

**ENCLOSURE 1**

**ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT**

**SEQUOYAH NUCLEAR PLANT**

**JANUARY - DECEMBER 2012**

Enclosure 1

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

SEQUOYAH NUCLEAR PLANT

2012

2012  
SEQUOYAH NUCLEAR PLANT (SQN)  
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

I. REGULATORY LIMITS

A. Gaseous Effluents

1. Dose rates due to radioactivity released in gaseous effluents from the site to areas at and beyond the unrestricted area boundary shall be limited to the following:
  - a. Noble gases:
    - Less than or equal to 500 mrem/year to the total body.
    - Less than or equal to 3000 mrem/year to the skin.
  - b. Iodine-131 (I-131), Iodine-133 (I-133), tritium, and all radionuclides in particulate form with half-lives greater than eight days:
    - Less than or equal to 1500 mrem/year to any organ.
2. Air dose due to noble gases released in gaseous effluents to areas at and beyond the unrestricted area boundary shall be limited to the following:
  - a. Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation during any calendar quarter.
  - b. Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation during any calendar year.
3. Dose to a member of the public from Iodine-131, Iodine-133, tritium, and radionuclides in particulate form with half-lives greater than eight days in gaseous effluents released to areas at and beyond the unrestricted area boundary shall be limited to the following:
  - a. Less than or equal to 7.5 mrem to any organ during any calendar quarter.
  - b. Less than or equal to 15 mrem to any organ during any calendar year.

B. Liquid Effluents

1. The annual average concentration of radioactivity released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in Title 10 of the Code of Federal Regulations (CFR), Part 20 (Standards for Protection Against Radiation), Appendix B, Table 2, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2.0E-04 microcuries/milliliter ( $\mu\text{Ci/ml}$ ) total activity.

2. The dose or dose commitment to a member of the public from radioactivity in liquid effluents released to unrestricted areas shall be limited to:
  - a. Less than or equal to 1.5 mrem to the total body and less than or equal to 5 mrem to any organ during any calendar quarter.
  - b. Less than or equal to 3 mrem to the total body and less than or equal to 10 mrem to any organ during any calendar year.

## II. EFFLUENT CONCENTRATION LIMITS

### A. Liquids

- \*1. The Effluent Concentration Limits (ECL) for liquids are those listed in 10 CFR 20, Appendix B, Table 2, Column 2. For dissolved and entrained gases, the ECL of  $2.0\text{E-}04 \mu\text{Ci/ml}$  is applied. This ECL is based on the Xenon-135 (Xe-135) concentration in air (submersion dose) converted to an equivalent concentration in water as discussed in the International Commission on Radiological Protection (ICRP), Publication 2.

\*These values are used as applicable limits for liquid and gaseous effluents.

### B. Gaseous

- \*1. The maximum permissible dose rates for gaseous releases are defined in the plant Offsite Dose Calculation Manual (ODCM).
  - a. Noble gas dose rate at the unrestricted area boundary:
    - Less than or equal to 500 mrem/year to the total body.
    - Less than or equal to 3000 mrem/year to skin.
  - b. Iodine-131, Iodine-133, tritium, and particulates with half-lives greater than eight days dose rate at the unrestricted area boundary:
    - Less than or equal to 1500 mrem/year to any organ.

\*These values are used as applicable limits for liquid and gaseous effluents.

## III. AVERAGE ENERGY

SQN's ODCM limits the dose equivalent rates due to the release of noble gases to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin. The use of dose rate is in accordance with NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants." Since the release rate is not used for effluent control, the average energy discussed in Regulatory Guide 1.21 (used for release rate control) is not included in this report.

#### IV. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

NOTE: Every effort is made to ensure that effluent releases from SQN are conducted such that the ODCM Lower Limit of Detection (LLD) values are met. Whenever an analysis does not identify a radioisotope, a value of "0.00E-01 Ci" is recorded for the release. This does not necessarily mean that no activity was released for that particular radionuclide, but that the concentration was below the ODCM and analysis LLD. Refer to Tables A and B for estimates of these typical LLD values.

##### A. Fission and Activation Gases

Airborne effluent gaseous activity is continuously monitored and recorded. Additional grab samples from the shield building, auxiliary building, service building, and condenser vacuum exhausts are taken and analyzed at least monthly to determine the quantity of noble gas activity released for the month based on the average vent flow rates recorded for the sample period. Also, noble gas samples are collected and evaluated for the shield and auxiliary buildings following startup, shutdown, or rated thermal power change exceeding 15 percent within one hour (sampling is only required if the dose equivalent I-131 concentration in the primary coolant or the noble gas activity monitor shows that the containment activity has increased more than a factor of 3).

The quantity of noble gases released through the shield and auxiliary building exhausts due to purging or venting of containment and releases of waste gas decay tanks are also determined.

The total noble gas activity released for the month is then determined by summing the activity released from each vent for the sampling periods.

##### B. Iodines and Particulates

Iodine and particulate activity is continuously sampled. Charcoal and particulate samples are taken from the shield and auxiliary building exhausts and analyzed at least weekly to determine the total activity released from the plant based on the average vent flow rates recorded for the sampling period.

Also, particulate and charcoal samples are taken from the auxiliary and shield building exhausts once per 24 hours for 2 days following startup, shutdown, or a rated thermal power change exceeding 15 percent within 1 hour. The quantity of iodine and particulate released from each vent during each sampling period is then determined using the average vent flow rates recorded for the sampling period and activity concentration.

The total particulate and iodine activity released for the month is then determined by summing all activity released from the shield and auxiliary building exhausts for the sampling periods.

##### C. Carbon-14 in Gaseous Releases

The Carbon-14 production and effluent source term estimates were based on Electric Power Institute methodology provided in EPRI Report 1021106, "Estimation of

Carbon-14 in Nuclear Power Plant Gaseous Effluents," December 2010. It was determined that 19.8 curies of Carbon-14 is generated annually at SQN. However, only 98 percent is considered released as gas and only the carbon dioxide form (20 percent) of that is used in the gaseous dose calculations.

#### D. Liquid Effluents

##### Batch (Radwaste and during periods of primary to secondary leakage, condensate regenerants to cooling tower blowdown)

Total gamma isotopic activity concentrations are determined on each batch of liquid effluent prior to release. The total activity of a released batch is determined by summing each nuclide's concentration and multiplying by the total volume discharged. The total activity released during a month is then determined by summing the activity content of each batch discharged during the month.

There were no changes made to the radioactive waste systems and/or the Process Control Program (PCP) for this calendar year

##### Continuous Releases and Periodic Continuous Releases (Condensate regenerants, turbine building sump, and steam generator blowdown)

Total gamma isotopic activity and tritium concentrations are determined monthly on one composite sample each from the condensate system, and the turbine building sump. The tritium value is applied to releases over the month. Total gamma isotopic activity concentration for Units 1 and 2 steam generator blowdown is determined daily. In addition to ODCM Table 2.2-1, tritium concentrations are determined daily, averaged for the month, and applied to releases over the month. The total activity of the continuous release is determined by summing each nuclide's concentration and multiplying by the total volume discharged.

## Monitoring Wells

SQN started conducting an investigation of tritium releases to the groundwater in 2003 due to identification of tritium in one of the on-site monitoring wells. This study involved pressure testing of the radwaste discharge line, installation and sampling of groundwater wells, visual inspection under the refueling water storage tanks (RWSTs) and inspection of drain lines. In addition to the one on-site Radiological Environmental Monitoring Program (REMP) groundwater monitoring well, SQN also has 18 non-REMP monitoring wells to support monitoring the onsite groundwater plume and for the presence or increase of radioactivity. These wells are sampled periodically for tritium. The tritium concentrations obtained in 2012 from these non-REMP wells are listed below. Initial and follow up analyses for the semi-annual sampling procedure indicated no gamma activity or Hard to Detect nuclides.

Well ID	Date	Activity in pCi/L	Date	Activity in pCi/L
Well-24	4/16/2012	<219	7/11/2012	<230
Well-24	10/09/2012	<236	N/A	N/A
Well-25	4/16/2012	<219	7/11/2012	<230
Well-25	10/09/2012	<236	N/A	N/A
Well-26	4/16/2012	<219	7/11/2012	<230
Well-26	10/09/2012	<236	N/A	N/A
Well-27	4/17/2012	<219	7/12/2012	<230
Well-27	10/10/2012	<236	N/A	N/A
Well-28	4/17/2012	<219	7/12/2012	340
Well-28	10/09/2012	<236	N/A	N/A
Well-29	4/18/2012	407	6/22/2012	745
Well-29	7/11/2012	Covered	10/09/2012	Covered
Well-30	4/16/2012	Obstructed	7/11/2012	Obstructed
Well-30	10/11/2012	<236	N/A	N/A
Well-31	4/18/2012	6840	6/22/2012	5677
Well-31	7/11/2012	Covered	10/11/2012	Covered
Well-32	4/18/2012	<230	7/12/2012	<230
Well-32	10/10/2012	<236	N/A	N/A
Well-34	4/17/2012	<230	7/12/2012	<230
Well-34	10/10/2012	<236	N/A	N/A
Well-35	4/17/2012	<230	7/12/2012	<230
Well-35	10/10/2012	<236	N/A	N/A
GP-7A	4/18/2012	Dry	7/11/2012	493
GP-7A	10/11/2012	351	N/A	N/A
GP-13	4/18/2012	4540	7/11/2012	4163
GP-13	10/11/2012	5326	N/A	N/A
W-9	4/18/2012	<218	7/12/2012	<230
W-9	10/11/2012	<236	N/A	N/A
WE-10	1/25/2012	21095	2/23/2012	22272
WE-10	3/28/2012	20368	4/18/2012	14704
WE-10	5/27/2012	17848	6/22/2012	18170
Well ID	Date	Activity in pCi/L	Date	Activity in pCi/L
WE-10	7/12/2012	18437	8/26/2012	19312
WE-10	10/10/2012	19489	N/A	N/A

### Doses from I-131 Water Ingestion Pathway

The REMP requirements as specified in Table 3.12-1 from NUREG 1301, "Offsite Dose Calculation Manual Guidance: Standard Radiological Effluent Controls for Pressurized Water Reactors," dated April 1991, requires an I-131 specific analysis for drinking water pathway samples if the annual dose from I-131 is greater than 1 mrem. In order to evaluate the need for implementation of this additional analysis, the drinking water pathway dose from I-131 to the maximum organ and age group was calculated. The results reported here confirm that the drinking water pathway dose from I-131 was less than the 1 mrem limit and that the performance of the I-131 specific analysis is not required for SQN REMP drinking water samples.

Quarter	1	2	3	4	Totals
I-131 Ci	0.00E+01	0.00E+01	0.00E+01	0.00E+01	0.00E+01
Infant/Thyroid (mrem)	0.00E+01	0.00E+01	0.00E+01	0.00E+01	0.00E+01
Population/Thyroid (mrem)	0.00E+01	0.00E+01	0.00E+01	0.00E+01	0.00E+01

There was no detectable I-131 released via this pathway during this reporting period.



## V. BATCH RELEASES

	1st Half	Value 2nd Half	Units
1. <u>Liquid (Radwaste only)</u>			
a. Number of releases	115	89	Each
b. Total time period of releases	17349.98	21831.00	Minutes
c. Maximum time period of release	1947	2100.00	Minutes
d. Average time period of releases	150.87	245.29	Minutes
e. Minimum time period of release	10.00	60.00	Minutes
f. Average dilution stream flow during release periods	31145.0	26377.0	CFS
2. <u>Gaseous (Batches only - containment purges, and waste gas decay tanks)</u>			
a. Number of releases	56	56	Each
b. Total time period of releases	36188.00	40839.00	Minutes
c. Maximum time period of release	5673.00	12609.00	Minutes
d. Average time period of releases	646.08	729.27	Minutes
e. Minimum time period of release	14.00	15.00	Minutes

## VI. ABNORMAL RELEASES

	1st Half	Value 2nd Half	Units
1. <u>Liquid</u>			
a. Number of releases	0	0	
b. Total activity released	0.00E-01	0.00E-01	Ci
2. <u>Gaseous</u>			
a. Number of releases	2	4	
b. Total activity released	1.38E-03	3.56E-03	Ci

Release Type: Gaseous

Release Point: Unit 2 unmonitored

Date(s) of Release: 4th Quarter, 12/28/2012 at 0500 through 12/28/2012 at 1200

The CILRT containment release is intended to be an un-monitored release with three release pathways: one each through the Aux Bldg. and the Shield Bldg. and one through an unmonitored path to the SQN environs. For conservatism, the pressurized containment volume is modeled to be released through the un-monitored pathway at the total release rate. This will provide the maximum calculated dose

Pre-release samples were collected and analyzed with the following results:

1. Tritium 3.806E-08  $\mu\text{Ci/ml}$
2. Noble Gas no observed activity
3. Particulate no observed activity
4. Iodine no observed activity

A pre-release permit was generated using the full containment volume of  $1.1922\text{E}+06$  CF and a flow rate of  $2.0\text{E}+04$  CFM. The pre-release permit was processed to the OPEN status and no limits were exceeded.

The release was conducted on 28 December, 2012, starting at 0500 and ending at 1200. The permit was processed to the CLOSED status and no limits were exceeded.

The activity of  $8.45\text{E}-04$  Ci was added to the 4th Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 4th Quarter doses in Table "Doses from Airborne Effluents."

Release Type: Gaseous (Steam)

Release Point: Unit 1 Steam Generator Atmospheric Relief Valve (ARVs)

Date(s) of Release: 1st Quarter, 02/29/2012 at 0855 through 03/30/2012 at 0842

This evaluation is for the release to the environment that occurred from the Unit 1 ARVs following a reactor trip on February 26, 2012, to Unit 1 Cycle 18 Refueling Outage. Following the reactor trip, the Steam Generator ARVs were open for periods of time during the Outage. The following is data used to determine the curies and dose impacts as a result of the release:

- While all the ARVs were not open continuously during this period, the evaluation assumed the release was continuous from all four ARVs.
- During Cycle 18, there have been no gamma emitting radionuclides identified in any Secondary Coolant samples.

The volume of each steam generator was taken from Westinghouse Guidelines for Secondary Water Chemistry. The listed normal water level value of  $3379\text{ ft}^3$  was used as a conservative value. This calculation assumes that the total volume of all four generators was released and that all the tritium present in that initial volume was released. The calculation for the total tritium activity released is as follows:

$$3379\text{ ft}^3/\text{generator} * 2.832\text{E}+04\text{ ml}/\text{ft}^3 * 4\text{ generators} = 3.828\text{E}+08\text{ ml}$$

$$2.765\text{E}-06\text{ }\mu\text{Ci}/\text{ml} * 3.828\text{E}+08\text{ ml} = 1.058\text{E}+03\text{ }\mu\text{Ci of H3 or }1.058\text{E}-03\text{ Ci of H3}$$

The activity of  $1.058\text{E}-03$  curies was added to the 1st Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 1st Quarter doses in Table "Doses from Airborne Effluents."

Release Type: Gaseous (Steam)

Release Point: Unit 1 ARV 2

Date(s) of Release: 2nd Quarter, 04/01/2012 at 1452 through 04/02/2012 at 0059

This evaluation is for the release to the environment that occurred from Unit 1. The Unit 1 ARV 2 gave an open indication on April 01, 2012. The following is data used to determine the curies and dose impacts as a result of the release:

- The evaluation assumed the release was continuous from ARV 2 only.
- There have been no gamma emitting radionuclides identified in any Secondary Coolant samples.

The volume of each steam generator was taken from Westinghouse Guidelines for Secondary Water Chemistry. The listed normal water level value of 3379 ft<sup>3</sup> was used as a conservative value. This calculation assumes that the total volume of all four generators was released and that all the tritium present in that initial volume was released. The calculation for the total tritium activity released is as follows:

$$3379 \text{ ft}^3/\text{generator} * 2.832\text{E}+04 \text{ ml/ft}^3 * 1 \text{ generator} = 9.569\text{E}+07 \text{ ml}$$

$$3.387\text{E}-06 \text{ } \mu\text{Ci/ml} * 9.569\text{E}+07 \text{ ml} = 3.241\text{E}+02 \text{ } \mu\text{Ci of H3 or } 3.241\text{E}-04 \text{ Ci of H3}$$

The activity of 3.241E-04 curies was added to the 2nd Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 2nd Quarter doses in Table "Doses from Airborne Effluents."

Release Type: Gaseous (Steam)

Release Point: Unit 2 ARVs 2 and 4

Date(s) of Release: 3rd Quarter, 08/16/2012 at 1850 through 08/16/2012 at 1859

This evaluation is for the release to the environment that occurred from Unit 2. Unit 2 ARVs 2 and 4 gave an open indication on August 16, 2012. The following is data used to determine the curies and dose impacts as a result of the release:

- The evaluation assumed the release was continuous from ARV 2 and 4 only.

There have been no gamma emitting radionuclides identified in any Secondary Coolant samples.

The volume of each steam generator was taken from Westinghouse Guidelines for Secondary Water Chemistry. The listed normal water level value of 3516 ft<sup>3</sup> was used as a conservative value. This calculation assumes that the total volume of all four generators was released and that all the tritium present in that initial volume was released. The calculation for the total tritium activity released is as follows:

$$3516 \text{ ft}^3/\text{generator} * 2.832\text{E}+04 \text{ ml/ft}^3 * 2 \text{ generators} = 1.992\text{E}+08 \text{ ml}$$

$$3.744\text{E}-06 \text{ } \mu\text{Ci/ml} * 1.992\text{E}+08 \text{ ml} = 7.458\text{E}+02 \text{ } \mu\text{Ci of H3 or } 7.458\text{E}-04 \text{ Ci of H3}$$

The activity of 7.458E-04 curies was added to the 3rd Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 3rd Quarter doses in Table "Doses from Airborne Effluents."

Release Type: Gaseous (Steam)

Release Point: Unit 2 ARVs

Date(s) of Release: 4th Quarter, 10/15/2012 at 1528 through 10/21/2012 at 1647

This evaluation is for the release to the environment that occurred from the Unit 2 ARVs following a reactor trip on October 15, 2012, to Unit 2 Cycle 18 Refueling and Steam Generator Replacement Outage. Following the reactor trip, the Steam Generator ARVs were open for periods of time prior to removing the Steam Generators. The following is data used to determine the curies and dose impacts as a result of the release:

- While all the ARVs were not open continuously during this period, the evaluation assumed the release was continuous from all four ARVs.
- During Cycle 18, there have been no gamma emitting radionuclides identified in any Secondary Coolant samples.

The volume of each steam generator was taken from Westinghouse Guidelines for Secondary Water Chemistry. The listed normal water level value of 3516 ft<sup>3</sup> was used as a conservative value. This calculation assumes that the total volume of all four generators was released and that all the tritium present in that initial volume was released. The calculation for the total tritium activity released is as follows:

$$3516 \text{ ft}^3/\text{generator} * 2.832\text{E}+04 \text{ ml/ft}^3 * 4 \text{ generators} = 3.983\text{E}+08 \text{ ml}$$

$$2.089\text{E}-06 \text{ } \mu\text{Ci/ml} * 3.983\text{E}+08 \text{ ml} = 8.321\text{E}+02 \text{ } \mu\text{Ci of H3 or } 8.321\text{E}-04 \text{ Ci of H3}$$

The activity of 8.321E-04 curies was added to the 4th Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 4th Quarter doses in Table "Doses from Airborne Effluents."

Release Type: Gaseous (Steam)

Release Point: Unit 2 ARVs

Date(s) of Release: 4th Quarter, 12/17/2012 at 1234 through 12/30/2012 at 2026

This evaluation is for the release to the environment that occurred from the Unit 2 ARVs following a reactor trip on October 15, 2012, to Unit 2 Cycle 18 Refueling and Steam Generator Replacement Outage. Following the installation of the new Steam Generators, the Steam Generator ARVs were open for periods of time until the plant came back online. The following is data used to determine the curies and dose impacts as a result of the release:

- While all the ARVs were not open continuously during this period, the evaluation assumed the release was continuous from all four ARVs.
- During Cycle 18, there have been no gamma emitting radionuclides identified in any Secondary Coolant samples.

The volume of each steam generator was taken from Westinghouse Guidelines for Secondary Water Chemistry. The listed normal water level value of 3516 ft<sup>3</sup> was used as a conservative value. This calculation assumes that the total volume of all four generators was released and that all the tritium present in that initial volume was released. The calculation for the total tritium activity released is as follows:

$3516 \text{ ft}^3/\text{generator} * 2.832\text{E}+04 \text{ ml}/\text{ft}^3 * 4 \text{ generators} = 3.983\text{E}+08 \text{ ml}$

$2.853\text{E}-06 \text{ } \mu\text{Ci}/\text{ml} * 3.983\text{E}+08 \text{ ml} = 1.136\text{E}+03 \text{ } \mu\text{Ci of H3 or } 1.136\text{E}-03 \text{ Ci of H3}$

The activity of  $8.321\text{E}-04$  curies was added to the 4th Quarter Table "Curies Released in Gaseous Ground Level Releases," and the 4th Quarter doses in Table "Doses from Airborne Effluents."

Liquid Effluents-Summation of Releases  
During the Period  
Starting: 1-Jan-2012 Ending: 30-Jun-2012

Type Of Effluent	Units	Quarter 1	Quarter 2	Est. Total Error %
<b>A. Fission &amp; Activation Products</b>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Ci	7.77E-03	2.08E-03	18%
2. Average Diluted Concentration During Period	µCi/ml	4.01E-09	1.11E-09	
3. Percent Of Applicable Limit	%	*	*	
<b>B. Tritium</b>				
1. Total Release	Ci	6.95E+02	1.03E+02	18%
2. Average Diluted Concentration During Period	µCi/ml	3.58E-04	5.54E-05	
3. Percent Of Applicable Limit	%	*	*	
<b>C. Dissolved And Entrained Gases</b>				
1. Total Release	Ci	3.18E-03	3.35E-06	39%
2. Average Diluted Concentration During Period	µCi/ml	1.64E-09	1.80E-12	
3. Percent Of Applicable Limit	%	5.06E-05	9.00E-07	
<b>D. Gross Alpha Radioactivity</b>				
1. Total Release	Curies	0.00E+01**	0.00E+01	N/A***
<b>E. Total Waste Volume Released (Pre-Dilution)</b>				
	Liters	5.57E+07	1.56E+08	4%
<b>F. Volume Of Dilution Water Used</b>				
	Liters	1.88E+09	1.71E+09	4%
<b>G. Radwaste Volume Released</b>				
	Liters	2.36E+06	1.22E+06	N/A

\* Applicable Limits are expressed in terms of dose. See Tables 5-8 of the 2012 Radiological Impact Assessment Report.

\*\* Zeroes indicate that no radioactivity was present at detectable levels.

\*\*\* N/A - Errors in measurement are not reported for these values since none were identified during the reporting period.

Liquid Effluents-Summation of Releases  
During the Period  
Starting: 1-Jul-2012 Ending: 31-Dec-2012

Type Of Effluent	Units	Quarter 3	Quarter 4	Est. Total Error %
<b>A. Fission &amp; Activation Products</b>				
1. Total Release (Not Including Tritium, Gases, Alpha)	Ci	9.94E-04	1.06E-01	18%
2. Average Diluted Concentration During Period	μCi/ml	4.69E-10	5.33E-08	
3. Percent Of Applicable Limit	%	*	*	
<b>B. Tritium</b>				
1. Total Release	Ci	8.64E+02	1.37E+02	18%
2. Average Diluted Concentration During Period	μCi/ml	4.08E-04	6.88E-05	
3. Percent Of Applicable Limit	%	*	*	
<b>C. Dissolved And Entrained Gases</b>				
1. Total Release	Ci	9.80E-04	6.48E-04	39%
2. Average Diluted Concentration During Period	μCi/ml	4.62E-10	3.26E-10	
3. Percent Of Applicable Limit	%	2.31E-04	1.63E-04	
<b>D. Gross Alpha Radioactivity</b>				
1. Total Release	Curies	0.00E+01**	0.00E+01	N/A***
<b>E. Total Waste Volume Released (Pre-Dilution)</b>				
	Liters	2.40E+08	4.03E+08	4%
<b>F. Volume Of Dilution Water Used</b>				
	Liters	1.88E+09	1.58E+09	4%
<b>G. Radwaste Volume Released</b>				
	Liters	1.83E+06	2.00E+06	N/A

\* Applicable Limits are expressed in terms of dose. See Tables 5-8 of the 2012 Radiological Impact Assessment Report.

\*\* Zeroes indicate that no radioactivity was present at detectable levels.

\*\*\* N/A - Errors in measurement are not reported for these values since none were identified during the reporting period.

Curies Released in Liquid Effluents  
During the period  
Starting: 1-Jan-2012 Ending 31-Mar-2012

	Continuous	Batch	Total
Tritium	1.76E-01	6.94E+02	6.95E+02
FISSION & ACTIVATION PRODUCTS			
Silver-110M	0.00E+01	3.70E-05	3.70E-05
Beryllium-7	0.00E+01	3.82E-05	3.82E-05
Colbalt-57	0.00E+01	1.03E-05	1.03E-05
Cobalt-58	0.00E+01	1.60E-03	1.60E-03
Cobalt-60	0.00E+01	1.44E-03	1.44E-03
Chromium-51	0.00E+01	2.09E-04	2.09E-04
Cesium-137	0.00E+01	1.94E-04	1.94E-04
Iron-55	0.00E+01	3.70E-03	3.70E-03
Lanthanum-140	0.00E+01	4.07E-06	4.07E-06
Manganese-54	0.00E+01	2.28E-05	2.28E-05
Niobium-95	0.00E+01	3.94E-05	3.94E-05
Antimony-124	0.00E+01	6.10E-05	6.10E-05
Antimony-125	0.00E+01	3.95E-04	3.95E-04
Tin-113	0.00E+01	6.30E-06	6.30E-06
Zinc-95	0.00E+01	8.97E-06	8.97E-06
TOTALS	0.00E+01	7.77E-03	7.77E-03
DISSOLVED AND ENTRAINED GASES			
Xenon-133	0.00E+01	3.12E-03	3.12E-03
Xenon-135	0.00E+01	5.97E-05	5.97E-05
TOTALS	0.00E+01	3.18E-03	3.18E-03

\*Zeroes indicate that no activity was present at detectable levels.



Curies Released in Liquid Effluents  
During the period  
Starting: 1-Apr-2012 Ending 30-Jun-2012

	Continuous	Batch	Total
Tritium	3.98E-01	1.03E+02	1.03E+02
FISSION & ACTIVATION PRODUCTS			
Cobalt-57	0.00E+01	1.65E-06	1.65E-06
Cobalt-58	0.00E+01	8.81E-04	8.81E-04
Cobalt-60	0.00E+01	6.11E-04	6.11E-04
Cesium-137	0.00E+01	7.77E-06	7.77E-06
Iron-55	0.00E+01	5.03E-04	5.03E-04
Antimony-124	0.00E+01	3.07E-05	3.07E-05
Antimony-125	0.00E+01	4.24E-05	4.24E-05
TOTALS	0.00E+01	2.08E-03	2.08E-03
DISSOLVED AND ENTRAINED GASES			
Xenon-133	0.00E+01	3.35E-06	3.35E-06
TOTALS	0.00E+01	3.35E-06	3.35E-06

\*Zeroes indicate that no activity was present at detectable levels.

Curies Released in Liquid Effluents  
During the period  
Starting: 1-Jul-2012 Ending 30-Sep-2012

	Continuous	Batch	Total
Tritium	7.73E-01	8.63E+02	8.64E+02
FISSION & ACTIVATION PRODUCTS			
Cobalt-58	0.00E+01	1.61E-04	1.61E-04
Cobalt-60	0.00E+01	3.95E-04	3.95E-04
Iron-55	0.00E+01	2.96E-04	2.96E-04
Antimony-124	0.00E+01	1.49E-05	1.49E-05
Antimony-125	0.00E+01	1.27E-04	1.27E-04
TOTALS	0.00E+01	9.94E-04	9.94E-04
DISSOLVED AND ENTRAINED GASES			
Xenon-133	0.00E+01	9.87E-04	9.87E-04
Xenon-135	0.00E+01	2.70E-06	2.70E-06
TOTALS	0.00E+01	9.80E-04	9.80E-04

\*Zeroes indicate that no activity was present at detectable levels.

Curies Released in Liquid Effluents  
During the period  
Starting: 1-Oct-2012 Ending 31-Dec-2012

	Continuous	Batch	Total
Tritium	9.39E-01	1.36E+02	1.37E+02
FISSION & ACTIVATION PRODUCTS			
Cobalt-57	0.00E+01	2.29E-04	2.29E-04
Cobalt-58	0.00E+01	9.63E-02	9.63E-02
Cobalt-60	0.00E+01	4.29E-03	4.29E-03
Cesium-137	0.00E+01	5.80E-06	5.80E-06
Iron-55	0.00E+01	2.68E-03	2.68E-03
Iron-59	0.00E+01	1.65E-05	1.65E-05
Antimony-124	0.00E+01	4.56E-04	4.56E-04
Antimony-125	0.00E+01	2.25E-03	2.25E-03
TOTALS	0.00E+01	1.06E-01	1.06E-01
DISSOLVED AND ENTRAINED GASES			
Krypton-88	0.00E+01	7.76E-05	7.76E-05
Xenon-133	0.00E+01	5.71E-04	5.71E-04
TOTALS	0.00E+01	6.49E-04	6.49E-04

\*Zeroes indicate that no activity was present at detectable levels.

TABLE A  
LIQUID "TYPICAL LLD" EVALUATION<sup>(1)</sup>

<u>Nuclide</u>	<u>ODCM LLD</u>	$\Delta t^{(2)}$		
		<u>1 hr</u>	<u>8 hr</u>	<u>32 hr</u>
Manganese-54	5.0E-07	3.36E-08	3.36E-08	3.37E-08
Cobalt-58	5.0E-07	2.53E-08	2.54E-08	2.56E-08
Iron-59	5.0E-07	5.26E-08	5.29E-08	5.37E-08
Cobalt-60	5.0E-07	4.63E-08	4.63E-08	4.64E-08
Zinc-65	5.0E-07	2.95E-08	2.95E-08	2.96E-08
Molybdenum-99	5.0E-07	1.55E-07	1.67E-07	2.15E-07
Cesium-134	5.0E-07	1.91E-08	1.91E-08	1.92E-08
Cesium-137	5.0E-07	3.87E-08	3.87E-08	3.87E-08
Cerium-141	5.0E-07	2.80E-08	2.81E-08	2.87E-08
Cerium-144	5.0E-06	1.11E-07	1.12E-07	1.12E-07
Iodine-131	1.0E-06	2.28E-08	2.34E-08	2.55E-08
Krypton-87	1.0E-05	1.16E-07	5.25E-07	(3)
Krypton-88	1.0E-05	9.95E-08	5.49E-07	(3)
Xenon-133	1.0E-05	4.19E-08	4.36E-08	4.98E-08
Xenon-133m	1.0E-05	1.42E-07	1.55E-07	2.13E-07
Xenon-135	1.0E-05	2.06E-08	3.50E-08	2.17E-07
Xenon-138	1.0E-05	8.37E-06	(3)	(3)
<u>Nuclide</u>	<u>ODCM LLD</u>	<u>Typical LLD</u>		
Tritium	1.0E-05	1.2E-06		
Gross Alpha	1.0E-07	2.0E-08		
Strontium-89/90	5.0E-08	3.8E-08/1.4E-08		
Iron-55	1.0E-06	1.3E-08		

NOTES: (1) LLD values are in  $\mu\text{Ci/ml}$ .

(2)  $\Delta t$  is the time between sample collection and counting time.

(3) T  $\frac{1}{2}$  too short.

Gaseous Effluents - Summation of Releases  
During the Period  
Starting: 1-Jan-2012 Ending: 30-Jun-2012

Type of Effluent	Units	Quarter 1	Quarter 2	Estimated Total Error %
<b>A. Fission and Activation Products</b>				
1. Total Release	Ci	2.27E+00	3.50E-01	11%
2. Average Release Rate For Period	μCi/sec	2.89E-01	4.45E-02	
3. Percent of Applicable Limit	%	*	*	
<b>B. Radioiodines</b>				
1. Total Iodine-131	Ci	1.70E-06	0.00E+01	13%
2. Average Release Rate For Period	μCi/sec	2.16E-07	0.00E+01	
3. Percent of Applicable Limit	%	*	*	
<b>C. Particulates</b>				
1. Particulates (Half-Lives > 8 Days)	Ci	0.00E+01	0.00E+01	16%
2. Average Release Rate For Period	μCi/sec	0.00E+01	0.00E+01	
3. Percent of Applicable Limit	%	*	*	
4. Gross Alpha Radioactivity	Ci	0.00E+01	0.00E+01	
<b>D. Tritium</b>				
1. Total Release	Ci	4.83E+01	1.49E+01	15%
2. Average Release Rate For Period	μCi/sec	6.14E+00	1.89E+00	
3. Percent of Applicable Limit	%	*	*	
<b>E. Carbon-14</b>				
1. Total Release	Ci	4.57E+00	5.61E+00	N/A
2. Average Release Rate For Period	μCi/sec	5.81E-01	7.14E-01	
3. Percent of Applicable Limit	%	*	*	

\* Applicable Limits are expressed in terms of dose. See Tables 1-4 of the 2012 Radiological Impact Assessment Report.

\*\* Zeroes indicate that no radioactivity was present at detectable levels.

\*\*\* N/A - Errors in measurement are not reported for these values since none were identified during the reporting period.

Gaseous Effluents - Summation of Releases  
During the Period  
Starting: 1-Jul-2012 Ending: 31-Dec2012

Type of Effluent	Units	Quarter 3	Quarter 4	Estimated Total Error %
<b>A. Fission and Activation Products</b>				
1. Total Release	Ci	1.05E+00	3.15E-01	11%
2. Average Release Rate For Period	μCi/sec	1.32E-01	3.96E-02	
3. Percent of Applicable Limit	%	*	*	
<b>B. Radioiodines</b>				
1. Total Iodine-131	Ci	0.00E+01	0.00E+01	N/A <sup>***</sup>
2. Average Release Rate For Period	μCi/sec	0.00E+01	0.00E+01	
3. Percent of Applicable Limit	%	*	*	
<b>C. Particulates</b>				
1. Particulates (Half-Lives > 8 Days)	Ci	0.00E+01	1.38E-06	16%
2. Average Release Rate For Period	μCi/sec	0.00E+01	1.73E-07	
3. Percent of Applicable Limit	%	*	*	
4. Gross Alpha Radioactiviy	Ci	0.00E+01	0.00E+01	
<b>D. Tritium</b>				
1. Total Release	Ci	9.45E+00	6.89E+00	15%
2. Average Release Rate For Period	μCi/sec	1.19E+00	8.67E-01	
3. Percent of Applicable Limit	%	*	*	
<b>E. Carbon-14</b>				
1. Total Release	Ci	5.75E+00	3.36E+00	N/A
2. Average Release Rate For Period	μCi/sec	7.23E-01	4.23E-01	
3. Percent of Applicable Limit	%	*	*	

\* Applicable Limits are expressed in terms of dose. See Tables 1-4 of the 2012 Radiological Impact Assessment Report.

\*\* Zeroes indicate that no radioactivity was present at detectable levels.

\*\*\* N/A - Errors in measurement are not reported for these values since none were identified during the reporting period.

Curies Released in Gaseous Ground Level Releases  
During the Period  
Starting: 1-Jan-2012 Ending: 31-Mar-2012

	CONTINUOUS	BATCH	TOTAL
<u>FISSION GASES</u>			
Xenon-133	0.00E+01	1.53E-01	1.53E-01
Xenon-135	0.00E+01	3.90E-03	3.90E-03
Argon-41	0.00E+01	2.12E+00	2.12E+00
TOTALS	0.00E+01	2.27E+00	2.27E+00
 <u>IODINES</u>			
Iodine-131	1.70E-06	0.00E+01	1.70E-06
TOTALS	1.70E-06	0.00E+01	1.70E-06
 <u>PARTICULATES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
 <u>TRITIUM</u>			
Tritium	4.76E+01	6.90E-01	4.83E+01
 <u>CARBON-14</u>			
Carbon-14 (CO <sub>2</sub> form)	8.97E-01	0.00E+01	8.97E-01
Carbon-14 (Total)	4.57E+00	0.00E+01	4.57E+00

\*Zeros indicate that no radioactivity was present at detectable levels.

Curies Released in Gaseous Ground Level Releases  
During the Period  
Starting: 1-Apr-2012 Ending: 30-Jun-2012

	CONTINUOUS	BATCH	TOTAL
<u>FISSION GASES</u>			
Krypton-85M	0.00E+01	5.54E-05	5.54E-05
Xenon-133	0.00E+01	1.32E-01	1.32E-01
Xenon-135	0.00E+01	1.01E-02	1.01E-02
Argon-41	0.00E+01	2.08E-01	2.08E-01
TOTALS	0.00E+01	3.50E-01	3.50E-01
 <u>IODINES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
 <u>PARTICULATES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
 <u>TRITIUM</u>			
Tritium	1.43E+01	5.77E-01	1.49E+01
 <u>CARBON-14</u>			
Carbon-14 (CO <sub>2</sub> form)	1.10E+00	0.00E+01	1.10E+00
Carbon-14 (Total)	5.61E+00	0.00E+01	5.61E+00

\*Zeros indicate that no radioactivity was present at detectable levels.



Curies Released in Gaseous Ground Level Releases  
During the Period  
Starting: 1-July-2012 Ending: 30-Sep-2012

	CONTINUOUS	BATCH	TOTAL
<u>FISSION GASES</u>			
Xenon-133	0.00E+01	3.66E-01	3.66E-01
Xenon-135	0.00E+01	2.77E-02	2.77E-02
Argon-41	0.00E+01	6.54E-01	6.54E-01
TOTALS	0.00E+01	1.05E+00	1.05E+00
<u>IODINES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
<u>PARTICULATES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
<u>TRITIUM</u>			
Tritium	8.56E+00	8.85E-01	9.45E+00
<u>CARBON-14</u>			
Carbon-14 (CO <sub>2</sub> form)	1.13E+00	0.00E+01	1.13E+00
Carbon-14 (Total)	5.75E+00	0.00E+01	5.75E+00

\*Zeros indicate that no radioactivity was present at detectable levels.

Curies Released in Gaseous Ground Level Releases  
During the Period  
Starting: 1-Oct-2012 Ending: 31-Dec-2012

	CONTINUOUS	BATCH	TOTAL
<u>FISSION GASES</u>			
Xenon-133	0.00E+01	1.79E-01	1.79E-01
Xenon-135	0.00E+01	5.41E-03	5.41E-03
Argon-41	0.00E+01	1.30E-01	1.30E-01
TOTALS	0.00E+01	3.15E-01	3.15E-01
 <u>IODINES</u>			
TOTALS	0.00E+01	0.00E+01	0.00E+01
 <u>PARTICULATES</u>			
Colbalt-58	1.38E-06	0.00E+01	1.38E-06
TOTALS	1.38E-06	0.00E+01	1.38E-06
 <u>TRITIUM</u>			
Tritium	3.40E+00	3.49E+00	6.89E+00
 <u>CARBON-14</u>			
Carbon-14 (CO <sub>2</sub> form)	6.59E-01	0.00E+01	6.60E-01
Carbon-14 (Total)	3.36E+00	0.00E+01	3.36E+00

\*Zeros indicate that no radioactivity was present at detectable levels.

TABLE B  
GASEOUS "TYPICAL" LLD EVALUATION<sup>(1)</sup>

Noble Gas

<u>Nuclide</u>	<u>ODCM LLD</u>	$\Delta t^{(2)}$	
		<u>1 hr</u>	<u>1.5 hr</u>
Krypton-87	1.0E-04	2.08E-06	2.73E-06
Krypton-88	1.0E-04	1.61E-06	1.81E-06
Xenon-133	1.0E-04	6.61E-07	6.63E-07
Xenon-133m	1.0E-04	2.34E-06	2.35E-06
Xenon-135	1.0E-04	3.43E-07	3.56E-07
Xenon-138	1.0E-04	1.40E-04	6.10E-04

Particulate Sample<sup>(3)</sup>

		<u>1 hr</u>	<u>24 hr</u>	<u>7.0 day</u>
Manganese-54	1.0E-10	7.47E-12	3.12E-13	4.48E-14
Cobalt-58	1.0E-10	5.62E-12	2.35E-13	3.46E-14
Iron-59	1.0E-10	1.20E-11	5.02E-13	7.49E-14
Cobalt-60	1.0E-10	1.07E-11	4.46E-13	6.38E-14
Zinc-65	1.0E-10	6.71E-12	2.80E-13	4.03E-14
Molybdenum-99	1.0E-10	3.43E-11	1.61E-12	4.70E-13
Cesium-134	1.0E-10	4.25E-12	1.77E-13	2.54E-14
Cesium-137	1.0E-10	8.48E-12	3.54E-13	5.05E-14
Cerium-141	1.0E-10	5.10E-12	2.15E-13	3.26E-14
Cerium-144	1.0E-10	2.01E-11	8.33E-13	1.20E-13
Iodine-131	1.0E-10	4.76E-12	2.07E-13	3.77E-14
<u>Charcoal Sample</u>				
Iodine-131	1.0E-11	7.25E-12	3.15E-13	5.74E-14

Note:

(1) LLD values are in  $\mu\text{Ci/ml}$ .

(2)  $\Delta t$  is the time between sample collection and counting time.

(3) LLD based on sample time + 30 min. sample to analysis.

TABLE B  
GASEOUS "TYPICAL" LLD EVALUATION<sup>(1)</sup> (continued)

<u>Nuclide</u>	<u>ODCM LLD</u>	<u>Typical LLD</u>
Tritium	1.0E-06	1.0E-11
Gross Alpha	1.0E-11	1.5E-14
Strontium-89	1.0E-11	1.0E-14
Strontium-90	1.0E-11	1.0E-15

NOTE:

(1) LLD values are in  $\mu\text{Ci/cc}$ .

## SOLID WASTE (RADIOACTIVE SHIPMENTS)

Solid Waste Shipped Offsite for Burial or Disposal (not Irradiated Fuel)

<u>1. Type of Waste</u>	<u>Unit</u>	<u>12 Month Period</u>	<u>Est. Tot. Error %</u>
a. Spent Resins, Filter Sludges, Evaporator Bottoms, etc.	m <sup>3</sup> Ci	None None	N/A N/A
b. Dry Active Waste, Compressible Waste Contaminated Equipment, etc.	m <sup>3</sup> Ci	6.04E+01 2.56E-01	+1.00E+01 +2.29E+01
c. Irradiated Components, Control Rods, etc.	m <sup>3</sup> Ci	None None	N/A N/A
d. Other: Mechanical Filters	m <sup>3</sup> Ci	None None	N/A N/A

The reported volume is based on the defined volume of the packaging. During transit, the waste may settle resulting in an overall reduced volume. The reduction in disposal volume is estimated to be 10 percent less than the package volume.

The estimated total error (percent) for the total Curies shipped is based on calculating the square root of the sum of the squares method. Three parameters were considered as important for estimating the error. The parameters were variances with sample preparation and counting geometry, survey instrument accuracy for dose to Currie evaluations, and "in-field" sampling techniques. The assigned values for these parameters were 20, 10, and 5 percent, respectively.

$$\text{Total error (\%)} = (0.20^2 + 0.10^2 + 0.05^2)^{1/2} \times 100 = 22.9\%$$

## SOLID WASTE (RADIOACTIVE SHIPMENTS) (continued)

### 2. Estimate of Major Nuclide Composition (by type of waste)

a. Spent resins, filter sludges, evaporator bottoms, etc. (nuclides determined by measurement)

	<u>Curies</u>	<u>Percent</u>
None	N/A	N/A

b. Dry active waste, compressible waste, contaminated equipment, etc. (nuclides determined by estimate)

	<u>Curies</u>	<u>Percent</u>
1. Chromium-51	2.95E-03	1.15
2. Manganese-54	1.81E-02	7.09
3. Iron-55	1.98E-01	77.36
4. Iron-59	1.34E-03	0.53
5. Cobalt-57	2.90E-05	0.01
6. Cobalt-58	3.29E-03	1.29
7. Cobalt-60	1.73E-02	6.76
8. Nickel-63	8.21E-03	3.21
9. Zinc-65	5.86E-03	2.29
10. Zirconium-95	3.62E-04	0.14
11. Niobium-95	4.04E-04	0.16
12. Cesium-134	2.11E-07	0.00
13. Cesium-137	3.15E-05	0.01
14. Cerium-144	6.78E-05	0.03

	<u>Curies</u>	<u>Percent</u>
c. Irradiated Components		
None	N/A	N/A

	<u>Curies</u>	<u>Percent</u>
d. Other: Mechanical Filters		
None	N/A	N/A

## SOLID WASTE (RADIOACTIVE SHIPMENTS) (continued)

### 3. Solid Waste Disposition

a. Spent resins, filter sludges, evaporator bottoms, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

b. Dry active waste, compressible waste, contaminated equipment, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
5	A-LSA II	Motor Freight	EnergySolutions Processing Facility Oak Ridge, TN
5	Limited Quantity	Motor Freight	EnergySolutions Processing Facility Kingston, TN

c. Irradiated components, control rods, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

d. Other: Mechanical Filters

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

### 4. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

### 5. Solidification of Waste

Was solidification performed? No

If yes, solidification media: N/A

## Independent Spent Fuel Storage Installation

SNL implemented use of an independent spent fuel storage installation (ISFSI) on July 13, 2004, utilizing 10 CFR 72.214 Certificate of Compliance (CoC number 1014). The ISFSI is located on site, within the protected area and is designed to hold 90 spent fuel canisters. CoC 1014 Appendix A Section 5.4 requires an annual report in accordance with 10 CFR 72.44(d)(3). A report has been submitted providing the results of any releases during this monitoring period. CoC 1014 Section 5.4 also provides that the ISFSI operations may be considered part of plant operations for the purposes of the radiological environmental monitoring program.

CoC 1014 Section 5.4a states "The HI-STORM 100 Cask System does not create any radioactive material or have any radioactive waste treatment systems. Therefore, specific operating procedures for the control of radioactive effluents are not required. Specification 3.1.1, Multi-Purpose Canister (MPC), provides assurance that there are not radioactive effluents from spent fuel storage canister."

The Environmental Protection Agency limits for the total dose to the public in the vicinity of a nuclear power plant, established in the Environmental Dose Standard of 40 CFR 190, are as follows:

Total Body	≤25 mrem/year
Thyroid	≤75 mrem/year
Any other organ	≤25 mrem/year

Although CoC 1014 provides that the HI-STORM 100 Cask System does not create any radioactive material or have any radioactive waste treatment systems, for this report, total site releases include the SNL ISFSI as part of the SNL site and part of plant operations. These releases are within 40 CFR 190 limits and 10 CFR 72.104 limits.



ENCLOSURE 2

RADIOLOGICAL IMPACT ASSESSMENT REPORT

SEQUOYAH NUCLEAR PLANT

2012

2012  
SEQUOYAH NUCLEAR PLANT  
RADIOLOGICAL IMPACT ASSESSMENT REPORT

## INTRODUCTION

Potential doses to maximum individuals and the population around Sequoyah Nuclear Plant (SQN) are calculated for each quarter as required in Section 5.2 of the Offsite Dose Calculation Manual (ODCM). Measured plant releases for the reporting period are used to estimate these doses. Dispersion of radioactive effluents in the environment is estimated using meteorological data and riverflow data measured during the period. In this report, the doses resulting from releases are described and compared to limits established for SQN.

## DOSE LIMITS

The ODCM specifies limits for the release of radioactive effluents, as well as limits for doses to the general public from the release of radioactive effluents. These limits are set well below the technical specification limits which govern the concentrations of radioactivity and doses permissible in unrestricted areas. This ensures that radioactive effluent releases are "As Low As Reasonably Achievable."

The limits for doses in unrestricted areas from airborne noble gases released are:

Less than or equal to 5 mrad per quarter and  
10 mrad per year (per reactor unit) for gamma radiation,  
- and -  
Less than or equal to 10 mrad per quarter and  
20 mrad per year (per reactor unit) for beta radiation.

The limit for the dose to a member of the general public in an unrestricted area from iodines and particulates released in airborne effluents is:

Less than or equal to 7.5 mrem per quarter and  
15 mrem per year (per reactor unit) to any organ.

The limits for doses to a member of the general public from radioactive material in liquid effluents released to unrestricted areas are:

Less than or equal to 1.5 mrem per quarter and  
3 mrem per year (per reactor unit) to the total body,  
- and -  
Less than or equal to 5 mrem per quarter and  
10 mrem per year (per reactor unit) to any organ

The Environmental Protection Agency limits for total dose to the public in the vicinity of a nuclear power plant, established in the Environmental Dose Standard of 40 CFR 190 are:

Less than or equal to 25 mrem per year to the total body,  
Less than or equal to 75 mrem per year to the thyroid,  
- and -  
Less than or equal to 25 mrem per year to any other organ.

## DOSE CALCULATIONS

Estimated doses to the public are determined using computer models: Gaseous Effluent Licensing Code (GELC), and the Quarterly Water Dose Assessment Code (QWATA). These models are based on guidance provided by the NRC (in Regulatory Guides 1.109, 1.111 and 1.113) for determining the potential dose to individuals and populations living in the vicinity of the plant. The area around the plant is analyzed to determine the pathways through which the public may receive a dose. The doses calculated are a representation of the dose to a "maximum exposed individual." Some of the factors used in these calculations (such as ingestion rates) are maximum values. Many of these factors are obtained from NUREG/CR-1004. The values chosen will tend to overestimate the dose to this "maximum" person. The expected dose to actual individuals is lower. The calculated doses are presented in Tables 1 through 9.

## DOSES FROM AIRBORNE EFFLUENTS

For airborne effluents, the public can be exposed to radiation from several sources: direct radiation from the radioactivity in the air, direct radiation from radioactivity deposited on the ground, inhalation of airborne radioactivity, ingestion of vegetation which contains radioactivity deposited from the atmosphere, and ingestion of milk and beef which contains radioactivity deposited from the atmosphere onto vegetation and subsequently eaten by milk and beef animals.

### Airborne Discharge Points

Releases from SQN are considered ground-level releases. The ground-level Joint Frequency Distribution (JFD) is derived from windspeeds and directions measured 10 meters above ground and from the vertical temperature difference between 10 and 46 meters, and are presented for each quarter in Attachment 1.0.

### Meteorological Data

Meteorological variables at SQN are measured continuously. Measurements collected include wind speed, wind direction, and temperature at heights of 10, 46, and 91 meters above the ground. Quarterly joint frequency distributions (JFDs) are calculated for each release point using the appropriate levels of meteorological data. A JFD gives the percentage of the time in a quarter that the wind is blowing out of a particular upwind compass sector in a particular range of wind speeds for a given stability Class A through G. The wind speeds are divided into nine wind speed ranges. Calms are distributed by direction in proportion to the distribution of noncalm wind directions less than 0.7 m/s (1.5 mph). Stability classes are determined from the vertical temperature difference between two measurement levels.

### External Exposure Dose

Dose estimates for maximum external air dose (gamma-air and beta-air doses) are made for points at and beyond the unrestricted area boundary as described in the SQN ODCM. The highest of these doses is then selected.

### Submersion Dose

External doses to the skin and total body, due to submersion in a cloud of noble gases, are estimated for the nearest residence in each sector. The residence with the highest dose is then selected from all sectors.

### Organ Dose

Doses to organs due to releases of airborne effluents are estimated for the inhalation, ground contamination, and ingestion pathways. The ingestion pathway is further divided into four possible contributing pathways: ingestion of cow/goat milk, ingestion of beef, and ingestion of vegetables. Doses from applicable pathways are calculated for each real receptor location identified in the most recent land use survey. To determine the maximum organ dose, the doses from the pathways are summed for each receptor. For the ingestion dose, however, only those pathways that exist for each receptor are considered in the sum, i.e., milk ingestion doses are included only for locations where milk is consumed without commercial preparation and vegetable ingestion is included only for those locations where a garden is identified. To conservatively account for beef ingestion, a beef ingestion dose equal to that for the highest unrestricted area boundary location is added to each identified receptor. For ground contamination, the dose added to the organ dose being calculated is the total body dose calculated for that location, i.e., it is assumed that the dose to an individual organ is equal to the total body dose.

Doses from airborne effluents are presented in Tables 1-4.

## DOSES FROM LIQUID EFFLUENTS

For liquid effluents, the public can be exposed to radiation from three sources: the ingestion of water from the Tennessee River, the ingestion of fish caught in the Tennessee River, and direct exposure from radioactive material deposited on the river shoreline sediment (recreation).

The concentrations of radioactivity in the Tennessee River are estimated by a computer model which uses measured hydraulic data downstream of SQN. Parameters used to determine the doses are based on guidance given by the NRC (in Regulatory Guides 1.109) for maximum ingestion rates, exposure times, etc. Wherever possible, parameters used in the dose calculation are site specific use factors determined by TVA. The models that are used to estimate doses, as well as the parameters input to the models, are described in detail in the SQN ODCM.

### Liquid Release Points and River Data

Radioactivity concentrations in the Tennessee River are calculated assuming that releases in liquid effluents are continuous. Routine liquid releases from SQN, located at Tennessee River Mile 484, are made through diffusers which extend into the Tennessee River. It is assumed that releases to the river through these diffusers will initially be entrained in one-fifth of the water which flows past the plant. The QWATA code makes the assumption that this mixing condition holds true until the water is completely mixed at the first downstream dam, at Tennessee River Mile 471.

Doses are calculated for locations within a 50-mile radius downstream of the plant site. The maximum potential recreation dose is calculated for a location immediately downstream from the plant outfall. The maximum individual dose from ingestion of fish is assumed to be that calculated for the consumption of fish caught anywhere between the plant and the first downstream dam (Chickamauga Dam). The maximum individual dose from drinking water is assumed to be that calculated at the nearest downstream public water supply (East Side Utilities). This could be interpreted as indicating that the maximum individual, as assumed for liquid releases from Sequoyah, is an individual who obtains all of his drinking water at East Side Utilities, consumes fish caught from the Tennessee River between SQN and Chickamauga Dam, and spends 500 hours per year on the shoreline just below the outfall from Sequoyah. Dose estimates for the maximum individual due to liquid effluents for each quarter in the period are presented in Tables 5-8, along with the average river flows past the plant site for the periods.

Population doses are calculated assuming that each individual consumes milk, vegetables, and meat produced within the sector annulus in which he resides. Doses from external pathways and inhalation are based on the 50-mile human population distribution.

## POPULATION DOSES

Population doses for the highest exposed organ due to airborne effluents are calculated for an estimated 1,060,000 persons living within a 50-mile radius of the plant site. Doses from external pathways and inhalation are based on the 50-mile human population distribution.

Ingestion population doses for total body and the maximum exposed organ due to liquid effluents are calculated for the entire downstream Tennessee River population. Water ingestion population doses are calculated using actual population figures for downstream public water supplies. Fish ingestion population doses are calculated assuming that all sport fish caught in the Tennessee River are consumed by the Tennessee River population. Recreation population doses are calculated using actual recreational data on the number of shoreline visits at downstream locations.

Population dose estimates for airborne and liquid effluents are presented in Tables 1-4 and Tables 5-8.

## DIRECT RADIATION

External gamma radiation levels were measured by dosimeters deployed around SQN as part of the offsite REMP. The quarterly gamma radiation levels determined from these dosimeters during this reporting period averaged approximately 15.25 mrem/quarter at onsite (at or near the site boundary) stations and approximately 13.75 mrem/quarter at offsite stations, or approximately 1.50 mrem/quarter higher at onsite than at offsite stations. This difference is consistent with levels measured for preoperation and construction phases of the TVA nuclear plant site where the average radiation levels onsite were generally 2-6 mrem/quarter higher than the levels offsite. This may be attributable to natural variations in environmental radiation levels, earth moving activities onsite, the mass of concrete employed in the construction of the plants, or other undetermined influences. Fluctuations in natural background dose rates and in dosimeter readings tend to mask any small increments which may be due to plant operations. Thus, there was no identifiable increase in dose rate levels attributable to direct radiation from plant equipment and/or gaseous effluents.

## DOSE TO A MEMBER OF THE PUBLIC INSIDE THE UNRESTRICTED AREA BOUNDARY

As stated in the SQN ODCM, an evaluation of the dose to a member of the public inside the unrestricted area boundary is performed for a hypothetical TVA employee who works just outside the restricted area fence for an entire work year (2000/8760 hours). Results from onsite dosimeter measurements for the calendar year in question indicate that the highest onsite dosimeter reading was 89 mrem. Using this value, and subtracting an annual background value of 0 mrem/year (from perimeter dosimeters around Sequoyah from Area dosimeter posting data for the year), and multiplying by the ratio of the occupancy times (2000/8760), the external dose was 20.32 mrem. The doses due to radioactive effluents released to the atmosphere calculated in this report would not add a significant amount to this measured dose. This dose is well below the 10 CFR 20 annual limit of 100 mrem.

## TOTAL DOSE

To determine compliance with 40 CFR 190, annual total dose contributions to the maximum individual from SQN radioactive effluents and other nearby uranium fuel cycle sources are considered.

The annual dose to any organ other than thyroid for the maximum individual is conservatively estimated by summing the following doses: the total body air submersion dose for each quarter, the critical organ dose (for any organ other than the thyroid) from airborne effluents for each quarter from ground contamination, inhalation and ingestion, the total body dose from liquid effluents for each quarter, the maximum organ dose (for any organ other than the thyroid) from liquid effluents for each quarter, and any identifiable increase in direct radiation dose levels as measured by the environmental monitoring program. This dose is compared to the 40 CFR 190 limit for total body or any organ dose (other than thyroid) to determine compliance.

The annual thyroid dose to the maximum individual is conservatively estimated by summing the following doses: the total body air submersion dose for each quarter, the thyroid dose from airborne effluents for each quarter, the total body dose from liquid effluents for each quarter, the thyroid dose from liquid effluents for each quarter, and any identifiable increase in direct radiation dose levels as measured by the environmental monitoring program. This dose is compared to the 40 CFR 190 limit for thyroid dose to determine compliance.

Cumulative annual total doses are presented in Table 9.

Tables 1 and 2  
Doses from Airborne Effluents

**First Quarter**

**Individual Doses**

Pathway	Dose	Quarterly Limit	Percent of Limit	Location Sector/Distance/Unit
<b>External</b>				
Gamma Air	2.47E-03 mrad	5 mrad	<1%	N/950/meters
Beta Air	8.91E-04mrad	10 mrad	<1%	N/950/meters
<b>Submersion</b>				
Total Body	1.57E-03 mrad	10 mrad	<1%	SSW/2129/meters
Skin	2.32E-03 mrad	10 mrad	<1%	SSW/2129/meters
<b>Organ Doses<sup>1</sup></b>				
(Max) Child/Bone	3.35E-01 mrem	7.5 mrem	4.47%	NNE3271/meters
Child/Thyroid	8.22E-02 mrem	7.5 mrem	1.10%	NNE3271/meters
Child/Total Body	8.22E-02 mrem	7.5 mrem	1.10%	NNE3271/meters

**Population Doses**

Total Body Dose 5.90E-01 man-rem  
Maximum Organ Dose (organ) 2.08E+00 man-rem (Bone)

**Second Quarter**

**Individual Doses**

Pathway	Dose	Quarterly Limit	Percent of Limit	Location Sector/Distance/Unit
<b>External</b>				
Gamma Air	3.15E-04 mrad	5 mrad	<1	N/950/meters
Beta Air	1.36E-04 mrad	10 mrad	<1	N/950/meters
<b>Submersion</b>				
Total Body	1.83E-04 mrad	10 mrad	<1	SSW/2129/meters
Skin	2.75E-04 mrad	10 mrad	<1	SSW/2129/meters
<b>Organ Doses<sup>1</sup></b>				
(Max) Child/Bone	4.66E-01 mrem	7.5 mrem	6.21%	SSW/3349/meters
Child/Thyroid	9.86E-02 mrem	7.5 mrem	1.31%	SSW/3349/meters
Child/Total Body	9.86E-02 mrem	7.5 mrem	1.31%	SSW/3349/meters

**Population Doses**

Total Body Dose 5.38E-01 man-rem  
Maximum Organ Dose (organ) 2.42E+00 man-rem (Bone)

*Population doses can be compared to the natural background dose for the entire 50-mile population of about 95,400 man-rem/year (based on 90 mrem/year for natural background).*

<sup>1</sup>Organ Doses include contributions from Carbon-14 in the form of Carbon Dioxide.

Tables 3 and 4  
Doses from Airborne Effluents

**Third Quarter**

**Individual Doses**

Pathway	Dose	Quarterly Limit	Percent of Limit	Location Sector/Distance/Unit
<b>External</b>				
Gamma Air	9.30E-04 mrad	5 mrad	<1	N/950/meters
Beta Air	3.90E-04 mrad	10 mrad	<1	N/950/meters
<b>Submersion</b>				
Total Body	7.16E-04 mrad	10 mrad	<1	S/1786/meters
Skin	1.07E-03 mrad	10 mrad	<1	S/1786/meters
<b>Organ Doses<sup>1</sup></b>				
(Max) Child/Bone	4.21E-01 mrem	7.5 mrem	5.61%	SSW/3349/meters
Child/Thyroid	8.72E-02 mrem	7.5 mrem	1.16%	SSW/3349/meters
Child/Total Body	8.72E-02 mrem	7.5 mrem	1.16%	SSW/3349/meters

**Population Doses**

Total Body Dose 4.86E-01 man-rem  
Maximum Organ Dose (organ) 2.27E+00 man-rem (Bone)

**Fourth Quarter**

**Individual Doses**

Pathway	Dose	Quarterly Limit	Percent of Limit	Location Sector/Distance/Units
<b>External</b>				
Gamma Air	1.98E-04mrad	5 mrad	<1	N/950/meters
Beta Air	1.01E-04 mrad	10 mrad	<1	N/950/meters
<b>Submersion</b>				
Total Body	1.43E-04 mrad	10 mrad	<1	SSW/2129/meters
Skin	2.18E-04 mrad	10 mrad	<1	SSW/2129/meters
<b>Organ Doses<sup>1</sup></b>				
(Max) Child/Bone	3.24E-01mrem	7.5 mrem	4.32%	SSW/3349/meters
Child/Thyroid	6.77E-02 mrem	7.5 mrem	<1	SSW/3349/meters
Child/Total Body	6.77E-02 mrem	7.5 mrem	<1	SSW/3349/meters

**Population Doses**

Total Body Dose 4.33E-01 man-rem  
Maximum Organ Dose (organ) 1.99E+00 man-rem (Bone)

*Population doses can be compared to the natural background dose for the entire 50-mile population of about 95,400 man-rem/year (based on 90 mrem/year for natural background).*

<sup>1</sup>Organ Doses include contributions from Carbon-14 in the form of Carbon Dioxide.



Tables 5 and 6  
Doses from Liquid Effluents

**First Quarter**

**Individual Doses (mrem)**

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	2.70E-03	1.5 mrem	< 1 %
Child	Liver	2.70E-03	5 mrem	< 1 %
Child	Thyroid	2.70E-03	5 mrem	< 1 %

Average Riverflow past SQN (cubic feet per second): 50,430

**Population Doses**

Total Body Dose 1.80E-01 man-rem  
Maximum Organ Dose (organ) 1.80E-01 man-rem (GIT, Bone, Thyroid, Liver, Kidney, Lung)

**Second Quarter**

**Individual Doses (mrem)**

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	1.70E-03	1.5 mrem	< 1 %
Child	Liver/Bone	1.80E-03	5 mrem	< 1 %
Child	Thyroid	1.70E-03	5 mrem	< 1 %

Average Riverflow past SQN (cubic feet per second): 11,860

**Population Doses**

Total Body Dose 1.20E-01 man-rem  
Maximum Organ Dose (organ) 1.20E-01 man-rem (Bone, Liver, GIT, Thyroid, Kidney, Lung)

*Population doses can be compared to the natural background dose for the entire 50-mile population of about 95,400 man-rem/year (based on 90 mrem/year for natural background).*

Tables 7 and 8  
Doses from Liquid Effluents

**Third Quarter**

**Individual Doses (mrem)**

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	7.20E-03	1.5 mrem	< 1 %
Child	Liver/Bone	7.20E-03	5 mrem	< 1 %
Child	Thyroid	7.20E-03	5 mrem	< 1 %

Average Riverflow past SQN (cubic feet per second): 23,525

**Population Doses**

Total Body Dose 4.80E-01 man-rem  
Maximum Organ Dose (organ) 4.80E-01 man-rem (Bone, Liver, GIT, Thyroid, Kidney, Lung)

**Fourth Quarter**

**Individual Doses (mrem)**

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	1.10E-03	1.5 mrem	< 1 %
Child	Liver/Bone	1.10E-03	5 mrem	< 1 %
Child	Thyroid	1.10E-03	5 mrem	< 1 %

Average Riverflow past SQN (cubic feet per second): 29,229

**Population Doses**

Total Body Dose 7.00E-02 man-rem  
Maximum Organ Dose (organ) 7.50E-02 man-rem (GIT)

*Population doses can be compared to the natural background dose for the entire 50-mile population of about 95,400 man-rem/year (based on 90 mrem/year for natural background).*

Table 9

## Total Dose from Fuel Cycle

Dose	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Total Body or any Organ (except thyroid)					
Total body air submersion	1.57E-03	1.83E-04	7.16E-04	1.43E-04	
Critical organ dose (air)	3.35E-01	4.66E-01	4.21E-01	3.24E-01	
Total body dose (liquid)	2.70E-03	1.70E-03	7.20E-03	1.10E-03	
Maximum organ dose (liquid)	2.70E-03	1.80E-03	7.20E-03	1.10E-03	
Direct Radiation Dose	0.00E+01	0.00E+01	0.00E+01	0.00E+01	
Total	3.42E-01	4.70E-01	4.36E-01	3.26E-01	
Cumulative Total Dose (Total body or any other organ) mrem					1.57E+00
Annual Dose Limit (mrem)					25
Percent of Limit					6.28
Thyroid Dose (mrem)					
Total body air submersion	1.57E-03	1.83E-04	7.16E-04	1.43E-04	
Thyroid dose (airborne)	8.22E-02	9.86E-02	8.72E-02	6.77E-02	
Total body dose (liquid)	2.70E-03	1.70E-03	7.20E-03	1.10E-03	
Thyroid dose (liquid)	2.70E-03	1.70E-03	7.20E-03	1.10E-03	
Direct Radiation Dose	0.00E+01	0.00E+01	0.00E+01	0.00E+01	
Total	8.92E-02	1.02E-01	1.02E-01	7.00E-02	
Cumulative Total Dose (Thyroid) mrem					3.63E-01
Annual Dose Limit (mrem)					75
Percent of Limit					0.48

Attachment 1.0  
Joint Frequency Distribution Tables

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS A (DELTA T<=-1.9 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.046	0.046	0.092	0.000	0.000	0.000	0.185
NNE	0.000	0.000	0.000	0.000	0.092	0.092	0.000	0.000	0.000	0.185
NE	0.000	0.000	0.000	0.046	0.139	0.000	0.000	0.000	0.000	0.185
ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
S	0.000	0.000	0.000	0.000	0.000	0.185	0.000	0.000	0.000	0.185
SSW	0.000	0.000	0.000	0.000	0.277	0.277	0.000	0.000	0.000	0.555
SW	0.000	0.000	0.000	0.046	0.231	0.185	0.000	0.000	0.000	0.462
WSW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.046
W	0.000	0.000	0.000	0.000	0.046	0.277	0.046	0.000	0.000	0.370
WNW	0.000	0.000	0.000	0.000	0.046	0.277	0.000	0.000	0.000	0.324
NW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.046
NNW	0.000	0.000	0.000	0.000	0.092	0.092	0.046	0.000	0.000	0.231
SUBTOTAL	0.000	0.000	0.000	0.231	1.063	1.479	0.092	0.000	0.000	2.866

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS A	62
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	62
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
 STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
 WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 8.37

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS B (-1.9&lt; DELTA T&lt;=-1.7 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.046	0.092	0.092	0.046	0.000	0.000	0.277
NNE	0.000	0.000	0.000	0.000	0.231	0.139	0.000	0.000	0.000	0.370
NE	0.000	0.000	0.000	0.139	0.139	0.046	0.000	0.000	0.000	0.324
ENE	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.092
E	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
ESE	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.000	0.000	0.092	0.000	0.000	0.000	0.092
S	0.000	0.000	0.000	0.000	0.092	0.185	0.000	0.000	0.000	0.277
SSW	0.000	0.000	0.000	0.000	0.555	0.139	0.000	0.000	0.000	0.693
SW	0.000	0.000	0.000	0.092	0.231	0.000	0.000	0.000	0.000	0.324
WSW	0.000	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.092
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.185	0.000	0.000	0.000	0.185
NW	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.046
NNW	0.000	0.000	0.000	0.046	0.277	0.185	0.046	0.000	0.000	0.555
SUBTOTAL	0.000	0.000	0.046	0.462	1.664	1.156	0.092	0.000	0.000	3.421

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS B	74
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	74
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 7.25

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.7&lt; DELTA T&lt;=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.046	0.092	0.139	0.000	0.000	0.000	0.000	0.277
NNE	0.000	0.000	0.000	0.185	0.231	0.277	0.046	0.000	0.000	0.740
NE	0.000	0.000	0.046	0.139	0.139	0.046	0.000	0.000	0.000	0.370
ENE	0.000	0.000	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.092
E	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.092
ESE	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.092
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.092	0.046	0.046	0.000	0.000	0.000	0.185
S	0.000	0.000	0.000	0.185	0.185	0.185	0.000	0.000	0.000	0.555
SSW	0.000	0.000	0.000	0.092	0.740	0.277	0.000	0.000	0.000	1.110
SW	0.000	0.000	0.000	0.277	0.370	0.000	0.000	0.000	0.000	0.647
WSW	0.000	0.000	0.000	0.000	0.185	0.000	0.000	0.000	0.000	0.185
W	0.000	0.000	0.000	0.000	0.000	0.185	0.000	0.000	0.000	0.185
WNW	0.000	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.092
NW	0.000	0.000	0.000	0.000	0.139	0.046	0.000	0.000	0.000	0.185
NNW	0.000	0.000	0.046	0.000	0.185	0.139	0.000	0.000	0.000	0.370
SUBTOTAL	0.000	0.000	0.324	1.156	2.404	1.248	0.046	0.000	0.000	5.178

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS C	112
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	112
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 6.51

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS D (-1.5< DELTA T<=-0.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.370	1.202	1.387	0.971	0.000	0.000	0.000	3.930
NNE	0.000	0.000	1.387	2.450	1.202	1.156	0.000	0.000	0.000	6.195
NE	0.000	0.231	0.740	0.370	0.370	0.046	0.000	0.000	0.000	1.757
ENE	0.000	0.046	0.416	0.139	0.000	0.000	0.000	0.000	0.000	0.601
E	0.000	0.000	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.185
ESE	0.000	0.000	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.231
SE	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.092
SSE	0.000	0.000	0.185	0.046	0.185	0.185	0.000	0.000	0.000	0.601
S	0.000	0.046	0.555	0.693	0.832	0.786	0.000	0.000	0.000	2.913
SSW	0.000	0.046	1.294	3.282	1.433	1.063	0.092	0.000	0.000	7.212
SW	0.000	0.000	1.110	1.248	0.832	0.139	0.000	0.000	0.000	3.329
WSW	0.000	0.000	0.277	0.277	0.139	0.462	0.046	0.000	0.000	1.202
W	0.000	0.046	0.139	0.185	0.092	0.324	0.092	0.000	0.000	0.878
WNW	0.000	0.092	0.046	0.185	0.139	0.277	0.000	0.000	0.000	0.740
NW	0.000	0.092	0.139	0.416	0.416	0.601	0.000	0.000	0.000	1.664
NNW	0.000	0.000	0.185	0.416	0.786	0.693	0.046	0.000	0.000	2.127
SUBTOTAL	0.000	0.647	7.305	10.911	7.813	6.704	0.277	0.000	0.000	33.657

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS D	728
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	728
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 5.40

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS



JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.231	2.080	0.601	0.231	0.046	0.000	0.000	0.000	3.190
NNE	0.000	0.092	4.022	1.757	0.509	0.000	0.000	0.000	0.000	6.380
NE	0.000	0.231	0.462	0.231	0.000	0.000	0.000	0.000	0.000	0.925
ENE	0.000	0.092	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.277
E	0.000	0.185	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.324
ESE	0.000	0.092	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.185
SE	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.092
SSE	0.000	0.185	0.462	0.370	0.046	0.000	0.000	0.000	0.000	1.063
S	0.000	0.185	0.971	1.156	0.555	0.416	0.000	0.000	0.000	3.282
SSW	0.000	0.139	2.312	1.479	1.572	1.156	0.000	0.000	0.000	6.657
SW	0.000	0.416	2.681	1.341	0.693	0.416	0.000	0.000	0.000	5.548
WSW	0.000	0.092	0.786	0.277	0.092	0.046	0.000	0.000	0.000	1.294
W	0.000	0.000	0.231	0.324	0.046	0.046	0.000	0.000	0.000	0.647
WNW	0.000	0.046	0.277	0.000	0.092	0.000	0.000	0.000	0.000	0.416
NW	0.000	0.139	0.462	0.509	0.277	0.139	0.000	0.000	0.000	1.526
NNW	0.000	0.185	0.878	0.693	0.092	0.000	0.000	0.000	0.000	1.849
SUBTOTAL	0.000	2.358	16.043	8.784	4.207	2.265	0.000	0.000	0.000	33.657

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS E	728
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	728
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
 STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
 WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 3.72

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS F ( 1.5< DELTA T<= 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.046	0.277	0.046	0.000	0.000	0.000	0.000	0.000	0.370
NNE	0.000	0.046	2.959	0.324	0.046	0.000	0.000	0.000	0.000	3.375
NE	0.000	0.092	0.740	0.185	0.000	0.000	0.000	0.000	0.000	1.017
ENE	0.000	0.000	0.231	0.046	0.000	0.000	0.000	0.000	0.000	0.277
E	0.000	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.231
ESE	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SE	0.000	0.092	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.277
SSE	0.000	0.139	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.277
S	0.000	0.139	0.462	0.092	0.000	0.046	0.000	0.000	0.000	0.740
SSW	0.000	0.185	2.265	0.139	0.092	0.000	0.000	0.000	0.000	2.681
SW	0.000	0.092	1.896	0.647	0.046	0.000	0.000	0.000	0.000	2.681
WSW	0.000	0.046	0.231	0.139	0.000	0.000	0.000	0.000	0.000	0.416
W	0.000	0.092	0.000	0.092	0.000	0.000	0.000	0.000	0.000	0.185
WNW	0.000	0.000	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.092
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.046	0.185	0.046	0.000	0.000	0.000	0.000	0.000	0.277
SUBTOTAL	0.000	1.248	9.709	1.757	0.185	0.046	0.000	0.000	0.000	12.945

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS F	280
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	280
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 2.53

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS G (DELTA T > 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 2012 - MAR 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.185	0.000	0.000	0.000	0.000	0.000	0.000	0.185
NNE	0.000	0.046	1.156	0.092	0.046	0.000	0.000	0.000	0.000	1.341
NE	0.000	0.509	1.433	0.092	0.000	0.000	0.000	0.000	0.000	2.034
ENE	0.000	0.324	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.462
E	0.000	0.231	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.277
ESE	0.000	0.092	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.231
SE	0.000	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.231
SSE	0.000	0.277	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.277
S	0.000	0.231	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.462
SSW	0.000	0.370	1.110	0.046	0.000	0.000	0.000	0.000	0.000	1.526
SW	0.000	0.046	1.017	0.046	0.000	0.000	0.000	0.000	0.000	1.110
WSW	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
W	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SUBTOTAL	0.000	2.358	5.548	0.324	0.046	0.000	0.000	0.000	0.000	8.276

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2163
TOTAL HOURS OF STABILITY CLASS G	179
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	179
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2163
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
 STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
 WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/05/21

MEAN WIND SPEED = 2.03

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS A (DELTA T<=-1.9 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.046	0.000	0.325	0.000	0.000	0.000	0.372
NNE	0.000	0.000	0.000	0.186	0.279	0.325	0.000	0.000	0.000	0.790
NE	0.000	0.000	0.093	0.790	0.093	0.000	0.000	0.000	0.000	0.976
ENE	0.000	0.000	0.046	0.093	0.000	0.000	0.000	0.000	0.000	0.139
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.046
SSE	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.093
S	0.000	0.000	0.000	0.000	0.325	0.046	0.000	0.000	0.000	0.372
SSW	0.000	0.000	0.046	0.465	1.255	0.093	0.000	0.000	0.000	1.860
SW	0.000	0.000	0.000	0.418	0.046	0.000	0.000	0.000	0.000	0.465
WSW	0.000	0.000	0.046	0.000	0.046	0.000	0.000	0.000	0.000	0.093
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.046
NNW	0.000	0.000	0.000	0.000	0.000	0.232	0.000	0.000	0.000	0.232
SUBTOTAL	0.000	0.000	0.232	2.046	2.139	1.069	0.000	0.000	0.000	5.486

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS A	118
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	118
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 5.96

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS B (-1.9&lt; DELTA T&lt;=-1.7 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.139	0.186	0.186	0.000	0.000	0.000	0.511
NNE	0.000	0.000	0.139	0.558	0.046	0.139	0.000	0.000	0.000	0.883
NE	0.000	0.000	0.046	0.558	0.000	0.000	0.000	0.000	0.000	0.604
ENE	0.000	0.000	0.046	0.139	0.000	0.000	0.000	0.000	0.000	0.186
E	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
ESE	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SE	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
SSE	0.000	0.000	0.000	0.093	0.000	0.000	0.000	0.000	0.000	0.093
S	0.000	0.000	0.046	0.046	0.046	0.000	0.000	0.000	0.000	0.139
SSW	0.000	0.000	0.000	0.744	0.697	0.139	0.000	0.000	0.000	1.581
SW	0.000	0.000	0.093	0.697	0.279	0.000	0.000	0.000	0.000	1.069
WSW	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
W	0.000	0.000	0.000	0.046	0.000	0.046	0.000	0.000	0.000	0.093
WNW	0.000	0.000	0.000	0.000	0.093	0.000	0.000	0.000	0.000	0.093
NW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.046
NNW	0.000	0.000	0.046	0.000	0.046	0.000	0.000	0.000	0.000	0.093
SUBTOTAL	0.000	0.000	0.511	3.115	1.441	0.511	0.000	0.000	0.000	5.579

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS B	120
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	120
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 5.17

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.186	0.186	0.139	0.139	0.000	0.000	0.000	0.651
NNE	0.000	0.000	0.139	0.604	0.186	0.000	0.000	0.000	0.000	0.930
NE	0.000	0.000	0.232	0.232	0.000	0.046	0.000	0.000	0.000	0.511
ENE	0.000	0.000	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.139
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.093
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.093	0.000	0.000	0.000	0.000	0.000	0.093
S	0.000	0.000	0.000	0.325	0.232	0.000	0.000	0.000	0.000	0.558
SSW	0.000	0.000	0.093	1.953	0.279	0.139	0.000	0.000	0.000	2.464
SW	0.000	0.000	0.186	0.930	0.093	0.046	0.000	0.000	0.000	1.255
WSW	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
W	0.000	0.000	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.093
WNW	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
NW	0.000	0.000	0.046	0.000	0.046	0.093	0.000	0.000	0.000	0.186
NNW	0.000	0.000	0.000	0.046	0.046	0.186	0.000	0.000	0.000	0.279
SUBTOTAL	0.000	0.000	1.116	4.510	1.069	0.651	0.000	0.000	0.000	7.345

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS C	158
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	158
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 4.81

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS D (-1.5< DELTA T<=-0.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.186	1.209	1.255	0.976	0.232	0.000	0.000	0.000	3.859
NNE	0.000	0.000	1.302	3.161	1.441	0.418	0.000	0.000	0.000	6.323
NE	0.000	0.046	0.604	0.465	0.046	0.046	0.000	0.000	0.000	1.209
ENE	0.000	0.046	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.279
E	0.000	0.000	0.186	0.000	0.000	0.000	0.000	0.000	0.000	0.186
ESE	0.000	0.000	0.418	0.000	0.000	0.000	0.000	0.000	0.000	0.418
SE	0.000	0.000	0.139	0.093	0.000	0.000	0.000	0.000	0.000	0.232
SSE	0.000	0.046	0.558	0.325	0.186	0.000	0.000	0.000	0.000	1.116
S	0.000	0.046	1.116	1.627	0.511	0.000	0.000	0.000	0.000	3.301
SSW	0.000	0.000	2.557	3.766	0.790	0.139	0.000	0.000	0.000	7.252
SW	0.000	0.000	1.999	1.534	0.279	0.093	0.000	0.000	0.000	3.905
WSW	0.000	0.000	0.418	0.186	0.046	0.000	0.000	0.000	0.000	0.651
W	0.000	0.000	0.186	0.139	0.093	0.000	0.000	0.000	0.000	0.418
WNW	0.000	0.046	0.186	0.093	0.186	0.093	0.000	0.000	0.000	0.604
NW	0.000	0.046	0.139	0.232	0.325	0.186	0.000	0.000	0.000	0.930
NNW	0.000	0.093	0.325	0.279	0.325	0.279	0.000	0.000	0.000	1.302
SUBTOTAL	0.000	0.558	11.576	13.157	5.207	1.488	0.000	0.000	0.000	31.985

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS D	691
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	688
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 4.17

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.418	3.347	0.790	0.093	0.000	0.000	0.000	0.000	4.649
NNE	0.000	0.465	2.836	1.023	0.418	0.000	0.000	0.000	0.000	4.742
NE	0.000	0.232	0.511	0.186	0.000	0.000	0.000	0.000	0.000	0.930
ENE	0.000	0.093	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.232
E	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
ESE	0.000	0.139	0.186	0.000	0.000	0.000	0.000	0.000	0.000	0.325
SE	0.000	0.232	0.325	0.046	0.000	0.000	0.000	0.000	0.000	0.604
SSE	0.000	0.093	0.325	0.093	0.000	0.046	0.000	0.000	0.000	0.558
S	0.000	0.418	1.720	0.558	0.139	0.046	0.000	0.000	0.000	2.882
SSW	0.000	0.325	2.557	0.651	0.325	0.000	0.000	0.000	0.000	3.859
SW	0.000	0.232	2.929	1.209	0.093	0.000	0.000	0.000	0.000	4.463
WSW	0.000	0.000	0.837	0.232	0.139	0.000	0.000	0.000	0.000	1.209
W	0.000	0.186	0.325	0.232	0.000	0.000	0.000	0.000	0.000	0.744
WNW	0.000	0.046	0.418	0.232	0.093	0.000	0.000	0.000	0.000	0.790
NW	0.000	0.279	0.372	0.279	0.000	0.000	0.000	0.000	0.000	0.930
NNW	0.000	0.325	1.395	0.930	0.046	0.000	0.000	0.000	0.000	2.696
SUBTOTAL	0.000	3.533	18.224	6.462	1.348	0.093	0.000	0.000	0.000	29.661

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS E	651
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	638
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 2.82

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS



JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS F ( 1.5< DELTA T<= 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.232	2.603	0.139	0.000	0.000	0.000	0.000	0.000	2.975
NNE	0.000	0.744	4.695	0.139	0.000	0.000	0.000	0.000	0.000	5.579
NE	0.000	0.418	0.558	0.046	0.000	0.000	0.000	0.000	0.000	1.023
ENE	0.000	0.372	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.418
E	0.000	0.139	0.093	0.000	0.000	0.000	0.000	0.000	0.000	0.232
ESE	0.000	0.279	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.325
SE	0.000	0.418	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.558
SSE	0.000	0.465	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.604
S	0.000	0.279	0.418	0.000	0.000	0.000	0.000	0.000	0.000	0.697
SSW	0.000	0.232	1.023	0.000	0.000	0.000	0.000	0.000	0.000	1.255
SW	0.000	0.046	0.837	0.232	0.000	0.000	0.000	0.000	0.000	1.116
WSW	0.000	0.139	0.279	0.186	0.000	0.000	0.000	0.000	0.000	0.604
W	0.000	0.000	0.093	0.093	0.000	0.000	0.000	0.000	0.000	0.186
WNW	0.000	0.046	0.232	0.000	0.000	0.000	0.000	0.000	0.000	0.279
NW	0.000	0.186	0.093	0.093	0.000	0.000	0.000	0.000	0.000	0.372
NNW	0.000	0.232	0.651	0.186	0.000	0.000	0.000	0.000	0.000	1.069
SUBTOTAL	0.000	4.231	11.948	1.116	0.000	0.000	0.000	0.000	0.000	17.294

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS F	382
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	372
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 2.03

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS G (DELTA T > 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 2012 - JUN 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
NNE	0.000	0.186	0.279	0.000	0.000	0.000	0.000	0.000	0.000	0.465
NE	0.000	0.093	0.093	0.000	0.000	0.000	0.000	0.000	0.000	0.186
ENE	0.000	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.093
E	0.000	0.186	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.232
ESE	0.000	0.093	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.139
SE	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SSE	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
S	0.000	0.232	0.279	0.000	0.000	0.000	0.000	0.000	0.000	0.511
SSW	0.000	0.093	0.511	0.000	0.000	0.000	0.000	0.000	0.000	0.604
SW	0.000	0.000	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.139
WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.046
NNW	0.000	0.046	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.093
SUBTOTAL	0.000	1.069	1.488	0.046	0.046	0.000	0.000	0.000	0.000	2.650

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2178
TOTAL HOURS OF STABILITY CLASS G	58
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	57
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2151
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/08/15

MEAN WIND SPEED = 1.86

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS A (DELTA T<=-1.9 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.182
NNE	0.000	0.000	0.000	0.227	0.227	0.000	0.000	0.000	0.000	0.455
NE	0.000	0.000	0.000	0.409	0.045	0.000	0.000	0.000	0.000	0.455
ENE	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
SE	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.091
SSE	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.091
S	0.000	0.000	0.000	0.091	0.136	0.000	0.000	0.000	0.000	0.227
SSW	0.000	0.000	0.000	0.318	0.637	0.045	0.000	0.000	0.000	1.000
SW	0.000	0.000	0.000	0.364	0.318	0.000	0.000	0.000	0.000	0.682
WSW	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.091
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL	0.000	0.000	0.091	1.683	1.546	0.045	0.000	0.000	0.000	3.365

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS A	74
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	74
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
 STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
 WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 5.34

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS B (-1.9&lt; DELTA T&lt;=-1.7 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.136	0.000	0.000	0.000	0.000	0.000	0.136
NNE	0.000	0.000	0.045	0.273	0.136	0.000	0.000	0.000	0.000	0.455
NE	0.000	0.000	0.000	0.364	0.045	0.000	0.000	0.000	0.000	0.409
ENE	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
E	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.091
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.091
SSE	0.000	0.000	0.045	0.000	0.045	0.000	0.000	0.000	0.000	0.091
S	0.000	0.000	0.000	0.091	0.227	0.000	0.000	0.000	0.000	0.318
SSW	0.000	0.000	0.045	1.501	0.500	0.000	0.000	0.000	0.000	2.046
SW	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	1.000
WSW	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL	0.000	0.000	0.273	3.502	0.955	0.000	0.000	0.000	0.000	4.729

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS B	104
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	104
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 4.73

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.000	0.182
NNE	0.000	0.000	0.045	1.000	0.091	0.000	0.000	0.000	0.000	1.137
NE	0.000	0.000	0.182	0.318	0.000	0.000	0.000	0.000	0.000	0.500
ENE	0.000	0.000	0.136	0.045	0.000	0.000	0.000	0.000	0.000	0.182
E	0.000	0.000	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.182
ESE	0.000	0.000	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.136
SE	0.000	0.000	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.182
SSE	0.000	0.000	0.136	0.091	0.000	0.000	0.000	0.000	0.000	0.227
S	0.000	0.000	0.136	0.136	0.182	0.000	0.000	0.000	0.000	0.455
SSW	0.000	0.000	0.227	1.819	0.364	0.000	0.000	0.000	0.000	2.410
SW	0.000	0.000	0.227	0.773	0.045	0.000	0.000	0.000	0.000	1.046
WSW	0.000	0.000	0.091	0.045	0.000	0.000	0.000	0.000	0.000	0.136
W	0.000	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.000	0.182
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.091
SUBTOTAL	0.000	0.000	1.819	4.548	0.682	0.000	0.000	0.000	0.000	7.049

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS C	155
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	155
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 4.10

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS D (-1.5&lt; DELTA T&lt;=-0.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	1.683	0.728	0.273	0.000	0.000	0.000	0.000	2.683
NNE	0.000	0.000	1.774	0.910	0.500	0.000	0.000	0.000	0.000	3.183
NE	0.000	0.000	1.501	0.500	0.000	0.000	0.091	0.000	0.000	2.092
ENE	0.000	0.045	0.591	0.000	0.000	0.000	0.000	0.000	0.000	0.637
E	0.000	0.000	0.273	0.045	0.000	0.000	0.000	0.000	0.000	0.318
ESE	0.000	0.000	0.227	0.045	0.045	0.000	0.000	0.000	0.000	0.318
SE	0.000	0.000	0.819	0.045	0.000	0.000	0.000	0.000	0.000	0.864
SSE	0.000	0.000	1.319	0.409	0.000	0.091	0.000	0.000	0.000	1.819
S	0.000	0.000	3.411	2.365	0.182	0.000	0.000	0.000	0.000	5.957
SSW	0.000	0.091	3.502	5.230	0.273	0.000	0.000	0.000	0.000	9.095
SW	0.000	0.091	1.501	1.410	0.227	0.000	0.000	0.000	0.000	3.229
WSW	0.000	0.091	0.409	0.273	0.091	0.000	0.000	0.000	0.000	0.864
W	0.000	0.091	0.136	0.136	0.045	0.000	0.000	0.000	0.000	0.409
WNW	0.000	0.045	0.409	0.182	0.000	0.091	0.000	0.000	0.000	0.728
NW	0.000	0.045	0.273	0.318	0.091	0.091	0.000	0.000	0.000	0.819
NNW	0.000	0.045	0.591	0.136	0.091	0.091	0.000	0.000	0.000	0.955
SUBTOTAL	0.000	0.546	18.417	12.733	1.819	0.364	0.091	0.000	0.000	33.970

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS D	747
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	747
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 3.45

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.955	4.548	0.773	0.045	0.000	0.000	0.000	0.000	6.321
NNE	0.000	0.682	3.047	0.591	0.000	0.000	0.000	0.000	0.000	4.320
NE	0.000	0.318	0.546	0.091	0.000	0.000	0.000	0.000	0.000	0.955
ENE	0.000	0.182	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.500
E	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.182
ESE	0.000	0.182	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.273
SE	0.000	0.364	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.500
SSE	0.000	0.455	0.637	0.091	0.000	0.000	0.000	0.000	0.000	1.182
S	0.000	0.409	1.592	0.546	0.000	0.000	0.000	0.000	0.000	2.547
SSW	0.000	0.273	3.411	0.546	0.000	0.000	0.000	0.000	0.000	4.229
SW	0.000	0.227	3.683	1.364	0.182	0.091	0.000	0.000	0.000	5.548
WSW	0.000	0.182	1.683	0.409	0.091	0.000	0.000	0.000	0.000	2.365
W	0.000	0.227	0.819	0.136	0.045	0.000	0.000	0.000	0.000	1.228
WNW	0.000	0.273	0.591	0.136	0.000	0.000	0.000	0.000	0.000	1.000
NW	0.000	0.455	1.000	0.136	0.000	0.000	0.000	0.000	0.000	1.592
NNW	0.000	0.364	1.683	0.318	0.045	0.045	0.000	0.000	0.000	2.456
SUBTOTAL	0.000	5.639	23.874	5.139	0.409	0.136	0.000	0.000	0.000	35.198

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS E	774
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	774
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 2.45

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS F ( 1.5< DELTA T<= 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.455	4.002	0.682	0.045	0.000	0.000	0.000	0.000	5.184
NNE	0.000	0.773	4.047	0.045	0.000	0.000	0.000	0.000	0.000	4.866
NE	0.000	0.273	0.409	0.000	0.000	0.000	0.000	0.000	0.000	0.682
ENE	0.000	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.227
E	0.000	0.227	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.318
ESE	0.000	0.136	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.182
SE	0.000	0.318	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.364
SSE	0.000	0.091	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.227
S	0.000	0.000	0.318	0.000	0.045	0.000	0.000	0.000	0.000	0.364
SSW	0.000	0.136	0.318	0.045	0.000	0.000	0.000	0.000	0.000	0.500
SW	0.000	0.045	0.227	0.045	0.000	0.000	0.000	0.000	0.000	0.318
WSW	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.091
W	0.000	0.045	0.273	0.045	0.000	0.000	0.000	0.000	0.000	0.364
WNW	0.000	0.000	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.227
NW	0.000	0.000	0.318	0.045	0.000	0.000	0.000	0.000	0.000	0.364
NNW	0.000	0.045	0.546	0.409	0.000	0.000	0.000	0.000	0.000	1.000
SUBTOTAL	0.000	2.774	11.096	1.319	0.091	0.000	0.000	0.000	0.000	15.280

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS F	336
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	336
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 2.11

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS



JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS G (DELTA T > 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

JUL 1, 2012 - SEP 30, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ENE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.091
S	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.091
SSW	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
WNW	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL	0.000	0.182	0.091	0.136	0.000	0.000	0.000	0.000	0.000	0.409

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2199
TOTAL HOURS OF STABILITY CLASS G	9
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	9
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2199
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2012/11/14

MEAN WIND SPEED = 2.40

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS A (DELTA T&lt;=-1.9 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.045	0.000	0.091	0.000	0.000	0.000	0.000	0.136
NNE	0.000	0.000	0.045	0.045	0.182	0.000	0.000	0.000	0.000	0.272
NE	0.000	0.000	0.091	0.045	0.045	0.045	0.000	0.000	0.000	0.227
ENE	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.091
E	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.091
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
S	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
SSW	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.091
SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.000	0.000	0.000	0.000	0.136	0.000	0.000	0.000	0.136
SUBTOTAL	0.000	0.000	0.454	0.136	0.318	0.182	0.000	0.000	0.000	1.090

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS A	24
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	24
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 4.97

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS B (-1.9< DELTA T<=-1.7 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.000	0.045	0.000	0.045	0.000	0.000	0.000	0.091
NNE	0.000	0.000	0.045	0.182	0.272	0.136	0.000	0.000	0.000	0.636
NE	0.000	0.000	0.227	0.409	0.045	0.091	0.000	0.000	0.000	0.772
ENE	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.091
E	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
S	0.000	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.182
SSW	0.000	0.000	0.000	0.091	0.136	0.000	0.000	0.000	0.000	0.227
SW	0.000	0.000	0.000	0.045	0.045	0.000	0.000	0.000	0.000	0.091
WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.000	0.091	0.045	0.000	0.000	0.000	0.136
WNW	0.000	0.000	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.182
NW	0.000	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.091
NNW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SUBTOTAL	0.000	0.000	0.363	0.954	0.863	0.409	0.000	0.000	0.000	2.589

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS B	57
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	57
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 5.72

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.7&lt; DELTA T&lt;=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.045	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.227
NNE	0.000	0.000	0.045	0.318	0.272	0.182	0.000	0.000	0.000	0.817
NE	0.000	0.000	0.363	0.409	0.136	0.000	0.000	0.000	0.000	0.908
ENE	0.000	0.000	0.136	0.136	0.000	0.000	0.000	0.000	0.000	0.272
E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ESE	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
SE	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.045
SSE	0.000	0.000	0.045	0.091	0.000	0.000	0.000	0.000	0.000	0.136
S	0.000	0.000	0.045	0.136	0.136	0.000	0.000	0.000	0.000	0.318
SSW	0.000	0.000	0.000	0.136	0.272	0.000	0.000	0.000	0.000	0.409
SW	0.000	0.000	0.045	0.318	0.227	0.091	0.000	0.000	0.000	0.681
WSW	0.000	0.000	0.045	0.045	0.045	0.000	0.000	0.000	0.000	0.136
W	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.045
WNW	0.000	0.000	0.000	0.045	0.045	0.136	0.000	0.000	0.000	0.227
NW	0.000	0.000	0.000	0.045	0.091	0.045	0.000	0.000	0.000	0.182
NNW	0.000	0.000	0.000	0.000	0.045	0.136	0.000	0.000	0.000	0.182
SUBTOTAL	0.000	0.045	0.817	1.726	1.453	0.590	0.000	0.000	0.000	4.632

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS C	102
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	102
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 5.28

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS D (-1.5&lt; DELTA T&lt;=-0.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.000	0.817	1.181	1.589	0.681	0.000	0.000	0.000	4.269
NNE	0.000	0.000	1.090	2.089	1.907	1.226	0.000	0.000	0.000	6.312
NE	0.000	0.000	0.954	0.772	0.182	0.318	0.000	0.000	0.000	2.225
ENE	0.000	0.091	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.409
E	0.000	0.045	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.227
ESE	0.000	0.045	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.136
SE	0.000	0.045	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.182
SSE	0.000	0.045	0.091	0.045	0.045	0.045	0.000	0.000	0.000	0.272
S	0.000	0.045	0.636	0.545	0.500	0.272	0.000	0.000	0.000	1.998
SSW	0.000	0.045	1.272	2.589	1.090	0.091	0.000	0.000	0.000	5.086
SW	0.000	0.045	0.908	1.408	0.817	0.272	0.000	0.000	0.000	3.451
WSW	0.000	0.045	0.091	0.091	0.091	0.091	0.045	0.000	0.000	0.454
W	0.000	0.136	0.045	0.091	0.136	0.500	0.045	0.000	0.000	0.954
WNW	0.000	0.000	0.091	0.318	0.227	0.318	0.045	0.000	0.000	0.999
NW	0.000	0.000	0.182	0.272	0.590	0.000	0.000	0.000	0.000	1.045
NNW	0.000	0.000	0.045	0.545	0.545	0.182	0.000	0.000	0.000	1.317
SUBTOTAL	0.000	0.590	6.948	9.946	7.720	3.996	0.136	0.000	0.000	29.337

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS D	646
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	646
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 5.05

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS E (-0.5&lt; DELTA T&lt;= 1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.318	2.498	1.635	0.500	0.091	0.000	0.000	0.000	5.041
NNE	0.000	0.500	2.861	1.453	1.362	0.454	0.000	0.000	0.000	6.630
NE	0.000	0.136	0.817	0.136	0.227	0.045	0.000	0.000	0.000	1.362
ENE	0.000	0.091	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.363
E	0.000	0.091	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.182
ESE	0.000	0.136	0.045	0.045	0.000	0.000	0.000	0.000	0.000	0.227
SE	0.000	0.227	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.409
SSE	0.000	0.045	0.227	0.045	0.136	0.045	0.000	0.000	0.000	0.500
S	0.000	0.227	1.544	0.772	0.817	0.590	0.000	0.000	0.000	3.951
SSW	0.000	0.318	2.361	1.998	0.681	0.318	0.000	0.000	0.000	5.677
SW	0.000	0.272	2.452	0.908	0.182	0.091	0.000	0.000	0.000	3.906
WSW	0.000	0.227	0.772	0.363	0.000	0.136	0.000	0.000	0.000	1.499
W	0.000	0.227	0.590	0.318	0.182	0.272	0.091	0.000	0.000	1.680
WNW	0.000	0.045	0.318	0.409	0.182	0.091	0.000	0.000	0.000	1.045
NW	0.000	0.363	0.454	0.727	0.409	0.272	0.000	0.000	0.000	2.225
NNW	0.000	0.272	0.908	0.590	0.409	0.272	0.000	0.000	0.000	2.452
SUBTOTAL	0.000	3.497	16.349	9.446	5.086	2.679	0.091	0.000	0.000	37.148

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS E	818
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	818
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 3.81

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS F ( 1.5< DELTA T<= 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.000	0.272	1.589	0.136	0.000	0.000	0.000	0.000	0.000	1.998
NNE	0.000	0.727	5.904	0.272	0.000	0.000	0.000	0.000	0.000	6.903
NE	0.000	0.727	1.726	0.136	0.045	0.000	0.000	0.000	0.000	2.634
ENE	0.000	0.272	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.454
E	0.000	0.454	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.500
ESE	0.000	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.227
SE	0.000	0.182	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.227
SSE	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.182
S	0.000	0.409	0.363	0.000	0.045	0.045	0.000	0.000	0.000	0.863
SSW	0.000	0.272	0.636	0.182	0.045	0.000	0.000	0.000	0.000	1.135
SW	0.000	0.136	0.772	0.000	0.000	0.045	0.000	0.000	0.000	0.954
WSW	0.000	0.091	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.409
W	0.000	0.000	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.182
WNW	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.091
NW	0.000	0.045	0.500	0.136	0.000	0.000	0.000	0.000	0.000	0.681
NNW	0.000	0.000	0.409	0.136	0.045	0.000	0.000	0.000	0.000	0.590
SUBTOTAL	0.000	3.906	12.852	0.999	0.182	0.091	0.000	0.000	0.000	18.029

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS F	397
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	397
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 2.14

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

## JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS G (DELTA T &gt; 4.0 C/100 M)

SEQUOYAH NUCLEAR PLANT

OCT 1, 2012 - DEC 31, 2012

WIND DIRECTION	WIND SPEED(MPH)									TOTAL
	CALM	0.6-1.4	1.5-3.4	3.5-5.4	5.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	
N	0.001	0.045	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.137
NNE	0.008	0.227	0.954	0.000	0.000	0.000	0.000	0.000	0.000	1.188
NE	0.012	0.590	1.272	0.000	0.000	0.000	0.000	0.000	0.000	1.874
ENE	0.003	0.363	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.411
E	0.002	0.363	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.366
ESE	0.001	0.136	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.137
SE	0.001	0.136	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.183
SSE	0.003	0.454	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.548
S	0.003	0.363	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.548
SSW	0.008	0.409	0.817	0.000	0.000	0.000	0.000	0.000	0.000	1.234
SW	0.003	0.045	0.363	0.000	0.000	0.000	0.000	0.000	0.000	0.411
WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.045
WNW	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
NW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NNW	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SUBTOTAL	0.045	3.224	3.860	0.045	0.000	0.000	0.000	0.000	0.000	7.175

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2202
TOTAL HOURS OF STABILITY CLASS G	158
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	158
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2202
TOTAL HOURS CALM	1

METEOROLOGICAL FACILITY: SEQUOYAH NUCLEAR PLANT  
STABILITY BASED ON DELTA-T BETWEEN 9.25 AND 45.99 METERS  
WIND SPEED AND DIRECTION MEASURED AT 9.73 METER LEVEL

DATE PRINTED: 2013/02/19

MEAN WIND SPEED = 1.70

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS



Attachment 2.0

Deviations from ODCM Controls/Surveillance Requirements

Date	ODCM Requirement	Description of Deviation
December 27, 2012	1/2 1.2 2.1.2 Table 1.1-2 Item 3a,	During the performance of Chemistry Technical Instruction 0-SI-CEM-030-415.0, Gaseous Effluent Requirements (Noble Gas and Tritium) for Inoperable Monitor, and 2-SI-CEM 090-470.4, Unit 2 Shield Building Flow Estimation, Chemistry personnel missed a 12 hour sample requirement and a 4 hour flow check requirement. The sample and flow check were performed 2.58 hours late. PER 666556.
December 31, 2012	1/2 1.2 2.1.2 Table 1.1-2 Item 3a,	During the performance of Chemistry Technical Instruction 2-SI-CEM 090-470.4, Unit 2 Shield Building Flow Estimation, Chemistry personnel missed a 4 hour flow check requirement. The flow check was performed 4 hours late. PER 662785

### Attachment 3.0

#### Radiation Monitors Inoperable for Greater than 30 days

Date	Description of Inoperability
June 11, 2012	Unit 1 Shield Building Exhaust System Radiation Monitor, 1-RM-90-400, was declared inoperable on June 11, 2012 due to inoperable Kurz system. It was removed from service to replace sampling pumps. The Kurz system allows Monitor operation in the mid and high ranges. The Monitor still maintains low range detection functions. DCN 22960 will replace the broken and obsolete Kurz equipment. It has not been returned to operability.
October 19, 2012	Unit 2 Shield Building Exhaust System Radiation Monitor, 1-RM-90-400, was declared inoperable on October 19, 2012. It had been removed from service to perform scheduled maintenance. The instrument failed its leak check on return to service and was made inoperable. Engineering contacted the vendor for assistance and parts. It was returned to operability on January 26, 2012.

# Attachment 4.0

## Addendum

Annual Report	Description of Addendum
2011	<p>Contribution of Tritium to the Gaseous Activities and Dose due to operation of the Unit 1 and 2 Steam Generator Power Operated Relief Valves was not reported in the 2011 Annual Radioactive Effluent Release Report. There was no Gamma activity contributed by these operations.</p> <p>These operations occurred.</p> <p>April 3, 2011, U1 S/G #2 indicated opened with an estimated release of 2.45E-4 Ci.</p> <p>June 26, 2011, U1 S/G #1-4 indicated opened with an estimated release of 8.82E-4 Ci.</p> <p>May, 23 through June, 20 2011, for U2C17, U2 S/G #1-4 were opened with an estimated release of 5.38E-4 Ci. for the shut down and 9.18E-4 Ci for the start-up.</p> <p>July 20, 2011, U1 S/G #2, 3 and 4 indicated opened with an estimated release of 8.29E-4 Ci.</p> <p>Adding these values to the previously reported totals showed no increase in the reported dose</p> <p>This is to report and correct this omission in the 2009 Annual Radioactive Effluent Release Report. This does not affect the reported dose.</p>