6
56.25 - 78.75	ENE	0	0	2	2	1	0	0	0	0	0	0	5
78.75 - 101.25	E	0	0	2	1	0	0	0	0	0	0	0	3
101.25 - 123.75	ESE	0	0	2	1	0	1	0	0	0	0	0	4
123.75 - 146.25	SE	0	1	2	1	7	5	11	5	1	0	0	33
146.25 - 168.75	SSE	0	0	2	3	3	2	1	1	1	0	0	13
168.75 - 191.25	S	0	0	2	0	2	1	0	0	0	0	0	5
191.25 - 213.75	SSW	0	0	1	1	1	0	1	0	0	0	0	4
213.75 - 236.25	SW	0	0	0	1	2	0	0	0	0	0	0	3
236.25 - 258.75	WSW	0	2	0	0	2	1	0	0	0	0	0	5
258.75 - 281.25	W	0	0	0	0	0	0	0	0	0	0	0	0
281.25 - 303.75	WNW	0	0	0	0	2	0	0	0	0	0	0	2
303.75 - 326.25	NW	0	0	1	0	1	0	0	0	0	0	0	2
326.25 - 348.75	NNW	0	0	1	0	0	0	0	0	0	0	0	1

Total 86

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.047	0.000	0.094	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.28
56.25 - 78.75	ENE	0.000	0.000	0.094	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.23
78.75 - 101.25	E	0.000	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.14
101.25 - 123.75	ESE	0.000	0.000	0.094	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.19
123.75 - 146.25	SE	0.000	0.047	0.094	0.047	0.328	0.234	0.515	0.234	0.047	0.000	0.000	1.54
146.25 - 168.75	SSE	0.000	0.000	0.094	0.140	0.140	0.094	0.047	0.047	0.047	0.000	0.000	0.61
168.75 - 191.25	S	0.000	0.000	0.094	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.23
191.25 - 213.75	SSW	0.000	0.000	0.047	0.047	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.19
213.75 - 236.25	SW	0.000	0.000	0.000	0.047	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.14
236.25 - 258.75	WSW	0.000	0.094	0.000	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.23
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.09
303.75 - 326.25	NW	0.000	0.000	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.09
326.25 - 348.75	NNW	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.05

Total 4.02

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	2	4	15	43	27	19	15	3	0	0	128
11.25 - 33.75	NNE	0	3	5	10	39	19	13	2	2	0	0	93
33.75 - 56.25	NE	0	4	4	9	45	23	9	1	0	0	0	95
56.25 - 78.75	ENE	0	4	12	8	23	12	2	1	0	0	0	62
78.75 - 101.25	E	0	6	15	11	20	11	5	0	0	0	0	68
101.25 - 123.75	ESE	0	3	12	11	17	9	5	3	0	0	0	60
123.75 - 146.25	SE	0	3	12	14	30	41	42	29	23	2	0	196
146.25 - 168.75	SSE	0	3	11	15	40	30	22	13	12	2	1	149
168.75 - 191.25	S	0	3	16	10	31	16	11	20	15	3	0	125
191.25 - 213.75	SSW	0	3	4	13	23	40	35	20	16	4	0	158
213.75 - 236.25	SW	0	1	7	17	33	29	16	17	7	6	0	133
236.25 - 258.75	WSW	0	3	6	8	37	43	27	12	3	1	0	140
258.75 - 281.25	W	0	4	7	8	20	21	36	41	27	12	7	183
281.25 - 303.75	WNW	0	5	5	7	24	29	21	19	19	15	4	148
303.75 - 326.25	NW	0	8	2	15	26	53	46	34	29	7	0	220
326.25 - 348.75	NNW	0	4	3	6	36	34	33	27	20	15	1	179

Total 2,137

MISSING HOURS: 47
JOINT DATA RECOVERY:
97.8%

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JANUARY - MARCH 2012 (Q1)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.094	0.187	0.702	2.012	1.263	0.889	0.702	0.140	0.000	0.000	5.99
11.25 - 33.75	NNE	0.000	0.140	0.234	0.468	1.825	0.889	0.608	0.094	0.094	0.000	0.000	4.35
33.75 - 56.25	NE	0.000	0.187	0.187	0.421	2.106	1.076	0.421	0.047	0.000	0.000	0.000	4.45
56.25 - 78.75	ENE	0.000	0.187	0.562	0.374	1.076	0.562	0.094	0.047	0.000	0.000	0.000	2.90
78.75 - 101.25	E	0.000	0.281	0.702	0.515	0.936	0.515	0.234	0.000	0.000	0.000	0.000	3.18
101.25 - 123.75	ESE	0.000	0.140	0.562	0.515	0.796	0.421	0.234	0.140	0.000	0.000	0.000	2.81
123.75 - 146.25	SE	0.000	0.140	0.562	0.655	1.404	1.919	1.965	1.357	1.076	0.094	0.000	9.17
146.25 - 168.75	SSE	0.000	0.140	0.515	0.702	1.872	1.404	1.029	0.608	0.562	0.094	0.047	6.97
168.75 - 191.25	S	0.000	0.140	0.749	0.468	1.451	0.749	0.515	0.936	0.702	0.140	0.000	5.85
191.25 - 213.75	SSW	0.000	0.140	0.187	0.608	1.076	1.872	1.638	0.936	0.749	0.187	0.000	7.39
213.75 - 236.25	SW	0.000	0.047	0.328	0.796	1.544	1.357	0.749	0.796	0.328	0.281	0.000	6.22
236.25 - 258.75	WSW	0.000	0.140	0.281	0.374	1.731	2.012	1.263	0.562	0.140	0.047	0.000	6.55
258.75 - 281.25	W	0.000	0.187	0.328	0.374	0.936	0.983	1.685	1.919	1.263	0.562	0.328	8.56
281.25 - 303.75	WNW	0.000	0.234	0.234	0.328	1.123	1.357	0.983	0.889	0.889	0.702	0.187	6.93
303.75 - 326.25	NW	0.000	0.374	0.094	0.702	1.217	2.480	2.153	1.591	1.357	0.328	0.000	10.29
326.25 - 348.75	NNW	0.000	0.187	0.140	0.281	1.685	1.591	1.544	1.263	0.936	0.702	0.047	8.38

Total 100.00

MISSING HOURS: 47
JOINT DATA RECOVERY:
97.8%

Lapse Rate
Wind Distributions
300 – 33 foot

4/2012 – 6/2012

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	2	7	3	3	2	0	17
11.25 - 33.75	NNE	0	0	0	0	0	1	1	1	0	0	0	3
33.75 - 56.25	NE	0	0	0	0	0	3	5	1	0	0	0	9
56.25 - 78.75	ENE	0	0	0	0	0	2	1	3	0	0	0	6
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	1	0	0	0	1
123.75 - 146.25	SE	0	0	0	0	0	1	1	1	0	0	0	3
146.25 - 168.75	SSE	0	0	0	0	1	3	2	3	3	0	0	12
168.75 - 191.25	S	0	0	0	0	0	1	0	0	0	0	0	1
191.25 - 213.75	SSW	0	0	0	0	0	1	0	0	0	0	0	1
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	3	0	0	3
236.25 - 258.75	WSW	0	0	0	0	0	0	3	2	0	0	0	5
258.75 - 281.25	W	0	0	0	0	0	0	0	0	13	1	0	14
281.25 - 303.75	WNW	0	0	0	0	0	1	6	2	5	0	0	14
303.75 - 326.25	NW	0	0	0	0	0	0	6	6	14	0	0	26
326.25 - 348.75	NNW	0	0	0	0	0	2	4	14	1	0	0	21

Total 136

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.093	0.324	0.139	0.139	0.093	0.000	0.79
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.046	0.046	0.046	0.000	0.000	0.000	0.14
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.139	0.232	0.046	0.000	0.000	0.000	0.42
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.093	0.046	0.139	0.000	0.000	0.000	0.28
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.05
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.046	0.046	0.046	0.000	0.000	0.000	0.14
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.046	0.139	0.093	0.139	0.139	0.000	0.000	0.56
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.05
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.05
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.139	0.000	0.000	0.14
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.139	0.093	0.000	0.000	0.000	0.23
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.602	0.046	0.000	0.65
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.046	0.278	0.093	0.232	0.000	0.000	0.65
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.278	0.278	0.648	0.000	0.000	1.20
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.093	0.185	0.648	0.046	0.000	0.000	0.97

Total 6.30

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	3	0	0	0	1	0	4
11.25 - 33.75	NNE	0	0	0	0	0	0	1	1	0	0	0	2
33.75 - 56.25	NE	0	0	0	0	0	6	2	0	0	0	0	8
56.25 - 78.75	ENE	0	0	0	0	1	2	1	0	0	0	0	4
78.75 - 101.25	E	0	0	0	0	0	1	1	0	0	0	0	2
101.25 - 123.75	ESE	0	0	0	0	0	0	2	0	0	0	0	2
123.75 - 146.25	SE	0	0	0	0	0	2	2	1	3	0	0	8
146.25 - 168.75	SSE	0	0	0	0	1	5	1	1	1	0	0	9
168.75 - 191.25	S	0	0	0	0	0	1	0	0	0	0	0	1
191.25 - 213.75	SSW	0	0	0	0	0	0	0	0	0	0	0	0
213.75 - 236.25	SW	0	0	0	0	1	0	0	2	1	0	0	4
236.25 - 258.75	WSW	0	0	0	0	2	0	0	1	0	0	0	3
258.75 - 281.25	W	0	0	0	0	2	1	1	3	1	0	0	8
281.25 - 303.75	WNW	0	0	0	0	1	0	3	3	0	0	0	7
303.75 - 326.25	NW	0	0	0	0	0	0	6	5	6	0	0	17
326.25 - 348.75	NNW	0	0	0	0	1	4	5	3	2	0	0	15

Total 94

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.139	0.000	0.000	0.000	0.046	0.000	0.19
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.09
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.278	0.093	0.000	0.000	0.000	0.000	0.37
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.046	0.093	0.046	0.000	0.000	0.000	0.000	0.19
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.09
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.093	0.000	0.000	0.000	0.000	0.09
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.093	0.093	0.046	0.139	0.000	0.000	0.37
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.046	0.232	0.046	0.046	0.046	0.000	0.000	0.42
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.05
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.093	0.046	0.000	0.000	0.19
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.093	0.000	0.000	0.046	0.000	0.000	0.000	0.14
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.093	0.046	0.046	0.139	0.046	0.000	0.000	0.37
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.046	0.000	0.139	0.139	0.000	0.000	0.000	0.32
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.278	0.232	0.278	0.000	0.000	0.79
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.046	0.185	0.232	0.139	0.093	0.000	0.000	0.69

Total 4.35

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	2	3	1	1	2	0	0	9
11.25 - 33.75	NNE	0	0	0	0	0	8	3	1	0	0	0	12
33.75 - 56.25	NE	0	0	0	0	1	5	2	1	0	0	0	9
56.25 - 78.75	ENE	0	0	0	0	4	1	0	0	0	0	0	5
78.75 - 101.25	E	0	0	0	0	1	2	0	0	0	0	0	3
101.25 - 123.75	ESE	0	0	0	0	1	0	1	0	0	0	0	2
123.75 - 146.25	SE	0	0	0	0	1	2	2	2	2	1	0	10
146.25 - 168.75	SSE	0	0	0	1	5	3	2	2	4	0	0	17
168.75 - 191.25	S	0	0	0	0	5	0	0	1	1	0	0	7
191.25 - 213.75	SSW	0	0	0	0	2	1	0	0	0	0	0	3
213.75 - 236.25	SW	0	0	0	2	3	3	2	0	0	0	0	10
236.25 - 258.75	WSW	0	0	0	1	1	8	3	2	3	0	0	18
258.75 - 281.25	W	0	0	0	0	1	2	9	1	1	0	0	14
281.25 - 303.75	WNW	0	0	0	0	0	0	7	2	3	0	0	12
303.75 - 326.25	NW	0	0	0	0	0	2	3	7	6	0	0	18
326.25 - 348.75	NNW	0	0	0	0	4	3	3	3	2	0	0	15

Total 164

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.093	0.139	0.046	0.046	0.093	0.000	0.000	0.42
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.371	0.139	0.046	0.000	0.000	0.000	0.56
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.046	0.232	0.093	0.046	0.000	0.000	0.000	0.42
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.185	0.046	0.000	0.000	0.000	0.000	0.000	0.23
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.046	0.093	0.000	0.000	0.000	0.000	0.000	0.14
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.046	0.000	0.046	0.000	0.000	0.000	0.000	0.09
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.046	0.093	0.093	0.093	0.093	0.046	0.000	0.46
146.25 - 168.75	SSE	0.000	0.000	0.000	0.046	0.232	0.139	0.093	0.093	0.185	0.000	0.000	0.79
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.232	0.000	0.000	0.046	0.046	0.000	0.000	0.32
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.093	0.046	0.000	0.000	0.000	0.000	0.000	0.14
213.75 - 236.25	SW	0.000	0.000	0.000	0.093	0.139	0.139	0.093	0.000	0.000	0.000	0.000	0.46
236.25 - 258.75	WSW	0.000	0.000	0.000	0.046	0.046	0.371	0.139	0.093	0.139	0.000	0.000	0.83
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.046	0.093	0.417	0.046	0.046	0.000	0.000	0.65
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.324	0.093	0.139	0.000	0.000	0.56
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.093	0.139	0.324	0.278	0.000	0.000	0.83
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.185	0.139	0.139	0.139	0.093	0.000	0.000	0.69

Total 7.60

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	1	3	2	12	7	7	3	8	2	0	45
11.25 - 33.75	NNE	0	0	1	1	12	12	6	2	4	1	0	39
33.75 - 56.25	NE	0	3	1	2	9	10	8	0	0	0	0	33
56.25 - 78.75	ENE	0	2	3	6	17	15	1	2	0	0	0	46
78.75 - 101.25	E	0	2	10	9	13	6	0	0	0	0	0	40
101.25 - 123.75	ESE	0	0	2	4	9	2	2	1	0	1	0	21
123.75 - 146.25	SE	0	2	0	2	9	10	18	21	42	16	1	121
146.25 - 168.75	SSE	0	1	3	5	10	14	19	20	31	9	0	112
168.75 - 191.25	S	0	0	3	5	11	7	10	2	3	3	0	44
191.25 - 213.75	SSW	0	0	0	7	19	6	5	1	0	0	0	38
213.75 - 236.25	SW	0	1	3	9	10	7	6	5	0	0	0	41
236.25 - 258.75	WSW	0	0	2	8	10	5	13	8	2	0	0	48
258.75 - 281.25	W	0	1	2	2	12	12	12	10	2	0	0	53
281.25 - 303.75	WNW	0	0	3	5	12	7	9	1	4	1	0	42
303.75 - 326.25	NW	0	1	3	6	11	15	14	26	5	0	0	81
326.25 - 348.75	NNW	0	1	3	6	8	11	10	5	6	0	0	50

Total 854

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.046	0.139	0.093	0.556	0.324	0.324	0.139	0.371	0.093	0.000	2.08
11.25 - 33.75	NNE	0.000	0.000	0.046	0.046	0.556	0.556	0.278	0.093	0.185	0.046	0.000	1.81
33.75 - 56.25	NE	0.000	0.139	0.046	0.093	0.417	0.463	0.371	0.000	0.000	0.000	0.000	1.53
56.25 - 78.75	ENE	0.000	0.093	0.139	0.278	0.787	0.695	0.046	0.093	0.000	0.000	0.000	2.13
78.75 - 101.25	E	0.000	0.093	0.463	0.417	0.602	0.278	0.000	0.000	0.000	0.000	0.000	1.85
101.25 - 123.75	ESE	0.000	0.000	0.093	0.185	0.417	0.093	0.093	0.046	0.000	0.046	0.000	0.97
123.75 - 146.25	SE	0.000	0.093	0.000	0.093	0.417	0.463	0.834	0.973	1.945	0.741	0.046	5.60
146.25 - 168.75	SSE	0.000	0.046	0.139	0.232	0.463	0.648	0.880	0.926	1.436	0.417	0.000	5.19
168.75 - 191.25	S	0.000	0.000	0.139	0.232	0.509	0.324	0.463	0.093	0.139	0.139	0.000	2.04
191.25 - 213.75	SSW	0.000	0.000	0.000	0.324	0.880	0.278	0.232	0.046	0.000	0.000	0.000	1.76
213.75 - 236.25	SW	0.000	0.046	0.139	0.417	0.463	0.324	0.278	0.232	0.000	0.000	0.000	1.90
236.25 - 258.75	WSW	0.000	0.000	0.093	0.371	0.463	0.232	0.602	0.371	0.093	0.000	0.000	2.22
258.75 - 281.25	W	0.000	0.046	0.093	0.093	0.556	0.556	0.556	0.463	0.093	0.000	0.000	2.45
281.25 - 303.75	WNW	0.000	0.000	0.139	0.232	0.556	0.324	0.417	0.046	0.185	0.046	0.000	1.95
303.75 - 326.25	NW	0.000	0.046	0.139	0.278	0.509	0.695	0.648	1.204	0.232	0.000	0.000	3.75
326.25 - 348.75	NNW	0.000	0.046	0.139	0.278	0.371	0.509	0.463	0.232	0.278	0.000	0.000	2.32

Total 39.56

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	1	3	1	12	9	4	5	8	0	0	43
11.25 - 33.75	NNE	0	0	2	4	7	4	7	4	2	0	0	30
33.75 - 56.25	NE	0	0	4	7	9	2	3	0	0	0	0	25
56.25 - 78.75	ENE	0	7	5	4	3	1	1	0	0	0	0	21
78.75 - 101.25	E	0	3	8	4	3	0	0	0	0	0	0	18
101.25 - 123.75	ESE	0	2	4	4	15	7	0	0	0	0	0	32
123.75 - 146.25	SE	0	0	1	5	13	10	6	16	6	0	0	57
146.25 - 168.75	SSE	0	1	3	6	17	6	2	2	2	0	0	39
168.75 - 191.25	S	0	0	1	1	19	8	4	2	1	1	0	37
191.25 - 213.75	SSW	0	3	2	5	10	10	6	1	1	0	0	38
213.75 - 236.25	SW	0	0	2	4	14	13	4	1	0	0	0	38
236.25 - 258.75	WSW	0	0	1	6	18	13	6	0	0	0	0	44
258.75 - 281.25	W	0	0	2	4	18	11	6	0	1	0	1	43
281.25 - 303.75	WNW	0	0	2	8	24	13	2	1	1	0	0	51
303.75 - 326.25	NW	0	0	6	6	23	29	16	4	6	0	0	90
326.25 - 348.75	NNW	0	0	2	1	17	8	6	4	2	0	0	40

Total 646

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.046	0.139	0.046	0.556	0.417	0.185	0.232	0.371	0.000	0.000	1.99
11.25 - 33.75	NNE	0.000	0.000	0.093	0.185	0.324	0.185	0.324	0.185	0.093	0.000	0.000	1.39
33.75 - 56.25	NE	0.000	0.000	0.185	0.324	0.417	0.093	0.139	0.000	0.000	0.000	0.000	1.16
56.25 - 78.75	ENE	0.000	0.324	0.232	0.185	0.139	0.046	0.046	0.000	0.000	0.000	0.000	0.97
78.75 - 101.25	E	0.000	0.139	0.371	0.185	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.83
101.25 - 123.75	ESE	0.000	0.093	0.185	0.185	0.695	0.324	0.000	0.000	0.000	0.000	0.000	1.48
123.75 - 146.25	SE	0.000	0.000	0.046	0.232	0.602	0.463	0.278	0.741	0.278	0.000	0.000	2.64
146.25 - 168.75	SSE	0.000	0.046	0.139	0.278	0.787	0.278	0.093	0.093	0.093	0.000	0.000	1.81
168.75 - 191.25	S	0.000	0.000	0.046	0.046	0.880	0.371	0.185	0.093	0.046	0.046	0.000	1.71
191.25 - 213.75	SSW	0.000	0.139	0.093	0.232	0.463	0.463	0.278	0.046	0.046	0.000	0.000	1.76
213.75 - 236.25	SW	0.000	0.000	0.093	0.185	0.648	0.602	0.185	0.046	0.000	0.000	0.000	1.76
236.25 - 258.75	WSW	0.000	0.000	0.046	0.278	0.834	0.602	0.278	0.000	0.000	0.000	0.000	2.04
258.75 - 281.25	W	0.000	0.000	0.093	0.185	0.834	0.509	0.278	0.000	0.046	0.000	0.046	1.99
281.25 - 303.75	WNW	0.000	0.000	0.093	0.371	1.112	0.602	0.093	0.046	0.046	0.000	0.000	2.36
303.75 - 326.25	NW	0.000	0.000	0.278	0.278	1.065	1.343	0.741	0.185	0.278	0.000	0.000	4.17
326.25 - 348.75	NNW	0.000	0.000	0.093	0.046	0.787	0.371	0.278	0.185	0.093	0.000	0.000	1.85

Total 29.92

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	1	1	1	8	3	3	1	0	0	0	18
11.25 - 33.75	NNE	0	0	0	1	13	5	2	0	0	0	0	21
33.75 - 56.25	NE	0	0	0	0	10	1	0	0	0	0	0	11
56.25 - 78.75	ENE	0	1	2	3	2	1	0	0	0	0	0	9
78.75 - 101.25	E	0	0	1	1	0	0	0	0	0	0	0	2
101.25 - 123.75	ESE	0	0	0	0	5	1	0	0	0	0	0	6
123.75 - 146.25	SE	0	0	0	3	9	5	4	4	6	0	0	31
146.25 - 168.75	SSE	0	2	2	6	5	4	2	0	0	0	0	21
168.75 - 191.25	S	0	0	3	0	1	1	2	0	0	0	0	7
191.25 - 213.75	SSW	0	0	1	3	2	3	0	0	0	0	0	9
213.75 - 236.25	SW	0	0	0	4	11	5	1	0	0	0	0	21
236.25 - 258.75	WSW	0	0	3	1	18	11	0	0	0	0	0	33
258.75 - 281.25	W	0	0	1	0	4	0	1	0	0	0	0	6
281.25 - 303.75	WNW	0	0	1	6	4	1	0	0	0	0	0	12
303.75 - 326.25	NW	0	0	0	1	9	6	0	0	0	0	0	16
326.25 - 348.75	NNW	0	1	1	1	8	0	0	0	0	0	0	11

Total 234

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.046	0.046	0.046	0.371	0.139	0.139	0.046	0.000	0.000	0.000	0.83
11.25 - 33.75	NNE	0.000	0.000	0.000	0.046	0.602	0.232	0.093	0.000	0.000	0.000	0.000	0.97
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.463	0.046	0.000	0.000	0.000	0.000	0.000	0.51
56.25 - 78.75	ENE	0.000	0.046	0.093	0.139	0.093	0.046	0.000	0.000	0.000	0.000	0.000	0.42
78.75 - 101.25	E	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.09
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.232	0.046	0.000	0.000	0.000	0.000	0.000	0.28
123.75 - 146.25	SE	0.000	0.000	0.000	0.139	0.417	0.232	0.185	0.185	0.278	0.000	0.000	1.44
146.25 - 168.75	SSE	0.000	0.093	0.093	0.278	0.232	0.185	0.093	0.000	0.000	0.000	0.000	0.97
168.75 - 191.25	S	0.000	0.000	0.139	0.000	0.046	0.046	0.093	0.000	0.000	0.000	0.000	0.32
191.25 - 213.75	SSW	0.000	0.000	0.046	0.139	0.093	0.139	0.000	0.000	0.000	0.000	0.000	0.42
213.75 - 236.25	SW	0.000	0.000	0.000	0.185	0.509	0.232	0.046	0.000	0.000	0.000	0.000	0.97
236.25 - 258.75	WSW	0.000	0.000	0.139	0.046	0.834	0.509	0.000	0.000	0.000	0.000	0.000	1.53
258.75 - 281.25	W	0.000	0.000	0.046	0.000	0.185	0.000	0.046	0.000	0.000	0.000	0.000	0.28
281.25 - 303.75	WNW	0.000	0.000	0.046	0.278	0.185	0.046	0.000	0.000	0.000	0.000	0.000	0.56
303.75 - 326.25	NW	0.000	0.000	0.000	0.046	0.417	0.278	0.000	0.000	0.000	0.000	0.000	0.74
326.25 - 348.75	NNW	0.000	0.046	0.046	0.046	0.371	0.000	0.000	0.000	0.000	0.000	0.000	0.51

Total 10.84

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	1	0	0	0	0	0	1
33.75 - 56.25	NE	0	0	0	0	4	0	0	0	0	0	0	4
56.25 - 78.75	ENE	0	0	0	0	1	0	0	0	0	0	0	1
78.75 - 101.25	E	0	0	1	0	0	0	0	0	0	0	0	1
101.25 - 123.75	ESE	0	0	0	0	1	0	0	0	0	0	0	1
123.75 - 146.25	SE	0	0	0	1	8	0	0	1	2	0	0	12
146.25 - 168.75	SSE	0	0	0	0	1	2	0	0	0	0	0	3
168.75 - 191.25	S	0	0	0	0	1	3	1	0	0	0	0	5
191.25 - 213.75	SSW	0	0	0	0	0	0	1	0	0	0	0	1
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	0	1	0	0	0	0	0	0	1
258.75 - 281.25	W	0	0	0	0	0	0	0	0	0	0	0	0
281.25 - 303.75	WNW	0	0	0	0	0	0	0	0	0	0	0	0
303.75 - 326.25	NW	0	0	0	0	0	0	0	0	0	0	0	0
326.25 - 348.75	NNW	0	0	0	0	1	0	0	0	0	0	0	1

Total 31

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.05
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.19
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.05
78.75 - 101.25	E	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.05
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.05
123.75 - 146.25	SE	0.000	0.000	0.000	0.046	0.371	0.000	0.000	0.046	0.093	0.000	0.000	0.56
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.046	0.093	0.000	0.000	0.000	0.000	0.000	0.14
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.046	0.139	0.046	0.000	0.000	0.000	0.000	0.23
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.05
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.05
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.05

Total 1.44

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	3	7	4	34	27	22	13	21	5	0	136
11.25 - 33.75	NNE	0	0	3	6	32	31	20	9	6	1	0	108
33.75 - 56.25	NE	0	3	5	9	33	27	20	2	0	0	0	99
56.25 - 78.75	ENE	0	10	10	13	28	22	4	5	0	0	0	92
78.75 - 101.25	E	0	5	20	14	17	9	1	0	0	0	0	66
101.25 - 123.75	ESE	0	2	6	8	31	10	5	2	0	1	0	65
123.75 - 146.25	SE	0	2	1	11	40	30	33	46	61	17	1	242
146.25 - 168.75	SSE	0	4	8	18	40	37	28	28	41	9	0	213
168.75 - 191.25	S	0	0	7	6	37	21	17	5	5	4	0	102
191.25 - 213.75	SSW	0	3	3	15	33	21	12	2	1	0	0	90
213.75 - 236.25	SW	0	1	5	19	39	28	13	8	4	0	0	117
236.25 - 258.75	WSW	0	0	6	16	50	37	25	13	5	0	0	152
258.75 - 281.25	W	0	1	5	6	37	26	29	14	18	1	1	138
281.25 - 303.75	WNW	0	0	6	19	41	22	27	9	13	1	0	138
303.75 - 326.25	NW	0	1	9	13	43	52	45	48	37	0	0	248
326.25 - 348.75	NNW	0	2	6	8	39	28	28	29	13	0	0	153

Total 2,159

MISSING HOURS: 25
JOINT DATA RECOVERY:
98.9%

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

APRIL - JUNE 2012 (Q2)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.139	0.324	0.185	1.575	1.251	1.019	0.602	0.973	0.232	0.000	6.30
11.25 - 33.75	NNE	0.000	0.000	0.139	0.278	1.482	1.436	0.926	0.417	0.278	0.046	0.000	5.00
33.75 - 56.25	NE	0.000	0.139	0.232	0.417	1.528	1.251	0.926	0.093	0.000	0.000	0.000	4.59
56.25 - 78.75	ENE	0.000	0.463	0.463	0.602	1.297	1.019	0.185	0.232	0.000	0.000	0.000	4.26
78.75 - 101.25	E	0.000	0.232	0.926	0.648	0.787	0.417	0.046	0.000	0.000	0.000	0.000	3.06
101.25 - 123.75	ESE	0.000	0.093	0.278	0.371	1.436	0.463	0.232	0.093	0.000	0.046	0.000	3.01
123.75 - 146.25	SE	0.000	0.093	0.046	0.509	1.853	1.390	1.528	2.131	2.825	0.787	0.046	11.21
146.25 - 168.75	SSE	0.000	0.185	0.371	0.834	1.853	1.714	1.297	1.297	1.899	0.417	0.000	9.87
168.75 - 191.25	S	0.000	0.000	0.324	0.278	1.714	0.973	0.787	0.232	0.232	0.185	0.000	4.72
191.25 - 213.75	SSW	0.000	0.139	0.139	0.695	1.528	0.973	0.556	0.093	0.046	0.000	0.000	4.17
213.75 - 236.25	SW	0.000	0.046	0.232	0.880	1.806	1.297	0.602	0.371	0.185	0.000	0.000	5.42
236.25 - 258.75	WSW	0.000	0.000	0.278	0.741	2.316	1.714	1.158	0.602	0.232	0.000	0.000	7.04
258.75 - 281.25	W	0.000	0.046	0.232	0.278	1.714	1.204	1.343	0.648	0.834	0.046	0.046	6.39
281.25 - 303.75	WNW	0.000	0.000	0.278	0.880	1.899	1.019	1.251	0.417	0.602	0.046	0.000	6.39
303.75 - 326.25	NW	0.000	0.046	0.417	0.602	1.992	2.409	2.084	2.223	1.714	0.000	0.000	11.49
326.25 - 348.75	NNW	0.000	0.093	0.278	0.371	1.806	1.297	1.297	1.343	0.602	0.000	0.000	7.09

Total 100.00

MISSING HOURS: 25
JOINT DATA RECOVERY:
98.9%

Lapse Rate
Wind Distributions
300 – 33 foot

7/2012 – 9/2012

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	0	0	0	0	0	0	0	0
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	1	1	1	0	0	0	3
146.25 - 168.75	SSE	0	0	0	0	1	1	0	0	0	0	0	2
168.75 - 191.25	S	0	0	0	0	0	1	0	0	0	0	0	1
191.25 - 213.75	SSW	0	0	0	0	0	0	2	0	0	0	0	2
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	0	0	0	0	0	0	0	0	0
258.75 - 281.25	W	0	0	0	0	0	1	1	0	0	0	0	2
281.25 - 303.75	WNW	0	0	0	0	0	3	0	0	0	0	0	3
303.75 - 326.25	NW	0	0	0	0	0	0	0	0	0	0	0	0
326.25 - 348.75	NNW	0	0	0	0	0	0	0	1	0	0	0	1

Total 14

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.045	0.000	0.000	0.000	0.14
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.09
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.05
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.09
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.09
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.136	0.000	0.000	0.000	0.000	0.000	0.14
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.05

Total 0.64

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	0	0	0	0	0	0	0	0
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	0	1	0	0	0	0	0	1
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	5	2	1	1	0	0	9
146.25 - 168.75	SSE	0	0	0	0	4	0	1	2	1	0	0	8
168.75 - 191.25	S	0	0	0	0	3	2	0	2	1	0	0	8
191.25 - 213.75	SSW	0	0	0	0	1	2	1	0	0	0	0	4
213.75 - 236.25	SW	0	0	0	0	0	1	1	1	0	0	0	3
236.25 - 258.75	WSW	0	0	0	0	0	0	1	0	0	0	0	1
258.75 - 281.25	W	0	0	0	0	0	0	1	1	0	0	0	2
281.25 - 303.75	WNW	0	0	0	0	1	0	3	0	0	0	0	4
303.75 - 326.25	NW	0	0	0	0	0	0	0	1	0	0	0	1
326.25 - 348.75	NNW	0	0	0	0	0	1	1	2	4	0	0	8

Total 49

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.05
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.227	0.091	0.045	0.045	0.000	0.000	0.41
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.182	0.000	0.045	0.091	0.045	0.000	0.000	0.36
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.136	0.091	0.000	0.091	0.045	0.000	0.000	0.36
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.045	0.091	0.045	0.000	0.000	0.000	0.000	0.18
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.045	0.000	0.000	0.000	0.14
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.05
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.09
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.045	0.000	0.136	0.000	0.000	0.000	0.000	0.18
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.05
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.091	0.182	0.000	0.000	0.36

Total 2.23

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	1	2	1	2	0	0	0	0	6
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	0	0	0	0	0	0	0	0
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	1	3	6	1	3	0	0	14
146.25 - 168.75	SSE	0	0	0	1	5	1	2	4	0	1	0	14
168.75 - 191.25	S	0	0	0	2	5	2	1	1	0	0	0	11
191.25 - 213.75	SSW	0	0	0	0	3	4	4	2	0	0	0	13
213.75 - 236.25	SW	0	0	0	1	1	2	6	1	0	0	0	11
236.25 - 258.75	WSW	0	0	0	0	1	4	4	0	0	0	0	9
258.75 - 281.25	W	0	0	0	0	1	5	2	2	0	0	0	10
281.25 - 303.75	WNW	0	0	0	1	1	2	1	0	0	0	0	5
303.75 - 326.25	NW	0	0	0	0	0	2	3	2	0	0	0	7
326.25 - 348.75	NNW	0	0	0	1	6	2	3	3	1	0	0	16

Total 116

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.045	0.091	0.045	0.091	0.000	0.000	0.000	0.000	0.27
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.045	0.136	0.272	0.045	0.136	0.000	0.000	0.64
146.25 - 168.75	SSE	0.000	0.000	0.000	0.045	0.227	0.045	0.091	0.182	0.000	0.045	0.000	0.64
168.75 - 191.25	S	0.000	0.000	0.000	0.091	0.227	0.091	0.045	0.045	0.000	0.000	0.000	0.50
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.136	0.182	0.182	0.091	0.000	0.000	0.000	0.59
213.75 - 236.25	SW	0.000	0.000	0.000	0.045	0.045	0.091	0.272	0.045	0.000	0.000	0.000	0.50
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.045	0.182	0.182	0.000	0.000	0.000	0.000	0.41
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.045	0.227	0.091	0.091	0.000	0.000	0.000	0.45
281.25 - 303.75	WNW	0.000	0.000	0.000	0.045	0.045	0.091	0.045	0.000	0.000	0.000	0.000	0.23
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.091	0.136	0.091	0.000	0.000	0.000	0.32
326.25 - 348.75	NNW	0.000	0.000	0.000	0.045	0.272	0.091	0.136	0.136	0.045	0.000	0.000	0.73

Total 5.27

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	2	4	5	10	11	2	0	1	0	0	35
11.25 - 33.75	NNE	0	2	4	1	8	6	4	0	0	0	0	25
33.75 - 56.25	NE	0	1	1	3	13	11	6	10	1	0	0	46
56.25 - 78.75	ENE	0	1	0	6	15	6	0	0	0	0	0	28
78.75 - 101.25	E	0	0	5	8	12	6	1	0	0	0	0	32
101.25 - 123.75	ESE	0	0	1	5	10	10	8	0	0	0	0	34
123.75 - 146.25	SE	0	1	6	2	9	17	29	22	20	0	0	106
146.25 - 168.75	SSE	0	2	6	7	18	14	28	39	34	6	5	159
168.75 - 191.25	S	0	0	3	16	17	21	20	27	21	1	1	127
191.25 - 213.75	SSW	0	1	1	9	24	26	27	10	6	0	1	105
213.75 - 236.25	SW	0	0	0	5	25	24	18	3	4	0	0	79
236.25 - 258.75	WSW	0	0	0	6	15	25	7	0	2	0	0	55
258.75 - 281.25	W	0	0	2	5	12	16	15	5	0	0	0	55
281.25 - 303.75	WNW	0	3	2	5	12	17	3	1	0	0	0	43
303.75 - 326.25	NW	0	0	4	5	13	19	13	1	1	0	0	56
326.25 - 348.75	NNW	0	1	4	8	25	16	3	3	3	0	0	63

Total 1,048

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.091	0.182	0.227	0.454	0.500	0.091	0.000	0.045	0.000	0.000	1.59
11.25 - 33.75	NNE	0.000	0.091	0.182	0.045	0.363	0.272	0.182	0.000	0.000	0.000	0.000	1.14
33.75 - 56.25	NE	0.000	0.045	0.045	0.136	0.590	0.500	0.272	0.454	0.045	0.000	0.000	2.09
56.25 - 78.75	ENE	0.000	0.045	0.000	0.272	0.681	0.272	0.000	0.000	0.000	0.000	0.000	1.27
78.75 - 101.25	E	0.000	0.000	0.227	0.363	0.545	0.272	0.045	0.000	0.000	0.000	0.000	1.45
101.25 - 123.75	ESE	0.000	0.000	0.045	0.227	0.454	0.454	0.363	0.000	0.000	0.000	0.000	1.54
123.75 - 146.25	SE	0.000	0.045	0.272	0.091	0.409	0.772	1.317	0.999	0.908	0.000	0.000	4.81
146.25 - 168.75	SSE	0.000	0.091	0.272	0.318	0.817	0.636	1.272	1.771	1.544	0.272	0.227	7.22
168.75 - 191.25	S	0.000	0.000	0.136	0.727	0.772	0.954	0.908	1.226	0.954	0.045	0.045	5.77
191.25 - 213.75	SSW	0.000	0.045	0.045	0.409	1.090	1.181	1.226	0.454	0.272	0.000	0.045	4.77
213.75 - 236.25	SW	0.000	0.000	0.000	0.227	1.135	1.090	0.817	0.136	0.182	0.000	0.000	3.59
236.25 - 258.75	WSW	0.000	0.000	0.000	0.272	0.681	1.135	0.318	0.000	0.091	0.000	0.000	2.50
258.75 - 281.25	W	0.000	0.000	0.091	0.227	0.545	0.727	0.681	0.227	0.000	0.000	0.000	2.50
281.25 - 303.75	WNW	0.000	0.136	0.091	0.227	0.545	0.772	0.136	0.045	0.000	0.000	0.000	1.95
303.75 - 326.25	NW	0.000	0.000	0.182	0.227	0.590	0.863	0.590	0.045	0.045	0.000	0.000	2.54
326.25 - 348.75	NNW	0.000	0.045	0.182	0.363	1.135	0.727	0.136	0.136	0.136	0.000	0.000	2.86

Total 47.59

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	3	5	8	11	5	2	2	0	0	0	36
11.25 - 33.75	NNE	0	4	5	6	11	2	0	0	0	0	0	28
33.75 - 56.25	NE	0	5	8	8	19	5	0	0	0	0	0	45
56.25 - 78.75	ENE	0	5	12	10	7	0	0	0	0	0	0	34
78.75 - 101.25	E	0	4	8	9	18	1	0	0	0	0	0	40
101.25 - 123.75	ESE	0	2	3	7	22	13	2	0	1	0	0	50
123.75 - 146.25	SE	0	1	1	5	13	6	7	7	0	0	0	40
146.25 - 168.75	SSE	0	0	1	5	9	11	2	2	0	0	0	30
168.75 - 191.25	S	0	0	2	2	4	6	3	2	1	1	2	23
191.25 - 213.75	SSW	0	2	2	5	16	12	12	5	1	0	0	55
213.75 - 236.25	SW	0	2	4	6	24	30	9	0	0	0	0	75
236.25 - 258.75	WSW	0	0	2	9	22	8	0	0	0	0	0	41
258.75 - 281.25	W	0	1	3	11	14	7	3	0	1	0	0	40
281.25 - 303.75	WNW	0	3	10	13	25	9	2	0	0	0	0	62
303.75 - 326.25	NW	0	3	8	12	32	20	12	6	0	0	0	93
326.25 - 348.75	NNW	0	3	3	2	10	9	11	4	0	0	0	42

Total 734

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.136	0.227	0.363	0.500	0.227	0.091	0.091	0.000	0.000	0.000	1.63
11.25 - 33.75	NNE	0.000	0.182	0.227	0.272	0.500	0.091	0.000	0.000	0.000	0.000	0.000	1.27
33.75 - 56.25	NE	0.000	0.227	0.363	0.363	0.863	0.227	0.000	0.000	0.000	0.000	0.000	2.04
56.25 - 78.75	ENE	0.000	0.227	0.545	0.454	0.318	0.000	0.000	0.000	0.000	0.000	0.000	1.54
78.75 - 101.25	E	0.000	0.182	0.363	0.409	0.817	0.045	0.000	0.000	0.000	0.000	0.000	1.82
101.25 - 123.75	ESE	0.000	0.091	0.136	0.318	0.999	0.590	0.091	0.000	0.045	0.000	0.000	2.27
123.75 - 146.25	SE	0.000	0.045	0.045	0.227	0.590	0.272	0.318	0.318	0.000	0.000	0.000	1.82
146.25 - 168.75	SSE	0.000	0.000	0.045	0.227	0.409	0.500	0.091	0.091	0.000	0.000	0.000	1.36
168.75 - 191.25	S	0.000	0.000	0.091	0.091	0.182	0.272	0.136	0.091	0.045	0.045	0.091	1.04
191.25 - 213.75	SSW	0.000	0.091	0.091	0.227	0.727	0.545	0.545	0.227	0.045	0.000	0.000	2.50
213.75 - 236.25	SW	0.000	0.091	0.182	0.272	1.090	1.362	0.409	0.000	0.000	0.000	0.000	3.41
236.25 - 258.75	WSW	0.000	0.000	0.091	0.409	0.999	0.363	0.000	0.000	0.000	0.000	0.000	1.86
258.75 - 281.25	W	0.000	0.045	0.136	0.500	0.636	0.318	0.136	0.000	0.045	0.000	0.000	1.82
281.25 - 303.75	WNW	0.000	0.136	0.454	0.590	1.135	0.409	0.091	0.000	0.000	0.000	0.000	2.82
303.75 - 326.25	NW	0.000	0.136	0.363	0.545	1.453	0.908	0.545	0.272	0.000	0.000	0.000	4.22
326.25 - 348.75	NNW	0.000	0.136	0.136	0.091	0.454	0.409	0.500	0.182	0.000	0.000	0.000	1.91

Total 33.33

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	1	7	2	8	9	10	1	3	0	0	41
11.25 - 33.75	NNE	0	1	6	4	9	4	1	0	0	0	0	25
33.75 - 56.25	NE	0	4	5	13	27	0	0	0	0	0	0	49
56.25 - 78.75	ENE	0	2	2	10	5	0	0	0	0	0	0	19
78.75 - 101.25	E	0	1	4	4	4	0	0	0	0	0	0	13
101.25 - 123.75	ESE	0	0	1	1	3	2	0	0	0	0	0	7
123.75 - 146.25	SE	0	0	0	0	1	3	0	0	0	0	0	4
146.25 - 168.75	SSE	0	1	2	0	0	1	0	0	0	0	0	4
168.75 - 191.25	S	0	0	1	0	0	2	1	0	0	0	0	4
191.25 - 213.75	SSW	0	1	0	0	4	3	0	0	0	0	0	8
213.75 - 236.25	SW	0	1	1	0	5	3	0	0	0	0	0	10
236.25 - 258.75	WSW	0	1	0	1	4	4	1	0	0	0	0	11
258.75 - 281.25	W	0	0	1	1	4	1	0	0	0	0	0	7
281.25 - 303.75	WNW	0	1	3	1	1	1	0	0	0	0	0	7
303.75 - 326.25	NW	0	0	1	1	8	3	1	0	0	0	0	14
326.25 - 348.75	NNW	0	1	1	2	5	4	1	0	0	0	0	14

Total 237

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.045	0.318	0.091	0.363	0.409	0.454	0.045	0.136	0.000	0.000	1.86
11.25 - 33.75	NNE	0.000	0.045	0.272	0.182	0.409	0.182	0.045	0.000	0.000	0.000	0.000	1.14
33.75 - 56.25	NE	0.000	0.182	0.227	0.590	1.226	0.000	0.000	0.000	0.000	0.000	0.000	2.23
56.25 - 78.75	ENE	0.000	0.091	0.091	0.454	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.86
78.75 - 101.25	E	0.000	0.045	0.182	0.182	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.59
101.25 - 123.75	ESE	0.000	0.000	0.045	0.045	0.136	0.091	0.000	0.000	0.000	0.000	0.000	0.32
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.000	0.18
146.25 - 168.75	SSE	0.000	0.045	0.091	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.18
168.75 - 191.25	S	0.000	0.000	0.045	0.000	0.000	0.091	0.045	0.000	0.000	0.000	0.000	0.18
191.25 - 213.75	SSW	0.000	0.045	0.000	0.000	0.182	0.136	0.000	0.000	0.000	0.000	0.000	0.36
213.75 - 236.25	SW	0.000	0.045	0.045	0.000	0.227	0.136	0.000	0.000	0.000	0.000	0.000	0.45
236.25 - 258.75	WSW	0.000	0.045	0.000	0.045	0.182	0.182	0.045	0.000	0.000	0.000	0.000	0.50
258.75 - 281.25	W	0.000	0.000	0.045	0.045	0.182	0.045	0.000	0.000	0.000	0.000	0.000	0.32
281.25 - 303.75	WNW	0.000	0.045	0.136	0.045	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.32
303.75 - 326.25	NW	0.000	0.000	0.045	0.045	0.363	0.136	0.045	0.000	0.000	0.000	0.000	0.64
326.25 - 348.75	NNW	0.000	0.045	0.045	0.091	0.227	0.182	0.045	0.000	0.000	0.000	0.000	0.64

Total 10.76

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	1	0	0	0	0	0	0	1
33.75 - 56.25	NE	0	0	0	0	2	1	0	0	0	0	0	3
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	0	0	0	0	0	0	0
146.25 - 168.75	SSE	0	0	0	0	0	0	0	0	0	0	0	0
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	0	0
191.25 - 213.75	SSW	0	0	0	0	0	0	0	0	0	0	0	0
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	0	0	0	0	0	0	0	0	0
258.75 - 281.25	W	0	0	0	0	0	0	0	0	0	0	0	0
281.25 - 303.75	WNW	0	0	0	0	0	0	0	0	0	0	0	0
303.75 - 326.25	NW	0	0	0	0	0	0	0	0	0	0	0	0
326.25 - 348.75	NNW	0	0	0	0	0	0	0	0	0	0	0	0

Total 4

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.05
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.091	0.045	0.000	0.000	0.000	0.000	0.000	0.14
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00

Total 0.18

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	6	16	16	31	26	16	3	4	0	0	118
11.25 - 33.75	NNE	0	7	15	11	29	12	5	0	0	0	0	79
33.75 - 56.25	NE	0	10	14	24	61	17	6	10	1	0	0	143
56.25 - 78.75	ENE	0	8	14	26	27	6	0	0	0	0	0	81
78.75 - 101.25	E	0	5	17	21	34	8	1	0	0	0	0	86
101.25 - 123.75	ESE	0	2	5	13	35	25	10	0	1	0	0	91
123.75 - 146.25	SE	0	2	7	7	24	35	45	32	24	0	0	176
146.25 - 168.75	SSE	0	3	9	13	37	28	33	47	35	7	5	217
168.75 - 191.25	S	0	0	6	20	29	34	25	32	23	2	3	174
191.25 - 213.75	SSW	0	4	3	14	48	47	46	17	7	0	1	187
213.75 - 236.25	SW	0	3	5	12	55	60	34	5	4	0	0	178
236.25 - 258.75	WSW	0	1	2	16	42	41	13	0	2	0	0	117
258.75 - 281.25	W	0	1	6	17	31	30	22	8	1	0	0	116
281.25 - 303.75	WNW	0	7	15	20	40	32	9	1	0	0	0	124
303.75 - 326.25	NW	0	3	13	18	53	44	29	10	1	0	0	171
326.25 - 348.75	NNW	0	5	8	13	46	32	19	13	8	0	0	144

Total 2,202

MISSING HOURS: 6
JOINT DATA RECOVERY:
99.7%

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

JULY - SEPTEMBER 2012 (Q3)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.272	0.727	0.727	1.408	1.181	0.727	0.136	0.182	0.000	0.000	5.36
11.25 - 33.75	NNE	0.000	0.318	0.681	0.500	1.317	0.545	0.227	0.000	0.000	0.000	0.000	3.59
33.75 - 56.25	NE	0.000	0.454	0.636	1.090	2.770	0.772	0.272	0.454	0.045	0.000	0.000	6.49
56.25 - 78.75	ENE	0.000	0.363	0.636	1.181	1.226	0.272	0.000	0.000	0.000	0.000	0.000	3.68
78.75 - 101.25	E	0.000	0.227	0.772	0.954	1.544	0.363	0.045	0.000	0.000	0.000	0.000	3.91
101.25 - 123.75	ESE	0.000	0.091	0.227	0.590	1.589	1.135	0.454	0.000	0.045	0.000	0.000	4.13
123.75 - 146.25	SE	0.000	0.091	0.318	0.318	1.090	1.589	2.044	1.453	1.090	0.000	0.000	7.99
146.25 - 168.75	SSE	0.000	0.136	0.409	0.590	1.680	1.272	1.499	2.134	1.589	0.318	0.227	9.85
168.75 - 191.25	S	0.000	0.000	0.272	0.908	1.317	1.544	1.135	1.453	1.045	0.091	0.136	7.90
191.25 - 213.75	SSW	0.000	0.182	0.136	0.636	2.180	2.134	2.089	0.772	0.318	0.000	0.045	8.49
213.75 - 236.25	SW	0.000	0.136	0.227	0.545	2.498	2.725	1.544	0.227	0.182	0.000	0.000	8.08
236.25 - 258.75	WSW	0.000	0.045	0.091	0.727	1.907	1.862	0.590	0.000	0.091	0.000	0.000	5.31
258.75 - 281.25	W	0.000	0.045	0.272	0.772	1.408	1.362	0.999	0.363	0.045	0.000	0.000	5.27
281.25 - 303.75	WNW	0.000	0.318	0.681	0.908	1.817	1.453	0.409	0.045	0.000	0.000	0.000	5.63
303.75 - 326.25	NW	0.000	0.136	0.590	0.817	2.407	1.998	1.317	0.454	0.045	0.000	0.000	7.77
326.25 - 348.75	NNW	0.000	0.227	0.363	0.590	2.089	1.453	0.863	0.590	0.363	0.000	0.000	6.54

Total 100.00

MISSING HOURS: 6
JOINT DATA RECOVERY:
99.7%

Lapse Rate
Wind Distributions
300 – 33 foot

10/2012 – 12/2012

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	0	0	0	0	0	0	0
33.75 - 56.25	NE	0	0	0	0	0	0	0	0	0	0	0	0
56.25 - 78.75	ENE	0	0	0	0	0	0	0	0	0	0	0	0
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	1	1	0	2	0	0	4
146.25 - 168.75	SSE	0	0	0	0	0	0	0	0	0	0	3	3
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	3	3	6
191.25 - 213.75	SSW	0	0	0	0	0	0	0	0	0	0	0	0
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	0	0	0	1	1	0	0	0	2
258.75 - 281.25	W	0	0	0	0	0	0	0	0	0	0	0	0
281.25 - 303.75	WNW	0	0	0	0	0	0	1	0	0	0	0	1
303.75 - 326.25	NW	0	0	0	0	0	0	1	3	3	0	0	7
326.25 - 348.75	NNW	0	0	0	0	0	0	0	0	0	0	0	0

Total 23

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: LE -1.90 DEG C/100M, STABILITY CLASS A

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.000	0.091	0.000	0.000	0.18
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136	0.14
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136	0.136	0.27
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.09
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.05
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.136	0.136	0.000	0.000	0.32
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00

Total 1.04

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	0	0	0	0	0	0
11.25 - 33.75	NNE	0	0	0	0	0	2	3	4	1	0	0	10
33.75 - 56.25	NE	0	0	0	0	0	0	1	0	0	0	0	1
56.25 - 78.75	ENE	0	0	0	0	0	1	0	0	0	0	0	1
78.75 - 101.25	E	0	0	0	0	0	0	0	0	0	0	0	0
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	2	0	0	0	0	0	2
146.25 - 168.75	SSE	0	0	0	0	1	0	0	0	0	0	1	2
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	3	3
191.25 - 213.75	SSW	0	0	0	0	0	0	1	0	0	0	0	1
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	0	0	2	4	0	0	0	0	6
258.75 - 281.25	W	0	0	0	0	1	1	3	2	1	0	0	8
281.25 - 303.75	WNW	0	0	0	0	1	2	4	1	0	0	0	8
303.75 - 326.25	NW	0	0	0	0	0	2	6	5	4	1	0	18
326.25 - 348.75	NNW	0	0	0	0	0	0	0	4	2	0	0	6

Total 66

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.89 TO -1.70 DEG C/100M, STABILITY CLASS B

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.000	0.091	0.136	0.181	0.045	0.000	0.000	0.45
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.05
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.05
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.09
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045	0.09
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136	0.14
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.05
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.000	0.091	0.181	0.000	0.000	0.000	0.000	0.27
258.75 - 281.25	W	0.000	0.000	0.000	0.000	0.045	0.045	0.136	0.091	0.045	0.000	0.000	0.36
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.045	0.091	0.181	0.045	0.000	0.000	0.000	0.36
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.091	0.272	0.227	0.181	0.045	0.000	0.82
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.181	0.091	0.000	0.000	0.27

Total 2.99

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	0	0	0	2	2	0	0	0	4
11.25 - 33.75	NNE	0	0	0	0	1	5	6	2	1	0	0	15
33.75 - 56.25	NE	0	0	0	0	1	5	1	0	0	0	0	7
56.25 - 78.75	ENE	0	0	0	0	0	2	1	0	0	0	0	3
78.75 - 101.25	E	0	0	0	0	1	0	0	0	0	0	0	1
101.25 - 123.75	ESE	0	0	0	0	0	0	0	0	0	0	0	0
123.75 - 146.25	SE	0	0	0	0	0	0	1	0	3	0	0	4
146.25 - 168.75	SSE	0	0	0	0	1	0	0	1	0	0	0	2
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	2	2
191.25 - 213.75	SSW	0	0	0	0	0	0	1	1	1	0	0	3
213.75 - 236.25	SW	0	0	0	0	1	0	1	1	0	0	1	4
236.25 - 258.75	WSW	0	0	0	0	1	2	1	0	0	0	0	4
258.75 - 281.25	W	0	0	0	1	1	3	2	8	0	0	0	15
281.25 - 303.75	WNW	0	0	0	0	1	4	3	2	0	0	0	10
303.75 - 326.25	NW	0	0	0	0	0	5	1	4	1	1	2	14
326.25 - 348.75	NNW	0	0	0	0	0	3	2	4	2	0	0	11

Total 99

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.69 TO -1.50 DEG C/100M, STABILITY CLASS C

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.18
11.25 - 33.75	NNE	0.000	0.000	0.000	0.000	0.045	0.227	0.272	0.091	0.045	0.000	0.000	0.68
33.75 - 56.25	NE	0.000	0.000	0.000	0.000	0.045	0.227	0.045	0.000	0.000	0.000	0.000	0.32
56.25 - 78.75	ENE	0.000	0.000	0.000	0.000	0.000	0.091	0.045	0.000	0.000	0.000	0.000	0.14
78.75 - 101.25	E	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.05
101.25 - 123.75	ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
123.75 - 146.25	SE	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.136	0.000	0.000	0.18
146.25 - 168.75	SSE	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.045	0.000	0.000	0.000	0.09
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.091	0.09
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.045	0.045	0.000	0.000	0.14
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.045	0.000	0.045	0.045	0.000	0.000	0.045	0.18
236.25 - 258.75	WSW	0.000	0.000	0.000	0.000	0.045	0.091	0.045	0.000	0.000	0.000	0.000	0.18
258.75 - 281.25	W	0.000	0.000	0.000	0.045	0.045	0.136	0.091	0.363	0.000	0.000	0.000	0.68
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.045	0.181	0.136	0.091	0.000	0.000	0.000	0.45
303.75 - 326.25	NW	0.000	0.000	0.000	0.000	0.000	0.227	0.045	0.181	0.045	0.045	0.091	0.63
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.136	0.091	0.181	0.091	0.000	0.000	0.50

Total 4.49

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	2	4	11	8	9	11	8	4	0	57
11.25 - 33.75	NNE	0	0	1	4	26	10	16	23	10	3	0	93
33.75 - 56.25	NE	0	0	1	7	16	13	5	7	7	1	0	57
56.25 - 78.75	ENE	0	1	5	6	7	3	0	0	3	0	0	25
78.75 - 101.25	E	0	3	5	4	4	0	0	0	0	0	0	16
101.25 - 123.75	ESE	0	1	2	2	4	4	2	0	0	0	1	16
123.75 - 146.25	SE	0	0	2	5	14	6	2	9	5	0	0	43
146.25 - 168.75	SSE	0	1	2	8	5	3	4	6	1	0	0	30
168.75 - 191.25	S	0	0	4	1	4	0	3	5	13	7	0	37
191.25 - 213.75	SSW	0	0	2	6	3	5	3	9	0	0	0	28
213.75 - 236.25	SW	0	1	3	5	3	10	6	2	1	0	0	31
236.25 - 258.75	WSW	0	0	1	3	11	15	11	1	3	0	0	45
258.75 - 281.25	W	0	0	0	3	8	20	32	20	20	3	0	106
281.25 - 303.75	WNW	0	0	0	5	3	3	7	9	26	13	4	70
303.75 - 326.25	NW	0	0	0	2	11	12	28	38	46	12	7	156
326.25 - 348.75	NNW	0	1	0	0	2	6	19	7	9	4	10	58

Total 868

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -1.49 TO -0.50 DEG C/100M, STABILITY CLASS D

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.091	0.181	0.499	0.363	0.408	0.499	0.363	0.181	0.000	2.59
11.25 - 33.75	NNE	0.000	0.000	0.045	0.181	1.179	0.454	0.726	1.043	0.454	0.136	0.000	4.22
33.75 - 56.25	NE	0.000	0.000	0.045	0.317	0.726	0.590	0.227	0.317	0.317	0.045	0.000	2.59
56.25 - 78.75	ENE	0.000	0.045	0.227	0.272	0.317	0.136	0.000	0.000	0.136	0.000	0.000	1.13
78.75 - 101.25	E	0.000	0.136	0.227	0.181	0.181	0.000	0.000	0.000	0.000	0.000	0.000	0.73
101.25 - 123.75	ESE	0.000	0.045	0.091	0.091	0.181	0.181	0.091	0.000	0.000	0.000	0.045	0.73
123.75 - 146.25	SE	0.000	0.000	0.091	0.227	0.635	0.272	0.091	0.408	0.227	0.000	0.000	1.95
146.25 - 168.75	SSE	0.000	0.045	0.091	0.363	0.227	0.136	0.181	0.272	0.045	0.000	0.000	1.36
168.75 - 191.25	S	0.000	0.000	0.181	0.045	0.181	0.000	0.136	0.227	0.590	0.317	0.000	1.68
191.25 - 213.75	SSW	0.000	0.000	0.091	0.272	0.136	0.227	0.136	0.408	0.000	0.000	0.000	1.27
213.75 - 236.25	SW	0.000	0.045	0.136	0.227	0.136	0.454	0.272	0.091	0.045	0.000	0.000	1.41
236.25 - 258.75	WSW	0.000	0.000	0.045	0.136	0.499	0.680	0.499	0.045	0.136	0.000	0.000	2.04
258.75 - 281.25	W	0.000	0.000	0.000	0.136	0.363	0.907	1.451	0.907	0.907	0.136	0.000	4.81
281.25 - 303.75	WNW	0.000	0.000	0.000	0.227	0.136	0.136	0.317	0.408	1.179	0.590	0.181	3.17
303.75 - 326.25	NW	0.000	0.000	0.000	0.091	0.499	0.544	1.270	1.723	2.086	0.544	0.317	7.07
326.25 - 348.75	NNW	0.000	0.045	0.000	0.000	0.091	0.272	0.862	0.317	0.408	0.181	0.454	2.63

Total 39.37

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	2	5	7	23	28	17	4	3	0	0	89
11.25 - 33.75	NNE	0	2	7	5	25	24	25	7	2	1	0	98
33.75 - 56.25	NE	0	6	4	11	17	19	4	1	0	0	0	62
56.25 - 78.75	ENE	1	5	5	5	6	0	0	0	1	0	0	23
78.75 - 101.25	E	0	7	12	7	6	1	0	0	0	0	0	33
101.25 - 123.75	ESE	0	3	2	3	5	3	1	2	0	1	0	20
123.75 - 146.25	SE	0	1	4	2	9	6	12	8	6	2	4	54
146.25 - 168.75	SSE	0	1	6	5	3	4	8	12	0	0	1	40
168.75 - 191.25	S	0	4	5	1	1	3	3	1	1	1	0	20
191.25 - 213.75	SSW	0	0	6	3	4	7	12	9	0	1	0	42
213.75 - 236.25	SW	0	3	4	3	15	10	1	0	0	0	0	36
236.25 - 258.75	WSW	0	0	2	2	15	3	2	0	0	0	0	24
258.75 - 281.25	W	0	2	3	6	14	13	5	0	0	0	0	43
281.25 - 303.75	WNW	0	2	3	11	14	14	9	4	1	0	0	58
303.75 - 326.25	NW	0	1	1	7	14	23	20	9	4	1	0	80
326.25 - 348.75	NNW	0	1	3	5	17	15	18	14	5	0	0	78

Total 800

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: -0.49 TO 1.50 DEG C/100M, STABILITY CLASS E

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.091	0.227	0.317	1.043	1.270	0.771	0.181	0.136	0.000	0.000	4.04
11.25 - 33.75	NNE	0.000	0.091	0.317	0.227	1.134	1.088	1.134	0.317	0.091	0.045	0.000	4.44
33.75 - 56.25	NE	0.000	0.272	0.181	0.499	0.771	0.862	0.181	0.045	0.000	0.000	0.000	2.81
56.25 - 78.75	ENE	0.045	0.227	0.227	0.227	0.272	0.000	0.000	0.000	0.045	0.000	0.000	1.04
78.75 - 101.25	E	0.000	0.317	0.544	0.317	0.272	0.045	0.000	0.000	0.000	0.000	0.000	1.50
101.25 - 123.75	ESE	0.000	0.136	0.091	0.136	0.227	0.136	0.045	0.091	0.000	0.045	0.000	0.91
123.75 - 146.25	SE	0.000	0.045	0.181	0.091	0.408	0.272	0.544	0.363	0.272	0.091	0.181	2.45
146.25 - 168.75	SSE	0.000	0.045	0.272	0.227	0.136	0.181	0.363	0.544	0.000	0.000	0.045	1.81
168.75 - 191.25	S	0.000	0.181	0.227	0.045	0.045	0.136	0.136	0.045	0.045	0.045	0.000	0.91
191.25 - 213.75	SSW	0.000	0.000	0.272	0.136	0.181	0.317	0.544	0.408	0.000	0.045	0.000	1.90
213.75 - 236.25	SW	0.000	0.136	0.181	0.136	0.680	0.454	0.045	0.000	0.000	0.000	0.000	1.63
236.25 - 258.75	WSW	0.000	0.000	0.091	0.091	0.680	0.136	0.091	0.000	0.000	0.000	0.000	1.09
258.75 - 281.25	W	0.000	0.091	0.136	0.272	0.635	0.590	0.227	0.000	0.000	0.000	0.000	1.95
281.25 - 303.75	WNW	0.000	0.091	0.136	0.499	0.635	0.635	0.408	0.181	0.045	0.000	0.000	2.63
303.75 - 326.25	NW	0.000	0.045	0.045	0.317	0.635	1.043	0.907	0.408	0.181	0.045	0.000	3.63
326.25 - 348.75	NNW	0.000	0.045	0.136	0.227	0.771	0.680	0.816	0.635	0.227	0.000	0.000	3.54

Total 36.28

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	1	2	2	4	10	19	8	0	0	0	46
11.25 - 33.75	NNE	0	2	2	3	14	14	9	1	0	0	0	45
33.75 - 56.25	NE	0	0	4	2	10	5	0	0	0	0	0	21
56.25 - 78.75	ENE	0	3	3	3	4	0	0	0	0	0	0	13
78.75 - 101.25	E	0	3	3	3	4	0	0	0	0	0	0	13
101.25 - 123.75	ESE	0	1	1	2	10	4	1	0	0	0	0	19
123.75 - 146.25	SE	0	0	3	0	16	12	10	5	0	0	0	46
146.25 - 168.75	SSE	0	0	2	3	2	1	0	1	0	0	0	9
168.75 - 191.25	S	0	0	1	2	4	3	1	1	0	0	0	12
191.25 - 213.75	SSW	0	0	3	0	4	3	0	0	0	0	0	10
213.75 - 236.25	SW	0	2	1	2	1	1	1	0	0	0	0	8
236.25 - 258.75	WSW	0	0	0	1	4	1	1	0	0	0	0	7
258.75 - 281.25	W	0	1	3	0	5	0	0	0	0	0	0	9
281.25 - 303.75	WNW	0	2	2	4	1	0	0	0	0	0	0	9
303.75 - 326.25	NW	0	0	3	1	6	0	0	0	0	0	0	10
326.25 - 348.75	NNW	0	0	0	2	2	2	0	0	0	0	0	6

Total 283

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: 1.51 TO 4.00 DEG C/100M, STABILITY CLASS F

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.045	0.091	0.091	0.181	0.454	0.862	0.363	0.000	0.000	0.000	2.09
11.25 - 33.75	NNE	0.000	0.091	0.091	0.136	0.635	0.635	0.408	0.045	0.000	0.000	0.000	2.04
33.75 - 56.25	NE	0.000	0.000	0.181	0.091	0.454	0.227	0.000	0.000	0.000	0.000	0.000	0.95
56.25 - 78.75	ENE	0.000	0.136	0.136	0.136	0.181	0.000	0.000	0.000	0.000	0.000	0.000	0.59
78.75 - 101.25	E	0.000	0.136	0.136	0.136	0.181	0.000	0.000	0.000	0.000	0.000	0.000	0.59
101.25 - 123.75	ESE	0.000	0.045	0.045	0.091	0.454	0.181	0.045	0.000	0.000	0.000	0.000	0.86
123.75 - 146.25	SE	0.000	0.000	0.136	0.000	0.726	0.544	0.454	0.227	0.000	0.000	0.000	2.09
146.25 - 168.75	SSE	0.000	0.000	0.091	0.136	0.091	0.045	0.000	0.045	0.000	0.000	0.000	0.41
168.75 - 191.25	S	0.000	0.000	0.045	0.091	0.181	0.136	0.045	0.045	0.000	0.000	0.000	0.54
191.25 - 213.75	SSW	0.000	0.000	0.136	0.000	0.181	0.136	0.000	0.000	0.000	0.000	0.000	0.45
213.75 - 236.25	SW	0.000	0.091	0.045	0.091	0.045	0.045	0.045	0.000	0.000	0.000	0.000	0.36
236.25 - 258.75	WSW	0.000	0.000	0.000	0.045	0.181	0.045	0.045	0.000	0.000	0.000	0.000	0.32
258.75 - 281.25	W	0.000	0.045	0.136	0.000	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.41
281.25 - 303.75	WNW	0.000	0.091	0.091	0.181	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.41
303.75 - 326.25	NW	0.000	0.000	0.136	0.045	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.45
326.25 - 348.75	NNW	0.000	0.000	0.000	0.091	0.091	0.091	0.000	0.000	0.000	0.000	0.000	0.27

Total 12.83

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	0	0	1	2	1	0	3	0	0	0	7
11.25 - 33.75	NNE	0	0	0	1	4	2	3	0	0	0	0	10
33.75 - 56.25	NE	0	0	1	0	2	1	0	0	0	0	0	4
56.25 - 78.75	ENE	0	1	0	1	0	0	0	0	0	0	0	2
78.75 - 101.25	E	0	0	1	1	0	0	0	0	0	0	0	2
101.25 - 123.75	ESE	0	0	1	0	1	0	0	0	0	0	0	2
123.75 - 146.25	SE	0	0	0	1	10	11	6	5	0	0	0	33
146.25 - 168.75	SSE	0	0	0	1	0	0	0	0	1	0	0	2
168.75 - 191.25	S	0	0	0	0	0	0	0	0	0	0	0	0
191.25 - 213.75	SSW	0	0	0	0	0	0	0	0	0	0	0	0
213.75 - 236.25	SW	0	0	0	0	0	0	0	0	0	0	0	0
236.25 - 258.75	WSW	0	0	0	1	1	0	0	0	0	0	0	2
258.75 - 281.25	W	0	0	1	0	0	0	0	0	0	0	0	1
281.25 - 303.75	WNW	0	0	0	0	0	0	0	0	0	0	0	0
303.75 - 326.25	NW	0	0	1	0	0	0	0	0	0	0	0	1
326.25 - 348.75	NNW	0	0	0	0	0	0	0	0	0	0	0	0

Total 66

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

LAPSE RATE: GT 4.00 DEG C/100M, STABILITY CLASS G

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.000	0.000	0.045	0.091	0.045	0.000	0.136	0.000	0.000	0.000	0.32
11.25 - 33.75	NNE	0.000	0.000	0.000	0.045	0.181	0.091	0.136	0.000	0.000	0.000	0.000	0.45
33.75 - 56.25	NE	0.000	0.000	0.045	0.000	0.091	0.045	0.000	0.000	0.000	0.000	0.000	0.18
56.25 - 78.75	ENE	0.000	0.045	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.09
78.75 - 101.25	E	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.09
101.25 - 123.75	ESE	0.000	0.000	0.045	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.09
123.75 - 146.25	SE	0.000	0.000	0.000	0.045	0.454	0.499	0.272	0.227	0.000	0.000	0.000	1.50
146.25 - 168.75	SSE	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.09
168.75 - 191.25	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
191.25 - 213.75	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
213.75 - 236.25	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
236.25 - 258.75	WSW	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.09
258.75 - 281.25	W	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.05
281.25 - 303.75	WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
303.75 - 326.25	NW	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.05
326.25 - 348.75	NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00

Total 2.99

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

TOTAL HOURS

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0	3	9	14	40	47	47	28	11	4	0	203
11.25 - 33.75	NNE	0	4	10	13	70	57	62	37	14	4	0	271
33.75 - 56.25	NE	0	6	10	20	46	43	11	8	7	1	0	152
56.25 - 78.75	ENE	1	10	13	15	17	6	1	0	4	0	0	67
78.75 - 101.25	E	0	13	21	15	15	1	0	0	0	0	0	65
101.25 - 123.75	ESE	0	5	6	7	20	11	4	2	0	1	1	57
123.75 - 146.25	SE	0	1	9	8	49	38	32	27	16	2	4	186
146.25 - 168.75	SSE	0	2	10	17	12	8	12	20	2	0	5	88
168.75 - 191.25	S	0	4	10	4	9	6	7	7	14	11	8	80
191.25 - 213.75	SSW	0	0	11	9	11	15	17	19	1	1	0	84
213.75 - 236.25	SW	0	6	8	10	20	21	9	3	1	0	1	79
236.25 - 258.75	WSW	0	0	3	7	32	23	20	2	3	0	0	90
258.75 - 281.25	W	0	3	7	10	29	37	42	30	21	3	0	182
281.25 - 303.75	WNW	0	4	5	20	20	23	24	16	27	13	4	156
303.75 - 326.25	NW	0	1	5	10	31	42	56	59	58	15	9	286
326.25 - 348.75	NNW	0	2	3	7	21	26	39	29	18	4	10	159

Total 2,205

MISSING HOURS: 3
JOINT DATA RECOVERY:
99.9%

SALEM / HOPE CREEK

JOINT FREQUENCY DISTRIBUTION OF WIND DIRECTION AND SPEED BY ATMOSPHERIC STABILITY CLASS

OCTOBER - DECEMBER 2012 (Q4)

WIND LEVEL: 33 FT

DELTA T: (300-33 FT)

ALL STABILITY CLASSES

FREQUENCY (%)

		WIND SPEED GROUPS (m/sec)											
WIND DIRECTION		< 0.5	0.5 - 1.0	1.1 - 1.5	1.6 - 2.0	2.1 - 3.0	3.1 - 4.0	4.1 - 5.0	5.1 - 6.0	6.1 - 8.0	8.1 - 10.0	> 10.0	Total
(Degrees)	Sect.												
348.75 - 11.25	N	0.000	0.136	0.408	0.635	1.814	2.132	2.132	1.270	0.499	0.181	0.000	9.21
11.25 - 33.75	NNE	0.000	0.181	0.454	0.590	3.175	2.585	2.812	1.678	0.635	0.181	0.000	12.29
33.75 - 56.25	NE	0.000	0.272	0.454	0.907	2.086	1.950	0.499	0.363	0.317	0.045	0.000	6.89
56.25 - 78.75	ENE	0.045	0.454	0.590	0.680	0.771	0.272	0.045	0.000	0.181	0.000	0.000	3.04
78.75 - 101.25	E	0.000	0.590	0.952	0.680	0.680	0.045	0.000	0.000	0.000	0.000	0.000	2.95
101.25 - 123.75	ESE	0.000	0.227	0.272	0.317	0.907	0.499	0.181	0.091	0.000	0.045	0.045	2.59
123.75 - 146.25	SE	0.000	0.045	0.408	0.363	2.222	1.723	1.451	1.224	0.726	0.091	0.181	8.44
146.25 - 168.75	SSE	0.000	0.091	0.454	0.771	0.544	0.363	0.544	0.907	0.091	0.000	0.227	3.99
168.75 - 191.25	S	0.000	0.181	0.454	0.181	0.408	0.272	0.317	0.317	0.635	0.499	0.363	3.63
191.25 - 213.75	SSW	0.000	0.000	0.499	0.408	0.499	0.680	0.771	0.862	0.045	0.045	0.000	3.81
213.75 - 236.25	SW	0.000	0.272	0.363	0.454	0.907	0.952	0.408	0.136	0.045	0.000	0.045	3.58
236.25 - 258.75	WSW	0.000	0.000	0.136	0.317	1.451	1.043	0.907	0.091	0.136	0.000	0.000	4.08
258.75 - 281.25	W	0.000	0.136	0.317	0.454	1.315	1.678	1.905	1.361	0.952	0.136	0.000	8.25
281.25 - 303.75	WNW	0.000	0.181	0.227	0.907	0.907	1.043	1.088	0.726	1.224	0.590	0.181	7.07
303.75 - 326.25	NW	0.000	0.045	0.227	0.454	1.406	1.905	2.540	2.676	2.630	0.680	0.408	12.97
326.25 - 348.75	NNW	0.000	0.091	0.136	0.317	0.952	1.179	1.769	1.315	0.816	0.181	0.454	7.21

Total 100.00

MISSING HOURS: 3
JOINT DATA RECOVERY:
99.9%

APPENDIX B

MPC Data

The following radionuclide concentrations were obtained from 10 CFR 20 Appendix B, Table II, Column 2 as revised January 1, 1991.

Maximum Permissible Concentrations

Element	Isotope	Soluble Conc (μCi/ml)	Insoluble Conc. (μCi/ml)
Actinium (89)	Ac-227	2E-6	3E-4
	Ac-228	9E-5	9E-5
Americium (95)	Am-241	4E-6	3E-5
	Am-242m	4E-6	9E-5
	Am-242	1E-4	1E-4
	Am-243	4E-6	3E-5
	Am-244	5E-3	5E-3
Antimony (51)	Sb-122	3E-5	3E-5
	Sb-124	2E-5	2E-5
	Sb-125	1E-4	1E-4
	Sb-126	3E-6	3E-6
Arsenic (33)	As-73	5E-4	5E-4
	As-74	5E-5	5E-5
	As-76	2E-5	2E-5
	As-77	8E-5	8E-5
Astatine (85)	At-211	2E-6	7E-5
Barium (56)	Ba-131	2E-4	2E-4
	Ba-140	3E-5	2E-5
Berkelium (97)	Bk-249	6E-4	6E-4
	Bk-250	2E-4	2E-4
Beryllium (4)	Be-7	2E-3	2E-3
Bismuth (83)	Bi-206	4E-5	4E-5
	Bi-207	6E-5	6E-5
	Bi-210	4E-5	4E-5
	Bi-212	4E-4	4E-4
Bromine (35)	Br-82	3E-4	4E-5
	Br-83	3E-6	3E-6
Cadmium (48)	Cd-109	2E-4	2E-4
	Cd-115m	3E-5	3E-5
	Cd-115	3E-5	4E-5
Calcium (20)	Ca-45	9E-6	2E-4
	Ca-47	5E-5	3E-5
Californium (98)	Cf-249	4E-6	2E-5
	Cf-250	1E-5	3E-5
	Cf-251	4E-6	3E-5
	Cf-252	7E-6	7E-6
	Cf-253	1E-4	1E-4
	Cf-254	1E-7	1E-7

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Carbon (6)	C-14	8E-4	-------
Cerium (58)	Ce-141	9E-5	9E-5
	Ce-143	4E-5	4E-5
	Ce-144	1E-5	1E-5
Cesium (55)	Cs-131	2E-3	9E-4
	Cs-134m	6E-3	1E-3
	Cs-134	9E-6	4E-5
	Cs-135	1E-4	2E-4
	Cs-136	9E-5	6E-5
	Cs-137	2E-5	4E-5
Chlorine (17)	Cl-36	8E-5	6E-5
	Cl-38	4E-4	4E-4
Chromium (24)	Cr-51	2E-3	2E-3
Cobalt (27)	Co-57	5E-4	4E-4
	Co-58m	3E-3	2E-3
	Co-58	1E-4	9E-5
	Co-60	5E-5	3E-5
Copper (29)	Cu-64	3E-4	2E-4
Curium (96)	Cm-242	2E-5	2E-5
	Cm-243	5E-6	2E-5
	Cm-244	7E-6	3E-5
	Cm-245	4E-6	3E-5
	Cm-246	4E-6	3E-5
	Cm-247	4E-6	2E-5
	Cm-248	4E-7	1E-6
	Cm-249	2E-3	2E-3
Dysprosium (66)	Dy-165	4E-4	4E-4
	Dy-166	4E-5	4E-5
Einsteinium (99)	Es-253	2E-5	2E-5
	Es-254m	2E-5	2E-5
	Es-254	1E-5	1E-5
	Es-255	3E-5	3E-5
Erbium (68)	Er-169	9E-5	9E-5
	Er-171	1E-4	1E-4
Europium (63)	Eu-152 (9.2 hrs)	6E-5	6E-5
	Eu-152 (13 yrs)	8E-5	8E-5
	Eu-154	2E-5	2E-5
	Eu-155	2E-4	2E-4
Fermium (100)	Fm-254	1E-4	1E-4
	Fm-255	3E-5	3E-5
	Fm-256	9E-7	9E-7

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Fluorine (9)	F-18	8E-4	5E-4
Gadolinium (64)	Gd-153	2E-4	2E-4
	Gd-159	8E-5	8E-5
Gallium (31)	Ga-72	4E-5	4E-5
Germanium (32)	Ge-71	2E-3	2E-3
Gold (79)	Au-196	2E-4	1E-4
	Au-198	5E-5	5E-5
	Au-199	2E-4	2E-4
Hafnium (72)	Hf-181	7E-5	7E-5
Holmium (67)	Ho-166	3E-5	3E-5
Hydrogen (3)	H-3	3E-3	3E-3
Indium (49)	In-113m	1E-3	1E-3
	In-114m	2E-5	2E-5
	In-115m	4E-4	4E-4
	In-115	9E-5	9E-5
Iodine (53)	I-125	2E-7	2E-4
	I-126	3E-7	9E-5
	I-129	6E-8	2E-4
	I-130	3E-6	3E-6
	I-131	3E-7	6E-5
	I-132	8E-6	2E-4
	I-133	1E-6	4E-5
	I-134	2E-5	6E-4
	I-135	4E-6	7E-5
Iridium (77)	Ir-190	2E-4	2E-4
	Ir-192	4E-5	4E-5
	Ir-194	3E-5	3E-5
Iron (26)	Fe-55	8E-4	2E-3
	Fe-59	6E-5	5E-5
Lanthanum (57)	La-140	2E-5	2E-5
Lead (82)	Pb-203	4E-4	4E-4
	Pb-210	1E-7	2E-4
	Pb-212	2E-5	2E-5
Lutetium (71)	Lu-177	1E-4	1E-4
Manganese (25)	Mn-52	3E-5	3E-5
	Mn-54	1E-4	1E-4
	Mn-56	1E-4	1E-4
Mercury (80)	Hg-197m	2E-4	2E-4
	Hg-197	3E-4	5E-4
	Hg-203	2E-5	1E-4
Molybdenum (42)	Mo-99	2E-4	4E-5

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Neodymium (60)	Nd-144	7E-5	8E-5
	Nd-147	6E-5	6E-5
	Nd-149	3E-4	3E-4
Neptunium (93)	Np-237	3E-6	3E-5
	Np-239	1E-4	1E-4
Nickel (28)	Ni-59	2E-4	2E-3
	Ni-63	3E-5	7E-4
	Ni-65	1E-4	1E-4
Niobium (41)	Nb-93m	4E-4	4E-4
	Nb-95	1E-4	1E-4
	Nb-97	9E-4	9E-4
Osmium (76)	Os-185	7E-5	7E-5
	Os-191m	3E-3	2E-3
	Os-191	2E-4	2E-4
	Os-193	6E-5	5E-5
Palladium (46)	Pd-103	3E-4	3E-4
	Pd-109	9E-5	7E-5
Phosphorus (15)	P-32	2E-5	2E-5
Platinum (78)	Pt-191	1E-4	1E-4
	Pt-193m	1E-3	1E-3
	Pt-193	9E-4	2E-3
	Pt-197m	1E-3	9E-4
	Pt-197	1E-4	1E-4
Plutonium (94)	Pu-238	5E-6	3E-5
	Pu-239	5E-6	3E-5
	Pu-240	5E-6	3E-5
	Pu-241	2E-4	1E-3
	Pu-242	5E-6	3E-5
	Pu-243	3E-4	3E-4
Polonium (84)	Po-210	7E-7	3E-5
Potassium (19)	K-42	3E-4	2E-5
Praseodymium(59)	Pr-142	3E-5	3E-5
	Pr-143	5E-5	5E-5
Promethium (61)	Pm-147	2E-4	2E-4
	Pm-149	4E-5	4E-5
Protactinium(91)	Pa-230	2E-4	2E-4
	Pa-231	9E-7	2E-5
	Pa-233	1E-4	1E-4

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Radium (88)	Ra-223	7E-7	4E-6
	Ra-224	2E-6	5E-6
	Ra-226	3E-8	3E-5
	Ra-228	3E-8	3E-5
Rhenium (75)	Re-183	6E-4	3E-4
	Re-186	9E-5	5E-5
	Re-187	3E-3	2E-3
	Re-188	6E-5	3E-5
Rhodium (45)	Rh-103m	1E-2	1E-2
	Rh-105	1E-4	1E-4
Rubidium (37)	Rb-86	7E-5	2E-5
	Rb-87	1E-4	2E-4
Ruthenium (44)	Ru-97	4E-4	3E-4
	Ru-103	8E-5	8E-5
	Ru-103m	3E-6	3E-6
	Ru-105	1E-4	1E-4
	Ru-106	1E-5	1E-5
Samarium (62)	Sm-147	6E-5	7E-5
	Sm-151	4E-4	4E-4
	Sm-153	8E-5	8E-5
Scandium (21)	Sc-46	4E-5	4E-5
	Sc-47	9E-5	9E-5
	Sc-48	3E-5	3E-5
Selenium (34)	Se-75	3E-4	3E-4
Silicon (14)	Si-31	9E-4	2E-4
Silver (47)	Ag-105	1E-4	1E-4
	Ag-110m	3E-5	3E-5
	Ag-111	4E-5	4E-5
Sodium (11)	Na-22	4E-5	3E-5
	Na-24	2E-4	3E-5
Strontium (38)	Sr-85m	7E-3	7E-3
	Sr-85	1E-4	2E-4
	Sr-89	3E-6	3E-5
	Sr-90	3E-7	4E-5
	Sr-91	7E-5	5E-5
	Sr-92	7E-5	6E-5
Sulfur (16)	S-35	6E-5	3E-4
Tantalum (73)	Ta-182	4E-5	4E-5

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Technetium (43)	Tc-96m	1E-2	1E-2
	Tc-96	1E-4	5E-5
	Tc-97m	4E-4	2E-4
	Tc-97	2E-3	8E-4
	Tc-99m	6E-3	3E-3
	Tc-99	3E-4	2E-4
Tellurium (52)	Te-125m	2E-4	1E-4
	Te-127m	6E-5	5E-5
	Te-127	3E-4	2E-4
	Te-129m	3E-5	2E-5
	Te-129	8E-4	8E-4
	Te-131m	6E-5	4E-5
	Te-132	3E-5	2E-5
Terbium (65)	Tb-160	4E-5	4E-5
Thallium (81)	Tl-200	4E-4	2E-4
	Tl-201	3E-4	2E-4
	Tl-202	1E-4	7E-5
	Tl-204	1E-4	6E-5
Thorium (90)	Th-227	2E-5	2E-5
	Th-228	7E-6	1E-5
	Th-230	2E-6	3E-5
	Th-231	2E-4	2E-4
	Th-232	2E-6	4E-5
	Th-natural	2E-6	2E-5
	Th-234	2E-5	2E-5
Thulium (69)	Tm-170	5E-5	5E-5
	Tm-171	5E-4	5E-4
Tin (50)	Sn-113	9E-5	8E-5
	Sn-124	2E-5	2E-5
Tungsten (74)	W-181	4E-4	3E-4
	W-185	1E-4	1E-4
	W-187	7E-5	6E-5
Uranium (92)	U-230	5E-6	5E-6
	U-232	3E-5	3E-5
	U-233	3E-5	3E-5
	U-234	3E-5	3E-5
	U-235	3E-5	3E-5
	U-236	3E-5	3E-5
	U-238	4E-5	4E-5
	U-240	3E-5	3E-5
	U-natural	3E-5	3E-5

Element	Isotope	Soluble Conc. (μCi/ml)	Insoluble Conc. (μCi/ml)
Vanadium (23)	V-48	3E-5	3E-5
Ytterbium (70)	Yb-175	1E-4	1E-4
Yttrium	Y-90	2E-5	2E-5
	Y-91m	3E-3	3E-3
	Y-91	3E-5	3E-5
	Y-92	6E-5	6E-5
	Y-93	3E-5	3E-5
Zinc (30)	Zn-65	1E-4	2E-4
	Zn-69m	7E-5	6E-5
	Zn-69	2E-3	2E-3
Zirconium (40)	Zr-93	8E-4	8E-4
	Zr-95	6E-5	6E-5
	Zr-97	2E-5	2E-5
Any single radio-nuclide not listed above with decay mode other than alpha emission or spontaneous fission and with radio - active half-life greater than 2 hours		3E-6	3E-6
Any single radio-nuclide not listed above, which decays by alpha emission or spontaneous fission.		3E-8	3E-8

Notes:

1. If the identity of any radionuclide is not known, the limiting values for purposes of this table shall be: 3E-8 μCi/ml.

2. If the identity and concentration of each radionuclide are known, the limiting values should be derived as follows: Determine, for each radionuclide in the mixture, the ratio between the quantity present in the mixture and the limit otherwise established in Appendix B for the specific radionuclide not in a mixture. The sum of such ratios for all the radionuclides in the mixture may not exceed "1" (i.e. "unity").

APPENDIX C

2012 Radiological Groundwater Protection Program (RGPP) Report

Results of the Integrated Tritium Management Program

2012 Radiological Groundwater Protection Program (RGPP)

And

2012 Remediation Monitoring and Remedial Investigations

Table of Contents

I. Introduction

PSEG Nuclear has groundwater monitoring and remediation wells on the Salem Generating Station [SGS] and Hope Creek Generating Station [HCGS] site. The Integrated Tritium Management Program consists of two programs:

The Radiological Groundwater Protection Program (RGPP), which is a program to ensure that any leak of radioactive material from underground piping is quickly detected.

Remedial Investigation Work Plans (RIWPs), which are related to mitigating a known leak from Salem Unit 1's spent fuel pool, or investigation of other groundwater tritium results. The RIWP scope includes monitoring wells and other investigation / analytical processes..

The RGPP was initiated by PSEG in 2006 to determine whether groundwater at and in the vicinity of Salem and Hope Creek Stations had been adversely impacted by any releases of radionuclides and provides the mechanism to detect such releases if they occur. The RGPP is a voluntary program implemented by PSEG in conjunction with the nuclear industry initiatives and associated guidance (NEI, 2007). The other key elements that comprise the RGPP and contribute to public safety are buried piping programs, spill/leak prevention, effective remediation of spills and leaks, and ongoing stakeholder communication.

In 2002, operations personnel at Salem Generating Station identified a release of radioactive liquids from the Unit 1 Spent Fuel Pool to the environment. PSEG developed a Remedial Action Work Plan (RAWP). This RAWP was reviewed by the United States Regulatory Commission (USNRC) and approved by the New Jersey Department of Environmental Protection (NJDEP) Bureau of Nuclear Engineering (BNE). In accordance with the RAWP, a Groundwater Recovery

System (GRS) was installed and is in operation to remove the groundwater containing tritium. This system was designed to prevent the migration of the tritium plume towards the plant boundary and to reduce the concentrations of tritium in groundwater. The GRS is fully discussed in the quarterly Remedial Action Progress Reports (RAPR) provided to the state and the U.S. Nuclear Regulatory Commission by PSEG.

PSEG's Salem and Hope Creek Generating Stations are located in a flat, largely undeveloped region of southern New Jersey. The Sites are bordered on the west and south by the Delaware River Estuary and on the east and north by extensive marshlands. Both of the sites obtain cooling water from the Delaware River Estuary and discharge it back to this Estuary.

The two sites are underlain by over 1,000 feet of inter-layered sand, silt and clay. The Salem and Hope Creek sites derive potable and sanitary water from deep wells in the Potomac-Raritan-Magothy (PRM) formations, greater than 600 feet below the surface.

There are no potable wells off-site within at least one mile. The nearest potable supply well is located 3.65 miles away in the state of Delaware. In the vicinity of the site there are no public water supply wells or private wells that can be impacted by radionuclides associated with nuclear station operations.

The results of the RGPP are presented first, and the well results from the remainder of the program are presented later.

II. Radiological Groundwater Protection Program

This is the annual report on the status of the Radiological Groundwater Protection Program (RGPP) conducted at Salem and Hope Creek Generating

Stations. This report covers the RGPP groundwater samples collected from the PSEG site in 2012. This report also describes any changes to this program and provides selected radiochemical analysis results for groundwater samples collected during the 2012 reporting year. The 2006 PSEG Annual Radiological Environmental Operating Report (AREOR) was the first report that provided a description of the RGPP (PSEG, 2007). The 2006, 2007, 2008, 2009, 2010 and 2011 AREORs contained information and detailed descriptions of the RGPP in Appendix F (PSEG 2007, 2008, 2009, 2010, 2011, 2012). To more fully comply with the guidance in NEI 07-07, the report is now included in the ARERR rather than the AREOR. This report also contains the results of the 2012 long-term groundwater-sampling program.

Objectives of the RGPP

The long-term sampling program objectives are as follows:

1. Identify suitable locations to monitor and evaluate potential impacts from station operations before significant radiological impact to the environment or potential drinking water sources can occur.

2. Understand the local hydro-geologic regime in the vicinity of the station and maintain up-to-date knowledge of flow patterns on the surface and shallow subsurface.

3. Evaluate systems, structures, components, and work practices which have the potential to allow a release of licensed radioactive material to the groundwater.

4. Perform routine water sampling from strategic locations and evaluate radiochemical analysis results.

5. Report new leaks, spills, or other detections with potential radiological significance to stakeholders in a timely manner.

5. Regularly evaluate analytical results to identify adverse trends.

6. Take necessary corrective actions to protect groundwater resources.

Sample Collection

In 2006, the RGPP monitoring wells (Tables 1 and 2, Monitoring Well Construction Details) were installed and developed for both Salem and Hope Creek as part of the Site Investigation Report (ARCADIS, 2006A and 2006BGroundwater samples are collected from all RGPP monitoring wells at a minimum frequency of semi-annually, with additional monitoring conducted as appropriate. Test Engineers and Laboratory Technicians from PSEG Laboratory Testing Services (LTS) (formally Maplewood Testing Services) routinely collect the groundwater samples, with consultant support in some instances. Sampling protocols are consistent with USEPA and NJDEP guidance; a modified low-flow sampling methodology is used. This methodology is consistent with protocols established for the Salem GRS investigation. In May 2006, after the Site Hydrological Investigation was completed, the long-term groundwater-sampling program was initiated.

The Hope Creek RGPP monitoring wells are nominally sampled semi-annually (BK, BL, BM, BO, BP, BQ, BR, BS and BT), and quarterly (BH, BI, BJ, and BN). The Salem RGPP monitoring wells are nominally sampled semi-annually (AL, BA, BB, BC, BD, BE, BF, BG, BU, T, U, Y, Z). The sampling frequencies that are specified in the RGPP procedures may be modified by the PSEG RGPP

Manager for purposes of adaptive management of the RGPP, although sampling and analysis shall not occur less frequently than semi-annually

Program Deviations

None noted.

New wells

No new wells were installed.

Sample Analysis

This section describes the general analytical methodologies used to analyze the water samples for radioactivity for the Hope Creek and Salem Generating Stations RGPP. Groundwater samples were analyzed for plant-related gamma emitting radionuclides (semi-annually), strontium (annually), and iron 55 (biennially) and tritium (every sample) by a radiochemical analytical laboratory. In order to achieve the stated RGPP objectives, the long-term groundwater-sampling program includes the following measurements and analyses:

- Concentrations of gamma emitting radionuclides in water by gamma spectroscopy.
- Concentrations of tritium in water by filtration/distillation and liquid scintillation.

The tritium analysis results reported in Table 4 were obtained from Teledyne Brown Engineering (TBE) Laboratory located in Knoxville, TN. The gamma spectroscopy, strontium and iron analysis results are performed by Teledyne Brown Engineering. Analytical laboratories are subject to internal quality

assurance programs and inter-laboratory cross-check programs. Station personnel review and evaluate all analytical data deliverables obtained from these laboratories.

Data Evaluation

This section describes the method used to evaluate the analytical results for samples obtained at the Hope Creek and Salem Generating Stations. Analytical data results are reviewed for adverse trends or anomalous data. Investigations and notification are made as required by program procedures. The radiological data for groundwater collected since inception of the RGPP program was statistically evaluated to develop a baseline with which current operational data are compared. Several factors are important in the interpretation and evaluation of the radiological data:

- **Lower Limit of Detection**

The lower limit of detection (LLD) is specified by federal regulation as a minimum sensitivity value that must be achieved routinely by the analytical method. The Lower Limit of Detection (LLD) 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 with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

The environmental LLD is specified for the detectability of each isotope that may be produced by Salem or Hope Creek stations in the Offsite Dose Calculation Manual (ODCM). Of particular interest to the industry, state and public is the LLD of tritium, for which the station ODCM LLD is 3000 pCi/L in water. The station procedure is modeled after the ODCMs for environmental

LLDs, however, for the RGPP tritium analyses are performed with the lower LLD of 200 pCi/L. The RGPP program analyzes and trends the well results. Based on several years of data, each well has an action level that if exceeded, would result in increased monitoring to determine the source of any contamination.

There is no regulatory impact, as the radiological ground water protection program is a voluntary industry initiative and the results of the RGPP wells were below any reporting levels.

- **Laboratory Measurements Uncertainty**

Statistically, the exact value of a measurement is expressed as a range with a stated level of confidence. The convention is to report results with a 95% level of confidence. The uncertainty comes from the counting system measurement, calibration standards, sample volume or weight measurements, sampling uncertainty and other factors.

Analytical uncertainties are reported at the 95% confidence level in this report to be consistent with the uncertainties reported in the AREOR for the REMP.

RGPP Data Quality

Groundwater samples generally consist of at least four aliquots. One of the groundwater sample aliquots is submitted to the respective station's onsite chemistry laboratory for tritium and gamma spectroscopy analysis. If these screening analyses indicated that tritium concentrations are below 10,000 pCi/L and no plant-related gamma emitters were present, then the samples are released for shipment to the offsite environmental laboratory. The on-site Chemistry laboratory's screening analysis for all 2012 RGPP groundwater samples were below 10,000 pCi/L for tritium and no plant-related gamma

emitters were present above the associated effluent LLDs specified in the ODCM.

The second sample aliquot is sent to the TBE Laboratory for tritium analysis. If gamma analysis is to be performed, the third sample aliquot is submitted to the TBE Laboratory for gamma spectroscopy analysis.

The fourth sample aliquot is held as a back-up sample until all the analytical results were received and determined to be valid. In the event that the results were believed to be questionable or sample results were lost, the back-up sample would be submitted for analysis. In addition, this back-up sample can be used to verify any elevated analytical result.

All radionuclide results are compared to the limitations within the RGPP:

- Internal Administrative Control Limits are defined within the RGPP procedures. They are developed based on a statistical analysis of the historical baseline concentrations of tritium in each specific well and are used to identify tritium concentrations that warrant further investigation for that specific well. Exceeding Administrative Control Limits usually does not initiate any external reporting unless the sample results exceed the regulatory limit of 20,000 pCi/L.

- Courtesy Communication Control Limit is a tritium concentration established below regulatory requirements based on agreements with NJDEP-BNE and/or USNRC and other stakeholders. PSEG has verbally agreed to provide a courtesy communication by telephone no later than the end of the next business day to NJDEP-BNE for any RGPP confirmed tritium result that exceeds 3,000 pCi/L. The NRC Site Resident is also informed. This is not a required communication.

- Voluntary Communication Limits are those concentrations of radionuclides that require voluntary communication and reporting to regulators and/or stakeholders based on NEI 07-07 and the ODCM.

- Reporting Level is the concentration of plant produced radioactive material in an environmental sampling medium (averaged over any calendar quarter) from a specified location that requires a 30-day written report to the Nuclear Regulatory Commission and is identified in the ODCM.

Results and Discussion

The locations of the RGPP monitoring wells at Hope Creek and Salem are shown on Figures 1 and 2, respectively. The Monitoring Well Construction Details for Hope Creek and Salem including monitoring interval below ground surface are provided in Table 1, Hope Creek RGPP Monitoring Wells, Construction Details and Table 2, Salem RGPP Monitoring Wells, Construction Details. The relevant radiological groundwater parameters used to evaluate the groundwater data are provided in Table 3, Relevant Groundwater Evaluation Criteria: Salem and Hope Creek Generating Stations.

The 2012 Groundwater Tritium Analytical Results for Hope Creek and Salem Generating Stations are shown in Table 4.

III. Groundwater Results - RGPP

Samples were collected from RGPP monitoring wells during 2012 in accordance with the station and MTS procedures for the radiological groundwater protection program.

Hope Creek Generating Station RGPP Wells

The results of the laboratory analysis indicate that tritium was not detected, i.e., was reported at a concentration below the RGPP LLD of 200 pCi/L, in six RGPP monitoring wells at the Hope Creek site. The tritium concentrations measured at wells BL, BO, BQ, BR, BS and BT were all less than the LLD of 200 pCi/L during 2012 as shown on Table 4.

- Tritium was detected at well BH at a maximum of 366 pCi/L during the first quarter and had a range of <134 pCi/L to 217 pCi/L during the remainder of the 2012 sampling period. Well BH is located down gradient of the Condensate Storage Tank (CST) near the southwest protected area boundary and is a perimeter well.

- Tritium was detected at well BI at a maximum of 207 pCi/L during the second quarter and was <200 pCi/L during the remainder of the 2012 sampling period. Well BI is located due west of the reactor containment and is a sentinel (source) well for facilities and buried piping.

- Tritium was detected at well BJ at a maximum of 910 pCi/L during the fourth quarter and had a range of <134 pCi/L to 806 pCi/L during the remainder of the 2012 sampling period. Well BJ is also located down gradient of the CST and is a sentinel (source) well for the CST.

- Tritium was detected at well BK at a maximum of 344 pCi/L during the second quarter and had a range of <135 pCi/L to 316 pCi/L during the remainder of the 2012 sampling period. Well BK is also located due west of the reactor containment and is a perimeter well.

- Tritium was detected at well BM at a maximum of 448 pCi/L during the fourth quarter and had a range of <168 pCi/L to 379 pCi/L during the remainder of the 2012 sampling period. Well BM is located west of the abandoned Unit 2 reactor building and is a sentinel (source) well for facilities and buried piping.

- Tritium was detected at Well BN at a maximum of 683 pCi/L during the first quarter and had a range of 200 pCi/L to 485 pCi/L during the remainder of the 2012 sampling period. Well BN is located northeast of the Materials Control Center and is a sentinel (source) well for the Auxiliary Boiler building and buried piping.

- Tritium was detected at Well BP at a maximum of 280 pCi/L in one sample during the fourth quarter and was <200 pCi/L during the remainder of the 2012 sampling period. Well BP is located on the north side of the site near the Delaware River and is a perimeter (source) well.

In accordance with station procedures, a sample analysis result that is above the administrative limit is re-sampled for a confirmatory analysis. The administrative limits for all station wells were developed by statistical analysis of the historical well data.

There were no analytical results for which a Courtesy Communication (greater than 3,000 pCi/L tritium) was required as part of the RGPP. The tritium concentrations in these wells are being monitored and trended.

No plant-related gamma emitters were detected in any RGPP well sampled in 2012. Naturally occurring Potassium-40 was detected in several of the wells sampled during 2012.

Salem Generating Station RGPP Wells

The results of the laboratory analysis indicate that tritium was not detected, i.e., was reported at a concentration below the RGPP LLD of 200 pCi/L, in five RGPP monitoring wells at the Salem site. The tritium concentrations measured at wells BA, BB, BU, T, and Y were all less than the LLD of 200 pCi/L during 2011 as shown on Table 4.

- Tritium was detected at well AL at a maximum of 902 pCi/L during the third quarter and had a range of 575 pCi/L to 876 pCi/L during the remainder of the 2012 sampling period. Well AL is located south of the Salem Unit 1 reactor building and is a sentinel (source) well.

- Tritium was detected at well BC at a maximum of 812 pCi/L during the fourth quarter and had a range of 254 pCi/L to 404 pCi/L during the remainder of the 2012 sampling period. Well BC a sentinel (source)/perimeter well located southwest of Facilities, Refueling Water Storage Tank, Auxiliary Feedwater Storage Tank and Primary Water Storage Tank (RAP) tanks and piping.

- Tritium was detected at well BD at a maximum of 530 pCi/L during the fourth quarter and had a range of 268 pCi/L to 406 pCi/L during the remainder of the 2012 sampling period. Well BD is located to the west of Salem Unit 2 reactor building and is a sentinel (source) well for Facilities, RAP tanks, and piping.

- Tritium was detected at well BE at a maximum of 647 pCi/L during the second quarter and had a range of 250 pCi/L to 541 pCi/L during the remainder of the 2012 sampling period. Well BE is located to the west of

Salem Unit 2 reactor building and is a perimeter well.

- Tritium was detected at well BF at a maximum of 211 pCi/L in one sample during the fourth quarter event and was <200 pCi/L during the remainder of the 2012 sampling period. Well BF is located east northeast of Salem unit 2 containment near the heavy haul path at the perimeter of the facility.

- Tritium was detected at well BG at a maximum of 610 pCi/L during the third quarter and had a range of 417 pCi/L to 603 pCi/L during the remainder of the 2012 sampling period. Well BG is located northwest of Salem Unit 2 reactor building and is a perimeter well.

- Tritium was detected at well U at a maximum of 577 pCi/L during the fourth quarter and had a range of <187 pCi/L to 362 pCi/L during the remainder of the 2012 sampling period. Well U is located north of Salem Unit 2 reactor building and is a sentinel (source) well for the House Heating Boilers.

- Tritium was detected at well Z at a maximum of 690 pCi/L during the fourth quarter and had a range of 417 pCi/L to 652 pCi/L during the remainder of the 2012 sampling period. Well Z is located west of Salem Units 1&2 reactor buildings and is a perimeter well.

There were no analytical results for which a Courtesy Communication (greater than 3,000 pCi/L tritium) was required as part of the RGPP. The tritium concentrations in these wells are being monitored and trended.

No plant-related gamma emitters were detected in any RGPP well sampled in 2012. Naturally occurring Potassium-40 was detected in several of the wells sampled during 2012.

IV. Investigations

Recapture Evaluation

PSEG has implemented an evaluation of the potential for tritium recapture from permitted releases. The program is on-going and results are anticipated in the 2014. Some of the RGPP wells which were designed as vault (flush mounted wells) were converted to stick mount (above ground level) in December 2010. The rationale behind this is that the vault mounted wells are in low lying areas which collect rainwater runoff. Some tritium, which is release as a permitted discharge via the Salem and Hope Creek plant vents, may be re-captured during rain events and then washed into the vaults of the RGPP wells. Conversion of these wells has removed the vaults and places the height of the well opening at approximately 3-4 feet above ground surface, thus removing the pooling of rainwater in the vault and around the well shaft.

The nuclear industry has detected tritium in water vapor and rainwater around plants coincident with permitted gaseous releases of tritium. Through a number of evaluations the industry has identified that permitted gaseous releases of tritium can be recaptured from the atmosphere as water vapor and precipitation downwind. The potential pathways followed by tritium at the site were evaluated. Based on observed tritium exchange between atmospheric water vapor and liquid water it appears that tritium is routinely exchanged from the atmosphere into the liquid water in the vadose zone. During average precipitation accumulation timeframes, this rain water with elevated tritium concentrations would flow slowly down into the groundwater. Rain water with elevated tritium concentrations can be flushed from the vadose zone and flow through shallow groundwater, which will be detected in the Riverbed Deposits monitored by the RGPP wells.

Past Spills and Leaks: Impacts to Groundwater

Historical unplanned and unmonitored releases on site are listed in Table 5, Salem and Hope Creek 10CFR50.75 (g) Data. In addition, the Investigation section of this appendix summarizes the tritium investigations ongoing in 2012. There are currently no known active releases into the groundwater at Salem or Hope Creek Stations.

In conclusion, the operation of Salem and Hope Creek Stations has had minimal adverse radiological impact on the environment from unmonitored or unplanned releases of radionuclides.

V. RGPP 2012 Status

The RGPP long-term sampling program will be modified as required to effect changes the program to meet the RGPP objectives. Baseline sampling and analysis of groundwater will continue on the following schedule:

- Tritium will be analyzed at least semi-annually each calendar year to an LLD of 200 pCi/L;
- Plant-related gamma emitters will be analyzed semi-annually to the Environmental LLDs specified in the ODCM;
- Programs will be enhanced as necessary in 2013 to ensure specified LLDs are met and all parameters identified in station procedures are analyzed at the appropriate frequency;
- RGPP monitoring well sample frequency will be adjusted based on analytical results, but in no event less than twice per year.

Table 1 Hope Creek RGPP Monitoring Wells: Construction Details

Well ID	Installation Date	Construction Details	Diameter (inches)	Total Depth (feet bgs)	Monitoring Interval (feet bgs)	MP Elevation (feet RPD)	MP Elevation (feet RPD)	Monitoring Purpose	Source Targets
Well BH	May-06	Sch-40 PVC	4	37.0	27 - 37	97.92	8	Perimeter	NA
Well BI	May-06	Sch-40 PVC	4	38.5	28.5 - 38.5	99.6	9.68	Source	Facilities; Piping
Well BJ	May-06	Sch-40 PVC	4	38.0	28 - 38	100.23	10.31	Source	Condensate Storage & Transfer; Facilities; Piping
Well BK	May-06	Sch-40 PVC	4	38.5	28.5 - 38.5	98.19	8.27	Perimeter	NA
Well BL	May-06	Sch-40 PVC	4	35.0	25 - 35	99.71	9.79	Perimeter	NA
Well BM	May-06	Sch-40 PVC	4	38.0	28 - 38	99.76	9.84	Source	Facilities; Piping
Well BN	May-06	Sch-40 PVC	4	12.5	7.5 - 12.5	102.64	12.72	Source	Auxiliary Boiler Building; Piping
Well BO	May-06	Sch-40 PVC	4	36.0	26 - 36	97.98	8.06	Perimeter/Source	Building Sewage
Well BP	May-06	Sch-40 PVC	4	38.0	28 - 38	99.06	9.14	Perimeter/Source	Building Sewage
Well BQ	May-06	Sch-40 PVC	4	42.0	32 - 42	102.16	12.24	Source	Auxiliary Boiler Building; Dry Cask Storage Building; Piping
Well BR	May-06	Sch-40 PVC	4	40.5	30.5 - 40.5	104.28	14.36	Perimeter/Source	Piping; Dry Cask Storage Building
Well BS	May-06	Sch-40 PVC	4	35.0	25 - 35	100.55	10.63	Upgradient	NA
Well BT	May-06	Sch-40 PVC	4	38.5	28.5 - 38.5	99.60	9.68	Upgradient	NA

Notes:

MP	Measuring Point
bgs	Below ground surface
RPD	Relative to plant datum
msl	Relative to mean sea level (NAVD 1988)
NA	Not applicable
NAD 83	North American Datum 1983

Table 2 Salem RGPP Monitoring Wells: Construction Details

Well ID	Installation Date	Construction Details	Diameter (inches)	Total Depth (feet bgs)	Monitoring Interval (feet bgs)	MP Elevation (feet RPD)	MP Elevation (feet RPD)	Monitoring Purpose	Source Targets
Well T	Jun-03	Sch-40 PVC	2	31.2	21.2 - 31.2	104.13	14.21	Source	Facilities; House Heating Blr
Well U	May-03	Sch-40 PVC	2	32.2	27.2 - 32.2	98.57	8.65	Source	Facilities; House Heating Blr
Well Y	Sep-03	Sch-40 PVC	2	37.0	27.0 - 35.0	101.81	11.89	Perimeter	NA
Well Z	Sep-03	Sch-40 PVC	2	37.5	27.5 - 37.5	101.86	11.94	Perimeter	NA
Well AL	Jan-04	Sch-40 PVC	2	25.3	15.3 - 25.3	99.13	9.21	Perimeter	NA
Well BA	May-06	Sch-40 PVC	4	39.5	29.5 - 39.5	101.07	11.15	Perimeter	NA
Well BB	May-06	Sch-40 PVC	4	47.0	37 - 47	99.38	9.46	Perimeter	NA
Well BC	May-06	Sch-40 PVC	4	38.0	28 - 38	98.78	8.86	Source / Perimeter	Facilities; RAP Tanks; Piping
Well BD	May-06	Sch-40 PVC	4	40.5	30.5 - 40.5	98.78	8.86	Source	Facilities; RAP Tanks; Piping
Well BE	May-06	Sch-40 PVC	4	37.0	27 - 37	98.31	8.39	Perimeter	NA
Well BF	May-06	Sch-40 PVC	4	42.5	32.5 - 42.5	99.11	9.19	Perimeter	NA
Well BG	May-06	Sch-40 PVC	4	37.0	27 - 37	100	10.08	Perimeter	NA
Well BU	May-06	Sch-40 PVC	4	36.0	26 - 36	100.16	10.24	Upgradient	NA

Notes:

MP	Measuring Point
bgs	Below ground surface
RPD	Relative to plant datum
msl	Relative to mean sea level (NAVD 1988)
NA	Not applicable
NAD 83	North American Datum 1983

Table 3. Relevant Groundwater Evaluation Criteria: Salem and Hope Creek Generating Stations

Isotope	RGPP LLD (pCi/L)	PSEG ODCM Reporting Level (pCi/L)
Tritium	200	30,000
Total Strontium	2.0	8
Mn-54	15	1000
Fe-59	30	400
Co-60	15	300
Zn-65	30	300
Nb-95	15	400
Zr-95	15	200
Cs-134	15	30
Cs-137	18	50
Ba-140	60	200
La-140	15	200

Table 4 Tritium Results for the Hope Creek RGPP

Well ID	Sample Date	Result	Well ID	Sample Date	Result
Well-BH	1/26/2012	366 pCi/L	Well-BL	6/18/2012	<200 pCi/L
	2/17/2012	<200 pCi/L		12/10/2012	<200 pCi/L
	3/21/2012	217 pCi/L	Well-BM	1/26/2012	<200 pCi/L
	4/24/2012	<200 pCi/L		2/17/2012	<200 pCi/L
	5/31/2012	<200 pCi/L		3/21/2012	<200 pCi/L
	6/18/2012	<200 pCi/L		4/24/2012	187 pCi/L
	10/25/2012	183 pCi/L		5/31/2012	268 pCi/L
	12/11/2012	<200 pCi/L		6/18/2012	160 pCi/L
Well-BI	1/26/2012	<200 pCi/L		9/25/2012	379 pCi/L
	2/17/2012	<200 pCi/L		10/25/2012	<200 pCi/L
	3/21/2012	<200 pCi/L		11/27/2012	448 pCi/L
	4/24/2012	<200 pCi/L		12/10/2012	<200 pCi/L
	5/31/2012	207 pCi/L	Well-BN	3/29/2012	683 pCi/L
	6/18/2012	<200 pCi/L		6/20/2012	464 pCi/L
	9/25/2012	<200 pCi/L		7/25/2012	294 pCi/L
	10/25/2012	<200 pCi/L		8/30/2012	200 pCi/L
	11/26/2012	<200 pCi/L		11/27/2012	485 pCi/L
	12/10/2012	<200 pCi/L		12/17/2012	201 pCi/L
Well-BJ	1/26/2012	693 pCi/L	Well-BO	6/20/2012	<200 pCi/L
	3/21/2012	570 pCi/L		11/29/2012	<200 pCi/L
	4/24/2012	479 pCi/L		12/18/2012	<200 pCi/L
	5/31/2012	401 pCi/L	Well-BP	6/20/2012	<200 pCi/L
	6/18/2012	<200 pCi/L		11/27/2012	280 pCi/L
	9/25/2012	650 pCi/L		12/17/2012	<200 pCi/L
	10/25/2012	339 pCi/L	Well-BQ	3/29/2012	<200 pCi/L
	11/27/2012	910 pCi/L		11/26/2012	<200 pCi/L
	12/10/2012	806 pCi/L		12/18/2012	<200 pCi/L
Well-BK	1/26/2012	315 pCi/L	Well-BR	6/20/2012	<200 pCi/L
	2/17/2012	<200 pCi/L		11/29/2012	<200 pCi/L
	3/21/2012	185 pCi/L		12/18/2012	<200 pCi/L
	4/24/2012	316 pCi/L	Well-BS	6/20/2012	<200 pCi/L
	5/31/2012	344 pCi/L		12/19/2012	<200 pCi/L
	6/18/2012	<200 pCi/L	Well-BT	6/20/2012	<200 pCi/L
	12/10/2012	242 pCi/L		12/20/2012	<200 pCi/L

Table 5 Tritium Results for the RGPP Salem

Well ID	Sample Date	Result
Well-AL	3/15/2012	575 pCi/L
	6/13/2012	729 pCi/L
	9/25/2012	761 pCi/L
	10/11/2012	902 pCi/L
	11/29/2012	765 pCi/L
Well-BA	6/19/2012	<200 pCi/L
	10/4/2012	<200 pCi/L
	12/13/2012	<200 pCi/L
Well-BB	6/19/2012	<200 pCi/L
	10/4/2012	<200 pCi/L
	12/13/2012	<200 pCi/L
Well-BC	6/7/2012	254 pCi/L
	10/24/2012	404 pCi/L
	11/26/2012	812 pCi/L
	12/17/2012	341 pCi/L
Well-BD	6/7/2012	268 pCi/L
	11/28/2012	406 pCi/L
	12/27/2012	530 pCi/L
Well-BE	6/7/2012	647 pCi/L
	10/24/2012	414 pCi/L
	12/4/2012	250 pCi/L
	12/11/2012	541 pCi/L
Well XXXXXX	6/7/2012	<200 pCi/L
	11/27/2012	211 pCi/L
	12/10/2012	<200 pCi/L
Well-BG	6/7/2012	488 pCi/L
	7/16/2012	560 pCi/L
	8/29/2012	417 pCi/L
	9/25/2012	610 pCi/L
	10/25/2012	533 pCi/L
	11/27/2012	520 pCi/L
	12/17/2012	603 pCi/L

Well ID	Sample Date	Result
Well-T	3/23/2012	<200 pCi/L
	6/7/2012	<200 pCi/L
	7/17/2012	<200 pCi/L
	10/18/2012	<200 pCi/L
	11/27/2012	<200 pCi/L
	12/13/2012	<200 pCi/L
Well-U	3/23/2012	362 pCi/L
	6/7/2012	213 pCi/L
	7/17/2012	<200 pCi/L
	10/18/2012	236 pCi/L
	11/27/2012	577 pCi/L
	12/13/2012	322 pCi/L
Well-Y	2/23/2012	<200 pCi/L
	3/23/2012	<200 pCi/L
	4/19/2012	<200 pCi/L
	5/30/2012	<200 pCi/L
	6/19/2012	<200 pCi/L
	8/30/2012	<200 pCi/L
	11/30/2012	<200 pCi/L
	12/14/2012	<200 pCi/L
Well-Z	2/23/2012	439 pCi/L
	3/23/2012	532 pCi/L
	4/19/2012	417 pCi/L
	5/30/2012	585 pCi/L
	6/19/2012	607 pCi/L
	8/30/2012	586 pCi/L
	11/29/2012	652 pCi/L
	12/14/2012	690 pCi/L
Well BU	06/20/2012	<200
	12/20/2012	<200

VI. Investigation and monitoring wells tritium data and an overview of the Remedial Investigation Work Plans (RIWPs)

The Remedial Investigation Work Plan (RIWP) was initiated in 2004 to address the investigation and remediation of tritium associated with Salem Unit 1 spent fuel pool leak. This RIWP was written in accordance with New Jersey Administrative Code (N.J.A.C.) 7:26E (Technical Requirements for Site Remediation), Subchapter 4: Remedial Investigations, as well as regulations and guidance from the United States Environmental Protection Agency (USEPA) and United States Nuclear Regulatory Commission (USNRC) related to the investigation of radionuclides at nuclear generating stations. On site wells were drilled to establish the parameters of the on-site contamination. This program consists of sequential pumping of wells contaminated by the spent fuel pool leak, decreasing the contaminated area and concentration of tritium.

Following discovery of tritiated water in catch basins from the Salem Unit 2 plant vent, tritium has been detected in groundwater samples collected from temporary monitoring points and permanent monitoring wells installed adjacent to and around the perimeter of the Salem Unit 2 Containment Building and Fuel Handling Building.

The constituent of concern for the RIWP is tritium in groundwater, as the other plant related radionuclides are filtered or ion exchanged. Tritium is a radioactive isotope of the element hydrogen. Molecular hydrogen can exist in more than 40 forms, most commonly hydrogen, deuterium, and tritium. Tritium is a hydrogen atom that has two neutrons in its nucleus, compared to the most common isotope of hydrogen, which has no neutrons. Tritium occurs naturally in the upper atmosphere when solar radiation bombards atmospheric nitrogen or deuterium. Anthropogenic (made by humans) tritium is produced during the explosions of nuclear weapons, is a byproduct of nuclear reactors, and is produced commercially for use in various self-luminescent devices. Although tritium can occur in gaseous form, it is most commonly found in liquid form. Tritium, like non-radioactive hydrogen, reacts with oxygen to form tritiated water. Tritium is colorless and odorless, has a half-life of 12.3 years, and emits low-energy beta particles.

As explained in the RGPP section, these wells can be affected by recapture of plant effluents, which can lead to high results close to the station. Any abnormal result is carefully evaluated to ensure that the source is not from a leak in the plant facility.

The reporting limits for tritium in the Radiological Groundwater Protection Program in the previous section do not apply as these investigations are under NJDEP-BNE oversight.

Field observations and concentration gradients did not identify a specific source for the tritium detected in groundwater samples from the monitoring wells. The data does not indicate an ongoing leak of radioactive material.

Review of data from the existing monitoring well network did not indicate that tritiated water was being released from the site through the groundwater pathway.

Investigation Objectives

The investigations have the following primary goals:

- Determine whether the concentrations of tritium detected in groundwater samples collected at the site are the result of a discharge from a particular source.
- Assess whether the tritium detected in the groundwater near SGS Units 1 or 2 requires the need for any further action.

Table 6. Well Construction Details, RIWP and Monitoring wells

Well ID	Date Installed	Reference Point Elevation (site datum)	Reference Point Elevation (NAVD 1988)	Total Depth (btoc)	Monitoring Interval (feet bgs)	Well Casing Diameter (inch)	Monitored Hydrogeologic Unit
Well K	Feb-2003	102.00	12.08	80.0	70.0 - 80.0	2	Vincentown[1]
Well L	Jan-2003	101.46	11.54	80.0	70.0 - 80.0	2	Vincentown[1]
Well M	May-2003	102.17	12.25	20.0	10.0 - 20.0	1	Cofferdam[2]
Well N	Jan-2003	101.65	11.73	20.0	10.0 - 20.0	2	Cofferdam[2]
Well O	Jan-2003	101.33	11.41	20.0	10.0 - 20.0	2	Cofferdam[2]
Well P	Mar-2003	101.13	11.21	80.0	70.0 - 80.0	2	Vincentown[1]
Well Q	Mar-2003	106.59	16.67	80.0	70.0 - 80.0	2	Vincentown[1]
Well R	Jun-2003	102.35	12.43	19.0	9.0 - 19.0	1	Cofferdam[2]
Well S[4]	May-2003	99.04	9.12	34.7	24.7 - 34.7	2	Shallow[3]
Well V[4]	Jun-2003	98.74	8.82	79.5	69.5 - 79.5	2	Vincentown[1]
Well W[4]	Jun-2003	98.26	8.34	35.0	25.0 - 35.0	2	Shallow[3]
Well AA[4]	Sep-2003	99.07	9.15	36.0	26.0 - 36.0	2	Shallow[3]
Well AB[4]	Oct-2003	98.93	9.01	42.0	32.0- 42.0	2	Shallow[3]
Well AC[4]	Sep-2003	98.77	8.85	24.0	14.0 - 24.0	2	Cofferdam[2]
Well AD[4]	Oct-2003	98.99	9.07	43.0	33.0 - 43.0	6	Shallow[3]
Well AE	Oct-2003	101.54	11.62	37.5	27.5 - 37.5	2	Cofferdam[2]
Well AF	Oct-2003	101.61	11.69	45.0	35.0 - 45.0	2	Shallow[3]
Well AG-Shallow	Feb-2004	99.29	9.37	24.2	14.2 - 24.2	1	Shallow[3]

Well ID	Date Installed	Reference Point Elevation (site datum)	Reference Point Elevation (NAVD 1988)	Total Depth (btoc)	Monitoring Interval (feet bgs)	Well Casing Diameter (inch)	Monitored Hydrogeologic Unit
Well AG-Deep	Feb-2004	99.20	9.28	40.0	30.0 - 40.0	1	Shallow[3]
Well AH-Shallow	Feb-2004	102.58	12.66	24.5	14.5 - 24.5	1	Shallow[3]
Well AH-Deep	Feb-2004	102.70	12.78	40.0	30.0 - 40.0	1	Shallow[3]
Well AI	Jan-2004	98.79	8.87	22.0	12.0 - 22.0	4	Cofferdam[2]
Well AJ	Jan-2004	98.85	8.93	35.3	15.3 - 35.3	4	Shallow[3]
Well AM	Jan-2004	98.55	8.63	20.9	10.9 - 20.9	4	Cofferdam[2]
Well AN	Jun-2004	98.76	8.84	25.0	10.0 - 25.0	4	Cofferdam2
Well AO	Jun-2004	98.82	8.90	21.0	11.0 - 21.0	4	Cofferdam2
Well AP	Jun-2004	98.65	8.73	40.0	15.0 - 40.0	4	Shallow[3]
Well AQ	Jun-2004	99.05	9.13	45.0	20.0 - 45.0	4	Shallow[3]
Well AR	Jun-2004	99.22	9.30	43.0	18.0 - 43.0	4	Shallow[3]
Well AS	Jun-2004	99.44	9.52	41.5	16.5 - 41.5	4	Shallow[3]
Well AT	Jun-2004	99.25	9.33	44.0	19.0 - 44.0	4	Shallow[3]
Well BW	Dec-2006	98.68	8.76	10	10.0 - 15.0	2	Shallow[3]
Well BX	Dec-2006	98.66	8.74	10	10.0 - 15.0	2	Shallow[3]
Well BY	Nov-2010	103.36	13.44	42.80	37.8 - 42.8	4	Shallow
Well BZ	Nov-2010	104.29	14.37	39.06	29.0 - 39.0	4	Shallow
Well CA	Dec-2006	98.87	8.95	38.0	28.0 - 38.0	4	Shallow[2]
Well CB	Dec-2006	98.98	9.06	80.0	70.0 - 80.0	2	Vincentown[3]
Well DA	Nov-2010	98.93	9.01	16.0	17.0 - 22.0	4	Shallow[2]
Well DB	Nov-2010	101.69	11.77	24.9	1.55 - 24.5	4	Shallow[2]
Well DC	Nov-2010	100.9	10.98	25.4	20.0 - 25.0	4	Shallow[2]
Well DD	Nov-2010	101.23	11.31	21.9	16.0 - 21.0	4	Shallow[2]
Well DE	Nov-2010	101.43	11.51	20.9	15.0 - 20.0	4	Shallow[2]
Well DF	Nov-2010	101.32	11.40	21.3	16.0 - 21.0	4	Shallow[2]

Well ID	Date Installed	Reference Point Elevation (site datum)	Reference Point Elevation (NAVD 1988)	Total Depth (btoc)	Monitoring Interval (feet bgs)	Well Casing Diameter (inch)	Monitored Hydrogeologic Unit
Well DG	Nov-2010	98.98	9.06	13.3	11.0 - 13.0	4	Shallow[2]
Well DH	Nov-2010	101.54	11.62	24.6	19.5 - 24.5	4	Shallow[2]
Well DI	Nov-2010	101.64	11.72	20.5	15.0 - 20.0	4	Shallow[2]
Well DJ	Nov-2010	99.03	9.11	10.7	5.5 - 10.5	2	Shallow[2]

Notes:

MP	Measuring Point
bgs	Below ground surface
RPD	Relative to plant datum
amsl	Relative to mean sea level (NAVD 1988)

Table 7 Results of Investigation and Monitoring wells

Location ID	Date Collected	Result
Well-DJ	2/10/2012	910 pCi/L
Well-DJ	5/17/2012	923 pCi/L
Well-DJ	7/17/2012	1060 pCi/L
Well-DJ	9/21/2012	751 pCi/L
Well-DJ	10/24/2012	729 pCi/L
Well-DJ	11/29/2012	722 pCi/L
Well-DJ	12/12/2012	926 pCi/L
Well-K	1/24/2012	< 200 pCi/L
Well-K	7/17/2012	< 200 pCi/L
Well-L	1/24/2012	< 200 pCi/L
Well-L	7/25/2012	< 200 pCi/L
Well-M	1/6/2012	9500 pCi/L
Well-M	2/8/2012	8850 pCi/L
Well-M	3/13/2012	12700 pCi/L
Well-M	4/17/2012	29900 pCi/L
Well-M	5/10/2012	19900 pCi/L
Well-M	6/13/2012	31300 pCi/L
Well-M	7/23/2012	24300 pCi/L
Well-M	8/22/2012	18700 pCi/L
Well-M	9/12/2012	15600 pCi/L
Well-M	10/11/2012	16600 pCi/L
Well-M	11/30/2012	11400 pCi/L
Well-M	12/15/2012	11300 pCi/L
Well-N	1/6/2012	15500 pCi/L
Well-N	2/8/2012	14400 pCi/L
Well-N	3/13/2012	13600 pCi/L
Well-N	4/17/2012	13800 pCi/L
Well-N	5/10/2012	12500 pCi/L
Well-N	6/13/2012	15600 pCi/L
Well-N	7/23/2012	17900 pCi/L
Well-N	8/22/2012	17500 pCi/L
Well-N	9/12/2012	22200 pCi/L
Well-N	10/11/2012	20400 pCi/L
Well-N	11/28/2012	20100 pCi/L
Well-N	12/19/2012	20600 pCi/L
Well-O	1/24/2012	7580 pCi/L
Well-O	2/23/2012	11700 pCi/L
Well-O	3/13/2012	15200 pCi/L
Well-O	4/19/2012	12900 pCi/L
Well-O	5/30/2012	11500 pCi/L
Well-O	6/19/2012	7410 pCi/L
Well-O	7/23/2012	3920 pCi/L
Well-O	8/30/2012	3830 pCi/L
Well-O	9/12/2012	4980 pCi/L
Well-O	10/18/2012	4930 pCi/L
Well-O	11/30/2012	23700 pCi/L
Well-O	12/18/2012	32800 pCi/L
Well-P	1/19/2012	< 200 pCi/L
Well-P	7/25/2012	< 200 pCi/L
Well-Q	1/30/2012	< 200 pCi/L
Well-Q	7/25/2012	< 200 pCi/L
Well-R	1/6/2012	5760 pCi/L
Well-R	2/8/2012	4790 pCi/L
Well-R	3/13/2012	4870 pCi/L
Well-R	4/17/2012	5150 pCi/L
Well-R	5/10/2012	4650 pCi/L
Well-R	6/13/2012	4590 pCi/L
Well-R	7/23/2012	4810 pCi/L
Well-R	8/22/2012	4230 pCi/L
Well-R	9/12/2012	4580 pCi/L
Well-R	10/11/2012	4240 pCi/L
Well-R	12/4/2012	3960 pCi/L
Well-R	12/15/2012	4180 pCi/L
Well-S	6/20/2012	< 200 pCi/L
Well-S	11/30/2012	25700 pCi/L
Well-S	12/20/2012	13900 pCi/L
Well-V	3/23/2012	272 pCi/L
Well-V	6/7/2012	358 pCi/L
Well-V	7/17/2012	< 200 pCi/L
Well-V	10/18/2012	213 pCi/L
Well-W	1/6/2012	3130 pCi/L
Well-W	2/8/2012	2770 pCi/L
Well-W	3/13/2012	2710 pCi/L
Well-W	4/17/2012	1370 pCi/L
Well-W	5/10/2012	1180 pCi/L
Well-W	6/13/2012	1240 pCi/L
Well-W	8/22/2012	1430 pCi/L
Well-W	10/11/2012	1540 pCi/L
Well-W	11/29/2012	1540 pCi/L
Well-W	12/15/2012	1470 pCi/L

Table 7 Results of Investigation and Monitoring wells

Location ID	Date Collected	Result
Well-AI	1/6/2012	15100 pCi/L
Well-AI	2/8/2012	5600 pCi/L
Well-AI	3/13/2012	2870 pCi/L
Well-AI	4/17/2012	3310 pCi/L
Well-AI	5/10/2012	1460 pCi/L
Well-AI	6/13/2012	1840 pCi/L
Well-AI	7/23/2012	2320 pCi/L
Well-AI	8/22/2012	2050 pCi/L
Well-AI	9/12/2012	2350 pCi/L
Well-AI	10/11/2012	1430 pCi/L
Well-AI	11/29/2012	2050 pCi/L
Well-AI	12/15/2012	1830 pCi/L
Well-AJ	6/20/2012	11000 pCi/L
Well-AJ	11/29/2012	14200 pCi/L
Well-AJ	12/20/2012	19300 pCi/L
Well-AM	1/6/2012	18300 pCi/L
Well-AM	2/8/2012	12100 pCi/L
Well-AM	3/13/2012	9210 pCi/L
Well-AM	4/17/2012	9170 pCi/L
Well-AM	5/10/2012	6880 pCi/L
Well-AM	6/13/2012	4030 pCi/L
Well-AM	7/23/2012	6240 pCi/L
Well-AM	8/22/2012	5360 pCi/L
Well-AM	9/12/2012	5000 pCi/L
Well-AM	10/11/2012	6950 pCi/L
Well-AM	11/28/2012	5240 pCi/L
Well-AM	12/19/2012	5440 pCi/L
Well-AN	6/20/2012	181 pCi/L
Well-AO	12/4/2012	3350 pCi/L
Well-AO	12/19/2012	3100 pCi/L
Well-AP	1/19/2012	740 pCi/L
Well-AP	2/15/2012	877 pCi/L
Well-AP	3/15/2012	867 pCi/L
Well-AP	4/17/2012	842 pCi/L
Well-AP	5/10/2012	744 pCi/L
Well-AP	6/13/2012	782 pCi/L
Well-AP	8/30/2012	821 pCi/L
Well-AP	10/11/2012	810 pCi/L
Well-AP	11/30/2012	1050 pCi/L
Well-AP	12/17/2012	730 pCi/L
Well-AR	1/19/2012	12400 pCi/L
Well-AR	2/15/2012	12400 pCi/L
Well-AR	3/15/2012	10500 pCi/L
Well-AR	4/17/2012	12300 pCi/L
Well-AR	5/10/2012	10600 pCi/L
Well-AR	6/13/2012	8260 pCi/L
Well-AR	8/22/2012	7040 pCi/L
Well-AR	10/11/2012	7820 pCi/L
Well-AR	11/30/2012	8630 pCi/L
Well-AR	12/18/2012	9870 pCi/L
Well-AS	12/4/2012	18400 pCi/L
Well-AS	12/19/2012	25400 pCi/L
Well-AT	6/20/2012	< 200 pCi/L
Well-AT	11/29/2012	4150 pCi/L
Well-AT	12/20/2012	4460 pCi/L
Well-BW	1/24/2012	785 pCi/L
Well-BW	2/28/2012	868 pCi/L
Well-BW	3/28/2012	720 pCi/L
Well-BW	4/24/2012	479 pCi/L
Well-BW	5/17/2012	459 pCi/L
Well-BW	6/19/2012	445 pCi/L
Well-BW	8/29/2012	584 pCi/L
Well-BW	11/29/2012	679 pCi/L
Well-BX	1/24/2012	573 pCi/L
Well-BX	2/28/2012	925 pCi/L
Well-BX	3/28/2012	1080 pCi/L
Well-BX	4/24/2012	379 pCi/L
Well-BX	5/17/2012	519 pCi/L
Well-BX	6/19/2012	608 pCi/L
Well-BX	8/29/2012	383 pCi/L
Well-BX	11/27/2012	816 pCi/L
Well-BY	2/17/2012	1710 pCi/L
Well-BY	3/21/2012	1610 pCi/L
Well-BY	4/24/2012	991 pCi/L
Well-BY	5/31/2012	1230 pCi/L
Well-BY	6/18/2012	1080 pCi/L
Well-BY	9/25/2012	1240 pCi/L
Well-BY	10/25/2012	1350 pCi/L
Well-BY	11/27/2012	1570 pCi/L
Well-BY	12/11/2012	1180 pCi/L
Well-BZ	2/17/2012	204 pCi/L
Well-BZ	3/21/2012	209 pCi/L
Well-BZ	4/24/2012	193 pCi/L
Well-BZ	5/31/2012	226 pCi/L
Well-BZ	6/18/2012	< 200 pCi/L
Well-BZ	9/25/2012	634 pCi/L
Well-BZ	10/25/2012	378 pCi/L
Well-BZ	11/26/2012	365 pCi/L
Well-BZ	12/11/2012	625 pCi/L

Table 7 Results of Investigation and Monitoring wells

Location ID	Date Collected	Result	Location ID	Date Collected	Result
Well-CA	1/24/2012	1010 pCi/L	Well-DD	5/3/2012	2950 pCi/L
Well-CA	2/10/2012	1150 pCi/L	Well-DD	2/10/2012	3080 pCi/L
Well-CA	3/28/2012	1260 pCi/L	Well-DD	7/16/2012	14500 pCi/L
Well-CA	4/24/2012	1080 pCi/L	Well-DD	8/29/2012	21600 pCi/L
Well-CA	5/17/2012	1110 pCi/L	Well-DD	12/12/2012	27300 pCi/L
Well-CA	6/19/2012	1180 pCi/L	Well-DD	10/24/2012	27900 pCi/L
Well-CA	7/17/2012	955 pCi/L	Well-DD	11/28/2012	29300 pCi/L
Well-CA	8/29/2012	1270 pCi/L	Well-DD	9/20/2012	33000 pCi/L
Well-CA	9/21/2012	1090 pCi/L	Well-DE	2/10/2012	14900 pCi/L
Well-CA	10/24/2012	1050 pCi/L	Well-DE	5/3/2012	15300 pCi/L
Well-CA	11/30/2012	800 pCi/L	Well-DE	7/16/2012	16900 pCi/L
Well-CA	12/19/2012	1160 pCi/L	Well-DE	8/29/2012	14500 pCi/L
Well-CB	1/24/2012	424 pCi/L	Well-DE	9/20/2012	13500 pCi/L
Well-CB	2/10/2012	310 pCi/L	Well-DE	10/24/2012	15100 pCi/L
Well-CB	3/28/2012	475 pCi/L	Well-DE	11/28/2012	11600 pCi/L
Well-CB	4/24/2012	289 pCi/L	Well-DE	12/12/2012	11600 pCi/L
Well-CB	5/17/2012	391 pCi/L	Well-DF	2/10/2012	1320 pCi/L
Well-CB	6/19/2012	289 pCi/L	Well-DF	5/3/2012	1440 pCi/L
Well-CB	7/17/2012	447 pCi/L	Well-DF	7/16/2012	1380 pCi/L
Well-CB	8/29/2012	231 pCi/L	Well-DF	9/20/2012	1240 pCi/L
Well-CB	9/21/2012	502 pCi/L	Well-DF	10/24/2012	1440 pCi/L
Well-CB	10/24/2012	303 pCi/L	Well-DF	11/28/2012	1680 pCi/L
Well-CB	11/30/2012	503 pCi/L	Well-DF	12/12/2012	1830 pCi/L
Well-CB	12/19/2012	603 pCi/L	Well-DG	2/23/2012	7710 pCi/L
Well-DA	2/23/2012	1960 pCi/L	Well-DG	5/3/2012	6310 pCi/L
Well-DA	5/3/2012	1770 pCi/L	Well-DG	7/16/2012	24900 pCi/L
Well-DA	7/16/2012	2210 pCi/L	Well-DG	8/29/2012	44900 pCi/L
Well-DA	9/20/2012	742 pCi/L	Well-DG	9/20/2012	30000 pCi/L
Well-DA	11/30/2012	1490 pCi/L	Well-DG	11/28/2012	17400 pCi/L
Well-DA	12/13/2012	1340 pCi/L	Well-DG	12/12/2012	18100 pCi/L
Well-DB	2/10/2012	6910 pCi/L	Well-DH	2/10/2012	6190 pCi/L
Well-DB	5/3/2012	5690 pCi/L	Well-DH	5/17/2012	7990 pCi/L
Well-DB	7/16/2012	10100 pCi/L	Well-DH	7/17/2012	6190 pCi/L
Well-DB	8/29/2012	10600 pCi/L	Well-DH	9/21/2012	6080 pCi/L
Well-DB	9/20/2012	9120 pCi/L	Well-DH	10/24/2012	7930 pCi/L
Well-DB	10/24/2012	9610 pCi/L	Well-DH	11/29/2012	7640 pCi/L
Well-DB	11/28/2012	8350 pCi/L	Well-DH	12/12/2012	7070 pCi/L
Well-DB	12/12/2012	9020 pCi/L	Well-DI	2/10/2012	2710 pCi/L
Well-DC	2/10/2012	3200 pCi/L	Well-DI	5/17/2012	1950 pCi/L
Well-DC	5/3/2012	2100 pCi/L	Well-DI	7/17/2012	2120 pCi/L
Well-DC	7/16/2012	1950 pCi/L	Well-DI	9/21/2012	1190 pCi/L
Well-DC	9/20/2012	2890 pCi/L	Well-DI	10/24/2012	1570 pCi/L
Well-DC	10/24/2012	2730 pCi/L	Well-DI	11/29/2012	1640 pCi/L
Well-DC	11/28/2012	1750 pCi/L	Well-DI	12/12/2012	2600 pCi/L
Well-DC	12/12/2012	1970 pCi/L			

Table 7 Results of Investigation and Monitoring wells

Location ID	Date Collected	Result
Well-DJ	2/10/2012	910 pCi/L
Well-DJ	5/17/2012	923 pCi/L
Well-DJ	7/17/2012	1060 pCi/L
Well-DJ	9/21/2012	751 pCi/L
Well-DJ	10/24/2012	729 pCi/L
Well-DJ	11/29/2012	722 pCi/L
Well-DJ	12/12/2012	926 pCi/L
Well-K	1/24/2012	< 200 pCi/L
Well-K	7/17/2012	< 200 pCi/L
Well-L	1/24/2012	< 200 pCi/L
Well-L	7/25/2012	< 200 pCi/L
Well-M	1/6/2012	9500 pCi/L
Well-M	2/8/2012	8850 pCi/L
Well-M	3/13/2012	12700 pCi/L
Well-M	4/17/2012	29900 pCi/L
Well-M	5/10/2012	19900 pCi/L
Well-M	6/13/2012	31300 pCi/L
Well-M	7/23/2012	24300 pCi/L
Well-M	8/22/2012	18700 pCi/L
Well-M	9/12/2012	15600 pCi/L
Well-M	10/11/2012	16600 pCi/L
Well-M	11/30/2012	11400 pCi/L
Well-M	12/15/2012	11300 pCi/L
Well-N	1/6/2012	15500 pCi/L
Well-N	2/8/2012	14400 pCi/L
Well-N	3/13/2012	13600 pCi/L
Well-N	4/17/2012	13800 pCi/L
Well-N	5/10/2012	12500 pCi/L
Well-N	6/13/2012	15600 pCi/L
Well-N	7/23/2012	17900 pCi/L
Well-N	8/22/2012	17500 pCi/L
Well-N	9/12/2012	22200 pCi/L
Well-N	10/11/2012	20400 pCi/L
Well-N	11/28/2012	20100 pCi/L
Well-N	12/19/2012	20600 pCi/L
Well-O	1/24/2012	7580 pCi/L
Well-O	2/23/2012	11700 pCi/L
Well-O	3/13/2012	15200 pCi/L
Well-O	4/19/2012	12900 pCi/L
Well-O	5/30/2012	11500 pCi/L
Well-O	6/19/2012	7410 pCi/L
Well-O	7/23/2012	3920 pCi/L
Well-O	8/30/2012	3830 pCi/L
Well-O	9/12/2012	4980 pCi/L
Well-O	10/18/2012	4930 pCi/L
Well-O	11/30/2012	23700 pCi/L
Well-O	12/18/2012	32800 pCi/L
Well-P	1/19/2012	< 200 pCi/L
Well-P	7/25/2012	< 200 pCi/L
Well-Q	1/30/2012	< 200 pCi/L
Well-Q	7/25/2012	< 200 pCi/L
Well-R	1/6/2012	5760 pCi/L
Well-R	2/8/2012	4790 pCi/L
Well-R	3/13/2012	4870 pCi/L
Well-R	4/17/2012	5150 pCi/L
Well-R	5/10/2012	4650 pCi/L
Well-R	6/13/2012	4590 pCi/L
Well-R	7/23/2012	4810 pCi/L
Well-R	8/22/2012	4230 pCi/L
Well-R	9/12/2012	4580 pCi/L
Well-R	10/11/2012	4240 pCi/L
Well-R	12/4/2012	3960 pCi/L
Well-R	12/15/2012	4180 pCi/L
Well-S	6/20/2012	< 200 pCi/L
Well-S	11/30/2012	25700 pCi/L
Well-S	12/20/2012	13900 pCi/L
Well-V	3/23/2012	272 pCi/L
Well-V	6/7/2012	358 pCi/L
Well-V	7/17/2012	< 200 pCi/L
Well-V	10/18/2012	213 pCi/L
Well-W	1/6/2012	3130 pCi/L
Well-W	2/8/2012	2770 pCi/L
Well-W	3/13/2012	2710 pCi/L
Well-W	4/17/2012	1370 pCi/L
Well-W	5/10/2012	1180 pCi/L
Well-W	6/13/2012	1240 pCi/L
Well-W	8/22/2012	1430 pCi/L
Well-W	10/11/2012	1540 pCi/L
Well-W	11/29/2012	1540 pCi/L
Well-W	12/15/2012	1470 pCi/L

Table 8. Hope Creek and Salem 10CFR 50.75(g) Data

Spill/Discharge	Quantity Spilled / Discharged	Location of Spill/Discharge	Description
Apr-95	~ 88 millicuries	Hope Creek and Salem	Steam from the Decon Solution Evaporator released from Hope Creek's South Plant Vent
Jan-02		Unit 1 RWST	Salem Unit 1 RWST Nozzle Leak
Sep-02	~5 Ci	Ground west of Unit 1 Spent Fuel Building	Blockage of the Spent Fuel Pool liner's "tell-tales" caused backup of contaminated water through building seams
Mar-04	Co-60	North Side of Salem Circulating Water House	Corroded Pipe Cracked
Jan-05	No discharge to the environment	Hope Creek rooms 3133, 3135, 3129 and 5102	Water from inside the Waste Sludge Phase Separator Tank Room appeared to be leaking through the crack in the wall
July-05	5.2 microcuries	Hope Creek 54' Diesel Building	Overflow of plant system contained within the building.
Aug-06		Southside of Salem House Heating Boiler	Leaking Valve
May-07	2.8 microcuries of Cs 137	In front of Salem Unit 2 condensate polisher	Burst site glass during operation. Resin blown through wall into switchyard
Nov-10	0.3 microcuries of Cs 137	At the pedestal steps Salem Unit 2 containment	Attributed to Fallout

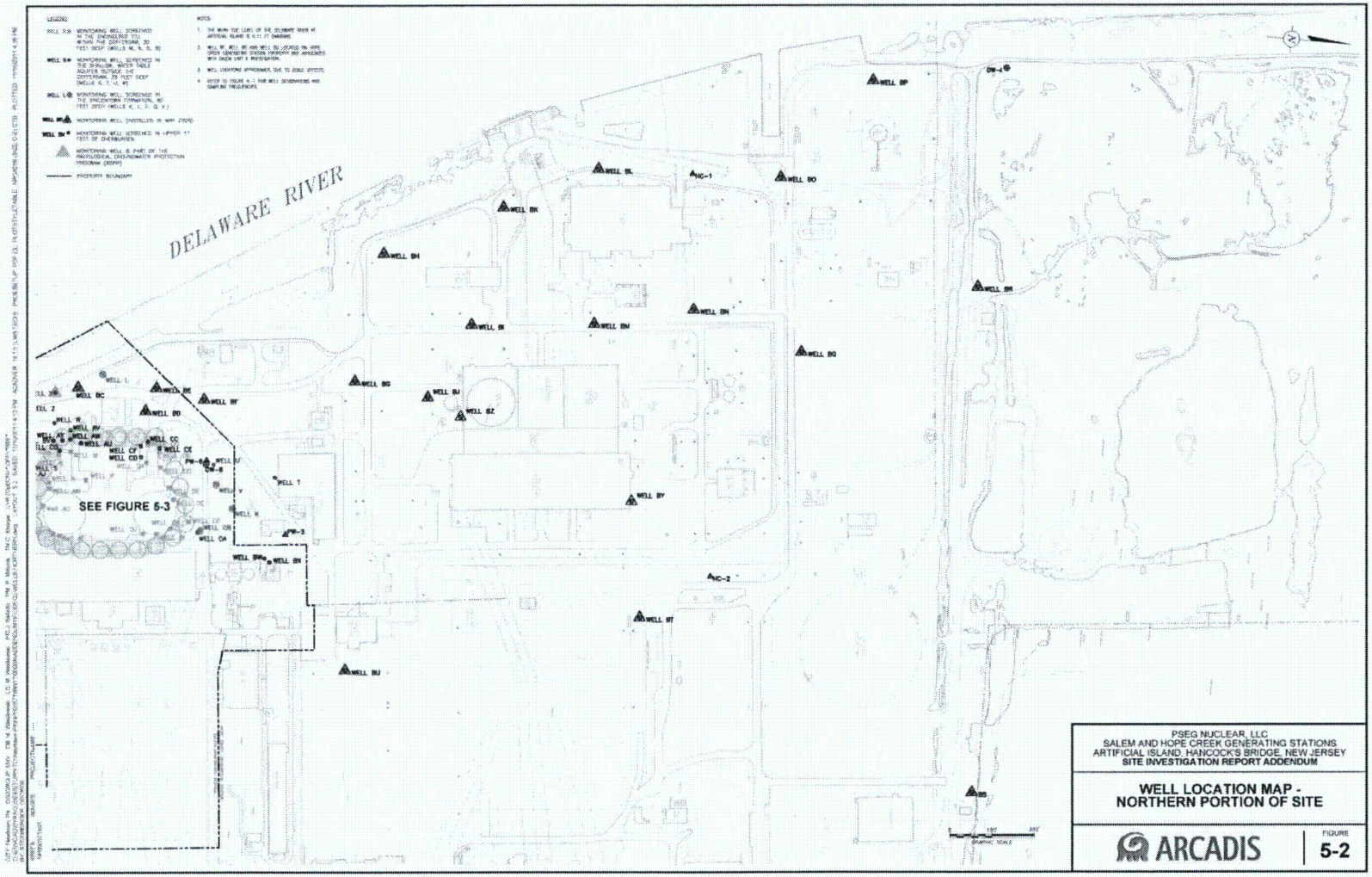


Figure 1: Hope Creek RGPP Well Locations

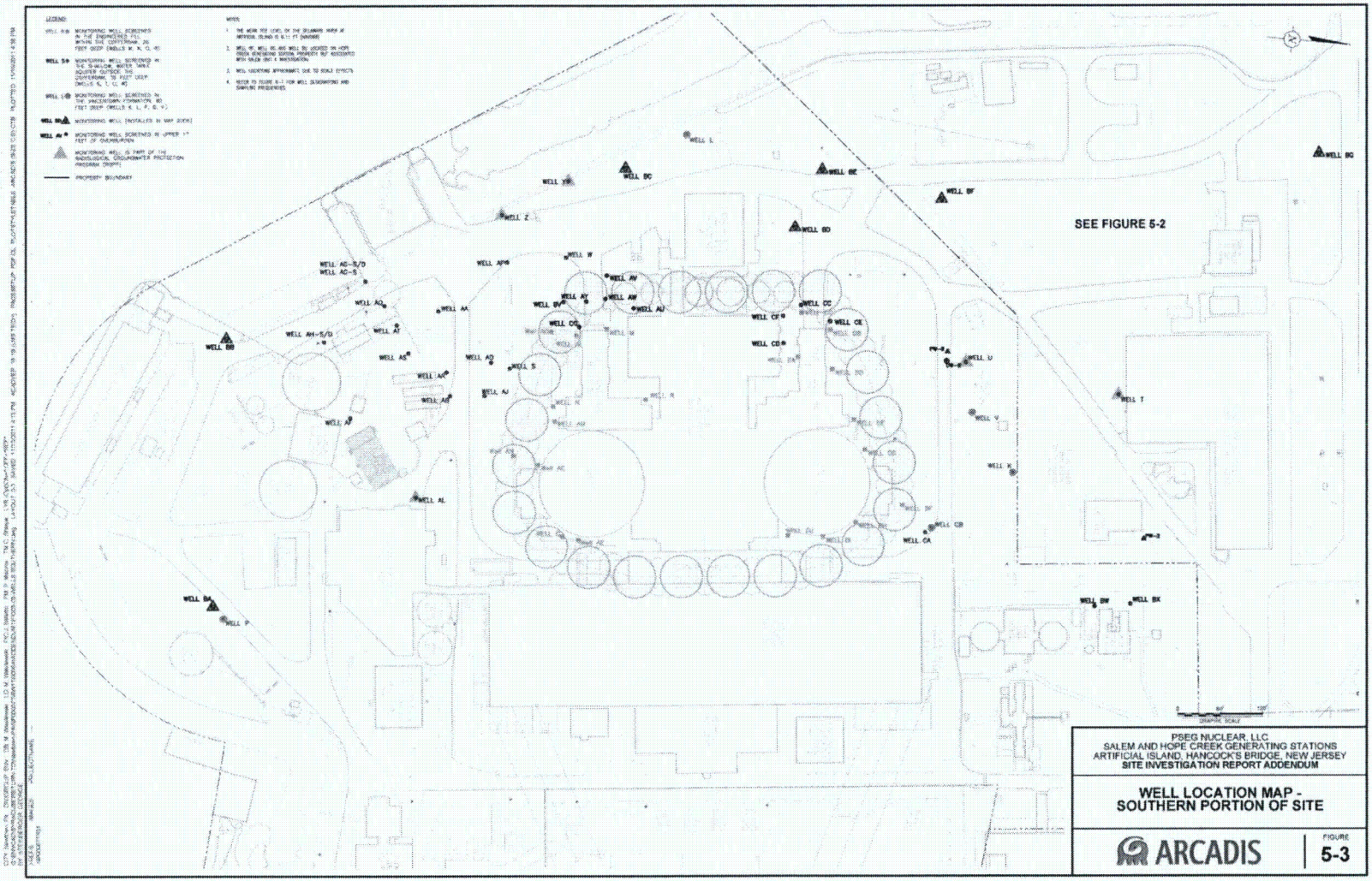


Figure 2: Salem RGPP Well Locations

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