

Enclosure 1
Watts Bar Nuclear Plant
2004 Annual Radioactive Effluent Release Report

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

SUPPLEMENTAL INFORMATION

1. 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, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 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 all 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 concentration of radioactivity released in liquid effluents to unrestricted areas shall be limited to 10 times the concentrations specified in Title 10 of the Code of Federal Regulations, 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 2.0 E-04 $\mu\text{Ci/ml}$ 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.

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2. Effluent Concentration Limits

A. Liquids

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 $2.0E-04$ $\mu\text{Ci/ml}$ is applied. This ECL is based on the 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.

B. Gaseous

Concentration limits for gaseous releases are met through compliance with the maximum permissible dose rates for gaseous releases as defined in plant Offsite Dose Calculation Manual (ODCM) and presented in Section 1.A.1 of this report.

3. Average Energy

Watts Bar'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. Therefore, the average beta and gamma energies (E) for gaseous effluents as described in Regulatory Guide 1.21, "Measuring, Evaluation, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," are not applicable.

4. Measurements And Approximations Of Total Radioactivity

Radioactivity measurements performed in support of the WBN Offsite Dose Calculation Manual (ODCM) meet the Lower Limit of Detection requirements given in ODCM Tables 2.2-1 and 2.2-2.

A. Liquid Effluents

Batch (Radwaste and Condensate Demineralizer tanks)

Total gamma isotopic activity concentrations are determined on each Radwaste batch tank prior to release. The total activity of a batch release is obtained by determining the concentration of each nuclide and then multiplying by the volume discharged to arrive at the curie concentration for each nuclide. The curies of each nuclide are then summed. Composite samples are maintained and analyzed monthly for tritium and gross alpha, and quarterly for Iron-55, Strontium-89, and Strontium-90. During periods of no significant identified primary to secondary leakage, the volume from each Condensate Demineralizer tank release is obtained and the feedwater tritium concentration is used to determine the curies of tritium released.

Continuous Releases (Turbine Building Sump and Steam Generator Blowdown)

During periods of no significant identified primary to secondary leakage, the volume released from the TBS and SGB is obtained. The TBS tritium concentration is determined via weekly grab samples. The feedwater tritium concentration is used to determine the curies of tritium released from SGB.

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B. Fission and Activation Gases

Airborne effluent gaseous activity is continuously monitored and recorded. Weekly grab samples from the auxiliary building and monthly grab samples from the service building are taken and analyzed to determine the quantity of noble gas activity released based on the total flows for the sample period. Also, noble gas samples are collected and evaluated following startup, shutdown, or rated thermal power change exceeding 15 percent within one hour (sampling only required if 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 building exhaust due to purging of containment is determined by sampling prior to the beginning of the purge. The total activity released is determined from the total flow recorded for each purge. Also, noble gas samples are collected and evaluated for ongoing containment purges following startup, shutdown, or rated thermal power change exceeding 15 percent within one hour (sampling only required if 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 building exhaust due to the batch release of waste gas decay tanks is determined by sampling each tank prior to release. The total activity released is determined from the total pressure change recorded for the tank during the release.

C. Iodines and Particulates in Gaseous Releases

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 total vent flows recorded for the sampling period. Also, particulate and charcoal samples are taken from the auxiliary and shield building exhausts once per 24 hours for 7 days following startup, shutdown, or a rated thermal power change exceeding 15 percent within one hour (if 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).

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5. Batch Releases

	Value		Units
	1st Half	2nd Half	
A. Liquid (Radwaste only)			
1. Number of releases	25	41	Each
2. Total time period of releases	5139	9258	Minutes
3. Maximum time period of release	425	855	Minutes
4. Average time period of releases	206	226	Minutes
5. Minimum time period for release	1	1	Minutes
6. Average dilution stream flow during release periods	23,724	41,688	CFS
B. Gaseous (Batches only - containment purges, and waste gas decay tanks)			
1. Number of releases	43	55	Each
2. Total time period of releases	37431	61027	Minutes
3. Maximum time period for release	3532	4657	Minutes
4. Average time period for releases	870	1110	Minutes
5. Minimum time period for release	7	2	Minutes

6. Abnormal Releases

	Value		Units
	1st Half	2nd Half	
A. Liquid			
Number of Releases	0	0	
Total Activity Released	N/A	N/A	Ci
B. Gaseous			
Number of Releases	1*	none	
Total Activity Released	2.98	N/A	Ci

* The Unit 1 Shield Building Exhaust isokinetic flow equipment was removed from service to perform an 18 month channel calibration of the radiation monitor. During the performance of the 18 month channel calibration a valve upstream of where the particulate and iodine compensatory sampler is connected was isolated. In order to support a containment purge the isokinetic equipment was placed back inservice but the opening of the valve upstream of the compensatory sampling equipment was overlooked and left closed. This resulted in an unmonitored release. The activity of the samples taken from containment prior to the release was used estimate the curies released.

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TABLE 1-A
Liquid Effluents - Summation of All Releases
Unit: 1
Starting: 1-Jan-2004 Ending: 30-Jun-2004

Type Of Effluent	Units	Quarter 1	Quarter 2	Est. Tot Error %
A. Fission & Activation Products				
1. Total Release (Not Including Tritium, Gases, Alpha)	Ci	8.28E-03	9.53E-03	25%
2. Average Diluted Concentration During Period	µCi/ml	7.96E-10	9.44E-10	
3. Percent Of Applicable Limit	%	*	*	
B. Tritium				
1. Total Release	Ci	1.88E+01	1.21E+01	18%
2. Average Diluted Concentration During Period	µCi/ml	1.81E-06	1.20E-06	
3. Percent Of Applicable Limit	%	*	*	
C. Dissolved And Entrained Gases				
1. Total Release	Ci	3.65E-03	1.03E-03	39%
2. Average Diluted Concentration During Period	µCi/ml	3.50E-10	1.02E-10	
3. Percent Of Applicable Limit	%	1.75E-04	5.00E-05	
D. Gross Alpha Radioactivity				
1. Total Release	Curies	0.000E+00**	0.000E+00	N/A***
E. Waste Volume Released (Pre-Dilution)				
	Liters	2.12E+08	3.36E+08	2%
F. Volume Of Dilution Water Used				
	Liters	1.02E+10	9.77E+09	12%

* Applicable limits are expressed in terms of dose. See Table 7A of this report.

** Zeroes in this table indicate that no radioactivity was present at detectable levels.

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

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TABLE 1-B
Liquid Effluents - Summation of All Releases
Unit: 1
Starting: 1-Jul-2004 Ending: 31-Dec-2004

Type Of Effluent	Units	Quarter 3	Quarter 4	Est. Tot Error %
A. Fission & Activation Products				
1. Total Release (Not Including Tritium, Gases, Alpha)	Ci	1.34E-02	9.61E-03	25%
2. Average Diluted Concentration During Period	μCi/ml	9.93E-10	5.06E-10	
3. Percent Of Applicable Limit	%	*	*	
B. Tritium				
1. Total Release	Ci	2.42E+02	4.58E+02	18%
2. Average Diluted Concentration During Period	μCi/ml	1.79E-05	2.41E-05	
3. Percent Of Applicable Limit	%	*	*	
C. Dissolved And Entrained Gases				
1. Total Release	Ci	9.37E-02	3.10E-02	39%
2. Average Diluted Concentration During Period	μCi/ml	6.95E-09	1.64E-09	
3. Percent Of Applicable Limit	%	3.48E-03	8.20E-04	
D. Gross Alpha Radioactivity				
1. Total Release	Ci	0.00E+00**	0.00E+00	N/A***
E. Waste Volume Released (Pre-Dilution)				
	Liters	3.39E+08	5.10E+08	2%
F. Volume Of Dilution Water Used				
	Liters	1.32E+10	1.85E+10	12%

* Applicable limits are expressed in terms of dose. See Table 7B of this report.

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TABLE 2-A
Liquid Effluents
Unit: 1

Starting: 1-Jan-2004 Ending: 30-Jun-2004

Nuclide	Unit	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
H-3	Ci	6.91E-01	8.07E-01	1.81E+01	1.13E+01
Fission & Activation Products					
Ag-110m	Ci	0.00E+00	0.00E+00	1.11E-05	0.00E+00
Co-57	Ci	0.00E+00	0.00E+00	2.38E-05	3.45E-05
Co-58	Ci	0.00E+00	0.00E+00	4.13E-03	2.39E-03
Co-60	Ci	0.00E+00	0.00E+00	1.61E-04	7.26E-04
Fe-55	Ci	0.00E+00	0.00E+00	1.65E-03	5.78E-03
I-131	Ci	0.00E+00	0.00E+00	6.60E-06	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	2.10E-06	6.32E-05
Nb-95	Ci	0.00E+00	0.00E+00	0.00E+00	1.81E-05
Sb-124	Ci	0.00E+00	0.00E+00	2.01E-04	0.00E+00
Sb-125	Ci	0.00E+00	0.00E+00	2.09E-03	5.21E-04
Totals	Ci	0.00E+00	0.00E+00	8.28E-03	9.53E-03

Dissolved And Entrained Gases

Xe-133	Ci	0.00E+00	0.00E+00	3.59E-03	1.01E-03
Xe-135	Ci	0.00E+00	0.00E+00	6.18E-05	1.83E-05
Totals	Ci	0.00E+00	0.00E+00	3.65E-03	1.03E-03

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TABLE 2-B
Liquid Effluents
Unit: 1
Starting: 1-Jul-2004 Ending: 31-Dec-2004

Nuclide	Unit	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
H-3	Ci	1.05E+00	2.48E-01	2.41E+02	4.56E+02
Fission & Activation Products					
Ag-110m	Ci	0.00E+00	0.00E+00	5.77E-06	4.65E-06
Co-57	Ci	0.00E+00	0.00E+00	2.95E-05	0.00E+00
Co-58	Ci	0.00E+00	0.00E+00	8.60E-04	2.39E-04
Co-60	Ci	0.00E+00	0.00E+00	2.52E-03	2.46E-04
Cr-51	Ci	0.00E+00	0.00E+00	0.00E+00	5.60E-05
Cs-134	Ci	0.00E+00	0.00E+00	0.00E+00	7.95E-05
Cs-137	Ci	0.00E+00	0.00E+00	0.00E+00	5.44E-05
Fe-55	Ci	0.00E+00	0.00E+00	7.72E-03	1.71E-03
I-131	Ci	0.00E+00	4.51E-04	0.00E+00	7.88E-06
I-133	Ci	0.00E+00	1.09E-03	0.00E+00	0.00E+00
I-135	Ci	0.00E+00	5.02E-04	0.00E+00	0.00E+00
Mn-54	Ci	0.00E+00	0.00E+00	2.80E-04	4.78E-06
Nb-95	Ci	0.00E+00	0.00E+00	7.70E-06	0.00E+00
Sb-125	Ci	0.00E+00	0.00E+00	2.00E-03	5.16E-03
Totals	Ci	0.00E+00	2.04E-03	1.34E-02	9.60E-03
Dissolved And Entrained Gases					
Kr-85	Ci	0.00E+00	0.00E+00	1.05E-02	2.03E-02
Xe-131m	Ci	0.00E+00	0.00E+00	1.37E-03	6.45E-04
Xe-133	Ci	0.00E+00	0.00E+00	8.12E-02	9.26E-03
Xe-133m	Ci	0.00E+00	0.00E+00	5.59E-04	0.00E+00
Xe-135	Ci	0.00E+00	0.00E+00	4.82E-05	1.54E-04
Xe-137	Ci	0.00E+00	6.18E-04	0.00E+00	0.00E+00
Totals	Ci	0.00E+00	6.18E-04	9.37E-02	3.04E-02

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TABLE 3-A
Gaseous Effluents - Summation of All Releases
Unit: 1
Starting: 1-Jan-2004 Ending: 30-Jun-2004

Type Of Effluent	Units	Quarter 1	Quarter 2	Est. Tot Error %
A. Fission & Activation Products				
1. Total Release	Ci	1.48E+02	1.83E+02	22
2. Average Release Rate For Period	μCi/sec	1.88E+01	2.33E+01	
3. Percent Of Applicable Limit	%	*	*	
B. Radioiodines				
1. Total Iodine-131	Ci	8.53E-06	7.78E-10	N/A***
2. Average Release Rate For Period	μCi/sec	1.09E-06	9.89E-11	
3. Percent Of Applicable Limit	%	*	*	
C. Particulates				
1. Particulates (Half-Lives>8 Days)	Ci	0.000E+00	1.40E-10	N/A***
2. Average Release Rate For Period	μCi/sec	0.000E+00	1.78E-11	
3. Percent Of Applicable Limit	%	*	*	
4. Gross Alpha Radioactivity	Ci	0.000E+00	0.000E+00	
D. Tritium				
1. Total Release	Ci	3.80E+00	2.36E+00	11
2. Average Release Rate For Period	μCi/sec	4.84E-01	3.00E-01	
3. Percent Of Applicable Limit	%	*	*	

* Applicable limits are expressed in terms of dose. See Table 6A of this report.

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TABLE 3-B
Gaseous Effluents - Summation of All Releases
Unit: 1
Starting: 1-Jul-2004 Ending: 31-Dec-2004

Type Of Effluent	Units	Quarter 3	Quarter 4	Est. Tot Error %
A. Fission & Activation Products				
1. Total Release	Ci	2.84E+02	3.62E+02	22
2. Average Release Rate For Period	μCi/sec	3.58E+01	4.55E+01	
3. Percent Of Applicable Limit	%	*	*	
B. Radioiodines				
1. Total Iodine-131	Ci	4.18E-06	2.19E-07	***N/A
2. Average Release Rate For Period	μCi/sec	5.26E-07	2.76E-08	
3. Percent Of Applicable Limit	%	*	*	
C. Particulates				
1. Particulates (Half-Lives>8 Days)	Ci	1.72E-05	3.16E-06	***N/A
2. Average Release Rate For Period	μCi/sec	2.16E-06	3.98E-07	
3. Percent Of Applicable Limit	%	*	*	
4. Gross Alpha Radioactivity	Ci	0.000E+00	0.000E+00	
D. Tritium				
1. Total Release	Ci	4.08E+00	3.66E+00	11
2. Average Release Rate For Period	μCi/sec	5.13E-01	4.60E-01	
3. Percent Of Applicable Limit	%	*	*	

* Applicable limits are expressed in terms of dose. See Table 6-B of this report.

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TABLE 4-A
Gaseous Effluents-Ground Level Releases
Unit: 1
Starting: 1-Jan-2004 Ending: 30-Jun-2004

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Fission Gases					
Kr-85m	Ci	0.00E+00	1.63E-02	2.56E-02	2.53E-02
Xe-131m	Ci	0.00E+00	0.00E+00	1.96E+00	6.54E-01
Kr-85	Ci	0.00E+00	0.00E+00	1.33E+00	7.08E-01
Xe-135	Ci	1.00E+00	1.44E-01	1.35E+00	1.52E+00
Xe-133m	Ci	0.00E+00	0.00E+00	1.51E+00	2.42E+00
Ar-41	Ci	0.00E+00	0.00E+00	4.94E+00	4.67E+00
Xe-133	Ci	2.16E+00	5.83E+00	1.33E+02	1.67E+02
Total	Ci	3.16E+00	5.99E+00	1.45E+02	1.77E+02
Iodines					
I-131	Ci	8.53E-06	7.78E-10	0.00E+00	0.00E+00
I-133	Ci	1.98E-06	1.02E-09	0.00E+00	0.00E+00
Total	Ci	1.05E-05	1.80E-09	0.00E+00	0.00E+00
Particulates					
Cs-134	Ci	0.00E+00	1.40E-10	0.00E+00	0.00E+00
Rb-88	Ci	0.00E+00	1.43E-07	0.00E+00	0.00E+00
Ba-139	Ci	0.00E+00	4.24E-07	0.00E+00	0.00E+00
Br-82	Ci	1.52E-06	2.12E-06	0.00E+00	0.00E+00
Cs-138	Ci	0.00E+00	6.42E-06	0.00E+00	0.00E+00
Total	Ci	1.52E-06	9.11E-06	0.00E+00	0.00E+00
H-3	Ci	3.13E+00	2.36E+00	6.80E-01	0.00E+00

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TABLE 4-B
Gaseous Effluents-Ground Level Releases
Unit: 1
Starting: 1-Jul-2004 Ending: 31-Dec-2004

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Fission Gases					
Kr-88	Ci	0.00E+00*	2.09E-03	0.00E+00	0.00E+00
Xe-138	Ci	0.00E+00	3.55E-03	0.00E+00	0.00E+00
Xe-135m	Ci	6.07E-04	7.05E-03	0.00E+00	0.00E+00
Kr-87	Ci	7.38E-06	2.21E-03	1.65E-02	0.00E+00
Kr-85m	Ci	1.64E-04	1.23E-03	6.17E-02	7.08E-03
Kr-85	Ci	0.00E+00	0.00E+00	1.32E+00	1.18E+00
Xe-135	Ci	3.99E-03	2.06E+00	3.23E+00	2.68E+00
Xe-131m	Ci	0.00E+00	0.00E+00	1.90E+00	4.12E+00
Xe-133m	Ci	0.00E+00	0.00E+00	3.65E+00	4.21E+00
Ar-41	Ci	0.00E+00	3.19E-04	9.82E+00	6.09E+00
Xe-133	Ci	1.11E-02	4.45E+00	2.64E+02	3.37E+02
Total	Ci	1.59E-02	6.53E+00	2.84E+02	3.55E+02
Iodines					
I-134	Ci	0.00E+00	5.09E-08	0.00E+00	0.00E+00
I-132	Ci	2.56E-08	1.54E-07	0.00E+00	0.00E+00
I-131	Ci	4.18E-06	2.20E-07	0.00E+00	0.00E+00
I-133	Ci	1.71E-06	3.78E-07	0.00E+00	0.00E+00
I-135	Ci	2.97E-08	3.79E-07	0.00E+00	0.00E+00
Total	Ci	5.95E-06	1.18E-06	0.00E+00	0.00E+00
Particulates					
Nb-97	Ci	7.02E-08	0.00E+00	0.00E+00	0.00E+00
Co-58	Ci	2.02E-06	0.00E+00	0.00E+00	0.00E+00
Sr-89	Ci	0.00E+00	1.64E-09	0.00E+00	0.00E+00
Rb89	Ci	0.00E+00	1.09E-08	0.00E+00	0.00E+00
Co-57	Ci	0.00E+00	1.53E-08	0.00E+00	0.00E+00
Co-60	Ci	1.52E-05	3.15E-06	0.00E+00	0.00E+00
Ba-139	Ci	1.87E-06	4.79E-06	0.00E+00	0.00E+00
Rb-88	Ci	3.06E-06	6.18E-06	0.00E+00	0.00E+00
Br-82	Ci	3.61E-06	1.01E-05	0.00E+00	0.00E+00
Cs-138	Ci	5.38E-05	1.49E-04	0.00E+00	0.00E+00
Total	Ci	7.97E-05	1.73E-04	0.00E+00	0.00E+00
H-3	Ci	4.07E+00	3.66E+00	0.00E+00	0.00E+00

* Zeroes in this table indicate that no radioactivity was present at detectable levels.

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**TABLE 5-A
SOLID WASTE (RADIOACTIVE SHIPMENTS)**

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

1. <u>Type of Waste</u>	<u>Unit</u>	<u>12 Month Period</u>	<u>Est. (Ci) Error %</u>
a. Spent resins, filter sludges, evaporator bottoms, etc.	m ³ Ci	17.0 212	N/A +/-25%
b. Dry Active Waste, Compressible Waste Contaminated Equipment, etc.	m ³ Ci	72.0 0.290	N/A +/-25%
c. Irradiated Components, Control Rods, etc.	m ³ Ci	None None	N/A N/A

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

	Percent	Ci
a. Spent resins, filter sludges, evaporator bottoms, etc. (nuclides determined by measurement)		
H-3	0.425	9.02E-1
Be-7	0.025	5.24E-2
C-14	0.142	3.01E-1
Cr-51	0.613	1.30E+0
Mn-54	2.975	6.31E+0
Fe-55	30.792	6.53E+1
Fe-59	0.108	2.29E-1
Co-57	0.242	5.14E-1
Co-58	12.710	2.70E+1
Co-60	11.948	2.54E+1
Ni-59	0.305	6.48E-1
Ni-63	37.687	8.00E+1
Zn-65	0.057	1.22E-1
Sr-89	0.000	6.09E-4
Sr-90	0.002	3.53E-3
Zr-95	0.461	9.77E-1
Nb-95	0.528	1.12E+0
Ag-110m	0.020	4.26E-2
Cd-109	0.050	1.07E-1
Sn-117m	0.000	8.60E-6
Sn-113	0.036	7.62E-2
Sb-124	0.054	1.15E-1
Sb-125	0.473	1.00E+0
Cs-134	0.126	2.68E-1
Cs-137	0.182	3.86E-1
Ce-144	0.034	7.24E-2
Pu-238	0.000	5.30E-5
Pu-239	0.000	1.66E-5
Pu-240	0.000	1.66E-5
Pu-241	0.003	6.88E-3

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**TABLE 5-A
SOLID WASTE (RADIOACTIVE SHIPMENTS)**

b. Dry active waste, compressible waste, contaminated equipment, etc. (nuclides determined by estimate)	Percent	Ci
H-3	1.106	3.21E-3
Cr-51	0.989	2.87E-3
Mn-54	3.236	9.39E-3
Fe-55	48.591	1.41E-1
Fe-59	0.254	7.36E-4
Co-57	0.151	4.39E-4
Co-58	18.627	5.40E-2
Co-60	8.662	2.51E-2
Ni-63	15.246	4.42E-2
Zn-65	0.067	1.93E-4
Zr-95	0.810	2.35E-3
Nb-95	1.546	4.49E-3
Ag-110m	0.017	4.97E-5
Sn-113	0.057	1.66E-4
Sb-125	0.567	1.64E-3
Cs-137	0.025	7.28E-5
Ce-144	0.049	1.43E-4
c. Irradiated Components	N/A	N/A

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TABLE 5-B
 SOLID WASTE (RADIOACTIVE SHIPMENTS)

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
5	Motor Freight	Barnwell Waste Mgmt Facility
1	Motor Freight	Duratek DAW Processing
1	Motor Freight	Duratek Green is Clean

4. Irradiated Fuel Shipments (Disposition)

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

5. Solidification of Waste

Was solidification performed? _____ No

If yes, solidification media: _____ N/A

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Radiological Impact

Introduction

Potential doses to maximum individuals and the population around Watts Bar 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 Watts Bar.

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.

Dose Calculations

Estimated doses to the public are determined using computer models (the 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 6A, 6B, 7A and 7B.

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

All releases from Watts Bar are considered ground-level releases. The ground-level Joint Frequency Distribution (JFD) is derived from wind speeds and directions measured 10 meters above ground and from the vertical temperature difference between 10 and 46 meters, and are presented for each quarter on pages E1-25 through E1-52.

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Radiological Impact

Meteorological Data

Meteorological variables at Watts Bar 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 joint frequency distribution 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 non-calm 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 Watts Bar 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 6A and 6B.

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).

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Radiological Impact

The concentrations of radioactivity in the Tennessee River are estimated by a computer model which uses measured hydraulic data downstream of Watts Bar. Parameters used to determine the doses are based on guidance given by the NRC (in Regulatory Guide 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 Watts Bar ODCM.

Liquid Release Points and River Data

Radioactivity concentrations in the Tennessee River are calculated assuming that releases in liquid effluents are continuous. All routine liquid releases from Watts Bar, located at Tennessee River Mile 528.5, 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-tenth 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 Tennessee River Mile 510.0.

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 (Dayton, TN). This could be interpreted as indicating that the maximum individual, as assumed for liquid releases from Watts Bar, is an individual who obtains all of his drinking water at Dayton, TN, consumes fish caught from the Tennessee River between Watts Bar and Chickamauga Dam, and spends 500 hours per year on the shoreline just below the outfall from Watts Bar. Dose estimates for the maximum individual due to liquid effluents for each quarter in the period are presented in Tables 7A and 7B, along with the average river flows past the plant site for the periods.

Population Doses

Population doses for highest exposed organ due to airborne effluents are calculated for an estimated 1,066,600 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 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 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 6A, 6B, 7A and 7B.

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Radiological Impact

Direct Radiation

External gamma radiation levels were measured by thermoluminescent dosimeters (TLDs) deployed around WBN as part of the offsite Environmental Radiological Monitoring Program. The quarterly gamma radiation levels determined from these TLDs during this reporting period averaged 16.5 mR/quarter at onsite (at or near the site boundary) stations and 15.25 mR/quarter at offsite stations or 1.25 mR/quarter higher onsite than at offsite stations. This difference is consistent with levels measured for preoperation and construction phases of the WBN plant site where the average radiation levels onsite were generally 2-6 mR/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 TLD 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 Watts Bar Offsite Dose Calculation Manual, 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 boundary for an entire work year (2000 hours). Results from onsite TLD measurements indicated that the highest onsite TLD reading outside the Radiological Control Area was 209 mrem. Using this value, subtracting an annual background value of approximately 61 mrem/year (see previous section), and multiplying by the ratio of the occupancy times (2000/8760), the highest external dose to a member of the public inside the unrestricted area boundary would be 33.79 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 Watts Bar radioactive effluents and all 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 8.

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TABLE 6-A
 Doses from Airborne Effluents

First Quarter

Individual Doses

Pathway	Dose	Quarterly Limit	Percent of Limit	Location
External				
Gamma Air	2.96E-02 mrad	5 mrad	< 1%	ENE/1370 meters
Beta Air	5.61E-02 mrad	10 mrad	< 1%	ENE/1370 meters
Submersion				
Total Body	1.24E-02 mrem	N/A	N/A	ENE/2414 meters
Skin	2.52E-02 mrem	N/A	N/A	SE/1372 meters
Organ Doses				
Child/Thyroid	7.56E-03 mrem	7.5 mrem	< 1%	NE/3829 meters
Child/Total Body	7.52E-03 mrem	7.5 mrem	< 1%	NE/3829 meters

Population Doses

Total Body Dose 2.94E-02 man-rem
 Maximum Organ Dose (organ) 2.96E-02 man-rem (thyroid)

Second Quarter

Individual Doses

Pathway	Dose	Quarterly Limit	Percent of Limit	Location
External				
Gamma Air	4.34E-02 mrad	5 mrad	< 1%	E/1280 meters
Beta Air	8.98E-02 mrad	10 mrad	< 1%	E/1280 meters
Submersion				
Total Body	1.79E-02 mrem	N/A	N/A	ENE/2414 meters
Skin	3.79E-02 mrem	N/A	N/A	ENE/2414 meters
Organ Doses				
Child/Thyroid	1.06E-02 mrem	7.5 mrem	< 1%	NE/3829 meters
Child/Total Body	1.06E-02 mrem	7.5 mrem	< 1%	NE/3829 meters

Population Doses

Total Body Dose 3.27E-02 man-rem
 Maximum Organ Dose (organ) 3.27E-02 man-rem (thyroid)

Population doses can be compared to the natural background dose for the entire 50-mile population of about 150,000 man-rem/year (based on 140 mrem/yr for natural background).

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TABLE 6-B
Doses from Airborne Effluents

Third Quarter

Individual Doses

Pathway	Dose	Quarterly Limit	Percent of Limit	Location
External				
Gamma Air	1.02E-02 mrad	5 mrad	< 1%	ESE/1250 meters
Beta Air	4.08E-03 mrad	10 mrad	< 1%	ESE/1250 meters
Submersion				
Total Body	6.31E-03 mrem	N/A	N/A	SE/1372 meters
Skin	9.40E-03 mrem	N/A	N/A	SE/1372 meters
Organ Doses				
Child/Thyroid	2.71E-02 mrem	7.5 mrem	< 1%	WSW/1829 meters
Child/Total Body	2.70E-02 mrem	7.5 mrem	< 1%	WSW/1829 meters

Population Doses

Total Body Dose 1.31E-01 man-rem
Maximum Organ Dose (organ) 1.32E-01 man-rem (thyroid)

Fourth Quarter

Individual Doses

Pathway	Dose	Quarterly Limit	Percent of Limit	Location
External				
Gamma Air	9.22E-02 mrad	5 mrad	< 1%	E/1280 meters
Beta Air	2.10E-01 mrad	10 mrad	< 1%	E/1280 meters
Submersion				
Total Body	3.12E-02 mrem	N/A	N/A	SE/1372 meters
Skin	6.74E-02 mrem	N/A	N/A	SE/1372 meters
Organ Doses				
Child/Thyroid	1.22E-02 mrem	7.5 mrem	< 1%	NE/3829 meters
Child/Total Body	1.22E-02 mrem	7.5 mrem	< 1%	NE/3829 meters

Population Doses

Total Body Dose 6.04E-02 man-rem
Maximum Organ Dose (organ) 6.04E-02 man-rem (thyroid)

Population doses can be compared to the natural background dose for the entire 50-mile population of about 150,000 man-rem/year (based on 140 mrem/yr for natural background).

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TABLE 7-A
Doses from Liquid Effluents

First Quarter

Individual Doses (mrem)

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	1.3E-04	1.5 mrem	< 1 %
Adult	GIT	1.5E-04	5 mrem	< 1 %
Child	Thyroid	1.3E-04	5 mrem	< 1 %

Average Riverflow past WBN (cubic feet per second): 33,651

Population Doses

Total Body Dose 4.6E-03 man-rem
Maximum Organ Dose (organ) 4.8E-03 man-rem (GIT)

Second Quarter

Individual Doses (mrem)

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	3.3E-04	1.5 mrem	< 1 %
Adult	GIT	5.6E-04	5 mrem	< 1 %
Child	Thyroid	3.1E-04	5 mrem	< 1 %

Average Riverflow past WBN (cubic feet per second): 13,797

Population Doses

Total Body Dose 9.2E-03 man-rem
Maximum Organ Dose (organ) 9.6E-03 man-rem (GIT)

Population doses can be compared to the natural background dose for the entire 50-mile population of about 150,000 man-rem/year (based on 140 mrem/yr for natural background).

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TABLE 7-B
Doses from Liquid Effluents

Third Quarter

Individual Doses (mrem)

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	1.3E-03	1.5 mrem	< 1 %
Child	GIT	1.3E-03	5 mrem	< 1 %
Child	Thyroid	1.3E-03	5 mrem	< 1 %

Average Riverflow past WBN (cubic feet per second): 31,454

Population Doses

Total Body Dose 6.7E-02 man-rem
Maximum Organ Dose (organ) 6.8E-02 man-rem (GIT)

Fourth Quarter

Individual Doses (mrem)

Age Group	Organ	Dose	Quarterly Limit	Percent of Limit
Child	Total Body	1.2E-03	1.5 mrem	< 1 %
Child	Bone	1.3E-03	5 mrem	< 1 %
Child	Thyroid	1.4E-03	5 mrem	< 1 %

Average Riverflow past WBN (cubic feet per second): 51,922

Population Doses

Total Body Dose 7.4E-02 man-rem
Maximum Organ Dose (organ) 7.6E-02 man-rem (Thyroid)

Population doses can be compared to the natural background dose for the entire 50-mile population of about 150,000 man-rem/year (based on 140 mrem/yr for natural background).

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TABLE 8
 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	1.24E-02	1.79E-02	9.40E-03	3.12E-02	
Critical organ dose (air)	7.52E-03	1.06E-02	2.70E-02	1.22E-02	
Total body dose (liquid)	1.30E-04	3.30E-04	1.30E-03	1.20E-03	
Maximum organ dose (liquid)	1.50E-04	5.60E-04	1.30E-03	1.30E-03	
Direct Radiation Dose	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Total	2.02E-02	2.94E-02	5.65E-02	4.54E-02	
Cumulative Total Dose (mrem)					1.51E-01
Annual Dose Limit (mrem)					25
Percent of Limit					0.60%
Thyroid					
Total body air submersion	1.24E-02	1.79E-02	9.40E-03	3.12E-02	
Thyroid dose (airborne)	7.56E-03	1.06E-02	2.71E-02	1.22E-02	
Total body dose (liquid)	1.30E-04	3.30E-04	1.30E-03	1.20E-03	
Thyroid dose (liquid)	1.30E-04	3.10E-04	1.30E-03	1.40E-03	
Direct Radiation Dose	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Total	2.02E-02	2.98E-02	5.65E-02	4.55E-02	
Cumulative Total Dose (mrem)					1.52E-01
Annual Dose Limit (mrem)					75
Percent of Limit					0.20%

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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.000	0.047	0.094	0.187	0.000	0.000	0.328
NNE	0.000	0.000	0.000	0.000	0.047	0.187	0.000	0.000	0.000	0.234
NE	0.000	0.000	0.000	0.000	0.094	0.047	0.000	0.000	0.000	0.141
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	0.047	0.000	0.000	0.000	0.000	0.000	0.047
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
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	0.000	0.000	0.047	0.187	0.000	0.000	0.000	0.234
SSW	0.000	0.000	0.000	0.000	0.281	1.172	0.000	0.000	0.000	1.453
SW	0.000	0.000	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.094
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	0.094	0.000	0.000	0.000	0.094
WNW	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.047
NW	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.047
NNW	0.000	0.000	0.000	0.000	0.094	0.000	0.141	0.000	0.000	0.234
SUBTOTAL	0.000	0.000	0.047	0.047	0.656	1.921	0.328	0.000	0.000	2.999

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS A	64
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	64
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 9.10

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS B (-1.9< DELTA T<=-1.7 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.000	0.141	0.187	0.000	0.000	0.000	0.328
NNE	0.000	0.000	0.000	0.047	0.094	0.281	0.047	0.000	0.000	0.469
NE	0.000	0.000	0.000	0.141	0.000	0.047	0.000	0.000	0.000	0.187
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	0.000	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	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.094
SSW	0.000	0.000	0.000	0.094	0.234	0.328	0.000	0.000	0.000	0.656
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	0.047	0.000	0.000	0.000	0.047
W	0.000	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.094
WNW	0.000	0.000	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.094
NW	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.047
NNW	0.000	0.000	0.000	0.047	0.000	0.047	0.047	0.000	0.000	0.141
SUBTOTAL	0.000	0.000	0.000	0.328	0.562	1.172	0.094	0.000	0.000	2.156

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS B	46
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	46
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 8.02

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.234	0.000	0.187	0.000	0.000	0.000	0.422
NNE	0.000	0.000	0.047	0.141	0.328	0.187	0.000	0.000	0.000	0.703
NE	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
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	0.094	0.047	0.000	0.000	0.000	0.000	0.141
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	0.047	0.000	0.000	0.000	0.000	0.000	0.047
SSE	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.047
S	0.000	0.000	0.000	0.047	0.047	0.047	0.000	0.000	0.000	0.141
SSW	0.000	0.000	0.000	0.000	0.234	0.281	0.000	0.000	0.000	0.515
SW	0.000	0.000	0.000	0.000	0.141	0.000	0.000	0.000	0.000	0.141
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	0.047	0.000	0.000	0.000	0.047
WNW	0.000	0.000	0.000	0.000	0.047	0.328	0.000	0.000	0.000	0.375
NW	0.000	0.000	0.000	0.000	0.047	0.094	0.047	0.000	0.000	0.187
NNW	0.000	0.000	0.000	0.000	0.000	0.094	0.047	0.000	0.000	0.141
SUBTOTAL	0.000	0.000	0.047	0.609	0.937	1.265	0.094	0.000	0.000	2.952

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS C	63
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	63
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 7.50

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS D (-1.5< DELTA T<=-0.5 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.047	0.562	1.312	1.125	1.546	0.094	0.000	0.000	4.686
NNE	0.000	0.000	0.797	1.265	1.546	2.109	0.469	0.000	0.000	6.186
NE	0.000	0.094	0.469	0.656	0.234	0.094	0.000	0.000	0.000	1.546
ENE	0.000	0.000	0.562	0.187	0.328	0.094	0.000	0.000	0.000	1.172
E	0.000	0.047	0.234	0.094	0.047	0.000	0.000	0.000	0.000	0.422
ESE	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.094
SE	0.000	0.047	0.234	0.000	0.000	0.000	0.000	0.000	0.000	0.281
SSE	0.000	0.047	0.469	0.187	0.047	0.000	0.000	0.000	0.000	0.750
S	0.000	0.000	0.750	0.562	0.422	0.375	0.141	0.000	0.000	2.249
SSW	0.000	0.000	0.937	1.874	1.828	1.359	0.094	0.000	0.000	6.092
SW	0.000	0.047	0.515	1.078	0.750	0.094	0.000	0.000	0.000	2.484
WSW	0.000	0.047	0.515	0.422	0.141	0.094	0.000	0.000	0.000	1.218
W	0.000	0.141	0.469	0.281	0.797	1.172	0.000	0.000	0.000	2.858
WNW	0.000	0.000	0.328	0.562	1.312	0.843	0.000	0.000	0.000	3.046
NW	0.000	0.000	0.422	0.234	1.078	1.031	0.047	0.000	0.000	2.812
NW	0.000	0.000	0.562	0.469	0.984	2.249	0.141	0.000	0.000	4.405
SUBTOTAL	0.000	0.515	7.873	9.231	10.637	11.059	0.984	0.000	0.000	40.300

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS D	861
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	860
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 6.10

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.094	0.890	0.843	0.515	0.141	0.000	0.000	0.000	2.484
NNE	0.000	0.000	0.750	0.515	0.141	0.187	0.047	0.000	0.000	1.640
NE	0.000	0.234	0.703	0.422	0.422	0.141	0.000	0.000	0.000	1.921
ENE	0.000	0.047	0.797	0.187	0.000	0.000	0.000	0.000	0.000	1.031
E	0.000	0.094	0.422	0.047	0.000	0.000	0.000	0.000	0.000	0.562
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.141
SSE	0.000	0.141	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.328
S	0.000	0.234	0.609	0.141	0.422	0.328	0.047	0.000	0.000	1.781
SSW	0.000	0.187	1.406	1.734	1.734	1.828	0.094	0.000	0.000	6.982
SW	0.000	0.141	1.781	0.562	0.281	0.094	0.000	0.000	0.000	2.858
WSW	0.000	0.281	0.937	0.141	0.187	0.000	0.000	0.000	0.000	1.546
W	0.000	0.328	0.703	0.281	0.375	0.000	0.000	0.000	0.000	1.687
WNW	0.000	0.375	0.328	0.375	0.422	0.141	0.000	0.000	0.000	1.640
NW	0.000	0.094	0.797	0.562	0.281	0.375	0.094	0.000	0.000	2.202
NNW	0.000	0.141	0.656	0.422	0.328	0.281	0.000	0.000	0.000	1.828
SUBTOTAL	0.000	2.530	10.965	6.232	5.108	3.515	0.281	0.000	0.000	28.632

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS E	611
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	611
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 4.43

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS F (1.5< DELTA T<= 4.0 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

WIND DIRECTION	CALM	WIND SPEED(MPH)								TOTAL	
		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	0.234	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.328
NNE	0.000	0.094	0.328	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.469
NE	0.000	0.141	0.469	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.609
ENE	0.000	0.047	0.328	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.469
E	0.000	0.094	0.141	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.281
ESE	0.000	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.187
SE	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.141
SSE	0.000	0.141	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.187
S	0.000	0.094	0.141	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.375
SSW	0.000	0.281	0.375	0.281	0.047	0.000	0.000	0.000	0.000	0.000	0.984
SW	0.000	0.469	0.656	0.047	0.000	0.000	0.000	0.000	0.000	0.000	1.172
WSW	0.000	0.703	1.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.734
W	0.000	0.703	0.656	0.047	0.000	0.000	0.000	0.000	0.000	0.000	1.406
WNW	0.000	0.562	0.422	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.984
NW	0.000	0.609	0.422	0.094	0.000	0.000	0.000	0.000	0.000	0.000	1.125
NNW	0.000	0.234	0.375	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.703
SUBTOTAL	0.000	4.686	5.483	0.937	0.047	0.000	0.000	0.000	0.000	0.000	11.153

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS F	238
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	238
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 1.88

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS G (DELTA T > 4.0 C/100 M)

Watts Bar Nuclear Plant

JAN 1, 2004 - MAR 31, 2004

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	0.005	0.187	0.234	0.047	0.000	0.000	0.000	0.000	0.000	0.474
NNE	0.002	0.047	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.190
NE	0.006	0.422	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.522
ENE	0.007	0.234	0.328	0.000	0.000	0.000	0.000	0.000	0.000	0.569
E	0.005	0.234	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.379
ESE	0.001	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
SE	0.004	0.328	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.332
SSE	0.003	0.141	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.237
S	0.010	0.703	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.806
SSW	0.011	0.703	0.234	0.000	0.000	0.000	0.000	0.000	0.000	0.949
SW	0.019	1.031	0.515	0.000	0.000	0.000	0.000	0.000	0.000	1.565
WSW	0.032	1.406	1.218	0.000	0.000	0.000	0.000	0.000	0.000	2.656
W	0.018	0.703	0.797	0.000	0.000	0.000	0.000	0.000	0.000	1.518
WNW	0.006	0.328	0.187	0.047	0.000	0.000	0.000	0.000	0.000	0.569
NW	0.010	0.515	0.281	0.000	0.000	0.000	0.000	0.000	0.000	0.806
NNW	0.002	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.190
SUBTOTAL	0.141	7.216	4.358	0.094	0.000	0.000	0.000	0.000	0.000	11.809

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2135
TOTAL HOURS OF STABILITY CLASS G	252
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	252
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2134
TOTAL HOURS CALM	3

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/05/10

MEAN WIND SPEED = 1.38

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

Watts Bar Nuclear Plant

APR 1, 2004 - JUN 30, 2004

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	0.047	0.094	0.000	0.188	0.000	0.000	0.000	0.328
NNE	0.000	0.000	0.000	0.094	0.235	0.235	0.000	0.000	0.000	0.563
NE	0.000	0.000	0.047	0.047	0.047	0.047	0.000	0.000	0.000	0.188
ENE	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.094
E	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
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	0.094	0.047	0.000	0.000	0.000	0.000	0.141
S	0.000	0.000	0.000	0.235	0.469	0.281	0.000	0.000	0.000	0.985
SSW	0.000	0.000	0.000	0.704	1.032	1.032	0.000	0.000	0.000	2.767
SW	0.000	0.000	0.000	0.281	0.188	0.000	0.000	0.000	0.000	0.469
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	0.094	0.047	0.141	0.000	0.000	0.000	0.000	0.281
WNW	0.000	0.000	0.047	0.047	0.000	0.047	0.000	0.000	0.000	0.141
NW	0.000	0.000	0.000	0.000	0.094	0.188	0.000	0.000	0.000	0.281
NNW	0.000	0.000	0.000	0.047	0.047	0.469	0.000	0.000	0.000	0.563
SUBTOTAL	0.000	0.000	0.235	1.829	2.298	2.486	0.000	0.000	0.000	6.848

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS A	147
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	146
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

MEAN WIND SPEED = 6.92

DATE PRINTED: 2004/08/26

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS B (-1.9 < DELTA T <= -1.7 C/100 M)

Watts Bar Nuclear Plant
 APR 1, 2004 - JUN 30, 2004

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	0.281	0.000	0.235	0.000	0.000	0.000	0.516
NNE	0.000	0.000	0.000	0.094	0.188	0.094	0.000	0.000	0.000	0.375
NE	0.000	0.000	0.047	0.047	0.141	0.000	0.000	0.000	0.000	0.235
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	0.094	0.000	0.000	0.000	0.000	0.000	0.094
ESE	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
SE	0.000	0.000	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.094
SSE	0.000	0.000	0.141	0.047	0.094	0.000	0.000	0.000	0.000	0.281
S	0.000	0.000	0.235	0.328	0.469	0.281	0.000	0.000	0.000	1.313
SSW	0.000	0.000	0.047	0.704	0.375	0.281	0.000	0.000	0.000	1.407
SW	0.000	0.000	0.047	0.141	0.047	0.000	0.000	0.000	0.000	0.235
WSW	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.047
W	0.000	0.000	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.094
WNW	0.000	0.000	0.047	0.047	0.047	0.141	0.047	0.000	0.000	0.328
NW	0.000	0.000	0.047	0.047	0.047	0.000	0.000	0.000	0.000	0.141
NNW	0.000	0.000	0.047	0.094	0.094	0.094	0.000	0.000	0.000	0.328
SUBTOTAL	0.000	0.000	0.750	1.970	1.642	1.126	0.047	0.000	0.000	5.535

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS B	118
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	118
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 5.85

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

Watts Bar Nuclear Plant
APR 1, 2004 - JUN 30, 2004

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	0.047	0.094	0.141	0.047	0.000	0.000	0.000	0.328
NNE	0.000	0.000	0.047	0.235	0.094	0.000	0.000	0.000	0.000	0.375
NE	0.000	0.000	0.094	0.047	0.047	0.000	0.000	0.000	0.000	0.188
ENE	0.000	0.000	0.141	0.047	0.000	0.000	0.000	0.000	0.000	0.188
E	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
ESE	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.094
SE	0.000	0.000	0.047	0.141	0.000	0.000	0.000	0.000	0.000	0.188
SSE	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.094
S	0.000	0.000	0.047	0.563	0.141	0.047	0.000	0.000	0.000	0.797
SSW	0.000	0.000	0.141	0.563	0.563	0.469	0.000	0.000	0.000	1.735
SW	0.000	0.000	0.094	0.235	0.094	0.000	0.000	0.000	0.000	0.422
WSW	0.000	0.000	0.047	0.047	0.047	0.000	0.000	0.000	0.000	0.141
W	0.000	0.000	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.141
WNW	0.000	0.000	0.047	0.094	0.047	0.141	0.000	0.000	0.000	0.328
NW	0.000	0.000	0.094	0.000	0.094	0.188	0.000	0.000	0.000	0.375
NNW	0.000	0.000	0.047	0.094	0.141	0.188	0.000	0.000	0.000	0.469
SUBTOTAL	0.000	0.000	1.173	2.251	1.407	1.079	0.000	0.000	0.000	5.910

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS C	126
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	126
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 5.51

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS D (-1.5 < DELTA T <= -0.5 C/100 M)

Watts Bar Nuclear Plant

APR 1, 2004 - JUN 30, 2004

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	0.375	0.610	0.844	0.375	0.000	0.000	0.000	2.205
NNE	0.000	0.000	0.516	0.610	0.891	0.235	0.000	0.000	0.000	2.251
NE	0.000	0.000	0.281	0.422	0.188	0.000	0.000	0.000	0.000	0.891
ENE	0.000	0.047	0.422	0.141	0.047	0.000	0.000	0.000	0.000	0.657
E	0.000	0.000	0.328	0.000	0.000	0.000	0.000	0.000	0.000	0.328
ESE	0.000	0.000	0.188	0.000	0.000	0.000	0.000	0.000	0.000	0.188
SE	0.000	0.141	0.610	0.000	0.047	0.000	0.000	0.000	0.000	0.797
SSE	0.000	0.094	0.844	0.188	0.141	0.000	0.000	0.000	0.000	1.266
S	0.000	0.235	1.642	1.220	0.422	0.469	0.000	0.000	0.000	3.987
SSW	0.000	0.188	2.767	3.002	1.970	1.313	0.047	0.000	0.000	9.287
SW	0.000	0.094	1.266	1.220	0.141	0.047	0.000	0.000	0.000	2.767
WSW	0.000	0.094	0.704	0.281	0.094	0.000	0.000	0.000	0.000	1.173
W	0.000	0.188	0.235	0.375	0.235	0.000	0.000	0.000	0.000	1.032
WNW	0.000	0.047	0.281	0.375	0.328	0.235	0.000	0.000	0.000	1.266
NW	0.000	0.047	0.188	0.328	0.188	0.469	0.000	0.000	0.000	1.220
NNW	0.000	0.000	0.281	0.657	0.750	0.657	0.000	0.000	0.000	2.345
SUBTOTAL	0.000	1.173	10.929	9.428	6.285	3.799	0.047	0.000	0.000	31.660

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS D	675
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	675
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 4.56

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

Watts Bar Nuclear Plant

APR 1, 2004 - JUN 30, 2004

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	0.094	0.375	0.375	0.047	0.000	0.000	0.000	0.000	0.891
NNE	0.000	0.094	0.188	0.281	0.000	0.000	0.000	0.000	0.000	0.563
NE	0.000	0.000	0.375	0.141	0.000	0.000	0.000	0.000	0.000	0.516
ENE	0.000	0.000	0.328	0.235	0.000	0.000	0.000	0.000	0.000	0.563
E	0.000	0.094	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.235
ESE	0.000	0.235	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.328
SE	0.000	0.375	0.141	0.000	0.047	0.000	0.000	0.000	0.000	0.563
SSE	0.000	0.328	0.422	0.094	0.000	0.000	0.000	0.000	0.000	0.844
S	0.000	0.657	1.360	0.657	0.281	0.094	0.000	0.000	0.000	3.049
SSW	0.000	0.704	2.627	1.548	0.516	0.188	0.000	0.000	0.000	5.582
SW	0.000	0.844	1.454	0.235	0.047	0.000	0.000	0.000	0.000	2.580
WSW	0.000	0.891	0.938	0.047	0.094	0.000	0.000	0.000	0.000	1.970
W	0.000	0.797	0.844	0.188	0.047	0.000	0.000	0.000	0.000	1.876
WNW	0.000	0.516	0.704	0.281	0.188	0.000	0.000	0.000	0.000	1.689
NW	0.000	0.375	0.469	0.188	0.047	0.000	0.000	0.000	0.000	1.079
NNW	0.000	0.328	0.235	0.328	0.469	0.281	0.094	0.000	0.000	1.735
SUBTOTAL	0.000	6.332	10.647	4.644	1.782	0.563	0.094	0.000	0.000	24.062

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS E	513
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	513
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 2.83

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS F (1.5< DELTA T<= 4.0 C/100 M)

Watts Bar Nuclear Plant

APR 1, 2004 - JUN 30, 2004

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	0.094	0.188	0.000	0.000	0.000	0.000	0.000	0.000	0.282
NNE	0.001	0.141	0.235	0.047	0.000	0.000	0.000	0.000	0.000	0.423
NE	0.001	0.094	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.188
ENE	0.001	0.047	0.235	0.000	0.000	0.000	0.000	0.000	0.000	0.282
E	0.001	0.094	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.235
ESE	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
SE	0.001	0.281	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.282
SSE	0.001	0.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.376
S	0.003	0.563	0.422	0.047	0.000	0.000	0.000	0.000	0.000	1.035
SSW	0.006	0.891	0.844	0.375	0.000	0.000	0.000	0.000	0.000	2.116
SW	0.007	1.220	0.985	0.000	0.000	0.000	0.000	0.000	0.000	2.212
WSW	0.007	1.313	0.891	0.047	0.000	0.000	0.000	0.000	0.000	2.259
W	0.007	1.266	0.891	0.000	0.000	0.000	0.000	0.000	0.000	2.165
WNW	0.006	1.173	0.704	0.000	0.000	0.000	0.000	0.000	0.000	1.882
NW	0.002	0.469	0.188	0.094	0.047	0.000	0.000	0.000	0.000	0.800
NNW	0.002	0.141	0.422	0.094	0.000	0.000	0.000	0.000	0.000	0.658
SUBTOTAL	0.047	8.161	6.285	0.704	0.047	0.000	0.000	0.000	0.000	15.244

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS F	325
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	325
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	1

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 1.63

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS G (DELTA T > 4.0 C/100 M)

Watts Bar Nuclear Plant

APR 1, 2004 - JUN 30, 2004

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	0.002	0.188	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.189
NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NE	0.001	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.095
ENE	0.001	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.095
E	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
ESE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
SSE	0.002	0.235	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.237
S	0.005	0.469	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.520
SSW	0.007	0.797	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.804
SW	0.015	1.313	0.422	0.000	0.000	0.000	0.000	0.000	0.000	1.751
WSW	0.022	2.017	0.516	0.000	0.000	0.000	0.000	0.000	0.000	2.555
W	0.022	1.923	0.563	0.000	0.000	0.000	0.000	0.000	0.000	2.508
WNW	0.011	0.844	0.422	0.000	0.000	0.000	0.000	0.000	0.000	1.278
NW	0.003	0.188	0.141	0.000	0.000	0.000	0.000	0.000	0.000	0.331
NW	0.002	0.188	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.284
SUBTOTAL	0.094	8.349	2.298	0.000	0.000	0.000	0.000	0.000	0.000	10.741

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2133
TOTAL HOURS OF STABILITY CLASS G	229
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	229
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2132
TOTAL HOURS CALM	2

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/08/26

MEAN WIND SPEED = 1.19

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS A (DELTA T<=-1.9 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.094
NNE	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.047
NE	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.094
ENE	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.094
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	0.000	0.000	0.000	0.000	0.000	0.000
SSE	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSW	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
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	0.047	0.000	0.000	0.000	0.000	0.047
SUBTOTAL	0.000	0.000	0.234	0.140	0.140	0.000	0.000	0.000	0.000	0.514

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS A	11
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	11
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 4.17

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS B (-1.9 < DELTA T <= -1.7 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.047	0.047	0.094	0.000	0.000	0.000	0.187
NNE	0.000	0.000	0.000	0.000	0.140	0.655	0.000	0.000	0.000	0.795
NE	0.000	0.000	0.000	0.047	0.000	0.140	0.000	0.000	0.000	0.187
ENE	0.000	0.000	0.000	0.000	0.187	0.047	0.000	0.000	0.000	0.234
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
SSW	0.000	0.000	0.047	0.000	0.234	0.047	0.000	0.000	0.000	0.327
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	0.047	0.000	0.000	0.000	0.000	0.047
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	0.047	0.000	0.000	0.000	0.000	0.047
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	0.140	0.094	0.702	0.982	0.000	0.000	0.000	1.918

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS B	41
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	41
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 7.49

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.140	0.094	0.327	0.000	0.000	0.000	0.561
NNE	0.000	0.000	0.094	0.187	0.327	0.421	0.000	0.000	0.000	1.029
NE	0.000	0.000	0.094	0.094	0.000	0.000	0.000	0.000	0.000	0.187
ENE	0.000	0.000	0.140	0.281	0.047	0.000	0.000	0.000	0.000	0.468
E	0.000	0.000	0.094	0.047	0.000	0.047	0.000	0.000	0.000	0.187
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.047
SSE	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
S	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.047
SSW	0.000	0.000	0.047	0.327	0.374	0.047	0.000	0.000	0.000	0.795
SW	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
WSW	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.047
W	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.047
WNW	0.000	0.000	0.047	0.047	0.000	0.000	0.000	0.000	0.000	0.094
NW	0.000	0.000	0.000	0.140	0.000	0.000	0.000	0.000	0.000	0.140
NNW	0.000	0.000	0.000	0.187	0.140	0.140	0.000	0.000	0.000	0.468
SUBTOTAL	0.000	0.000	0.561	1.590	1.029	1.029	0.000	0.000	0.000	4.210

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS C	91
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	90
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 5.79

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS D (-1.5< DELTA T<=-0.5 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.047	0.608	1.918	1.543	0.842	0.047	0.000	0.000	5.005
NNE	0.000	0.047	0.608	1.216	1.403	1.263	0.047	0.000	0.000	4.584
NE	0.000	0.047	0.514	0.795	0.421	0.187	0.047	0.000	0.000	2.011
ENE	0.000	0.000	0.889	0.702	0.094	0.047	0.047	0.000	0.000	1.777
E	0.000	0.000	1.029	0.281	0.047	0.094	0.000	0.000	0.000	1.450
ESE	0.000	0.000	0.561	0.094	0.000	0.000	0.000	0.000	0.000	0.655
SE	0.000	0.000	0.702	0.187	0.000	0.000	0.000	0.000	0.000	0.889
SSE	0.000	0.047	0.702	0.327	0.000	0.000	0.000	0.000	0.000	1.076
S	0.000	0.140	1.029	1.216	0.234	0.000	0.000	0.000	0.000	2.619
SSW	0.000	0.140	1.777	3.789	1.029	0.000	0.000	0.000	0.000	6.735
SW	0.000	0.187	1.123	1.216	0.187	0.000	0.000	0.000	0.000	2.713
WSW	0.000	0.094	0.561	0.234	0.000	0.000	0.000	0.000	0.000	0.889
W	0.000	0.047	0.421	0.187	0.000	0.000	0.000	0.000	0.000	0.655
WNW	0.000	0.047	0.374	0.421	0.047	0.094	0.000	0.000	0.000	0.982
NW	0.000	0.047	0.234	0.094	0.327	0.281	0.000	0.000	0.000	0.982
NNW	0.000	0.000	0.281	0.702	1.310	1.029	0.140	0.000	0.000	3.461
SUBTOTAL	0.000	0.889	11.413	13.377	6.642	3.835	0.327	0.000	0.000	36.483

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS D	781
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	780
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 4.67

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.047	0.561	0.842	0.935	0.281	0.047	0.000	0.000	2.714
NNE	0.001	0.187	0.421	0.514	0.748	0.374	0.187	0.000	0.000	2.434
NE	0.002	0.047	0.702	0.421	0.094	0.000	0.140	0.000	0.000	1.405
ENE	0.003	0.281	0.842	0.281	0.000	0.047	0.000	0.000	0.000	1.453
E	0.002	0.234	0.795	0.047	0.047	0.000	0.000	0.000	0.000	1.125
ESE	0.001	0.234	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.328
SE	0.001	0.094	0.187	0.327	0.000	0.000	0.000	0.000	0.000	0.609
SSE	0.001	0.281	0.187	0.094	0.000	0.000	0.000	0.000	0.000	0.562
S	0.005	0.421	1.497	0.421	0.000	0.000	0.000	0.000	0.000	2.343
SSW	0.007	0.748	2.011	0.935	0.514	0.047	0.000	0.000	0.000	4.263
SW	0.007	0.982	1.777	0.327	0.000	0.000	0.000	0.000	0.000	3.094
WSW	0.004	0.935	0.889	0.047	0.094	0.000	0.000	0.000	0.000	1.969
W	0.003	0.795	0.561	0.234	0.047	0.000	0.000	0.000	0.000	1.640
WNW	0.004	0.842	0.702	0.094	0.000	0.047	0.000	0.000	0.000	1.688
NW	0.002	0.421	0.561	0.234	0.000	0.000	0.000	0.000	0.000	1.218
NNW	0.003	0.327	0.935	1.076	0.889	0.140	0.000	0.000	0.000	3.371
SUBTOTAL	0.047	6.876	12.675	5.893	3.414	0.935	0.374	0.000	0.000	30.215

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS E	646
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	646
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	1

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 3.23

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS F (1.5< DELTA T<= 4.0 C/100 M)

Watts Bar Nuclear Plant

JUL 1, 2004 - SEP 30, 2004

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	0.187	0.187	0.094	0.000	0.000	0.000	0.000	0.000	0.468
NNE	0.000	0.187	0.281	0.000	0.000	0.000	0.000	0.000	0.000	0.468
NE	0.000	0.281	0.281	0.000	0.000	0.000	0.000	0.000	0.000	0.561
ENE	0.000	0.421	0.327	0.094	0.000	0.000	0.000	0.000	0.000	0.842
E	0.000	0.421	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.608
ESE	0.000	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140
SE	0.000	0.094	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.140
SSE	0.000	0.140	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140
S	0.000	0.281	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.374
SSW	0.000	0.468	0.795	0.047	0.000	0.000	0.000	0.000	0.000	1.310
SW	0.000	0.795	0.982	0.000	0.000	0.000	0.000	0.000	0.000	1.777
WSW	0.000	1.964	1.123	0.000	0.000	0.000	0.000	0.000	0.000	3.087
W	0.000	2.713	0.748	0.047	0.000	0.000	0.000	0.000	0.000	3.508
WNW	0.000	2.152	0.889	0.047	0.000	0.000	0.000	0.000	0.000	3.087
NW	0.000	1.871	1.123	0.094	0.000	0.000	0.000	0.000	0.000	3.087
NNW	0.000	0.140	0.561	0.047	0.000	0.047	0.000	0.000	0.000	0.795
SUBTOTAL	0.000	12.254	7.624	0.468	0.000	0.047	0.000	0.000	0.000	20.393

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2140
TOTAL HOURS OF STABILITY CLASS F 436
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F 436
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 2138
TOTAL HOURS CALM 0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 1.52

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS G (DELTA T > 4.0 C/100 M)

Watts Bar Nuclear Plant
 JUL 1, 2004 - SEP 30, 2004

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	0.140	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.187
NNE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NE	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
ENE	0.000	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.094
E	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
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	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047
S	0.000	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.187
SSW	0.000	0.094	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.094
SW	0.000	0.421	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.608
WSW	0.000	0.795	0.234	0.000	0.000	0.000	0.000	0.000	0.000	1.029
W	0.000	0.982	0.281	0.000	0.000	0.000	0.000	0.000	0.000	1.263
WNW	0.000	0.702	0.281	0.000	0.000	0.000	0.000	0.000	0.000	0.982
NW	0.000	0.702	0.468	0.000	0.000	0.000	0.000	0.000	0.000	1.169
NNW	0.000	0.374	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.421
SUBTOTAL	0.000	4.630	1.637	0.000	0.000	0.000	0.000	0.000	0.000	6.268

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2140
TOTAL HOURS OF STABILITY CLASS G	134
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	134
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2138
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2004/12/06

MEAN WIND SPEED = 1.24

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

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	0.000	0.000	0.046	0.000	0.000	0.000	0.046
NNE	0.000	0.000	0.046	0.000	0.000	0.091	0.000	0.000	0.000	0.137
NE	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.046
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	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
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	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SSE	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.046
S	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.046
SSW	0.000	0.000	0.000	0.046	0.046	0.046	0.000	0.000	0.000	0.137
SW	0.000	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.182
WSW	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.046
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
NW	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	0.182	0.182	0.137	0.274	0.000	0.000	0.000	0.776

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS A	17
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	17
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 5.82

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS B (-1.9 < DELTA T <= -1.7 C/100 M)

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

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	0.000	0.046	0.000	0.000	0.000	0.000	0.046
NNE	0.000	0.000	0.000	0.274	0.046	0.182	0.000	0.000	0.000	0.502
NE	0.000	0.000	0.000	0.046	0.046	0.046	0.000	0.000	0.000	0.137
ENE	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.091
E	0.000	0.000	0.046	0.046	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SSW	0.000	0.000	0.046	0.091	0.182	0.046	0.000	0.000	0.000	0.365
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	0.046	0.000	0.000	0.000	0.046
W	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.000	0.000	0.046
WNW	0.000	0.000	0.000	0.000	0.000	0.137	0.000	0.000	0.000	0.137
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	0.046	0.046	0.046	0.000	0.000	0.137
SUBTOTAL	0.000	0.000	0.091	0.547	0.365	0.547	0.046	0.000	0.000	1.597

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS B	36
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	35
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 6.77

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

2004
WATTS BAR NUCLEAR PLANT
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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
 STABILITY CLASS C (-1.7< DELTA T<=-1.5 C/100 M)

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

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	0.137	0.137	0.000	0.000	0.000	0.319
NNE	0.000	0.000	0.046	0.274	0.091	0.182	0.000	0.000	0.000	0.593
NE	0.000	0.000	0.091	0.091	0.000	0.000	0.000	0.000	0.000	0.182
ENE	0.000	0.000	0.137	0.137	0.046	0.000	0.000	0.000	0.000	0.319
E	0.000	0.000	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.137
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	0.091	0.000	0.000	0.000	0.000	0.000	0.091
S	0.000	0.000	0.000	0.046	0.091	0.137	0.000	0.000	0.000	0.274
SSW	0.000	0.000	0.000	0.046	0.182	0.228	0.046	0.000	0.000	0.502
SW	0.000	0.000	0.000	0.000	0.228	0.000	0.000	0.000	0.000	0.228
WSW	0.000	0.000	0.000	0.000	0.091	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	0.046	0.000	0.000	0.000	0.046
NW	0.000	0.000	0.000	0.000	0.091	0.046	0.046	0.000	0.000	0.182
NNW	0.000	0.000	0.000	0.000	0.046	0.137	0.000	0.000	0.000	0.182
SUBTOTAL	0.000	0.000	0.456	0.684	1.004	0.912	0.091	0.000	0.000	3.148

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS C	69
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	69
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
 STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
 WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 6.45

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
WATTS BAR NUCLEAR PLANT
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT**

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS D (-1.5 < DELTA T <= -0.5 C/100 M)

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

WIND DIRECTION	CALM	WIND SPEED (MPH)								TOTAL
		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	0.730	0.730	0.411	2.418	0.000	0.000	0.000	4.334
NNE	0.000	0.000	0.730	0.684	0.365	0.502	0.137	0.000	0.000	2.418
NE	0.000	0.228	0.912	0.639	0.319	0.182	0.000	0.000	0.000	2.281
ENE	0.000	0.091	0.593	0.091	0.091	0.000	0.000	0.000	0.000	0.867
E	0.000	0.137	0.456	0.091	0.000	0.000	0.000	0.000	0.000	0.684
ESE	0.000	0.137	0.365	0.046	0.000	0.000	0.000	0.000	0.000	0.547
SE	0.000	0.046	0.274	0.000	0.000	0.000	0.000	0.000	0.000	0.319
SSE	0.000	0.137	0.639	0.182	0.000	0.000	0.000	0.000	0.000	0.958
S	0.000	0.091	1.597	1.551	0.776	0.411	0.000	0.000	0.000	4.425
SSW	0.000	0.137	1.779	2.737	1.186	1.323	0.137	0.000	0.000	7.299
SW	0.000	0.046	1.277	1.505	0.365	0.091	0.000	0.000	0.000	3.285
WSW	0.000	0.091	0.821	0.502	0.274	0.182	0.000	0.000	0.000	1.870
W	0.000	0.365	0.411	0.228	0.411	0.228	0.000	0.000	0.000	1.642
WNW	0.000	0.228	0.274	0.274	0.776	0.365	0.000	0.000	0.000	1.916
NW	0.000	0.000	0.593	0.182	0.456	0.456	0.091	0.000	0.000	1.779
NNW	0.000	0.000	0.639	0.456	0.411	1.277	0.091	0.000	0.000	2.874
SUBTOTAL	0.000	1.779	12.089	9.900	5.839	7.436	0.456	0.000	0.000	37.500

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS D	822
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	822
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 5.02

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

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WATTS BAR NUCLEAR PLANT
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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS E (-0.5< DELTA T<= 1.5 C/100 M)

Watts Bar Nuclear Plant
OCT 1, 2004 - DEC 31, 2004

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	0.091	1.049	0.228	0.319	0.456	0.000	0.000	0.000	2.144
NNE	0.000	0.319	0.365	0.228	0.137	0.000	0.000	0.000	0.000	1.049
NE	0.000	0.182	1.186	0.456	0.091	0.000	0.000	0.000	0.000	1.916
ENE	0.000	0.182	1.049	0.228	0.000	0.000	0.000	0.000	0.000	1.460
E	0.000	0.319	0.456	0.000	0.000	0.000	0.000	0.000	0.000	0.776
ESE	0.000	0.182	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.228
SE	0.000	0.228	0.365	0.000	0.000	0.000	0.000	0.000	0.000	0.593
SSE	0.000	0.228	0.137	0.000	0.000	0.046	0.000	0.000	0.000	0.411
S	0.000	0.319	1.049	0.365	0.502	0.274	0.000	0.000	0.000	2.509
SSW	0.000	0.684	2.281	2.007	0.821	0.912	0.046	0.000	0.000	6.752
SW	0.000	0.547	1.642	0.593	0.091	0.000	0.000	0.000	0.000	2.874
WSW	0.000	0.730	0.912	0.456	0.091	0.091	0.000	0.000	0.000	2.281
W	0.000	1.049	1.004	0.274	0.137	0.091	0.000	0.000	0.000	2.555
WNW	0.000	0.684	0.912	0.182	0.046	0.091	0.000	0.000	0.000	1.916
NW	0.000	0.456	0.821	0.319	0.137	0.137	0.000	0.000	0.000	1.870
NNW	0.000	0.274	1.004	0.046	0.137	0.046	0.000	0.000	0.000	1.505
SUBTOTAL	0.000	6.478	14.279	5.383	2.509	2.144	0.046	0.000	0.000	30.839

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS E	676
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	676
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	0

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 3.21

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

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WATTS BAR NUCLEAR PLANT
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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS F (1.5< DELTA T<= 4.0 C/100 M)

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

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	0.004	0.456	0.274	0.000	0.000	0.000	0.000	0.000	0.000	0.734
NNE	0.002	0.182	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.275
NE	0.003	0.228	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.413
ENE	0.002	0.000	0.274	0.091	0.000	0.000	0.000	0.000	0.000	0.367
E	0.001	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.092
ESE	0.001	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
SE	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
SSE	0.001	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
S	0.003	0.137	0.411	0.046	0.000	0.000	0.000	0.000	0.000	0.596
SSW	0.005	0.228	0.547	0.137	0.000	0.000	0.000	0.000	0.000	0.917
SW	0.009	0.547	0.912	0.091	0.000	0.000	0.000	0.000	0.000	1.560
WSW	0.012	1.049	0.867	0.000	0.000	0.000	0.000	0.000	0.000	1.928
W	0.022	2.372	1.186	0.000	0.000	0.000	0.000	0.000	0.000	3.580
WNW	0.016	1.642	1.049	0.091	0.000	0.000	0.000	0.000	0.000	2.799
NW	0.009	0.684	0.776	0.000	0.000	0.000	0.000	0.000	0.000	1.469
NW	0.003	0.228	0.274	0.000	0.000	0.000	0.000	0.000	0.000	0.505
SUBTOTAL	0.091	8.029	6.889	0.456	0.000	0.000	0.000	0.000	0.000	15.465

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS F	339
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	339
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	2

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 1.55

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

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JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR
STABILITY CLASS G (DELTA T > 4.0 C/100 M)

Watts Bar Nuclear Plant

OCT 1, 2004 - DEC 31, 2004

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	0.002	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.184
NNE	0.004	0.274	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.460
NE	0.003	0.319	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.368
ENE	0.002	0.046	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.230
E	0.001	0.046	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.092
ESE	0.002	0.137	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.230
SE	0.001	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.092
SSE	0.000	0.046	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.046
S	0.001	0.046	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.138
SSW	0.004	0.319	0.137	0.091	0.000	0.000	0.000	0.000	0.000	0.551
SW	0.008	0.502	0.365	0.000	0.000	0.000	0.000	0.000	0.000	0.874
WSW	0.015	0.912	0.821	0.046	0.000	0.000	0.000	0.000	0.000	1.794
W	0.020	1.369	0.912	0.000	0.000	0.000	0.000	0.000	0.000	2.301
WNW	0.014	1.277	0.365	0.000	0.000	0.000	0.000	0.000	0.000	1.657
NW	0.010	0.730	0.411	0.000	0.000	0.000	0.000	0.000	0.000	1.150
NNW	0.004	0.274	0.228	0.000	0.000	0.000	0.000	0.000	0.000	0.506
SUBTOTAL	0.091	6.569	3.878	0.137	0.000	0.000	0.000	0.000	0.000	10.675

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2193
TOTAL HOURS OF STABILITY CLASS G	234
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	234
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2192
TOTAL HOURS CALM	2

METEOROLOGICAL FACILITY: Watts Bar Nuclear Plant
STABILITY BASED ON DELTA-T BETWEEN 9.51 AND 45.63 METERS
WIND SPEED AND DIRECTION MEASURED AT 9.72 METER LEVEL

DATE PRINTED: 2005/01/28

MEAN WIND SPEED = 1.40

NOTE: TOTALS AND SUBTOTALS ARE OBTAINED FROM UNROUNDED NUMBERS

**2004
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**ATTACHMENT 1.0
Deviations from ODCM Controls/Surveillance Requirements**

01/23/2004	1/2.1.2 Table 1.1-2 Item 3.b Action D	The particulate and iodine compensatory sampler required during periods when the radiation monitor skid on the Unit 1 Shield Building Exhaust is inoperable was installed but no sample was obtained during a release. The cause of the missed sample was a valve located upstream of the compensatory sampler had been isolated to perform a maintenance activity. This resulted in an unmonitored release.
03/02/2004	1/2.1.2 Table 1.1-2 Item 3.b Action D	The particulate filter on the compensatory sampler installed on the Unit 1 Shield Building was found misaligned during the weekly changeout. This resulted in the sample not being representative.
05/22/2004	1/2.1.1 Table 1.1-2 Item 1.1-1 Items 2.a	The 12 hour compensatory sample required during periods when the ERCW radiation monitors 0-RE-90-133 and 0-RE-90-140 are inoperable was obtained 20 minutes late. The sample was analyzed and no radioactivity was found.
06/01/2004	1/2.2.2 Table 2.2-2 Item K	During the weekly changeout of the particulate and iodine filters on the 1-RE-90-101 Auxiliary Building Exhaust monitor it was discovered that the sample flow and start time had not been recorded following the monitor being returned to service on 05/28/04. Flow estimates and times were used to analyze the filters. No radioactivity was detected on the filters.
09/03/2004	1/2.1.1 Table 1.1-1 Item 2.a	The 12 hour compensatory sample required during periods when the ERCW radiation monitors 0-RE-90-133 and 0-RE-90-140 are inoperable was missed as a result of the inability to obtain flow during a maintenance activity that lasted 12 hours and 3 minutes.

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ATTACHMENT 2.0
Radiation Monitors Inoperable for Greater than 30 days

None