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SEQUOYAH NUCLEAR PLANT

UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

First Half 1985

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FILE PACKAGE 31  
SAMPLE REPORT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
SUPPLEMENTAL INFORMATION  
1st HALF 85

1. Regulatory Limits

- a. Fission and Activation Gases:  
(1) Instantaneous - Nuclide Dependant

Shield Building  
Auxiliary Building  
Condenser Vacuum Exhaust  
Service Building

NOTE: Total plant release rate limit per nuclide are established by TVA's Radiological Health Technical Assistance Section. These limits are further evaluated to each vent based on design flow rate. Technical Specification will not be exceeded until the sum of individual isotope release rate per release rate limit exceed 1.0.

- b. & c. Iodines and particulates, half-lives >8 days

- (1) Instantaneous - Nuclide Dependant

NOTE: Total plant release rate limit per nuclide are established by TVA's Radiological Health Technical Assistance Section. These limits are further evaluated to each vent based on design flow rate. Technical Specifications will not be exceeded until the sum of individual isotope release rate per release rate limit exceed 1.0.

- d. Liquid effluent:  $\Sigma \text{MPC} \leq 1.0$  (ref. 10 CFR 20, Appendix B, note 3C, Table II, column 2).

- e. Tritium

- (1) Liquid -  $\leq 3.0\text{E}-3 \mu\text{Ci/cc}$  (ref. 10 CFR 20, Table II, column 2)

- (2) Airborne - (Technical Specifications)

Shield Building	3.423E+03 $\mu\text{Ci/sec}$
Auxiliary Building	2.787E+04 $\mu\text{Ci/sec}$
Service Building	1.271E+03 $\mu\text{Ci/sec}$
Condenser Vacuum Exhaust	5.501E+00 $\mu\text{Ci/sec}$

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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 indiv. MPC ratios  $\leq$  1.0 (ref. 10 CFR 20, Appendix B, note 1)

3. Average Energy - Not Applicable

4. Measurements and Approximations of Total Radioactivity

- a., b. & c. Fission and Activation Gases, Iodines, and Particulates:

- a. Fission and Activation Gases

Airborne effluent gaseous activity is continuously monitored and recorded. Additional grab samples from the shield, auxiliary, service 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 a rated thermal power changes exceeding 15% within one hour. The vent flowrates for the shield auxiliary, service buildings, and condenser vacuum exhaust are determined and recorded once a shift.

The quantity of noble gases released through the shield building 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).

Allowance is made for a plus or minus one sigma counting error associated with the gamma isotopic analyses.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
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4. (continued)

b. & 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 buildings once per 24 hours for 2 days following startup, shutdown or a rated thermal power change exceeding 15% within one hour. The quantity of iodine and particulate 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 buildings 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 buildup for all sampling periods.

Allowance is made for a plus or minus one sigma counting error associated with the gamma isotopic analyses.

d. Liquid Effluents

(1) Batch

Total gamma isotopic activity concentrations are determined on each batch of liquid effluent prior to release. The total curie content 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.

(2) Continuous Releases

Total gamma isotopic activity concentration is determined weekly on a composite sample. The total curie content of the continuous release is determined weekly 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 weekly composite for month.

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4. Continued

Allowance is made for plus or minus one sigma counting error associated with the total gamma isotopic analyses.

5. Batch

	Value		Units
	Quarter	Quarter	
	1st	2nd	
a. Liquid			
1. Number of batches released	119	110	Each
2. Total time period for batch releases	20479	16514	Minutes
3. Maximum time period for a batch release	305	290	Minutes
4. Average time period for batch releases	172	150	Minutes
5. Minimum stream flow during periods of effluent into a flowing stream:	(a)	(a)	

(a) See Radiological Health Technical Assistance Section's portion of semi-annual effluent release report.

b. Gaseous

(1) Number of batches released	213	195	Each
(2) Total time period for batch releases	18370	26316	Minutes
(3) Maximum time period for a batch release	742	1440	Minutes
(4) Average time period for batch releases	86	135	Minutes
(5) Minimum time period for a batch release	5	18	Minutes

6. Abnormal Releases

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

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BATCH LIQUID EFFLUENTS RADWASTE

	Unit	1st Quarter	Total %Error	2nd Quarter	Total %Error
A. Fission and Activation Products					
1. Total Releases	Curies	1.27E-01	±1.0E+01	8.26E-02	±1.0+01
2. Average Diluted Cond. During Period of All Identified Isotopes	µCi/ml	4.78E-08		6.37E-08	
3. Percent of Applicable Limit (N MPC ≤ 1) Σ 1=1	%	2.87E-01		3.41E-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 Release	Curies	1.63E+02	±6.0E+00	1.95E+02	±6.0E+00
2. Average Diluted Cond. During Period	µCi/ml	6.13E-05		1.50E-04	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	2.04E+00		5.01E+00	
C. Dissolved and Entrained Gases					
1. Total Release	Curies	2.74E-01	±1.5E+01	1.25E-02	±1.5E+01
2. Average Diluted Cond. During Period	µCi/ml	1.03E-07		9.64E-09	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	2.58E-01		2.89E-02	
D. Gross Alpha Radioactivity					
1. Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
E. Volume of Waste Release					
(Before Dilution)	Liters	6.91E+06	±1.0E+01	6.88E+06	±1.0E+01
F. Volume of Dilution Water of Period					
	Liters	2.65E+09	±1.0E+01	1.29E+09	±1.0E+01

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 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
 BATCH LIQUID RELEASES RADWASTE

G.	Isotope Summary	<u>Curies</u>	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		6.59E-03	2.58E-03
4.	Cesium-137		1.01E-02	3.94E-03
5.	Iodine-131		1.43E-03	8.53E-04
6.	Cobalt-58		3.83E-02	3.04E-02
7.	Cobalt-60		2.06E-02	1.87E-02
8.	Iron-59		4.65E-05	2.66E-04
9.	Zinc-65		0.00E-01	4.87E-05
10.	Manganese-54		1.66E-02	4.25E-03
11.	Chromium-51		3.13E-04	2.84E-04
12.	Zirconium-Niobium-95		8.40E-04	2.84E-04
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		0.00E-01	0.00E-01
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	1.11E-05
17.	Sodium-24		0.00E-01	0.00E-01
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		9.48E-02	6.16E-02

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BATCH LIQUID RELEASES RADWASTE

G.	Isotope Summary	Curies	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>
	Others (Not Required for Reg. Guide 1.21)			
1.	Xenon-133		1.34E+00	7.31E-02
2.	Xenon-135		1.27E-02	7.05E-04
3.	Iodine-133		2.38E-04	1.07E-05
4.	Cesium-136		0.00E-01	0.00E-01
5.	Xenon-131m		2.10E-03	9.80E-04
6.	Krypton-85m		1.68E-06	6.88E-06
7.	Xenon-133m		1.92E-02	3.45E-04
8.	Argon -41		0.00E-01	5.62E-06
9.	Zirconium-97		0.00E-01	0.00E-01
10.	Arsenic-74		0.00E-01	0.00E-01
11.	Phosphorus-32		2.34E-03	3.47E-04
12.	Iron-55		2.93E-02	1.74E-02
	Others (specify)			
	Cobalt-57		1.62E-04	8.07E-05
	Yttrium-91		0.00E-01	2.98E-03
	Yttrium-91m		2.03E-07	1.39E-07
	Ruthenium-106		0.00E-01	4.81E-05
	Ruthenium-103		5.15E-06	1.00E-04
	Rubidium-86		6.74E-05	0.00E-01
	Zinc-69m		3.46E-06	0.00E-01
	Tellurium-132		4.08E-06	0.00E-01
	Niobium-97		8.84E-08	0.00E-01
	Total for Period		1.41E+00	9.61E-02

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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES  
CONDENSATE REGENERANTS

	Unit	1st Quarter	Total %Error	2nd Quarter	Total %Error
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Releases	Curies	1.68E-02	±1.0E+01	1.44E-01	±1.0E+01
2. Average Diluted Cond. During Period of All Identified Isotopes	µCi/ml	1.63E-07		8.85E-07	
3. Percent of Applicable Limit (N MPC < 1) Σ 1 = 1	%	9.50E+00		1.42E-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>B. <u>Tritium</u></b>					
1. Total Release	Curies	4.33E+00	±6.0E+00	8.51E-01	±6.0E+00
2. Average Diluted Cond. During Period	µCi/ml	4.21E-05		5.23E-06	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	1.40E+00		1.74E-01	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1. Total Release	Curies	8.23E-04	±1.5E+01	4.80E-03	±1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	8.01E-09		2.95E-08	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	4.00E-03		1.47E-02	
<b>D. <u>Gross Alpha Radioactivity</u></b>					
1. Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
<b>E. <u>Volume of Waste Release</u></b>					
(Before Dilution)	Liters	2.44E+07	±1.0E+01	1.58E+07	±1.0E+01
<b>F. <u>Volume of Dilution Water For Period</u></b>					
(if applicable)	Liters	7.84E+07	±1.0E+01	1.47E+08	±1.0E+01

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1st HALF 85  
BATCH LIQUID RELEASES  
CONDENSATE REGENERANTS

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		5.56E-03	7.21E-02
4.	Cesium-137		7.07E-03	6.08E-02
5.	Iodine-131		2.61E-03	3.50E-03
6.	Cobalt-58		1.11E-04	1.40E-03
7.	Cobalt-60		3.35E-04	5.83E-04
8.	Iron-59		0.00E-01	1.45E-04
9.	Zinc-65		0.00E-01	0.00E-01
10.	Manganese-54		7.08E-04	1.55E-03
11.	Chromium-51		9.42E-05	3.97E-04
12.	Zirconium-Niobium-95		2.18E-04	2.93E-04
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		1.48E-05	2.33E-06
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		1.35E-05	0.00E-01
17.	Sodium-24		1.30E-05	1.20E-05
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		1.67E-02	1.41E-01

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1st HALF 85  
BATCH LIQUID RELEASES  
CONDENSATE REGENERANTS

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
	Others (Not Required for Reg. Guide 1.21)			
1.	Xenon-133		4.79E-04	1.29E-04
2.	Xenon-135		2.35E-04	1.51E-05
3.	Iodine-133		9.20E-05	2.79E-04
4.	Cesium-136		0.00E-01	3.10E-03
5.	Xenon-131m		1.03E-04	4.63E-03
6.	Krypton-85m		5.65E-06	1.24E-06
7.	Antimony-124		0.00E-01	0.00E-01
8.	Argon-41		0.00E-01	4.05E-06
9.	Zirconium-97		0.00E-01	0.00E-01
10.	Arsenic-74		0.00E-01	0.00E-01
11.	Phosphorus-32		0.00E-01	0.00E-01
12.	Iron-55		0.00E-01	0.00E-01
	Others (Specify)			
	Niobium-97		0.00E-01	1.69E-06
	Cobalt-57		0.00E-01	8.49E-06
	Zinc-69m		0.00E-01	2.57E-06
	Xenon-133m		0.00E-01	2.22E-05
	Krypton-87		0.00E-01	1.16E-06
	Cerium-144		9.24E-06	0.00E-01
	Total for Period		9.24E-04	8.19E-03

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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
CONTINUOUS LIQUID RELEASE  
TURBINE BUILDING SUMP

	<u>Unit</u>	<u>1st</u> <u>Quarter</u>	<u>Total</u> <u>%Error</u>	<u>2nd</u> <u>Quarter</u>	<u>Total</u> <u>%Error</u>
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Release	Curies	0.00E-01	±1.0E+01	2.41E-03	±1.0E+01
2. Average Diluted Conc. During Period of all Identified Isotopes	µCi/ml	0.00E-01		1.08E-08	
3. Percent of Applicable Limit (N MPC ≤ 1) Σ 1 = 1	%	0.00E-01		1.49E+00	
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 com- pared to 1.0.					
<b>B. <u>Tritium</u></b>					
1. Total Release	Curies	6.45E+00	±6.0E+00	5.43E+00	±6.0E+00
2. Average Diluted Cond. During Period	µCi/ml	3.56E-05		2.43E-05	
3. Percent of Applicable Limit (3.0E-03 µC/iml)	%	1.19E+00		8.12E-01	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1. Total Release	Curies	8.29E-02	±1.5E+01	7.23E-03	±1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	4.58E-07		3.24E-08	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	2.29E-01		1.62E-02	
<b>D. <u>Gross Alpha Radioactivity</u></b>					
1. Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
<b>E. <u>Volume of Waste Release</u></b>					
(No Dilution)	Liters	1.81E+08	±1.0E+01	2.23E+08	±1.0E+01

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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
CONTINUOUS LIQUID RELEASES  
Turbine Building Sump

G.	Isotope Summary	Curies	1st Quarter	2nd Quarter
1.	Strontium-89		0.00E-01	1.15E-05
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		0.00E-01	0.00E-01
4.	Cesium-137		0.00E-01	3.00E-04
5.	Iodine-131		0.00E-01	9.87E-04
6.	Cobalt-58		0.00E-01	0.00E-01
7.	Cobalt-60		0.00E-01	0.00E-01
8.	Iron-59		0.00E-01	0.00E-01
9.	Zinc-65		0.00E-01	0.00E-01
10.	Manganese-54		0.00E-01	0.00E-01
11.	Chromium-51		0.00E-01	5.68E-04
12.	Zirconium-Niobium-95		0.00E-01	0.00E-01
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		0.00E-01	9.31E-05
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	2.47E-04
17.	Sodium-24		0.00E-01	0.00E-01
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		0.00E-01	2.21E-03

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CONTINUOUS LIQUID RELEASES  
TURBINE BUILDING SUMP

G.	Isotope Summary	Curies	1st Quarter	2nd Quarter
	<u>Others (Not Required for Reg. Guide 1.21)</u>			
1.	Xenon-133		8.07E-02	6.99E-03
2.	Xenon-135		2.15E-03	2.41E-04
3.	Iodine-133		0.00E-01	0.00E-01
4.	Cesium-136		0.00E-01	0.00E-01
5.	Xenon-131m		0.00E-01	0.00E-01
6.	Krypton-85m		0.00E-01	0.00E-01
7.	Antimony-124		0.00E-01	0.00E-01
8.	Argon-41		0.00E-01	0.00E-01
9.	Zirconium-97		0.00E-01	0.00E-01
10.	Arsenic-74		0.00E-01	0.00E-01
11.	Phosphorus-32		0.00E-01	0.00E-01
12.	Iron-55		0.00E-01	0.00E-01
	Others (specify)	Cobalt-57	0.00E-01	5.49E-05
		Tellurium-132	0.00E-01	1.46E-04
			0.00E-01	0.00E-01
			0.00E-01	0.00E-01
		Total for Period	8.29E-02	7.43E-03

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 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
 BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES  
 STEAM GENERATOR BLOWDOWN

	Unit	<u>1st</u> <u>Quarter</u>	Total <u>%Error</u>	<u>2nd</u> <u>Quarter</u>	Total <u>%Error</u>
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Releases	Curies	0.00E-01	±1.0E+01	7.81E-03	±1.0E+01
2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	0.00E-01		3.09E-07	
3. Percent of Applicable Limit (N MPC ≤ 1) Σ i=1	%	0.00E-01		6.07E+00	
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>B. <u>Tritium</u></b>					
1. Total Release	Curies	0.00E-01	±6.0E+00	1.63E-02	±6.0E+00
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		6.45E-07	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	0.00E-01		2.15E-02	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1. Total Release	Curies	0.00E-01	±1.5E+01	1.13E-04	±1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		4.47E-09	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		2.23E-03	
<b>D. <u>Gross Alpha Radioactivity</u></b>					
1. Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
<b>E. Volume of Waste Release</b>					
(Before Dilution)	Liters	0.00E-01	±1.0E+01	1.39E+06	±1.0E+01
<b>F. Volume of Dilution Water for Period</b>					
	Liters	0.00E-01	±1.0E+01	2.39E+07	±1.0E+01

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1st HALF 85  
BATCH LIQUID RELEASES  
STEAM GENERATOR BLOWDOWN

G.	Isotope Summary	<u>Curies</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
1.	Strontium-89		0.00E-01	5.49E-05
2.	Strontium-90		0.00E-01	1.12E-05
3.	Cesium-134		0.00E-01	3.40E-03
4.	Cesium-137		0.00E-01	3.61E-03
5.	Iodine-131		0.00E-01	2.76E-04
6.	Cobalt-58		0.00E-01	4.61E-05
7.	Cobalt-60		0.00E-01	4.52E-07
8.	Iron-59		0.00E-01	0.00E-01
9.	Zinc-65		0.00E-01	0.00E-01
10.	Manganese-54		0.00E-01	4.07E-04
11.	Chromium-51		0.00E-01	0.00E-01
12.	Zirconium-Niobium-95		0.00E-01	0.00E-01
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		0.00E-01	0.00E-01
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	0.00E-01
17.	Sodium-24		0.00E-01	0.00E-01
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		0.00E-01	7.81E-03

FILE PACKAGENO. 31  
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
 BATCH LIQUID RELEASES  
 STEAM GENERATOR BLOWDOWN

G.	Isotope Summary	<u>Curies</u>	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>
	<u>Others (Not Required For Reg. Guide 1.21)</u>			
1.	Xenon-133		<u>0.00E-01</u>	<u>1.13E-04</u>
2.	Xenon-135		<u>0.00E-01</u>	<u>0.00E-01</u>
3.	Iodine-133		<u>0.00E-01</u>	<u>0.00E-01</u>
4.	Cesium-136		<u>0.00E-01</u>	<u>0.00E-01</u>
5.	Xenon-134m		<u>0.00E-01</u>	<u>0.00E-01</u>
6.	Krypton-85m		<u>0.00E-01</u>	<u>0.00E-01</u>
7.	Antimony-124		<u>0.00E-01</u>	<u>0.00E-01</u>
8.	Argon-41		<u>0.00E-01</u>	<u>0.00E-01</u>
9.	Zirconium-97		<u>0.00E-01</u>	<u>0.00E-01</u>
10.	Arsenic-74		<u>0.00E-01</u>	<u>0.00E-01</u>
11.	Phosphorus-32		<u>0.00E-01</u>	<u>0.00E-01</u>
12.	Iron-55		<u>0.00E-01</u>	<u>0.00E-01</u>
	Others (specify)		<u>0.00E-01</u>	<u>0.00E-01</u>
			<u>0.00E-01</u>	<u>0.00E-01</u>
			<u>0.00E-01</u>	<u>0.00E-01</u>
			<u>0.00E-01</u>	<u>0.00E-01</u>
			<u>0.00E-01</u>	<u>0.00E-01</u>
	Total for Period		<u>0.00E-01</u>	<u>1.13E-04</u>

FILE PACKAGE NO. 31  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES  
(Ground Level Releases)

<u>Summation of All Releases</u>	<u>Unit</u>	<u>1st</u> <u>Quarter</u>	<u>Total</u> <u>%Error</u>	<u>2nd</u> <u>Quarter</u>	<u>Total</u> <u>%Error</u>
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Releases	Ci	2.00E+03	±1.0E+01	1.75E+03	±1.0E+01
2. Average Release Rate for Period	µCi/sec	2.58E+02		2.23E+02	
3. Percent of Technical Specification Limit	%	1.11E-01		7.20E-02	
<b>B. <u>Iodines</u></b>					
1. Total Iodine-131	Ci	1.83E-03	±1.0E+01	1.55E-04	±1.0E+01
2. Average Release Rate for Period	µCi/sec	2.35E-04		1.97E-05	
3. Percent of Technical Specification Limit	%	3.02E-01		2.53E-04	
<b>C. <u>Particulates</u></b>					
1. Particulates with half-lives > 8 days	Ci	4.10E-05	±1.5E+01	6.47E-05	±1.5E+01
2. Average Release Rate for Period	µCi/sec	5.27E-06		8.23E-06	
3. Percent of Technical Specification Limit	%	7.38E-06		7.97E-05	
4. Gross Alpha Radioactivity	Ci	0.00E-01		0.00E-01	
<b>D. <u>Tritium</u></b>					
1. Total Release	Ci	4.78E+01	±1.0E+01	1.96E+01	±1.0E+01
2. Average Release Rate for Period	µCi/sec	6.15E+00		2.49E+00	
3. Percent of Technical Specification Limit (3.60E+04 µCi/sec)	%	1.71E-02		6.92E-03	

FILE PACKAGE NO. 31  
 EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
 GASEOUS EFFLUENTS GROUND LEVEL RELEASE  
 (GROUND LEVEL RELEASES)

	<u>Unit</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
1. <u>Fission Gases</u>			
Krypton-85	Ci	2.95E+00	2.75E+01
Krypton-85m	Ci	4.20E+00	7.71E-01
Krypton-87	Ci	2.30E+00	1.05E-03
Krypton-88	Ci	2.05E+00	0.00E-01
Xenon-133	Ci	1.91E+03	1.66E+03
Xenon-135	Ci	5.19E+01	1.40E+01
Xenon-135m	Ci	0.00E-01	0.00E-01
Xenon-138	Ci	0.00E-01	0.00E-01
Xenon-133m	Ci	1.80E+01	3.66E+01
Xenon-131m	Ci	2.54E+00	1.31E+01
Argon-41	Ci	1.48E+00	2.46E-01
Total for Period		2.00E+03	1.75E+03
2. <u>Iodines</u>			
Iodine-131	Ci	1.83E-03	1.55E-04
Iodine-133	Ci	1.97E-03	1.22E-03
Iodine-135	Ci	0.00E-01	0.00E-01
Total for Period		3.80E-03	1.38E-03

FILE PACKAGE NO. 31  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
GASEOUS EFFLUENTS GROUND LEVEL RELEASE

3. <u>Particulates</u>	<u>Unit</u>	<u>1st</u> <u>Quarter</u>	<u>2nd</u> <u>Quarter</u>
Strontium-89	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Strontium-90	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Cesium-134	Ci	<u>1.52E-07</u>	<u>0.00E-01</u>
Cesium-137	Ci	<u>2.19E-07</u>	<u>1.18E-06</u>
Barium-140	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Zirconium-95	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Niobium-95	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Cobalt-58	Ci	<u>2.05E-05</u>	<u>3.55E-05</u>
Manganese-54	Ci	<u>3.20E-07</u>	<u>5.50E-10</u>
Zinc-65	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Iron-59	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Cobalt-60	Ci	<u>0.00E-01</u>	<u>5.96E-06</u>
Others (specify)		<u>0.00E-01</u>	<u>0.00E-01</u>
Lanthanum-140	Ci	<u>0.00E-01</u>	<u>0.00E-01</u>
Yttrium-88	Ci	<u>1.70E-05</u>	<u>0.00E-01</u>
Tellurium-132	Ci	<u>3.34E-07</u>	<u>0.00E-01</u>
Ruthenium-103	Ci	<u>2.48E-06</u>	<u>0.00E-01</u>
Technetium-99m	Ci	<u>2.14E-08</u>	<u>0.00E-01</u>
Chromium-51	Ci	<u>0.00E-01</u>	<u>1.48E-05</u>
Cerium-141	Ci	<u>0.00E-01</u>	<u>1.67E-06</u>
Cerium-144	Ci	<u>0.00E-01</u>	<u>5.61E-06</u>
Total for Period	Ci	<u>4.10E-05</u>	<u>6.47E-05</u>

FILE PACKAGE NO. 31  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
SOLID WASTE (RADIOACTIVE) SHIPMENTS

A. Solid Waste Shipped Off-Site for Burial or Disposal (not Irradiated Fuel)

1. <u>Type of waste</u>	<u>Unit</u>	<u>6 Month Period</u>	<u>Est. Tol. Error %</u>
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	1.05E+02 1.49E+03	1.50E+01 1.50E+01
b. Dry Active Waste, Compressible Waste Contaminated equip., etc.	m <sup>3</sup> Ci	3.23E+02 5.17E+01	1.50E+01 1.50E+01
c. Irradiated Components, Control Rods, etc.	m <sup>3</sup> Ci	None None	N/A
d. Other (describe)	m <sup>3</sup> Ci	None None	N/A

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

a. Spent resin, filter sludges, and evaporator bottoms, etc. (nuclides determined by measurement)		
1. Tritium	<u>Curies</u> 2.96E+00	<u>Percent</u> 1.99E-01
2. Carbon -14	2.08E+00	1.40E-01
a. 3. Chromium-51	5.22E-02	3.51E-03
4. Manganese-54	1.36E+02	9.14E+00
5. Cobalt-58	8.95E+02	6.01E+01
6. Iron-59	8.41E-02	5.65E-03
7. Cobalt-60	2.25E+02	1.51E+01
8. Strontium-90	1.04E-01	6.99E-03
9. Zirconium-95	1.22E-01	8.20E-03
10. Niobium-95	2.25E-01	1.51E-02
11. Iodine-131	1.48E-01	9.95E-03
12. Cesium-134	9.33E+01	6.27E+00
13. Cesium-137	1.27E+02	8.53E+00
14. Other Nuclides	5.69E+00	3.8E-01

FILE PACKAGE NO. 31  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
SOLID WASTE (RADIOACTIVE) SHIPMENTS

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

b. Dry Active Waste, dry compressible waste, contaminated equipment, etc.,  
(nuclides determined by estimate)

	<u>Curies</u>	<u>Percent</u>
1. Tritium	1.50E+01	2.90E+01
2. Carbon -14	9.44E-02	1.82E-01
3. Chromium-51	1.61E-01	3.11E-01
4. Manganese-54	3.83E+00	7.41E+00
5. Cobalt-58	2.06E+01	3.98E+01
6. Iron-59	1.54E-01	2.98E-01
7. Cobalt-60	6.73E+00	1.30E+01
8. Strontium-90	5.41E-04	1.05E-03
9. Zirconium-95	4.54E-02	8.78E-02
10. Niobium-95	1.22E-01	2.36E-01
11. Iodine-131	1.50E-01	2.90E-01
12. Cesium-134	1.29E+00	2.49E+00
13. Cesium-137	1.45E+00	2.80E+00
14. Other Nuclides	2.08E+00	4.02E+00
c. Irradiated Components	N/A	N/A
d. Other (describe)	N/A	N/A

FILE PACKAGE NO. 31  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
1st HALF 85  
SOLID WASTE (RADIOACTIVE) SHIPMENTS

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Type</u>	<u>Quantity</u>	<u>Mode of Transportation</u>	<u>Destination</u>
a)	Resin, filter sludges, evaporator bottoms, etc.			
19	LSA		Motor Freight	Barnwell, S.C.
1	LSA		Motor Freight	Richland, Wash.

<u>Number of Shipments</u>	<u>Type</u>	<u>Quantity</u>	<u>Mode of Transportation</u>	<u>Destination</u>
b)	Daw, dry active waste, compressible contaminated equipment, etc.			
2	LSA		Motor Freight	Barnwell, S.C.
7	LSA		Motor Freight	Richland, Wash.

<u>Number of Shipments</u>	<u>Type</u>	<u>Quantity</u>	<u>Mode of Transportation</u>	<u>Destination</u>
c)	Irradiated components, control rods, etc.			

<u>Number of Shipments</u>	<u>Type</u>	<u>Quantity</u>	<u>Mode of Transportation</u>	<u>Destination</u>
d)	Other (describe)			

<u>Number of Shipments</u>	<u>Type</u>	<u>Quantity</u>	<u>Mode of Transportation</u>	<u>Destination</u>
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4. Irradiated Fuel Shipments (Disposition)

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

5. Solidification of Waste

Was solidification performed?   X   Yes            No

If yes, solidification media:           Cement

TENNESSEE VALLEY AUTHORITY

Sequoyah Nuclear Plant

P. O. Box 2000

Soddy-Daisy, Tennessee 37379

August 30, 1985

U. S. Nuclear Regulatory Commission

Region II

Attn: Dr. J. Nelson Grace

Regional Administrator

101 Marietta Street, Suite 3100

Atlanta, Georgia 30303

327/D

RECEIVED  
AUG 31 1985

Dear Sir:

In accordance with Sequoyah Nuclear Plant Technical Specification 6.9.1.9 for units 1 and 2, we are submitting the enclosed report of the **radioactive discharges released** from Sequoyah during the period of **January 1, 1985 through June 30, 1985**.

The corresponding report on the "Radiological Impact on Man" is prepared by TVA's Radiological Health Staff and submitted by Nuclear Licensing Staff.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*P.R. Wallace*

P. R. Wallace

Plant Manager

Enclosure

cc (Enclosure):

Environmental Protection Agency

Region IV

Facilities Performance Branch

Water Mgt Division

345 Courtland Street NE

Atlanta, GA 30365

Tenn Div of Water Quality Control

150 Ninth Ave., N.,

TERRA Bldg.

Nashville, TN 37203

Tenn Div of Water Quality Control

Environmental Health Services

2501 Milne Street

Chattanooga, TN 37406

DESIGNATED ORIGINAL

Certified By

*Barlene Scott*

An Equal Opportunity Employer

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