Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379

February 25, 1991

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE AND THE RADIOLOGICAL IMPACT ASSESSMENT REPORTS

Enclosure 1 contains the Semiannual Radioactive Effluent Release Report that is being submitted in accordance with SQN Technical Specification 6.9.1.8 for the period of July 1 to December 31, 1990. Enclosure 2 contains the Radiological Impact Assessment Report for the period of January 1 to December 31, 1990.

Please direct questions concerning this issue to J. D. Smith at (615) 843-6672.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

M. A. Cooper

E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

JE48

U.S. Nuclear Regulatory Commission
February 25, 1991

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ENCLOSURE 1

SEQUOYAH NUCLEAR PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION

July 1 to December 31, 1990

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
2nd HALF 1990

1. Regulatory Limits

a. Fission and Activation Gases:

Instantaneous - Radionuclide Dependant (all release points)

Administrative release rate limits per radionuclide have been established and are based upon the methodology in Section 1.2.3 of the Sequoyah Offsite Dose Calculation Manual (ODCM) for each vent based on design flowrate. The ODCM will not be exceeded until the sum of individual radionuclide release rate to ODCM limit ratios exceed 1.0.

b. and c. I-131, I-133, tritium, and particulates with half-lives ≥8 Days

Instantaneous - Radionuclide Dependant

Total plant release rate limits per radionuclide have been established and are based upon the methodology in Section 1.2.4 of the Sequoyah Offsite Dose Calculation Manual.

d. Liquid effluent: $\sum MPC \leq 1.0$ (reference 10CFR20, Appendix B, Table II, column 2).

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
2nd HALF 1990

2. Maximum Permissible Concentrations

a. Fission and Activation Gases: Not Applicable

b. Iodines: Not Applicable

c. Particulates, half-lives ≥8 days: Not Applicable

d. Liquid effluents: sum of individual MPC ratios ≤1.0 (ref. 10CFR20, Appendix B)

3. Average Energy - Not Applicable

4. Measurements and Approximations of Total Radioactivity

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

a. Fission and Activation Gases

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

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
2nd HALF 1990

4. Measurements and Approximation of Total Radioactivity (continued)

a. Fission and Activation Gases (continued)

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

The total noble gas activity released for the month is then determined by summing all of the activity released from each vent for all sampling periods, the activity released from purging or venting of containment, and the activity released from waste gas decay tank(s).

b. and c. Iodines and Particulates

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

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

The vent flowrates from the shield and auxiliary building exhausts are recorded once a shift.

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

d. Liquid Effluents

(1) Batch (Radwaste and condensate regenerants to cooling tower blowdown)

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

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
2nd HALF 1990

4. Measurements and Approximation of Total Radioactivity (continued)

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

Total gamma isotopic activity concentration is determined daily on a composite sample from the condensate system and turbine building sump and weekly for steam generator blowdown. The total activity of the continuous release is determined by summing each nuclide's concentration and multiplying by the total volume discharged. The total activity released during the month is then determined by summing the activity content of each daily and weekly composite for month.

5. Batch	Value		Units
	Quarter 3rd	Quarter 4th	
a. Liquid			
1. Number of batches released (Radwaste only)	126	122	Each
2. Total time period for batch releases	18,265	16,668	Minutes
3. Maximum time period for a batch release	305	180	Minutes
4. Average time period for batch releases	145	137	Minutes
5. Minimum stream flow during periods of effluent into a flowing stream:	(a)	(a)	
(a) See annual Radiological Impact Assessment Report.			
b. Gaseous			
1. Number of batches released	200	177	Each
2. Total time period for batch releases	25,264	14,828	Minutes
3. Maximum time period for a batch release	2,039	1,440	Minutes
4. Average time period for batch releases	126	84	Minutes
5. Minimum time period for a batch release	15	19	Minutes

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
2nd HALF 1990

6. Abnormal Releases	Value		Units
	Quarter 3rd	Quarter 4th	
a. Liquid			
(1) Number of Releases	0	0	
(2) Total Activity Released	0.00E-01	0.00E-01	Ci
b. Gaseous			
(1) Number of Releases	0	0	
(2) Total Activity Released	0.00E-01	0.00E-01	Ci

7. Offsite Dose Calculation Manual (ODCM)

Were any changes made to the ODCM during the reporting period?
_____ Yes _X_ No

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

		Unit	3rd Qtr	%Error	4th Qtr	%Error
A.	Fission and Activation Products					
1.	Total Released	Curies	2.63E-01	±1.8E+01	3.89E-01	±1.8E+01
2.	Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	1.84E-07		2.69E-07	
3.	Percent of Applicable Limit (∑MPC&1)	%	4.48E-01		2.63E-01	
	NOTE: Percent of applicable limit is based on identified isotope concentration after dilution, related to their appropriate MPC concentration and sum of all the isotope fractions compared to 1.0.					
B.	Tritium					
1.	Total Released	Curies	1.78E+02	±1.8E+01	1.64E+02	±1.8E+01
2.	Average Diluted Conc. During Period	µCi/ml	1.24E-04		1.13E-04	
3.	Percent of Applicable Limit (3.0E-03 µCi/ml)	%	4.14E+00		3.77E+00	
C.	Dissolved and Entrained Gases					
1.	Total Released	Curies	1.05E+00	±3.9E+01	9.52E-02	±3.9E+01
2.	Average Diluted Conc. During Period	µCi/ml	7.34E-07		6.58E-08	
3.	Percent of Applicable Limit (2.0E-04 µCi/ml)	%	3.67E-01		3.29E-02	
D.	Gross Alpha Radioactivity					
1.	Total Released	Curies	3.44E-06	±2.0E+01	0.00E-01	±2.0E+01
E.	Volume of Waste Released					
	(Before Dilution)	Liters	1.05E+07	±4.0E+00	2.73E+07	±4.0E+00
F.	Volume of Dilution Water for Period	Liters	1.42E+09	±1.1E+01	1.42E+09	±1.1E+01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
LIQUID EFFLUENTS - TOTAL PLANT DISCHARGE

G. Isotope Summary (Note: Refer to Table A for values reported as 0.00E-01)

Required by ODCM/Others

Fission and Activation Products

Nuclide	Unit	Continuous Mode		Batch Mode	
		Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
1. Strontium-89	Ci	0.00E-01	0.00E-01	0.00E-01	0.00E-01
2. Strontium-90	Ci	0.00E-01	0.00E-01	0.00E-01	0.00E-01
3. Iron-55	Ci	0.00E-01	0.00E-01	1.57E-02	1.57E-01
4. Manganese-54	Ci	0.00E-01	0.00E-01	4.03E-03	9.05E-04
5. Cobalt-58	Ci	0.00E-01	0.00E-01	1.87E-01	1.74E-01
6. Iron-59	Ci	0.00E-01	0.00E-01	1.28E-03	2.45E-03
7. Cobalt-60	Ci	0.00E-01	0.00E-01	3.55E-02	1.62E-02
8. Zinc-65	Ci	0.00E-01	0.00E-01	6.98E-06	1.20E-04
9. Molybdenum-99	Ci	0.00E-01	0.00E-01	4.76E-05	0.00E-01
10. Iodine-131	Ci	0.00E-01	3.07E-06	8.06E-04	2.00E-04
11. Cesium-134	Ci	3.07E-05	1.36E-04	3.64E-04	9.19E-04
12. Cesium-137	Ci	8.29E-05	3.00E-04	4.38E-04	1.48E-03
13. Cerium-141	Ci	0.00E-01	2.11E-06	1.66E-04	9.09E-05
14. Cerium-144	Ci	0.00E-01	0.00E-01	1.57E-03	1.37E-04
Others (Specify)					
15. Antimony-125	Ci	0.00E-01	0.00E-01	6.84E-03	2.61E-02
16. Cobalt-57	Ci	0.00E-01	0.00E-01	1.23E-03	9.19E-04
17. Chromium-51	Ci	0.00E-01	0.00E-01	3.66E-03	4.03E-03
18. Niobium-95	Ci	0.00E-01	0.00E-01	1.24E-03	6.71E-04

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
LIQUID EFFLUENTS - TOTAL PLANT DISCHARGE
(CONTINUED)

Nuclide	Unit	Continuous Mode		Batch Mode	
		Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
19. Barium-140	Ci	0.00E-01	0.00E-01	0.00E-01	1.91E-05
20. Iodine-133	Ci	0.00E-01	0.00E-01	8.54E-06	3.86E-05
21. Zirconium-95	Ci	0.00E-01	0.00E-01	5.10E-04	1.31E-04
22. Technetium-99m	Ci	0.00E-01	0.00E-01	4.76E-05	0.00E-01
23. Ruthenium-103	Ci	0.00E-01	0.00E-01	1.18E-04	1.12E-05
24. Tellurium-132	Ci	0.00E-01	0.00E-01	3.34E-05	0.00E-01
25. Antimony-124	Ci	0.00E-01	0.00E-01	9.02E-05	8.66E-04
26. Manganese-56	Ci	0.00E-01	0.00E-01	0.00E-01	7.67E-06
27. Lanthanum-140	Ci	0.00E-01	0.00E-01	4.12E-05	5.56E-05
28. Cesium-136	Ci	0.00E-01	0.00E-01	5.87E-05	0.00E-01
29. Rubidium-86	Ci	0.00E-01	0.00E-01	3.13E-05	6.84E-05
30. Tellurium-129m	Ci	0.00E-01	0.00E-01	0.00E-01	2.77E-04
31. Yttrium-91m	Ci	0.00E-01	0.00E-01	7.43E-06	4.39E-05
32. Sodium-24	Ci	0.00E-01	0.00E-01	0.00E-01	1.60E-05
33. Yttrium-93	Ci	0.00E-01	0.00E-01	0.00E-01	8.70E-05
34. Iodine-135	Ci	0.00E-01	0.00E-01	1.49E-05	0.00E-01
35. Strontium-91	Ci	0.00E-01	0.00E-01	8.76E-06	1.32E-05
36. Yttrium-91	Ci	0.00E-01	0.00E-01	1.59E-03	1.33E-03
Total for Period	Ci	1.14E-04	4.41E-04	2.62E-01	3.88E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
LIQUID EFFLUENTS - TOTAL PLANT DISCHARGE
(CONTINUED)

G. Isotope Summary (NOTE: Refer to Table A for values reported as 0.00E-01)

Required by ODCM/Others

Dissolved and Entrained Noble Gases

Nuclide	Unit	Continuous Mode		Batch Mode	
		Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
1. Krypton-87	Ci	0.00E-01	0.00E-01	1.09E-05	1.16E-05
2. Krypton-88	Ci	0.00E-01	0.00E-01	9.80E-06	0.00E-01
3. Xenon-133	Ci	0.00E-01	1.03E-05	1.00E+00	8.95E-02
4. Xenon-133m	Ci	0.00E-01	0.00E-01	1.47E-02	5.64E-04
5. Xenon-135	Ci	0.00E-01	0.00E-01	1.96E-02	2.95E-03
6. Xenon-138 Others (Specify)	Ci	0.00E-01	0.00E-01	0.00E-01	0.00E-01
7. Krypton-85m	Ci	0.00E-01	0.00E-01	1.30E-04	1.14E-05
8. Argon-41	Ci	0.00E-01	0.00E-01	2.23E-05	0.00E-01
9. Xenon-131m	Ci	0.00E-01	0.00E-01	1.09E-02	2.12E-03
10. Xenon-135m	Ci	0.00E-01	0.00E-01	0.00E-01	2.96E-05
Total for Period	Ci	0.00E-01	1.03E-05	1.05E+00	9.52E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
TABLE A
LIQUID "TYPICAL LLD" EVALUATION (1)

Nuclide	ODCM LLD	Δt (2) 15 min	30 min	1 hr	2 hr
Manganese-54	5.0E-07	9.12E-09	9.12E-09	9.12E-09	9.12E-09
Cobalt-58	5.0E-07	8.21E-09	8.21E-09	8.21E-09	8.21E-09
Iron-59	5.0E-07	1.62E-08	1.62E-08	1.62E-08	1.62E-08
Cobalt-60	5.0E-07	1.08E-08	1.08E-08	1.08E-08	1.08E-08
Zinc-65	5.0E-07	2.14E-08	2.14E-08	2.14E-08	2.14E-08
Molybdenum-99	5.0E-07	5.24E-08	5.25E-08	5.28E-08	5.34E-08
Cesium-134	5.0E-07	9.82E-09	9.82E-09	9.82E-09	9.82E-09
Cesium-137	5.0E-07	9.31E-09	9.31E-09	9.31E-09	9.31E-09
Cerium-141	5.0E-07	1.06E-08	1.06E-08	1.07E-08	1.07E-08
Cerium-144	5.0E-06	4.03E-08	4.03E-08	4.03E-08	4.03E-08
Iodine-131	1.0E-06	7.28E-09	7.28E-09	7.30E-09	7.32E-09
Krypton-87	1.0E-05	1.62E-08	1.85E-08	2.43E-08	4.20E-08
Krypton-88	1.0E-05	2.13E-08	2.27E-08	2.56E-08	3.27E-08
Xenon-133	1.0E-05	2.03E-08	2.04E-08	2.04E-08	2.05E-08
Xenon-133m	1.0E-05	5.05E-08	5.07E-08	5.10E-08	5.17E-08
Xenon-135	1.0E-05	5.60E-09	5.70E-09	5.93E-09	6.40E-09
Xenon-138	1.0E-05	2.82E-08	5.87E-08	2.55E-07	4.79E-06

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
TABLE A
LIQUID "TYPICAL LLD" EVALUATION (1)
(Continued)

Nuclide	ODCM LLD	Typical LLD
(Others) (3)		
Tritium	1.0E-05	1.0E-06
Gross Alpha	1.0E-07	2.0E-08
Strontium-89	5.0E-08	2.0E-08
Strontium-90	5.0E-08	1.0E-08
Iron-55	1.0E-06	3.0E-07

NOTES: (1) All evaluations are in μCi/ml. All analyses are performed to ensure that ODCM LLD limits are met, and these are typical LLD values.

(2) Δt is the time between sample collection and counting time.

(3) All of these analyses are required to meet ODCM LLD limits, and are individually evaluated to ensure compliance.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
(GROUND LEVEL RELEASES)

Summation of All Releases	Unit	3rd Qtr	%Error	4th Qtr	%Error
A. Noble Gases					
1. Total Released	Ci	1.27E+03	±1.1E+01	1.05E+02	±1.1E+01
2. Average Release Rate of Period	uCi/sec	1.59E+02		1.32E+01	
3. Percent of ODCM Limit	%	5.66E-02		4.58E-03	
B. Iodines					
1. Total Iodine-131	Ci	[illegible].21E-04	±1.3E+01	5.47E-05	±1.3E+01
2. Average Release Rate for Period	uC	[illegible]05		6.88E-06	
3. Percent of ODCM Limit (1.60E-01 uCi/sec)	%	9.50E-03		4.30E-03	
C. Particulates					
1. Particulates with half-lives ≥8 days	Ci	1.70E-05	±1.6E+01	1.15E-05	±1.6E+01
2. Average Release Rate for Period	uCi/sec	2.14E-06		1.45E-06	
3. Percent of ODCM Limit	%	1.55E-06		8.61E-07	
4. Gross Alpha Radioactivity	Ci	0.00E-01	±2.1E+01	0.00E-01	±2.1E+01
D. Tritium					
1. Total Release	Ci	1.69E+00	±1.5E+01	2.24E+00	±1.5E+01
2. Average Release Rate for Period	uCi/sec	2.13E-01		2.82E-01	
3. Percent of ODCM Limit (8.47E+04 uCi/sec)	%	2.51E-04		3.33E-04	

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
(GROUND LEVEL RELEASES)

		Unit	Continuous Mode		Batch Mode	
			Quarter 3rd	Quarter 4th	Quarter 3rd	Quarter 4th
E.	Noble Gases					
	Required by ODCM/Others					
	1. Krypton-87	Ci	0.00E-01	0.00E-01	4.54E-03	5.24E-04
	2. Krypton-88	Ci	0.00E-01	0.00E-01	1.31E+00	5.56E-03
	3. Xenon-133	Ci	1.26E+02	1.81E-01	1.07E+03	9.84E+01
	4. Xenon-133m	Ci	0.00E-01	0.00E-01	1.53E+01	3.93E-01
	5. Xenon-135	Ci	2.48E-01	6.58E-02	2.48E+01	7.93E-01
	6. Xenon-138	Ci	0.00E-01	0.00E-01	0.00E-01	0.00E-01
	Others (Specify)					
	7. Krypton-85	Ci	0.00E-01	0.00E-01	5.68E+00	3.75E+00
	8. Argon-41	Ci	0.00E-01	0.00E-01	1.60E+00	4.32E-01
	9. Krypton-85m	Ci	0.00E-01	2.71E-02	1.37E+00	1.69E-02
	10. Xenon-131m	Ci	0.00E-01	0.00E-01	9.90E+00	6.67E-01
	11. Xenon-135m	Ci	0.00E-01	0.00E-01	8.11E-02	0.00E-01
	Total for Period	Ci	1.27E+02	2.74E-01	1.13E+03	1.04E+02
F.	Iodines					
	1. Iodine-131	Ci	1.21E-04	5.47E-05		
	2. Iodine-133	Ci	1.46E-05	0.00E-01		
	3. Iodine-135	Ci	0.00E-01	0.00E-01		
	Total for Period	Ci	1.35E-04	5.47E-05		

NOTE: Refer to Table B for values reported as 0.00E-01.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
(GROUND LEVEL RELEASES)

G. Particulates

Required by ODCM/Others

	Nuclide	Unit	Continuous Mode	
			Quarter 3rd	Quarter 4th
1.	Strontium-89	Ci	0.00E-01	0.00E-01
2.	Strontium-90	Ci	0.00E-01	0.00E-01
3.	Iron-59	Ci	0.00E-01	0.00E-01
4.	Cobalt-60	Ci	0.00E-01	0.00E-01
5.	Zinc-65	Ci	0.00E-01	0.00E-01
6.	Manganese-54	Ci	0.00E-01	0.00E-01
7.	Cobalt-58	Ci	.19E-05	6.57E-06
8.	Molybdenum-99	Ci	0.00E-01	0.00E-01
9.	Cesium-134	Ci	0.00E-01	0.00E-01
10.	Cesium-137	Ci	0.00E-01	0.00E-01
11.	Cerium-141	Ci	0.00E-01	0.00E-01
12.	Cerium-144	Ci	0.00E-01	0.00E-01
	Others (Specify)			
13.	Chromium-51	Ci	5.04E-06	4.93E-06
14	Cobalt-57	Ci	0.00E-01	0.00E-01
Total for Period		Ci	1.69E-05	1.15E-05

NOTE: Refer to Table B for values reported as 0.00E-01.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
TABLE B
GASEOUS "TYPICAL" LLD EVALUATION (1)

Noble Gas

Nuclide	ODCM LLD	Δt(2) 15 min	30 min	1 hr	2 hr	3 hr.
Krypton-87	1.0E-04	2.91E-07	3.34E-07	4.39E-07	7.56E-07	
Krypton-88	1.0E-04	3.59E-07	3.82E-07	4.31E-07	5.51E-07	
Xenon-133	1.0E-04	1.97E-07	1.98E-07	1.98E-07	1.99E-07	
Xenon-133m	1.0E-04	8.75E-07	8.78E-07	8.84E-07	8.95E-07	
Xenon-135	1.0E-04	9.76E-08	9.95E-08	1.03E-07	1.12E-07	
Xenon-138	1.0E-04	4.93E-07	1.03E-06	4.46E-06	8.38E-05	
Particulate Sample						
Manganese-54	1.0E-10	3.88E-14	3.88E-14	3.88E-14	3.88E-14	3.88E-14
Cobalt-58	1.0E-10	3.49E-14	3.49E-14	3.49E-14	3.50E-14	3.50E-14
Iron-59	1.0E-10	7.25E-14	7.25E-14	7.25E-14	7.26E-14	7.26E-14
Cobalt-60	1.0E-10	4.95E-14	4.95E-14	4.95E-14	4.95E-14	4.95E-14
Zinc-65	1.0E-10	9.54E-14	9.54E-14	9.54E-14	9.54E-14	9.54E-14
Molybdenum-99	1.0E-10	2.49E-13	2.49E-13	2.51E-13	2.53E-13	2.56E-13
Cesium-134	1.0E-10	4.15E-14	4.15E-14	4.15E-14	4.15E-14	4.15E-14
Cesium-137	1.0E-10	3.85E-14	3.85E-14	3.85E-14	3.85E-14	3.85E-14
Cerium-141	1.0E-10	3.70E-14	3.70E-14	3.70E-14	3.70E-14	3.71E-14
Cerium-144	1.0E-10	1.32E-13	1.32E-13	1.32E-13	1.32E-13	1.32E-13
Iodine-131	1.0E-10	3.09E-14	3.09E-14	3.09E-14	3.11E-14	3.12E-14
Strontium-89 (3)	1.0E-11					
Strontium-90 (3)	1.0E-11					
Gross Alpha (3)	1.0E-11					

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
TABLE B
GASEOUS "TYPICAL" LLD EVALUATION (1)
(continued)

Charcoal Sample	ODCM LLD	Δt(2) 15 min	30 min	1 hr	2 hr	3 hr
Iodine-131	1.0E-11	4.31E-14	4.32E-14	4.32E-14	4.34E-14	4.36E-14
OTHERS						
Tritium (3)	1.0E-06					

NOTES:

(1) All evaluations are in uCi/cc. All analyses are performed to ensure that ODCM LLD limits are met, and these are typical LLD values. Alpha emitters are counted for a set time of 20 minutes.

(2) Δt for noble gases is the time from sampling to analysis. Δt for charcoal and particulate samples is the midpoint of sampling to filter removal from sampling apparatus to analysis, assuming an average flow of 2 CFM for a 24-hour sampling period.

(3) These isotopes are individually evaluated to ensure compliance with ODCM LLD limits. For tritium, a typical LLD is 1.0E-11 uCi/cc. For strontium and gross alpha, a typical LLD is 1.0E-15 uCi/cc.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
SOLID WASTE (RADIOACTIVE SHIPMENTS)

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

1. Type of Waste	Unit	6 Month Period	Est. Tot. Error %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3	3.01E+1	±1.00E-1
	Ci	6.26E+2	±1.50E+1
b. Dry Active Waste, Compressible Waste Contaminated Equipment, etc.	m^3	1.37E+2	±1.00E-1
	Ci	2.72E+2	±1.50E+1
c. Irradiated Components, Control Rods, etc.	m^3	None	N/A
	Ci	None	N/A
d. Other (describe) Composite liners (containing wet rags, resin, mechanical filters and metal oxides in boric acid concentrates) and oil liners	m^3	None	N/A
	Ci	None	N/A

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

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

	Curies	Percent
1. Manganese-54	3.14E+1	5.01E+0
2. Iron-55	1.13E+2	1.81E+1
3. Cobalt-58	2.34E+2	3.74E+1
4. Cobalt-60	1.03E+2	1.64E+1
5. Nickel-63	3.55E+1	5.67E+0
6. Cesium-134	4.88E+1	7.79E+0
7. Cesium-137	5.79E+1	9.26E+0

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

1. Chromium-51	2.34E+0	8.64E+0
2. Iron-55	1.14E+1	4.21E+1
3. Cobalt-58	7.11E+0	2.62E+1
4. Cobalt-60	3.51E+0	1.30E+1
5. Nickel-63	1.58E+0	5.83E+0
6. Niobium-95	6.03E-1	2.23E+0

c. Irradiated Components N/A N/A

d. Other (describe) N/A N/A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
2nd HALF 1990
SOLID WASTE (RADIOACTIVE SHIPMENTS)

3. Solid Waste Disposition

Number of Shipments	Type Quantity	Mode of Transportation	Destination
a) Spent resin, filter sludges, evaporator bottoms, etc.			
4	A-LSA	Motor Freight	Barnwell, SC
2	B-LSA	Motor Freight	Barnwell, SC

Number of Shipments	Type Quantity	Mode of Transportation	Destination
b) Dry active waste, compressible waste, contaminated equipment, etc.			
153	A-LSA	Motor Freight	Barnwell, SC

Number of Shipments	Type Quantity	Mode of Transportation	Destination
c) Irradiated components, control rods, etc.			
None			

Number of Shipments	Type Quantity	Mode of Transportation	Destination
d) Composite liners (containing wet rags, resin, mechanical filters and oxides on boric acid) and oil liners			
None			

4. Irradiated Fuel Shipments (Disposition)

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

5. Solidification of Waste

Was solidification performed? _____ No

If yes, solidification media: N/A

6. Were any changes made to the process control program? _____Yes X No*

7. Were any major changes made to the radioactive waste systems (liquid, gaseous or solid)? _____Yes X No.

*NOTE: The content of the Process Control Program has not changed, but the procedure portion has been removed from Technical Specifications and placed in its own stand alone document.

0419a

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

1st HALF 1990

ATTACHMENT 1

INOPERABLE INSTRUMENTATION

Pursuant to ODCM Section 1.3.1, the following information is provided concerning radioactive effluent monitoring instrumentation which was inoperable for greater than 30 consecutive days during the period July 1, 1990 through December 31, 1990.

Flow indicator 1-FI-30-242, which measures air flow rate through Unit 1 Shield Building Exhaust, was declared inoperable on October 31, 1987, for exhaust flow rates of less than 8000 cubic feet per minute and remains inoperable at this time. 2-FI-30-242, which measures air flow rate through Unit 2 Shield Building Exhaust, was declared inoperable for exhaust flow rates of less than 8000 cubic feet per minute on November 25, 1987, and remains inoperable. It was determined that these two instruments cannot accurately measure exhaust flow rates that are less than 8000 CFM; they are considered operable for flows above 8000 CFM. This instrumentation on both shield building exhausts was replaced and the new instrumentation was put in service on 1/31/91.

The Waste Gas analyzer oxygen channel ($0-0_2$ AN-43-5000) was declared inoperable on March 22, 1990. The oxygen channel had become erratic in its readings and out of tolerance when compared to grab samples. Initial investigation revealed that the instrument is sensitive (cannot compensate) to changes such as system pressure. Condition adverse to Quality Report, SQP 900170, was initiated on April 5, 1990. Long term corrective actions include designing a suitable replacement for the obsolete equipment. Interim corrective actions include obtaining original vendor (Servonex) services to assist in stablizing the analyzers oxygen channel. This will enable Sequoyah to continue operation to meet technical specifications 3.11.2.5. Current grab samplings will continue until this instrument is made operable or replaced. Troubleshooting investigations are in progress to identify and correct problems associated with instrument stabilization.

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

RADIOLOGICAL IMPACT ASSESSMENT REPORT

JANUARY THROUGH DECEMBER 1990

Prepared by: Donald D. Arms 2/19/91

Reviewed by: Butler Elford Lee 2/19/91

Approved by: Sally Watson 2/19/91

Radiological Impact Assessment
Sequoyah Nuclear Plant
January - December 1990

INTRODUCTION

Potential maximum doses to individuals and the population around Sequoyah are calculated for each quarter as required in Offsite Dose Calculation Manual (ODCM) Section 5.2. Measured plant releases for the reporting period are used to estimate these doses. Dispersion of radioactive effluents in the environment is estimated in accordance with the guidance provided by Regulatory Guides 1.109, 1.111 and 1.113 using meteorological data and riverflow data measured during the period. Using dose calculation methodologies which are described in detail in the Sequoyah ODCM, the doses are calculated and used to determine compliance with the dose limits contained in Sequoyah's ODCM. In this report, the doses resulting from releases are described and compared to quarterly and annual limits established for Sequoyah.

SUMMARY OF LIQUID AND GASEOUS EFFLUENT RELEASES - 1990

Although nuclear plants are designed to contain the radioactive material created by the fission process, small amounts of this material escape from the fuel rods. Also, very small amounts of the structures and components of the systems become activated through the bombardment of neutrons and are worn away. This radioactive material can be transported throughout plant systems and released to the environment.

Effluent Monitoring

Plant paths through which radioactivity is released are monitored. These monitors record the radiation levels for each release. Monitors which are used for liquid releases will automatically alarm and stop any release which is above regulatory limits. Gaseous release monitors also provide isolation and alarming mechanisms to allow for the termination of any releases above limits.

Airborne Releases

The noble gas fission products for the most part do not mix with water and are given off in a gaseous form. A very small amount of particulate radioactivity is given off along with these noble gases. These releases are processed so that the radioactive material is filtered and/or decayed prior to release through the plant vents. Sampling and monitoring methods are used to determine the amount of radioactive material released. If these methods indicate that radioactivity in airborne effluents above preset limits, then releases are terminated.

Liquid Releases

Some small amounts of radioactive material migrate into the primary coolant water. The primary coolant water is routed through a purification system to remove most of these particles; however, not all are removed. Some of the radioactive liquids may leak from pipes or valves in the system. These liquids are collected in floor and equipment drains and sumps. The collected liquids are then processed through a clean-up system, composed of storage tanks, recycling systems, and demineralizers, to remove contaminants. The purified water is then monitored to determine the amount of radioactive material remaining in the water prior to its release. Steps are taken to ensure that the amount of radioactivity released to the environment is as low as reasonably achievable (ALARA). If the levels of radioactivity are above preset limits, the releases are circulated through the clean-up system again for additional processing. All radioactivity released from the plant into the Tennessee River is quantified.

DOSE LIMITS

The U.S. Nuclear Regulator Commission (NRC) requires nuclear power plants to be designed, built, and operated in such a way that the levels of radioactive material released into unrestricted areas is as low as reasonably achievable (ALARA). To ensure that this is done, the plant's operating license includes requirements for a program to be in the ODCM which governs the release of radioactivity. The ODCM specifies limits for the release of radioactive effluents, as well as limits for doses to the general public from the release of these effluents. These limits are set well below the NRC 10 CFR 20 limits which govern the concentrations of radioactivity and exposures permissible in unrestricted areas. This ensures that radioactive effluent releases are ALARA.

The ODCM limits for doses at or beyond the site boundary from airborne noble gases releases are:

Less than or equal to 5 mrad per quarter and 10 mrad per year for gamma radiation,

- and -

Less than or equal to 10 mrad per quarter and 20 mrad per year for beta radiation.

The ODCM limit for the dose to a member of the general public at or beyond the site boundary from iodines and particulates released in airborne effluents is:

Less than or equal to 7.5 mrem per quarter and 15 mrem per year to any organ.

The ODCM limit for doses to a member of the general public from radioactive material in liquid effluents released to unrestricted areas, is:

Less than or equal to 1.5 mrem per quarter and 3 mrem per year to the total body,

- and -

Less than or equal to 5 mrem per quarter and 10 mrem per year to any organ.

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

Less than or equal to 25 mrem per year to the total body,

Less than or equal to 75 mrem per year to the thyroid,

- and -

Less than or equal to 25 mrem per year to any other organ.

DOSE CALCULATIONS

Estimated doses to the public are determined using computer models (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. In reality, the expected dose to actual individuals is lower. The calculation methods and results of the calculations are presented in the following sections.

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 which is then eaten by milk and beef animals.

The concentrations of radioactivity in the air and the soil are estimated by the computer model GELC which uses the actual meteorological conditions to determine the distribution of the effluents in the atmosphere. Again, as many of the parameters as possible are based on actual site specific data. The model that is used to estimate dose, as well as the parameters input to the model, is described in detail in Section 1.7 of the Sequoyah Nuclear Plant Offsite Dose Calculation Manual.

Airborne Release Points and Meteorological Data

Meteorological data at Sequoyah are measured continuously. Measurements collected include the wind speed, wind direction, and the temperature at heights of 10, 46 and 91 meters above the ground. Average 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. For calculational purposes, calms are distributed into the lowest windspeed range (0-0.5 mph) according to the directional probabilities in the 0.6-1.4 mph range. Stability classes are determined from the vertical temperature gradient between two measurement levels.

All releases from Sequoyah are considered ground-level releases to determine the dispersion of the airborne effluents. The ground-level JFD is derived from windspeeds and directions measured 10 meters above ground and from the vertical temperature gradient between 10 and 46 meters.

The JFDs for each quarter of 1990 are listed in Tables 1, 2, 3 and 4.

External Exposure Dose - Airborne Effluents

Dose estimates for maximum external air exposures (gamma-air and beta-air doses) are made for points at and beyond the site boundary. These doses are calculated based on the reported releases for all noble gas nuclides. The reported dose is chosen for the offsite location with the highest calculated exposure during the quarter. The doses calculated for Sequoyah Nuclear Plant for each quarter are shown below.

Individual Doses from Airborne Effluents
External Air Exposures (mrad)

	Dose	Location with Highest Offsite Exposure
First Quarter		
γ Air dose	2.6E-01 mrad	N at 950 meters
β Air dose	6.9E-01 mrad	N at 950 meters
Second Quarter		
γ Air dose	5.6E-02 mrad	N at 950 meters
β Air dose	1.5E-01 mrad	N at 950 meters
Third Quarter		
γ Air dose	9.9E-02 mrad	SSW at 1840 meters
β Air dose	2.7E-01 mrad	SSW at 1840 meters
Fourth Quarter		
γ Air dose	8.3E-03 mrad	NNW at 730 meters
β Air dose	2.4E-02 mrad	NNW at 730 meters

Submersion Dose - Airborne Effluents

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. These doses are calculated based on the reported releases for noble gas nuclides. The highest of these exposures is chosen and is assumed to be the maximum individual dose. The submersion doses calculated for Sequoyah Nuclear Plant for each quarter are shown below.

Individual Doses from Airborne Effluents
Submersion Exposures (mrem)

	Dose	Location Maximum Nearest Resident
First Quarter		
Total Body	1.7E-01 mrem	SSW at 2019 meters
Skin	4.1E-01 mrem	SSW at 2019 meters
Second Quarter		
Total Body	4.0E-02 mrem	SSW at 2019 meters
Skin	9.4E-02 mrem	SSW at 2019 meters
Third Quarter		
Total Body	7.4E-02 mrem	SSW at 2019 meters
Skin	1.7E-01 mrem	SSW at 2019 meters
Fourth Quarter		
Total Body	5.9E-03 mrem	SSW at 2019 meters
Skin	1.5E-02 mrem	SSW at 2019 meters

Organ Dose - Airborne Effluents

Internal 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 defined in Table 5. Doses are calculated based on the reported iodine and particulate releases. To determine the maximum organ dose, the dose contribution from the three 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 farms 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 site 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. The organ doses calculated for Sequoyah Nuclear Plant for each quarter are shown below.

Individual Doses from Airborne Effluents
Maximum Organ (mrem)

	Organ	Age Group	Dose
First Quarter	Liver	Child	2.2E-03 mrem

Individual Pathway Contributions:

Vegetable Ingestion[1]	1.4E-03
Beef Ingestion[2]	1.5E-04
Inhalation[1]	6.4E-04
Ground Contamination[1]	5.0E-05
Milk Ingestion	N/A

[1]Maximum real receptor is located at 2686 meters in the SSW sector.
[2]Calculated for the site boundary at 950 meters in the N sector.

Individual Doses from Airborne Effluents (Continued)
Maximum Organ (mrem)

	Organ	Age Group	Dose
Second Quarter	Thyroid	Child	1.9E-03 mrem

Individual Pathway Contributions:

Vegetable Ingestion[3]	1.3E-03
Beef Ingestion[4]	1.7E-04
Inhalation[3]	4.5E-03
Ground Contamination[3]	3.2E-06
Milk Ingestion	N/A

[3]Maximum real receptor is located at 2324 meters in the NE sector.
[4]Calculated for the site boundary at 950 meters in the N sector.

Third Quarter	Thyroid	Child	2.4E-03 mrem

Individual Pathway Contributions:

Vegetable Ingestion[5]	1.7E-03
Beef Ingestion[6]	9.6E-05
Inhalation[5]	6.3E-04
Ground Contamination[5]	8.7E-06
Milk Ingestion	N/A

[5]Maximum real receptor is located at 2686 meters in the SSW sector.
[6]Calculated for the site boundary at 1840 meters in the SSW sector.

Fourth Quarter	Thyroid	Child	2.4E-03 mrem

Individual Pathway Contributions:

Vegetable Ingestion[7]	1.6E-03
Beef Ingestion[8]	1.3E-04
Inhalation[7]	6.5E-04
Ground Contamination[7]	7.2E-07
Milk Ingestion	N/A

[7] Maximum real receptor is located at 991 meters in the NNW sector.
[8] Calculated for the site boundary at 730 meters in the NNW sector.

Dose Summary - Airborne Effluents

The table below gives a comparison of the calculated doses to their respective quarterly limits.

Airborne Effluents
Sequoyah Nuclear Plant

Dose Pathway	Quarter	Dose	Quarterly Limit	Percent of Limit
Gamma air Dose	1	2.6E-01 mrad	5 mrad	5.2 %
	2	5.6E-02 mrad		1.1 %
	3	9.9E-02 mrad		2.0 %
	4	8.3E-03 mrad		0.2 %
Beta air Dose	1	6.9E-01 mrad	10 mrad	6.9 %
	2	1.5E-01 mrad		1.5 %
	3	2.7E-01 mrad		2.7 %
	4	2.4E-02 mrad		0.2 %
Max Organ Dose	1	2.2E-03 mrem	7.5 mrem	<0.1 %
	2	1.9E-03 mrem		<0.1 %
	3	2.4E-03 mrem		<0.1 %
	4	2.4E-03 mrem		<0.1 %

As is shown by the table, all calculated quarterly doses were well below the allowable limits established in Sequoyah's ODCM. For a comparison to previous releases and doses, graphs are presented as Figures 1 and 2 which show corresponding airborne releases and doses for the period 1983 to the present. The doses are presented by quarter in Table 6.

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 in the river sediment (recreation).

The concentrations of radioactivity in the Tennessee River are estimated by a computer model which uses measured hydraulic data downstream of Sequoyah. Parameters used to determine the doses are based on guidance given by the NRC (in Regulatory Guides 1.109) for maximum ingestion rates, exposure times, etc. Wherever possible, parameters used in the dose calculation are site specific use factors determined by TVA. The models that are used to estimate doses, as well as the parameters input to the models, are described in Section 2.6 of the Sequoyah Nuclear Plant Offsite Dose Calculation Manual.

Liquid Release Points and River Data

Radioactivity concentrations in the Tennessee River are calculated assuming that releases of liquid effluents are continuous. All routine liquid releases from Sequoyah are made through diffusers which extend into the Tennessee River. It is assumed that releases to the river through these diffusers will initially be entrained in one-fifth of the water which flows past the plant. The QWATA code makes the assumption that this mixing condition holds true until the water is completely mixed at the first downstream dam, at Tennessee River mile 471.0. The average river flows past the plant site were as follows:

Quarter	Average River Flow (ft3/s)
1	77673
2	24842
3	29827
4	34960

Dose Estimates - Liquid Effluents

Doses are calculated for recreation, consumption of fish, and drinking water for locations between the plant site and the mouth of the Tennessee River. 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 (C. F. Industries). This could be interpreted as indicating that the maximum individual, as assumed for liquid releases from Sequoyah, is an individual who obtains all of his drinking water at C. F. Industries, consumes 21 kg (6.9 kg for a child) per year of fish caught from the Tennessee River between Sequoyah and Chickamauga Dam, and spends 500 hours per year standing on the shoreline just below the outfall from Sequoyah. Dose estimates for the maximum individual due to liquid effluents for 1989 are presented below.

Individual Doses from Liquid Effluents
(mrem)

	Organ	Age Group	Dose
First Quarter	Total Body	Child	6.0E-04 mrem
		Individual Pathway Contributions:	
		Water Ingestion	4.5E-04
		Fish Ingestion	3.4E-05
		Recreation	1.2E-04
	GI Tract	Adult	1.2E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	3.6E-04
		Fish Ingestion	7.1E-04
		Recreation	1.2E-04

Individual Doses from Liquid Effluents (Continued)
(mrem)

Second Quarter	Total Body	Child	2.2E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	1.1E-03
		Fish Ingestion	1.0E-04
		Recreation	9.6E-04
	GI Tract	Adult	5.3E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	9.9E-04
		Fish Ingestion	3.4E-03
		Recreation	9.6E-04
Third Quarter	Total Body	Child	1.9E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	7.2E-04
		Fish Ingestion	1.0E-04
		Recreation	1.1E-03
	GI Tract	Adult	3.1E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	6.4E-04
		Fish Ingestion	1.3E-03
		Recreation	1.1E-03
Fourth Quarter	Total Body	Child	1.3E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	5.6E-04
		Fish Ingestion	1.7E-04
		Recreation	5.9E-04
	Liver	Child	1.9E-03 mrem
		Individual Pathway Contributions:	
		Water Ingestion	5.7E-04
		Fish Ingestion	7.4E-04
		Recreation	5.9E-04

Dose Summary - Liquid Effluents

The table below gives a comparison of the calculated doses to their respective quarterly limits.

Liquid Effluents
Sequoyah Nuclear Plant

Dose Pathway	Quarter	Dose	Quarterly Limit	Percent of Quarterly Limit
Liquid-Total Body Dose	1	6.0E-04 mrem	1.5 mrem	<0.1 %
	2	2.2E-03 mrem		<0.1 %
	3	1.9E-03 mrem		0.1 %
	4	1.3E-03 mrem		<0.1 %
Liquid-Max Organ Dose	1	1.2E-03 mrem	5 mrem	<0.1 %
	2	5.3E-03 mrem		0.1 %
	3	3.1E-03 mrem		<0.1 %
	4	1.9E-03 mrem		<0.1 %

As is shown by the table, all calculated quarterly doses were well below the allowable limits established in Sequoyah's ODCM. For a comparison to previous releases and doses, graphs are presented as Figure 3 which shows corresponding liquid releases and doses for the period 1983 to the present. Doses are presented by quarter in Table 6.

POPULATION DOSES

Population doses for highest exposed organ due to airborne effluents are calculated for an estimated 1,060,000 persons living within a 50-mile radius of the plant site. Ingestion population doses are calculated assuming that each individual consumes milk, vegetables, and meat produced with the sector annulus in which he resides. Doses from external pathways and inhalation are based on the 50-mile human population distribution. Population dose estimates for airborne effluents are presented below.

From liquid releases, the total population along the Tennessee River was estimated to receive population doses as shown below.

Sequoyah Nuclear Plant
Population Doses

		Total Body Dose	Maximum Organ Dose (organ)
First Quarter			
	Liquid	4.2E-02 man-rem	4.5E-02 man-rem (GI Tract)
	Airborne	1.0E-00 man-rem	1.0E-01 man-rem (Liver)
Second Quarter			
	Liquid	1.7E-01 man-rem	1.9E-01 man-rem (GI Tract)
	Airborne	2.3E-01 man-rem	2.3E-01 man-rem (Thyroid)
Third Quarter			
	Liquid	1.7E-01 man-rem	1.8E-01 man-rem (GI Tract)
	Airborne	3.4E-01 man-rem	3.4E-01 man-rem (thyroid)
Fourth Quarter			
	Liquid	7.7E-02 man-rem	7.8E-02 man-rem (Liver)
	Airborne	4.9E-02 man-rem	5.3E-02 man-rem (Thyroid)

Population doses can be compared to the natural background dose to the same population of about 159,000 man-rem/yr (Based on 150 mrem/year for natural background.).

DIRECT RADIATION

External gamma radiation levels were measured by thermoluminescent dosimeters (TLDs) deployed around SQN. During the preoperational period from August 1975 to January 1980, these levels averaged approximately 23 mR/quarter at onsite stations and 19 mR/quarter offsite. These data reflect a difference of 2-5 mR/quarter (average approximately 4 mR/quarter) between onsite and offsite radiation levels. These higher values measured onsite 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 influences.

Analysis of environmental TLD data for the period of November 1989 to November 1990 showed that gamma radiation levels determined from these TLDs during this reporting period averaged approximately 15.6 mR/quarter at onsite stations and 13.6 mR/quarter offsite. This indicates that there was no identifiable increase in dose rate levels attributable to direct radiation from plant equipment and/or gaseous effluents. Fluctuations in natural background dose rates and in TLD readings tend to mask any small increments which may be due to plant operations.

DOSE TO MEMBERS OF THE PUBLIC INSIDE THE SITE BOUNDARY

No routine activities within the site boundary by members of the public have been identified which would lead to their radiation exposure.

TOTAL DOSE

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

The annual total body dose to the maximum individual is conservatively estimated by summing the following doses:

the total body air submersion dose for each quarter,

the critical organ dose from airborne effluents for each quarter,

the total body dose from liquid effluents for each quarter,

the maximum organ 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 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 limit for thyroid dose to determine compliance.

Total Dose from Fuel Cycle
Sequoyah Nuclear Plant

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Total Body or any Organ Dose (except thyroid)				
Total body air submersion dose	1.7E-01	4.0E-02	7.4E-02	5.9E-03
Critical organ dose (airborne)	2.2E-03	1.9E-03	2.4E-02	2.4E-03
Total body dose (liquid)	6.0E-04	2.2E-03	1.9E-03	1.3E-03
Maximum organ dose (liquid)	1.2E-03	5.3E-03	3.1E-03	1.9E-03
Direct radiation dose	0.0E-00	0.0E-00	0.0E-00	0.0E-00
Total	1.7E-01	4.9E-02	1.0E-01	1.2E-02
Cumulative Total Dose (Total Body or other organ)				3.3E-01

Total Dose from Fuel Cycle
Sequoyah Nuclear Plant

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Thyroid Dose				
Total body air submersion dose	1.7E-01	4.0E-02	7.4E-02	5.9E-03
Thyroid dose (airborne)	2.1E-03	1.9E-03	2.4E-03	2.4E-03
Total body dose (liquid)	6.0E-04	2.2E-03	1.9E-03	1.3E-03
Thyroid dose (liquid)	6.8E-04	2.3E-03	1.9E-03	1.2E-03
Direct radiation dose	0.0E-00	0.0E-00	0.0E-00	0.0E-00
Total (Thyroid)	1.7E-01	4.6E-02	8.0E-02	1.1E-02
Cumulative Total Dose (Thyroid)				3.1E-01

CONCLUSION

As a result of operation of Sequoyah Nuclear Plant, radioactive effluents were released to the atmosphere and the Tennessee River. The released radioactivity resulted in estimated potential doses to the public which are well below the ODCM Limits and Regulatory Guidance. Cumulative doses for the calendar year are given below along with a comparison to the respective annual limits for the doses.

Cumulative Doses from Effluents
Sequoyah Nuclear Plant

Dose Pathway	Dose	Annual Limit	Percent of Annual Limit
Airborne-Gamma air Dose	4.2E-01 mrad	10 mrad	4 %
Airborne-Beta air Dose	1.1E-00 mrad	20 mrad	6 %
Airborne-Max Organ Dose	8.9E-03 mrem	15 mrem	<1 %
Liquid-Total Body Dose	6.0E-03 mrem	3 mrem	<1 %
Liquid-Max Organ Dose	1.1E-02 mrem	10 mrem	<1 %
Total Dose - Total Body or organ other than thyroid	3.3E-01 mrem	25 mrem	1 %
Total Dose - Thyroid	3.1E-01 mrem	75 mrem	<1 %

TABLE 1 (page 1 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FIRST QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.049	0.148	0.049	0.0	0.0	0.0	0.247
NNE	0.0	0.0	0.0	0.049	0.543	1.135	0.0	0.0	0.0	1.728
NE	0.0	0.0	0.099	0.049	0.0	0.049	0.0	0.0	0.0	0.197
ENE	0.0	0.0	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.099
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.099
SSE	0.0	0.0	0.0	0.0	0.0	0.099	0.0	0.0	0.0	0.099
S	0.0	0.0	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.099
SSW	0.0	0.0	0.0	0.197	0.296	0.346	0.0	0.0	0.0	0.839
SW	0.0	0.0	0.0	0.099	0.494	0.247	0.0	0.0	0.0	0.839
WSW	0.0	0.0	0.049	0.0	0.049	0.0	0.0	0.0	0.0	0.099
W	0.0	0.0	0.0	0.0	0.049	0.0	0.099	0.0	0.0	0.148
WNW	0.0	0.0	0.0	0.0	0.0	0.049	0.148	0.0	0.0	0.197
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.148	0.0	0.0	0.0	0.148
SUBTOTAL	0.0	0.0	0.148	0.591	1.728	2.122	0.247	0.0	0.0	4.837

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2027
TOTAL HOURS OF STABILITY CLASS A	98
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	98
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2026
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.0	0.099	0.099	0.0	0.0	0.0	0.197
NNE	0.0	0.0	0.049	0.148	0.247	0.346	0.0	0.0	0.0	0.790
NE	0.0	0.0	0.148	0.099	0.197	0.0	0.0	0.0	0.0	0.444
ENE	0.0	0.0	0.197	0.0	0.0	0.0	0.0	0.0	0.0	0.197
E	0.0	0.0	0.049	0.099	0.0	0.0	0.0	0.0	0.0	0.148
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.049
SSE	0.0	0.0	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.049
S	0.0	0.0	0.0	0.0	0.0	0.148	0.0	0.0	0.0	0.148
SSW	0.0	0.0	0.0	0.148	0.197	0.049	0.049	0.0	0.0	0.444
SW	0.0	0.0	0.0	0.197	0.543	0.049	0.0	0.0	0.0	0.790
WSW	0.0	0.0	0.0	0.0	0.0	0.099	0.0	0.0	0.0	0.099
W	0.0	0.0	0.0	0.0	0.0	0.049	0.099	0.0	0.0	0.148
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.049	0.0	0.148	0.0	0.0	0.0	0.197
SUBTOTAL	0.0	0.0	0.444	0.790	1.333	0.987	0.148	0.0	0.0	3.702

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2027
TOTAL HOURS OF STABILITY CLASS B	75
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	75
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2026
TOTAL HOURS CALM	0

TABLE 1 (page 2 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FIRST QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.9< DELTA-T/W=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.049	0.099	0.099	0.0	0.0	0.0	0.247
NNE	0.0	0.0	0.049	0.148	0.346	0.247	0.0	0.0	0.0	0.987
NE	0.0	0.0	0.197	0.148	0.0	0.049	0.0	0.0	0.0	0.395
ENE	0.0	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.099
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.049
SSE	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.049
S	0.0	0.0	0.049	0.049	0.0	0.197	0.0	0.0	0.0	0.296
SSW	0.0	0.0	0.0	0.197	0.197	0.247	0.0	0.0	0.0	0.642
SW	0.0	0.0	0.0	0.346	0.247	0.0	0.0	0.0	0.0	0.592
WSW	0.0	0.0	0.049	0.049	0.099	0.0	0.0	0.0	0.0	0.197
W	0.0	0.0	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.049
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.049	0.197	0.0	0.0	0.0	0.247
NNW	0.0	0.0	0.0	0.0	0.148	0.049	0.0	0.0	0.0	0.197
SUBTOTAL	0.0	0.0	0.494	1.234	1.234	1.044	0.0	0.0	0.0	4.047

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2027
TOTAL HOURS OF STABILITY CLASS C 82
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C 82
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 1026
TOTAL HOURS CALM 0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.006	0.099	0.419	0.987	0.592	0.934	0.0	0.0	0.0	3.461
NNE	0.006	0.099	0.888	1.333	2.419	1.876	0.0	0.0	0.0	6.620
NE	0.005	0.049	0.691	0.346	0.148	0.099	0.0	0.0	0.0	1.337
ENE	0.001	0.0	0.197	0.0	0.0	0.0	0.0	0.0	0.0	0.199
E	0.002	0.099	0.148	0.099	0.0	0.0	0.0	0.0	0.0	0.347
ESE	0.002	0.099	0.148	0.0	0.0	0.0	0.0	0.0	0.0	0.248
SE	0.002	0.099	0.148	0.0	0.0	0.0	0.0	0.0	0.0	0.248
SSE	0.002	0.148	0.148	0.049	0.049	0.099	0.0	0.0	0.0	0.495
S	0.004	0.049	0.592	0.099	0.296	0.494	0.0	0.0	0.0	1.534
SSW	0.006	0.296	0.740	0.987	1.728	0.888	0.0	0.0	0.0	4.646
SW	0.004	0.0	1.283	1.925	0.790	0.296	0.0	0.0	0.0	4.302
WSW	0.003	0.049	0.444	0.247	0.148	0.197	0.0	0.0	0.0	1.089
W	0.000	0.049	0.0	0.0	0.247	0.296	0.049	0.0	0.0	0.642
WNW	0.001	0.0	0.099	0.296	0.346	0.543	0.0	0.0	0.0	1.284
NW	0.001	0.0	0.148	0.395	0.296	0.395	0.0	0.0	0.0	1.235
NNW	0.002	0.049	0.247	0.296	0.295	0.444	0.0	0.0	0.0	1.433
SUBTOTAL	0.049	1.185	6.762	7.058	7.651	6.365	0.049	0.0	0.0	29.121

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2027
TOTAL HOURS OF STABILITY CLASS D 591
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D 590
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 2026
TOTAL HOURS CALM 1

TABLE 1 page 3 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FIRST QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.4-1.4	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	TOTAL
N	0.005	0.247	1.283	1.185	0.888	0.148	0.0	0.0	0.0	2.756
NNE	0.010	0.444	1.685	1.431	0.691	0.197	0.0	0.0	0.0	5.439
NE	0.002	0.197	0.444	0.0	0.0	0.0	0.0	0.0	0.0	0.644
ENE	0.001	0.099	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.194
E	0.001	0.099	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.194
ESE	0.001	0.099	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.194
SE	0.001	0.049	0.148	0.148	0.0	0.099	0.0	0.0	0.0	0.445
SSE	0.001	0.049	0.197	0.197	0.0	0.148	0.099	0.0	0.0	0.691
S	0.003	0.099	0.938	1.481	0.888	1.135	0.0	0.0	0.0	4.544
SSW	0.010	0.444	2.614	2.715	1.826	0.494	0.3	0.0	0.0	8.105
SW	0.009	0.296	2.469	3.653	0.888	0.099	0.0	0.0	0.0	6.823
WSW	0.002	0.049	0.59	0.592	0.197	0.148	0.0	0.0	0.0	1.582
W	0.001	0.049	0.395	0.197	0.049	0.197	0.0	0.0	0.0	0.890
WNW	0.001	0.0	0.246	0.494	0.099	0.0	0.049	0.0	0.0	0.988
NW	0.000	0.0	0.148	0.494	0.197	0.099	0.0	0.0	0.0	0.938
NNW	0.002	0.148	0.494	0.444	0.395	0.099	0.0	0.0	0.0	1.582
SUBTOTAL	0.049	1.369	13.831	12.241	6.120	2.663	0.148	0.0	0.0	36.831

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2027
TOTAL HOURS OF STABILITY CLASS E 746
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E 746
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 2026
TOTAL HOURS CALM 1

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - MAR 31, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.4-1.4	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	TOTAL
N	0.0	0.0	0.395	0.0	0.0	0.0	0.0	0.0	0.0	0.395
NNE	0.0	0.296	0.715	0.148	0.0	0.0	0.0	0.0	0.0	1.159
NE	0.0	0.691	0.790	0.0	0.0	0.0	0.0	0.0	0.0	1.481
ENE	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.099
E	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.099
ESE	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.099
SE	0.0	0.099	0.148	0.0	0.0	0.0	0.0	0.0	0.0	0.247
SSE	0.0	0.099	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.197
S	0.0	0.148	0.740	0.099	0.0	0.0	0.0	0.0	0.0	0.987
SSW	0.0	0.0	1.382	0.444	0.099	0.0	0.0	0.0	0.0	1.925
SW	0.0	0.099	1.283	0.740	0.049	0.0	0.0	0.0	0.0	2.172
WSW	0.0	0.0	0.148	0.0	0.0	0.049	0.0	0.0	0.0	0.197
W	0.0	0.0	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.099
WNW	0.0	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.099
NW	0.0	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.049
NNW	0.0	0.049	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.099
SUBTOTAL	0.0	1.619	7.996	1.579	0.148	0.049	0.0	0.0	0.0	11.402

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2027
TOTAL HOURS OF STABILITY CLASS F 231
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F 231
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 2026
TOTAL HOURS CALM 0

TABLE 1 page 4 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FIRST QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JAN 1, 90 - ... 31, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.4-1.4	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	TOTAL
N	0.0	0.049	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.099
NNE	0.0	0.444	1.369	[illegible]	0.0	0.0	0.0	0.0	0.0	1.911
NE	0.0	0.295	1.629	0.	0.0	0.0	0.0	0.0	0.0	2.021
ENE	0.0	0.049	0.148	0.0	0.0	0.0	0.0	0.0	0.0	0.197
E	0.0	0.197	0.148	0.0	0.0	0.0	0.0	0.0	0.0	0.346
ESE	0.0	0.148	.049	0.0	0.0	0.0	0.0	0.0	0.0	0.197
SE	0.0	0.099	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.197
SSE	0.0	0.148	0.197	0.0	0.0	0.0	0.0	0.0	0.0	0.346
S	0.0	.295	0.642	0.049	0.0	0.0	0.0	0.0	0.0	0.987
SSW	0.0	0.049	0.987	0.099	0.0	0.0	0.0	0.0	0.0	1.135
SW	0.0	0.049	0.740	0.592	0.0	0.0	0.0	0.0	0.0	1.382
WSW	0.0	0.0	0.099	0.0	0.0	0.0	0.0	0.0	0.0	0.099
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.049
NW	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.049
NNW	0.0	0.0	0.049	0.0	0.0	0.0	0.0	0.0	0.0	0.049
SUBTOTAL	0.0	1.974	7.256	0.839	0.0	0.0	0.0	0.0	0.0	10.069

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2017
TOTAL HOURS OF STABILITY CLASS G 204
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G 204
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 1014
TOTAL HOURS CALM 0

TABLE 2 (page 1 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
SECOND QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.6-1.4	1.5-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	TOTAL
N	0.0	0.0	0.047	0.093	0.093	0.0	0.0	0.0	0.233
NNE	0.0	0.0	0.186	0.838	0.791	0.419	0.047	0.0	2.280
NE	0.0	0.0	0.233	0.884	0.605	0.093	0.0	0.0	1.815
ENE	0.0	0.0	0.233	0.419	0.047	0.0	0.0	0.0	0.698
E	0.0	0.0	0.279	0.140	0.0	0.0	0.0	0.0	0.419
ESE	0.0	0.0	0.093	0.047	0.0	0.0	0.0	0.0	0.140
SE	0.0	0.0	0.140	0.047	0.0	0.0	0.0	0.0	0.186
SSE	0.0	0.0	0.047	0.140	0.093	0.140	0.0	0.0	0.419
S	0.0	0.0	0.047	0.372	0.326	0.884	0.0	0.0	1.629
SSW	0.0	0.0	0.372	1.815	1.443	0.279	0.047	0.0	3.955
SW	0.0	0.0	0.233	2.187	1.070	0.419	0.0	0.0	3.909
WSW	0.0	0.0	0.047	0.093	0.233	0.233	0.0	0.0	0.605
W	0.0	0.0	0.0	0.047	0.279	0.233	0.0	0.0	0.558
WNW	0.0	0.0	0.0	0.047	0.279	0.047	0.0	0.0	0.372
NW	0.0	0.0	0.0	0.0	0.0	0.140	0.0	0.0	0.140
NNW	0.0	0.0	0.0	0.0	0.047	0.372	0.0	0.0	0.419
SUBTOTAL	0.0	0.0	1.954	7.144	5.305	3.257	0.093	0.0	17.774

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2158
TOTAL HOURS OF STABILITY CLASS A	384
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	383
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.6-1.4	1.5-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	TOTAL
N	0.0	0.0	0.0	0.233	0.233	0.140	0.0	0.0	0.605
NNE	0.0	0.0	0.093	0.140	0.140	0.047	0.0	0.0	0.419
NE	0.0	0.0	0.093	0.093	0.047	0.0	0.0	0.0	0.233
ENE	0.0	0.0	0.140	0.0	0.0	0.0	0.0	0.0	0.140
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.140	0.0	0.0	0.0	0.0	0.140
SSE	0.0	0.0	0.0	0.0	0.140	0.0	0.0	0.0	0.140
S	0.0	0.0	0.0	0.093	0.093	0.140	0.0	0.0	0.326
SSW	0.0	0.0	0.233	1.163	0.326	0.233	0.0	0.0	1.954
SW	0.0	0.0	0.047	0.838	0.186	0.047	0.0	0.0	1.117
WSW	0.0	0.0	0.047	0.047	0.047	0.047	0.0	0.0	0.186
W	0.0	0.0	0.0	0.0	0.0	0.047	0.0	0.0	0.047
WNW	0.0	0.0	0.0	0.0	0.093	0.0	0.0	0.0	0.093
NW	0.0	0.0	0.0	0.0	0.0	0.093	0.0	0.0	0.093
NNW	0.0	0.0	0.047	0.0	0.0	0.233	0.0	0.0	0.279
SUBTOTAL	0.0	0.0	0.698	2.745	1.303	1.024	0.0	0.0	5.770

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2158
TOTAL HOURS OF STABILITY CLASS B	124
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	124
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	0

TABLE 2 page 2 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
SECOND QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS C (-1.9< DELTA-T(=-1.5 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.8-1.4	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	TOTAL
N	0.0	0.0	0.047	0.140	0.047	0.093	0.0	0.0	0.0	0.326
NNE	0.0	0.0	0.140	0.140	0.0	0.0	0.047	0.0	0.0	0.326
NE	0.0	0.0	0.465	0.0	0.0	0.0	0.0	0.0	0.0	0.465
ENE	0.0	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.093
E	0.0	0.0	0.140	0.0	0.0	0.0	0.0	0.0	0.0	0.140
ESE	0.0	0.0	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.047
SE	0.0	0.0	0.0	0.047	0.0	0.0	0.0	0.0	0.0	0.047
SSE	0.0	0.0	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.093
S	0.0	0.0	0.0	0.186	0.093	0.047	0.0	0.0	0.0	0.326
SSW	0.0	0.0	0.186	0.419	0.140	0.279	0.0	0.0	0.0	1.024
SW	0.0	0.0	0.093	0.419	0.047	0.047	0.0	0.0	0.0	0.605
WSW	0.0	0.0	0.047	0.093	0.0	0.047	0.0	0.0	0.0	0.186
W	0.0	0.0	0.0	0.093	0.047	0.140	0.0	0.0	0.0	0.279
WNW	0.0	0.0	0.0	0.0	0.093	0.093	0.0	0.0	0.0	0.186
NW	0.0	0.0	0.0	0.047	0.093	0.047	0.0	0.0	0.0	0.186
NNW	0.0	0.0	0.0	0.0	0.186	0.186	0.0	0.0	0.0	0.372
SUBTOTAL	0.0	0.0	1.256	1.675	0.745	0.977	0.047	0.0	0.0	4.700

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2156
TOTAL HOURS OF STABILITY CLASS C	101
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	101
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.8-1.4	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	TOTAL
N	0.0	0.0	0.512	0.977	0.931	0.512	0.0	0.0	0.0	2.932
NNE	0.0	0.047	0.884	0.745	0.233	0.651	0.0	0.0	0.0	2.559
NE	0.0	0.047	0.698	0.186	0.0	0.0	0.0	0.0	0.0	0.931
ENE	0.0	0.0	0.186	0.047	0.0	0.0	0.0	0.0	0.0	0.233
E	0.0	0.0	0.140	0.0	0.047	0.0	0.0	0.0	0.0	0.186
ESE	0.0	0.0	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.047
SE	0.0	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.093
SSE	0.0	0.047	0.047	0.140	0.047	0.047	0.0	0.0	0.0	0.326
S	0.0	0.047	0.651	0.838	0.465	0.465	0.0	0.0	0.0	1.466
SSW	0.0	0.0	1.163	2.141	1.536	0.605	0.0	0.0	0.0	5.444
SW	0.0	0.047	0.838	1.161	0.698	0.279	0.0	0.0	0.0	3.025
WSW	0.0	0.047	0.233	0.140	0.140	0.093	0.0	0.0	0.0	0.651
W	0.0	0.0	0.093	0.140	0.140	0.140	0.0	0.0	0.0	0.512
WNW	0.0	0.047	0.047	0.093	0.047	0.140	0.0	0.0	0.0	0.372
NW	0.0	0.0	0.0	0.047	0.233	0.093	0.0	0.0	0.0	0.372
NNW	0.0	0.093	0.186	0.372	1.070	0.465	0.0	0.0	0.0	2.187
SUBTOTAL	0.0	0.419	5.617	7.027	5.364	3.430	0.0	0.0	0.0	23.336

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2156
TOTAL HOURS OF STABILITY CLASS D	480
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	480
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	0

TABLE 2 (page 3 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
SECOND QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.039	0.419	2.094	1.536	0.279	0.047	0.0	0.0	0.0	4.413
NNE	0.037	0.326	1.067	0.977	0.047	0.0	0.0	0.0	0.0	3.434
NE	0.004	0.186	0.326	0.047	0.0	0.0	0.0	0.0	0.0	0.564
ENE	0.007	0.233	0.186	0.047	0.0	0.0	0.0	0.0	0.0	0.473
E	0.001	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.095
ESE	0.005	0.186	0.140	0.0	0.0	0.0	0.0	0.0	0.0	0.331
SE	0.004	0.233	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.284
SSE	0.004	0.186	0.047	0.047	0.0	0.140	0.0	0.0	0.0	0.422
S	0.019	0.419	0.791	0.838	0.279	0.233	0.047	0.0	0.0	2.625
SSW	0.056	0.651	3.035	1.764	0.605	0.186	0.0	0.0	0.0	6.293
SW	0.056	0.465	3.118	1.443	0.465	0.186	0.0	0.0	0.0	5.733
WSW	0.014	0.279	0.745	0.605	0.233	0.047	0.0	0.0	0.0	1.924
W	0.007	0.093	0.372	0.279	0.047	0.047	0.0	0.0	0.0	0.845
WNW	0.004	0.140	0.140	0.233	0.047	0.0	0.0	0.0	0.0	0.563
NW	0.003	0.0	0.140	0.326	0.047	0.093	0.0	0.0	0.0	0.607
NNW	0.011	0.233	0.465	0.651	0.279	0.047	0.0	0.0	0.0	1.686
SUBTOTAL	0.279	4.848	13.774	8.795	2.127	1.024	0.047	0.0	0.0	30.293

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2154
TOTAL HOURS OF STABILITY CLASS E	654
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	651
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	6

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.049	0.140	1.764	0.233	0.0	0.0	0.0	0.0	0.0	2.187
NNE	0.132	0.791	4.274	0.093	0.0	0.0	0.0	0.0	0.0	5.290
NE	0.028	0.465	0.651	0.0	0.0	0.0	0.0	0.0	0.0	1.145
ENE	0.005	0.140	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.191
E	0.004	0.093	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.143
ESE	0.007	0.279	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.286
SE	0.008	0.233	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.334
SSE	0.011	0.233	0.186	0.093	0.0	0.0	0.0	0.0	0.0	0.527
S	0.017	0.233	0.419	0.047	0.0	0.0	0.0	0.0	0.0	0.715
SSW	0.050	0.186	1.764	0.047	0.0	0.0	0.0	0.0	0.0	2.051
SW	0.026	0.047	0.977	0.047	0.0	0.0	0.0	0.0	0.0	1.096
WSW	0.007	0.047	0.233	0.140	0.0	0.047	0.0	0.0	0.0	0.472
W	0.007	0.0	0.279	0.093	0.0	0.0	0.0	0.0	0.0	0.379
WNW	0.006	0.0	0.233	0.047	0.0	0.0	0.0	0.0	0.0	0.285
NW	0.006	0.0	0.233	0.186	0.0	0.0	0.0	0.0	0.0	0.425
NNW	0.011	0.233	0.186	0.047	0.0	0.0	0.0	0.0	0.0	0.476
SUBTOTAL	0.373	3.118	11.494	1.070	0.0	0.047	0.0	0.0	0.0	16.120

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2154
TOTAL HOURS OF STABILITY CLASS F	349
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	346
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	1

TABLE 2 (page 4 of 4)

SEQUOYAH NUCLEAR PLANT METEOPOLOGICAL DATA
SECOND QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

STABILITY CLASS G (DELTA T > 4.6 C/100 M)

SEQUOYAH NUCLEAR PLANT

APR 1, 90 - JUN 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.005	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.098
NNE	0.018	0.047	0.326	0.0	0.0	0.0	0.0	0.0	0.0	0.390
NE	0.023	0.186	0.326	0.0	0.0	0.0	0.0	0.0	0.0	0.537
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.005	0.047	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.098
ESE	0.007	0.093	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.146
SE	0.005	0.091	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.098
SSE	0.020	0.372	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.439
S	0.014	0.093	0.186	0.0	0.0	0.0	0.0	0.0	0.0	0.293
SSW	0.027	0.0	0.558	0.0	0.0	0.0	0.0	0.0	0.0	0.585
SW	0.009	0.047	0.140	0.0	0.0	0.0	0.0	0.0	0.0	0.195
WSW	0.002	0.0	0.047	0.0	0.0	0.0	0.0	0.0	0.0	0.049
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.005	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.098
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	0.140	0.977	1.904	0.0	0.0	0.0	0.0	0.0	0.0	3.025

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2158
TOTAL HOURS OF STABILITY CLASS G	66
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	65
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2149
TOTAL HOURS CALM	3

TABLE 3 (page 1 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
THIRD QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) CALM	0.6-1.4	1.5-3.4	3.5-7.4	7.5-12.4	12.5-18.4	18.5-24.4	>=24.5	TOTAL
N	0.0	0.0	0.046	0.139	0.279	0.046	0.0	0.0	0.511
NNE	0.0	0.0	0.372	1.344	1.069	0.139	0.0	0.0	2.924
NE	0.0	0.0	1.022	2.045	0.883	0.139	0.0	0.0	4.089
ENE	0.0	0.0	0.372	0.651	0.0	0.0	0.0	0.0	1.022
E	0.0	0.0	0.279	0.279	0.0	0.0	0.0	0.0	0.558
ESE	0.0	0.0	0.232	0.186	0.046	0.0	0.0	0.0	0.465
SE	0.0	0.0	0.093	0.279	0.0	0.0	0.0	0.0	0.372
SSE	0.0	0.0	0.046	0.186	0.093	0.046	0.0	0.0	0.372
S	0.0	0.0	0.0	0.651	0.093	0.186	0.0	0.0	0.929
SSW	0.0	0.0	0.186	1.162	1.348	0.139	0.0	0.0	2.835
SW	0.0	0.0	0.093	1.069	0.929	0.046	0.0	0.0	2.134
WSW	0.0	0.0	0.0	0.139	0.093	0.093	0.0	0.0	0.325
W	0.0	0.0	0.0	0.0	0.093	0.0	0.0	0.0	0.093
WNW	0.0	0.0	0.0	0.046	0.0	0.0	0.0	0.0	0.046
NW	0.0	0.0	0.0	0.046	0.0	0.0	0.0	0.0	0.046
NNW	0.0	0.0	0.046	0.093	0.093	0.139	0.0	0.0	0.372
SUBTOTAL	0.0	0.0	2.784	8.318	5.619	0.978	0.0	0.0	17.100

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS A	368
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	368
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.139	0.139	0.093	0.046	0.0	0.0	0.0	0.418
NNE	0.0	0.0	0.279	0.558	0.093	0.046	0.0	0.0	0.0	0.976
NE	0.0	0.0	0.651	0.558	0.093	0.0	0.0	0.0	0.0	1.301
ENE	0.0	0.0	0.325	0.046	0.0	0.0	0.0	0.0	0.0	0.372
E	0.0	0.0	0.046	0.046	0.0	0.0	0.0	0.0	0.0	0.093
ESE	0.0	0.0	0.139	0.139	0.0	0.0	0.0	0.0	0.0	0.279
SE	0.0	0.0	0.139	0.139	0.0	0.0	0.0	0.0	0.0	0.279
SSE	0.0	0.0	0.0	0.232	0.093	0.0	0.0	0.0	0.0	0.325
S	0.0	0.0	0.093	0.232	0.046	0.0	0.0	0.0	0.0	0.372
SSW	0.0	0.0	0.279	0.743	0.372	0.0	0.0	0.0	0.0	1.394
SW	0.0	0.0	0.093	0.604	0.046	0.0	0.0	0.0	0.0	0.743
WSW	0.0	0.0	0.093	0.093	0.0	0.0	0.0	0.0	0.0	0.186
W	0.0	0.0	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.046
WNW	0.0	0.0	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.093
NW	0.0	0.0	0.0	0.046	0.046	0.0	0.0	0.0	0.0	0.093
NNW	0.0	0.0	0.0	0.046	0.139	0.046	0.0	0.0	0.0	0.232
SUBTOTAL	0.0	0.0	2.323	3.717	1.022	0.139	0.0	0.0	0.0	7.201

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS B	155
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	155
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	0

TABLE 3 (page 2 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
THIRD QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.093	0.186	0.0	0.0	0.0	0.0	0.0	0.279
NNE	0.0	0.0	0.186	0.372	0.186	0.0	0.0	0.0	0.0	0.743
NE	0.0	0.0	0.465	0.093	0.093	0.0	0.0	0.0	0.0	0.651
ENE	0.0	0.0	0.139	0.046	0.0	0.0	0.0	0.0	0.0	0.186
E	0.0	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.093
ESE	0.0	0.0	0.139	0.0	0.0	0.0	0.0	0.0	0.0	0.139
SE	0.0	0.0	0.093	0.093	0.0	0.0	0.0	0.0	0.0	0.186
SSE	0.0	0.0	0.139	0.046	0.0	0.0	0.0	0.0	0.0	0.186
S	0.0	0.0	0.186	0.139	0.0	0.0	0.0	0.0	0.0	0.325
SSW	0.0	0.0	0.0	0.604	0.139	0.0	0.0	0.0	0.0	0.743
SW	0.0	0.0	0.139	0.556	0.046	0.0	0.0	0.0	0.0	0.741
WSW	0.0	0.0	0.046	0.093	0.0	0.0	0.0	0.0	0.0	0.139
W	0.0	0.0	0.093	0.093	0.046	0.0	0.0	0.0	0.0	0.232
WNW	0.0	0.0	0.0	0.046	0.0	0.0	0.0	0.0	0.0	0.046
NW	0.0	0.046	0.046	0.046	0.0	0.0	0.0	0.0	0.0	0.139
NNW	0.0	0.0	0.0	0.0	0.046	0.046	0.0	0.0	0.0	0.093
SUBTOTAL	0.0	0.046	1.859	2.416	0.558	0.046	0.0	0.0	0.0	4.926

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS C	106
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	106
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.046	1.022	0.372	0.186	0.093	0.0	0.0	0.0	1.719
NNE	0.0	0.186	1.394	1.301	0.511	0.139	0.0	0.0	0.0	3.532
NE	0.0	0.046	0.697	0.325	0.232	0.0	0.0	0.0	0.0	1.301
ENE	0.0	0.0	0.139	0.093	0.046	0.0	0.0	0.0	0.0	0.279
E	0.0	0.046	0.325	0.093	0.0	0.0	0.0	0.0	0.0	0.465
ESE	0.0	0.046	0.186	0.0	0.046	0.0	0.0	0.0	0.0	0.279
SE	0.0	0.139	0.279	0.279	0.093	0.0	0.0	0.0	0.0	0.790
SSE	0.0	0.093	0.465	0.186	0.093	0.046	0.0	0.0	0.0	0.883
S	0.0	0.0	0.790	1.301	0.279	0.0	0.0	0.0	0.0	2.370
SSW	0.0	0.093	1.905	2.184	0.604	0.046	0.0	0.0	0.0	4.833
SW	0.0	0.186	1.255	0.929	0.279	0.046	0.0	0.0	0.0	2.695
WSW	0.0	0.046	0.186	0.0	0.0	0.046	0.0	0.0	0.0	0.279
W	0.0	0.0	0.139	0.279	0.093	0.0	0.0	0.0	0.0	0.511
WNW	0.0	0.046	0.093	0.093	0.046	0.0	0.0	0.0	0.0	0.279
NW	0.0	0.0	0.232	0.0	0.0	0.0	0.0	0.0	0.0	0.232
NNW	0.0	0.0	0.279	0.139	0.186	0.046	0.0	0.0	0.0	0.651
SUBTOTAL	0.0	0.976	9.367	7.574	2.695	0.465	0.0	0.0	0.0	21.097

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS D	454
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	454
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	0

TABLE 3 (page 3 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
THIRD QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.054	0.465	4.833	0.883	0.325	0.046	0.0	0.0	0.0	6.806
NNE	0.047	1.162	5.390	0.651	0.279	0.0	0.0	0.0	0.0	7.549
NE	0.010	0.558	0.418	0.139	0.0	0.0	0.0	0.0	0.0	1.125
ENE	0.005	0.372	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.469
E	0.005	0.232	0.232	0.0	0.0	0.0	0.0	0.0	0.0	0.469
ESE	0.001	0.093	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.141
SE	0.005	0.186	0.325	0.0	0.0	0.0	0.0	0.0	0.0	0.516
SSE	0.005	0.279	0.232	0.046	0.0	0.0	0.0	0.0	0.0	0.563
S	0.011	0.651	1.115	0.046	0.093	0.0	0.0	0.0	0.0	1.923
SSW	0.011	0.418	2.602	0.511	0.139	0.046	0.0	0.0	0.0	3.769
SW	0.032	0.232	1.905	0.465	0.093	0.0	0.0	0.0	0.0	2.717
WSW	0.011	0.372	1.161	0.186	0.0	0.0	0.0	0.0	0.0	1.735
W	0.009	0.325	0.558	0.093	0.093	0.139	0.0	0.0	0.0	1.217
WNW	0.005	0.186	0.325	0.093	0.046	0.0	0.0	0.0	0.0	0.656
NW	0.027	0.139	0.558	0.139	0.046	0.0	0.0	0.0	0.0	0.890
NNW	0.017	0.186	1.487	0.511	0.093	0.0	0.0	0.0	0.0	2.294
SUBTOTAL	0.279	5.855	21.281	3.764	1.204	0.232	0.0	0.0	0.0	32.621

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS E	702
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	702
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	6

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.021	0.139	3.346	0.232	0.0	0.0	0.0	0.0	0.0	3.738
NNE	0.039	1.204	5.234	0.093	0.0	0.0	0.0	0.0	0.0	6.544
NE	0.008	0.697	0.697	0.0	0.0	0.0	0.0	0.0	0.0	1.402
ENE	0.001	0.139	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.234
E	0.001	0.139	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.187
ESE	0.000	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.047
SE	0.003	0.325	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.421
SSE	0.001	0.186	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.234
S	0.004	0.372	0.279	0.0	0.0	0.0	0.0	0.0	0.0	0.654
SSW	0.004	0.093	0.511	0.0	0.0	0.0	0.0	0.0	0.0	0.608
SW	0.004	0.046	0.558	0.0	0.0	0.0	0.0	0.0	0.0	0.608
WSW	0.003	0.046	0.465	0.0	0.0	0.0	0.0	0.0	0.0	0.514
W	0.001	0.046	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.093
WNW	0.001	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.093
NW	0.001	0.046	0.186	0.139	0.0	0.0	0.0	0.0	0.0	0.373
NNW	0.001	0.0	0.232	0.232	0.0	0.0	0.0	0.0	0.0	0.466
SUBTOTAL	0.093	3.531	11.496	0.697	0.0	0.0	0.0	0.0	0.0	16.217

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2152
TOTAL HOURS OF STABILITY CLASS F	349
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	349
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	2152
TOTAL HOURS CALM	1

TABLE 3 (page 4 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
THIRD QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

JUL 1, 90 - SEP 30, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.003	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.050
NNE	0.003	0.0	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.050
NE	0.009	0.093	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.149
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.006	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.099
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.009	0.093	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.149
SSW	0.006	0.0	0.093	0.0	0.0	0.0	0.0	0.0	0.0	0.099
SW	0.003	0.0	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.050
WSW	0.003	0.0	0.046	0.0	0.0	0.0	0.0	0.0	0.0	0.050
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.003	0.0	0.046	0.093	0.0	0.0	0.0	0.0	0.0	0.143
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	0.046	0.325	0.372	0.093	0.0	0.0	0.0	0.0	0.0	0.836

TOTAL HOURS OF VALID STABILITY OBSERVATIONS 2152
TOTAL HOURS OF STABILITY CLASS G 18
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G 18
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS 2152
TOTAL HOURS CALM

TABLE 4 (page 1 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FOURTH QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.052	0.0	0.0	0.0	0.052
NNE	0.0	0.0	0.052	0.310	0.517	0.471	0.052	0.0	0.0	1.401
NE	0.0	0.0	0.258	0.723	0.517	0.207	0.0	0.0	0.0	1.705
ENE	0.0	0.0	0.052	0.103	0.0	0.0	0.0	0.0	0.0	0.155
E	0.0	0.0	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.052
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.052	0.052	0.155	0.0	0.0	0.0	0.258
SSW	0.0	0.0	0.052	0.0	0.052	0.0	0.0	0.0	0.0	0.103
SW	0.0	0.0	0.0	0.258	0.052	0.0	0.0	0.0	0.0	0.310
WSW	0.0	0.0	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.052
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.207	0.0	0.0	0.0	0.207
NNW	0.0	0.0	0.0	0.0	0.0	0.052	0.0	0.0	0.0	0.052
SUBTOTAL	0.0	0.0	0.423	1.550	1.188	1.343	0.052	0.0	0.0	4.545

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2182
TOTAL HOURS OF STABILITY CLASS A	91
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS A	88
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1936
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.103	0.052	0.258	0.0	0.0	0.0	0.413
NNE	0.0	0.0	0.103	0.465	0.310	0.052	0.0	0.0	0.0	0.930
NE	0.0	0.0	0.465	0.207	0.103	0.052	0.0	0.0	0.0	0.826
ENE	0.0	0.0	0.310	0.052	0.0	0.0	0.0	0.0	0.0	0.362
E	0.0	0.0	0.103	0.0	0.052	0.0	0.0	0.0	0.0	0.155
ESE	0.0	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.052
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.052	0.0	0.103	0.103	0.0	0.0	0.0	0.258
S	0.0	0.0	0.0	0.052	0.052	0.052	0.0	0.0	0.0	0.155
SSW	0.0	0.0	0.0	0.052	0.310	0.0	0.0	0.0	0.0	0.362
SW	0.0	0.0	0.103	0.207	0.052	0.0	0.0	0.0	0.0	0.362
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.052	0.0	0.0	0.0	0.052
NW	0.0	0.0	0.0	0.0	0.052	0.103	0.0	0.0	0.0	0.155
NNW	0.0	0.0	0.0	0.0	0.103	0.103	0.0	0.0	0.0	0.207
SUBTOTAL	0.0	0.0	1.188	1.116	1.188	0.775	0.0	0.0	0.0	4.247

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2182
TOTAL HOURS OF STABILITY CLASS B	85
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS B	83
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1936
TOTAL HOURS CALM	0

TABLE 4 (page 2 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FOURTH QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.0	0.0	0.103	0.052	0.052	0.0	0.0	0.0	0.207
NNE	0.0	0.0	0.207	0.517	0.413	0.052	0.0	0.0	0.0	1.188
NE	0.0	0.0	0.413	0.103	0.052	0.0	0.0	0.0	0.0	0.568
ENE	0.0	0.0	0.052	0.052	0.0	0.0	0.0	0.0	0.0	0.103
E	0.0	0.0	0.155	0.0	0.0	0.0	0.0	0.0	0.0	0.155
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.052	0.052	0.0	0.0	0.0	0.103
S	0.0	0.0	0.0	0.052	0.0	0.103	0.0	0.0	0.0	0.155
SSW	0.0	0.0	0.103	0.155	0.052	0.052	0.0	0.0	0.0	0.362
SW	0.0	0.0	0.0	0.155	0.052	0.0	0.0	0.0	0.0	0.207
WSW	0.0	0.052	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.103
W	0.0	0.0	0.0	0.0	0.0	0.103	0.0	0.0	0.0	0.103
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.103	0.052	0.0	0.0	0.0	0.155
NNW	0.0	0.0	0.0	0.0	0.052	0.207	0.0	0.0	0.0	0.258
SUBTOTAL	0.0	0.052	0.930	1.188	0.826	0.671	0.0	0.0	0.0	3.667

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2182
TOTAL HOURS OF STABILITY CLASS C	78
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS C	71
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1936
TOTAL HOURS CALM	0

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.0	0.155	0.930	1.343	1.498	1.085	0.0	0.0	0.0	5.010
NNE	0.0	0.103	1.188	1.550	1.240	0.981	0.0	0.0	0.0	5.062
NE	0.0	0.103	1.188	0.568	0.0	0.0	0.0	0.0	0.0	1.860
ENE	0.0	0.0	0.258	0.0	0.0	0.0	0.0	0.0	0.0	0.258
E	0.0	0.0	0.155	0.0	0.0	0.0	0.0	0.0	0.0	0.155
ESE	0.0	0.0	0.155	0.0	0.0	0.0	0.0	0.0	0.0	0.155
SE	0.0	0.0	0.258	0.052	0.0	0.0	0.0	0.0	0.0	0.310
SSE	0.0	0.0	0.568	0.103	0.052	0.155	0.0	0.0	0.0	0.878
S	0.0	0.052	1.136	0.207	0.258	0.517	0.0	0.0	0.0	2.169
SSW	0.0	0.0	1.085	1.136	1.240	0.878	0.052	0.0	0.0	4.390
SW	0.0	0.310	1.343	1.343	0.413	0.0	0.0	0.0	0.0	3.409
WSW	0.0	0.258	0.362	0.0	0.103	0.052	0.0	0.0	0.0	0.775
W	0.0	0.155	0.103	0.155	0.207	0.052	0.0	0.0	0.0	0.671
WNW	0.0	0.155	0.103	0.0	0.155	0.052	0.0	0.0	0.0	0.465
NW	0.0	0.103	0.052	0.207	0.258	0.052	0.0	0.0	0.0	0.671
NNW	0.0	0.103	0.258	0.517	0.671	0.310	0.052	0.0	0.0	1.911
SUBTOTAL	0.0	1.498	9.141	7.180	6.095	4.132	0.103	0.0	0.0	28.151

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	3142
TOTAL HOURS OF STABILITY CLASS D	451
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS D	545
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1936
TOTAL HOURS CALM	0

TABLE 4 (page 3 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FOURTH QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.044	0.878	2.479	1.963	1.395	0.155	0.0	0.0	0.0	6.914
NNE	0.048	0.568	3.048	0.930	0.207	0.0	0.0	0.0	0.0	4.800
NE	0.018	0.820	0.723	0.207	0.0	0.0	0.0	0.0	0.0	1.567
ENE	0.005	0.258	0.103	0.0	0.0	0.0	0.0	0.0	0.0	0.366
E	0.002	0.155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.157
ESE	0.005	0.310	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.367
SE	0.003	0.155	0.103	0.0	0.0	0.0	0.0	0.0	0.0	0.264
SSE	0.014	0.568	0.517	0.103	0.155	0.103	0.103	0.0	0.0	1.564
S	0.024	0.878	0.930	0.517	0.310	0.620	0.103	0.0	0.0	3.381
SSW	0.031	0.258	2.118	1.601	0.878	0.155	0.0	0.0	0.0	5.041
SW	0.028	0.517	1.601	1.188	0.155	0.103	0.0	0.0	0.0	3.592
WSW	0.007	0.207	0.362	0.052	0.051	0.155	0.0	0.0	0.0	0.834
W	0.004	0.207	0.103	0.155	0.103	0.0	0.0	0.0	0.0	0.572
WNW	0.004	0.0	0.310	0.155	0.052	0.0	0.0	0.0	0.0	0.521
NW	0.005	0.258	0.103	0.413	0.155	0.0	0.0	0.0	0.0	0.935
NNW	0.016	0.155	1.085	0.826	0.207	0.103	0.0	0.0	0.0	2.392
SUBTOTAL	0.258	5.992	13.636	8.109	3.647	1.395	0.207	0.0	0.0	33.264

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2162
TOTAL HOURS OF STABILITY CLASS E	759
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS E	644
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1916
TOTAL HOURS CALM	5

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.026	0.362	2.841	0.362	0.0	0.0	0.0	0.0	0.0	3.590
NNE	0.063	0.878	7.025	0.155	0.0	0.0	0.0	0.0	0.0	8.121
NE	0.022	1.240	1.550	0.0	0.0	0.0	0.0	0.0	0.0	2.812
ENE	0.002	0.258	0.051	0.0	0.0	0.0	0.0	0.0	0.0	0.312
E	0.002	0.207	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.260
ESE	0.004	0.362	0.103	0.0	0.0	0.0	0.0	0.0	0.0	0.469
SE	0.004	0.362	0.103	0.0	0.0	0.0	0.0	0.0	0.0	0.469
SSE	0.005	0.413	0.155	0.0	0.0	0.0	0.0	0.0	0.0	0.573
S	0.007	0.207	0.671	0.0	0.0	0.0	0.0	0.0	0.0	0.885
SSW	0.006	0.052	0.723	0.103	0.0	0.0	0.0	0.0	0.0	0.884
SW	0.007	0.103	0.826	0.362	0.0	0.0	0.0	0.0	0.0	1.299
WSW	0.002	0.052	0.207	0.0	0.0	0.0	0.0	0.0	0.0	0.260
W	0.000	0.052	0.0	0.155	0.0	0.0	0.0	0.0	0.0	0.207
WNW	0.000	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.052
NW	0.001	0.052	0.052	0.103	0.0	0.0	0.0	0.0	0.0	0.207
NNW	0.003	0.0	0.362	0.0	0.0	0.0	0.0	0.0	0.0	0.364
SUBTOTAL	0.155	4.597	14.773	1.240	0.0	0.0	0.0	0.0	0.0	20.764

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2162
TOTAL HOURS OF STABILITY CLASS F	413
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS F	402
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1916
TOTAL HOURS CALM	3

TABLE 4 (page 4 of 4)

SEQUOYAH NUCLEAR PLANT METEOROLOGICAL DATA
FOURTH QUARTER 1990
JOINT FREQUENCY DISTRIBUTION IN PERCENT
FOR GROUND-LEVEL RELEASES

JOINT PERCENTAGE FREQUENCIES OF WIND SPEED BY WIND DIRECTION FOR

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

SEQUOYAH NUCLEAR PLANT

OCT 1, 90 - DEC 31, 90

WIND DIRECTION	WIND SPEED(MPH) 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	TOTAL
N	0.001	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.052
NNE	0.005	0.310	0.568	0.0	0.0	0.0	0.0	0.0	0.0	0.887
NE	0.008	0.207	0.620	0.0	0.0	0.0	0.0	0.0	0.0	0.835
ENE	0.003	0.258	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.313
E	0.004	0.310	0.103	0.0	0.0	0.0	0.0	0.0	0.0	0.417
ESE	0.002	0.207	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.209
SE	0.004	0.413	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.417
SSE	0.005	0.310	0.207	0.0	0.0	0.0	0.0	0.0	0.0	0.522
S	0.006	0.310	0.258	0.0	0.0	0.0	0.0	0.0	0.0	0.574
SSW	0.007	0.103	0.568	0.0	0.0	0.0	0.0	0.0	0.0	0.678
SW	0.003	0.0	0.310	0.052	0.0	0.0	0.0	0.0	0.0	0.365
WSW	0.001	0.0	0.052	0.0	0.0	0.0	0.0	0.0	0.0	0.052
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUBTOTAL	0.052	1.426	2.783	0.052	0.0	0.0	0.0	0.0	0.0	5.120

TOTAL HOURS OF VALID STABILITY OBSERVATIONS	2182
TOTAL HOURS OF STABILITY CLASS G	103
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY CLASS G	101
TOTAL HOURS OF VALID WIND DIRECTION-WIND SPEED-STABILITY OBSERVATIONS	1934
TOTAL HOURS CALM	1

TABLE 5

SEQUOYAH NUCLEAR PLANT - RECEPTOR LOCATIONS

Site Boundary Locations (used for both all quarters)

	Sector	Distance (m)		Sector	Distance (m)
Site Boundary	N	950	Site Boundary	S	1570
Site Boundary	NNE	2260	Site Boundary	SSW	1840
Site Boundary	NE	1910	Site Boundary	SW	2470
Site Boundary	ENE	1680	Site Boundary	WSW	910
Site Boundary	E	1570	Site Boundary	W	670
Site Boundary	ESE	1460	Site Boundary	WNW	660
Site Boundary	SE	1460	Site Boundary	WW	660
Site Boundary	SSE	1550	Site Boundary	NNW	730

Actual Receptor Locations (based on the Fall 1990 Land Use Survey)

	Sector	Distance (m)		Sector	Distance (m)
Resident	N	1353	Garden	N	1829
Resident	NNE	2400	Garden	NNE	3048
Resident	NE	2248	Garden	NE	2324
Resident	ENE	2096	Garden	ENE	2496
Resident	E	1619	Garden	ESE	1791
Resident	ESE	1638	Garden	SE	3162
Resident	SE	1562	Garden	S	2362
Resident, Garden	SSE	1943	Garden	SSW	2686
Resident	S	2286	Garden	SW	3353
Resident	SSW	2019	Garden	WSW	1524
Resident	SW	2972	Garden	W	1987
Resident	WSW	1163	Garden	WNW	1867
Resident	W	1010	Garden	NW	1372
Resident	WNW	1753	Garden	NNW	991
Resident	NW	1448	Milk Cow Adult	N	4515
Resident	NNW	895	Milk Cow Adult	NE	8686
Milk Cow Adult	WNW	2096	Milk Cow Adult	NW	2134

TABLE 6
SUMMARY OF QUARTERLY DOSES*

		Air Submersion		Real Pathway				Liquid Effluents	
		Air-γ	Air-β	Skin	TB	Max. Organ		TB	Max. Organ
Year	QTR	(mrad)		(mrem)		(mrem)			(mrem)
1983	1	0.03	0.18	0.04	0.02	<.001	Bone	0.21	0.34 Bone
	2	0.12	0.48	0.21	0.10	0.02	GIT	0.15	0.23 Bone
	3	0.07	0.40	0.11	0.05	0.03	Bone	0.09	0.20 Bone
	4	0.07	0.41	0.09	0.04	0.003	Thyroid	0.11	0.14 Liver
1984	1	0.11	0.55	0.19	0.08	0.004	Thyroid	0.04	0.05 Liver
	2	0.17	0.94	0.29	0.12	0.04	Bone	0.04	0.04 Liver
	3	0.18	0.99	0.26	0.11	0.03	Thyroid	0.13	0.22 Bone
	4	0.07	0.39	0.12	0.05	0.005	Thyroid	0.04	0.06 Liver
1985	1	0.12	0.65	0.18	0.09	0.18	Thyroid	0.03	0.04 Bone
	2	0.10	0.63	0.18	0.07	0.003	Thyroid	0.14	0.21 Bone
	3	0.05	0.32	0.08	0.03	0.015	Thyroid	0.17	0.43 Bone
	4	<.001	0.001	0.0	0.0	0.018	Thyroid	0.02	0.02 Bone
1986	1	<.001	<.001	<.001	<.001	0.004	GIT	0.007	0.009 Liver
	2	<.001	<.001	<.001	<.001	0.014	Liver	0.018	0.021 Liver
	3	<.001	<.001	0.0	0.0	0.010	GIT	0.038	0.044 Bone
	4	<.001	<.001	0.0	0.0	0.010	GIT	0.011	0.012 Liver
1987	1	<.001	<.001	0.0	0.0	0.004	GIT	0.002	0.003 Liver
	2	<.001	<.001	0.0	0.0	0.006	GIT	0.017	0.021 Liver
	3	<.001	<.001	0.0	0.0	0.008	GIT	0.084	0.095 Bone
	4	<.001	<.001	0.0	0.0	0.006	GIT	0.034	0.039 Bone
1988	1	<.001	<.001	0.0	0.0	0.001	Liver	0.055	0.074 Liver
	2	0.003	0.014	0.004	0.002	0.003	Thyroid	0.18	0.21 Bone
	3	0.007	0.036	0.008	0.003	0.007	Bone	0.054	0.064 Bone
	4	0.007	0.037	0.012	0.005	0.003	GIT	0.009	0.01 Liver
1989	1	0.02	0.02	0.01	0.02	0.007	Thyroid	0.001	0.002 Thyroid
	2	0.03	0.06	0.02	0.03	0.003	Liver	0.002	0.002 Liver
	3	0.07	0.17	0.04	0.08	0.03	Thyroid	0.001	0.001 Liver
	4	0.22	0.61	0.15	0.34	0.009	Thyroid	0.005	0.006 Liver
1990	1	0.26	0.69	0.41	0.17	0.002	Liver	<0.001	0.001 GI Tract
	2	0.06	0.15	0.09	0.04	0.002	Thyroid	0.002	0.005 GI Tract
	3	0.10	0.27	0.17	0.07	0.002	Thyroid	0.002	0.003 GI Tract
	4	0.008	0.02	0.02	0.006	0.002	Thyroid	0.003	0.002 Liver

*Note: All calculated doses are below limits specified in Appendix I to 10 CFR 50.

Figure 1

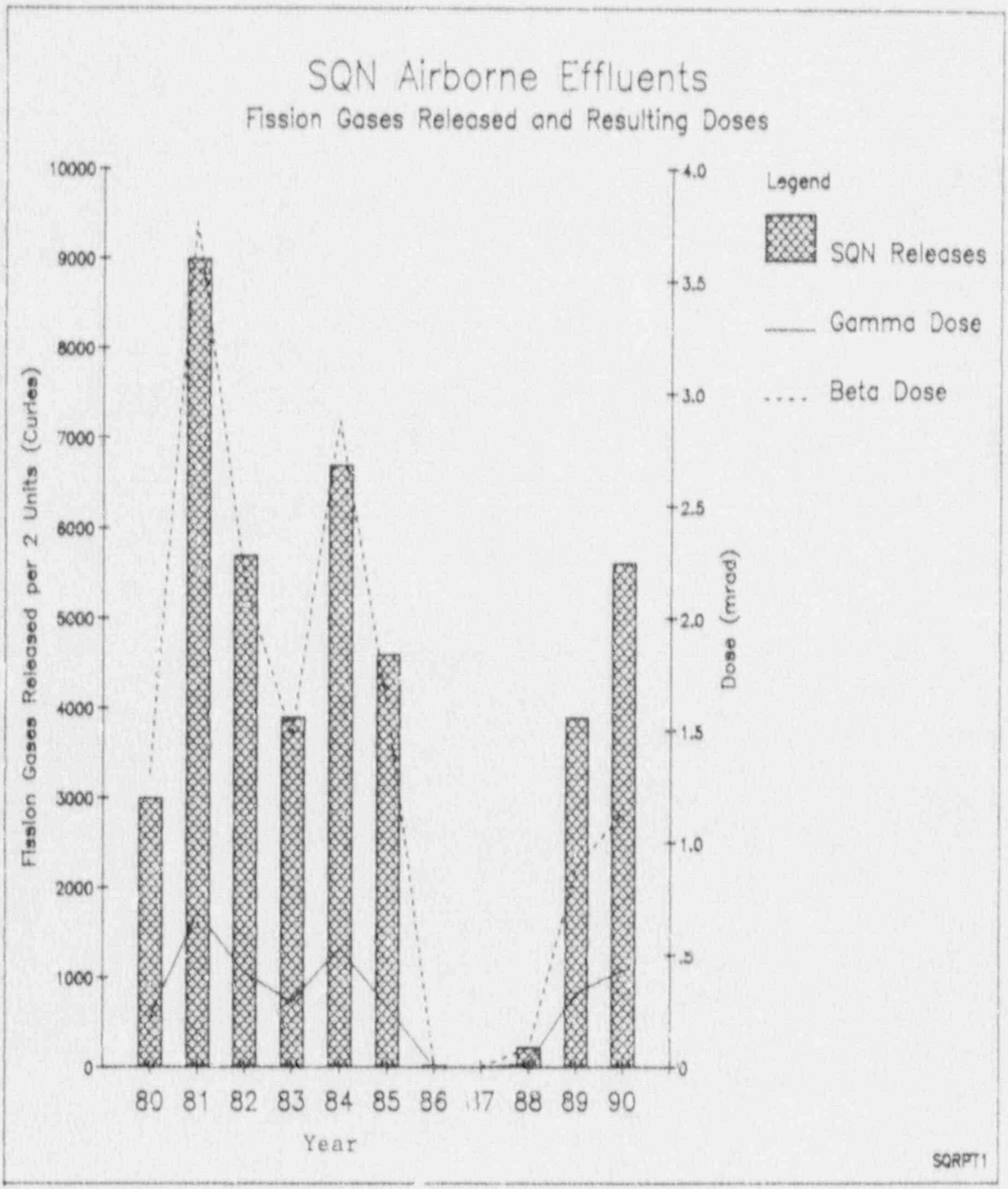

SQN Airborne Effluents
Fission Gases Released and Resulting Doses
Fission Gases Released per 2 Units (Curies)
Dose (mrad)
Year
Legend
SQN Releases
Gamma Dose
Beta Dose
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
4.0
3.5
3.0
2.5
2.0
1.5
1.0
.5
0
80 81 82 83 84 85 86 87 88 89 90
SQRPT1

Figure 2

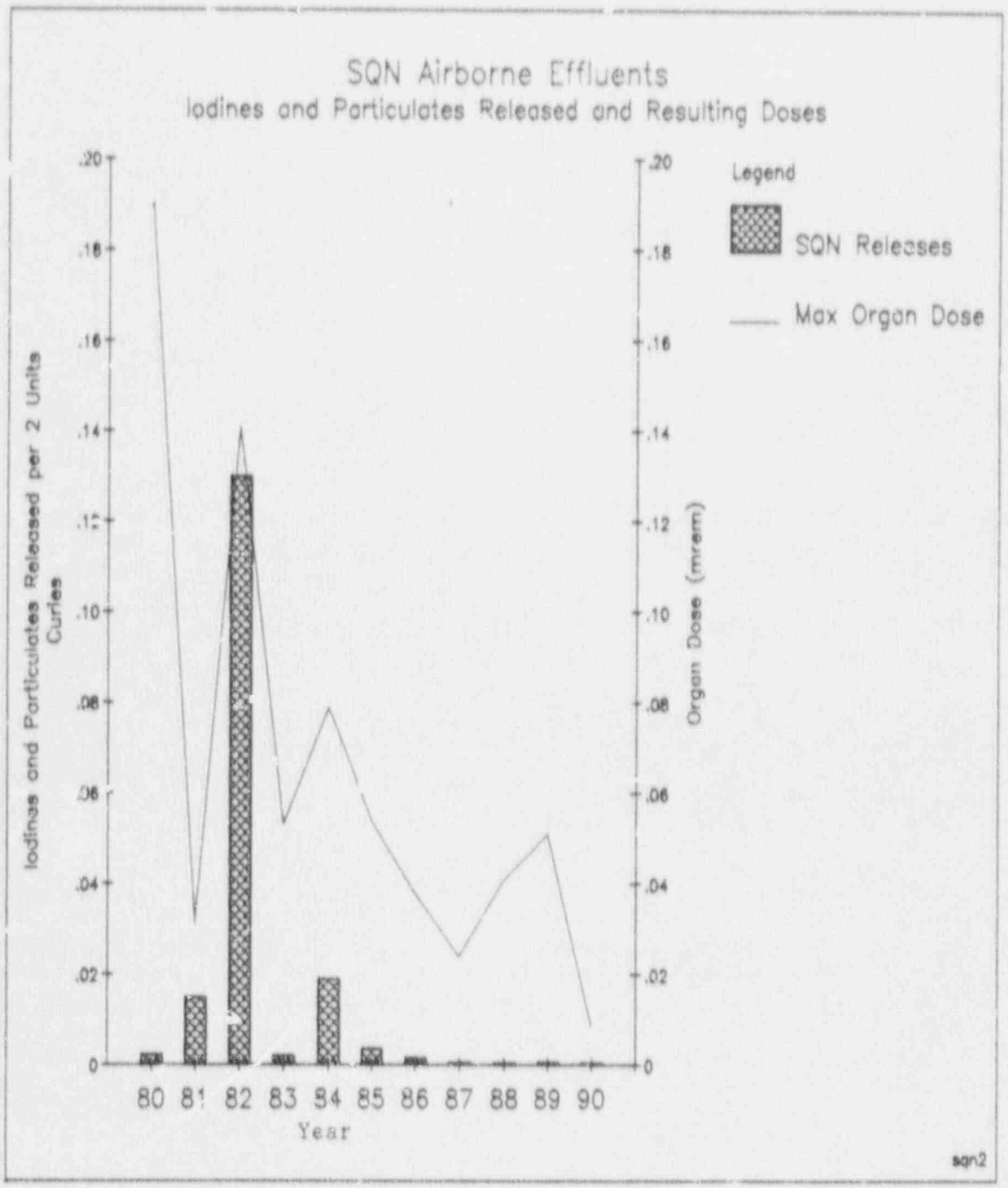
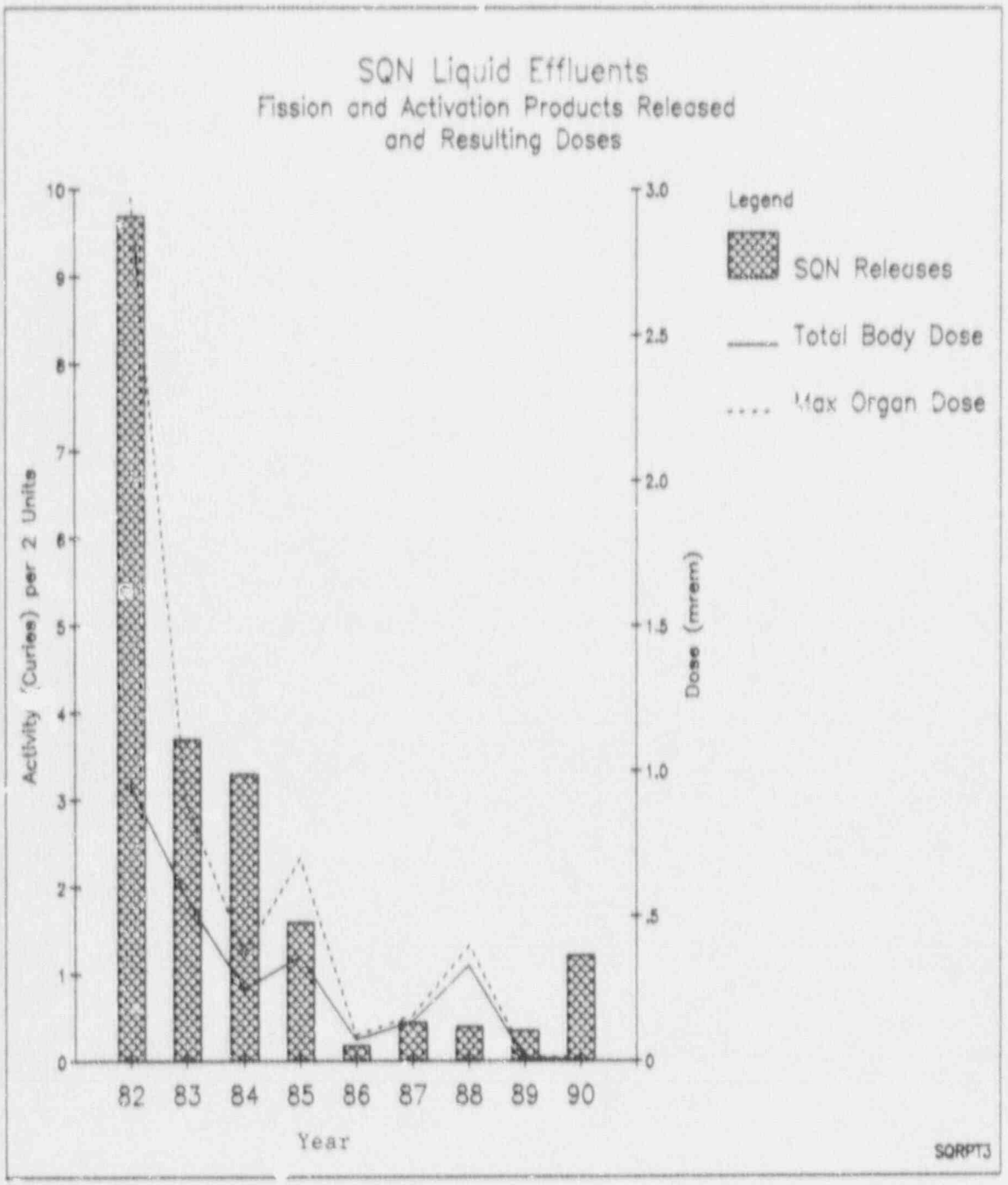

SQN Airborne Effluents
Iodines and Particulates Released and Resulting Doses
Legend
SQN Releases
Max Organ Dose
Iodines and Particulates Released per 2 Units
Curies
Organ Dose (mrem)
.20
.18
.16
.14
.12
.10
.08
.06
.04
.02
0
80 81 82 83 84 85 86 87 88 89 90
Year
sqn2

Figure 3


SQN Liquid Effluents
Fission and Activation Products Released
and Resulting Doses
Activity (Curies) per 2 Units
Dose (mrem)
Year
82
83
84
85
86
87
88
89
90
Legend
SQN Releases
Total Body Dose
Max Organ Dose
SQRPTJ