

SEQUOYAH NUCLEAR PLANT

UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

First Half 1982

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EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION

FIRST HALF 1982

1. Regulatory Limits

a. Fission and Activation Gases:

(1) Instantaneous -

Shield Building	<	7.65E+04 $\mu\text{Ci}/\text{sec}$
Auxiliary Building	<	5.46E+05 $\mu\text{Ci}/\text{sec}$
Condenser Vacuum Exhaust	<	2.48E+02 $\mu\text{Ci}/\text{sec}$
Service Building	<	2.84E+02 $\mu\text{Ci}/\text{sec}$

NOTE: Total plant release rate limit per nuclide are established by TVA's Radiological Hygiene Branch. These limits are further evaluated to each vent based on design flowrate. 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 Dependent

NOTE: Total plant release rate limit per nuclide are established by TVA's Radiological Hygiene Branch. These limits are further evaluated to each vent based on design flowrate. Technical specification 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 -  $\leq 3.0\text{E}-3 \mu\text{Ci}/\text{cc}$  (ref. 10 CFR 20, Table II, column 2)

(2) Airborne - (ref. 10 CFR 20, Table I, column 2)

Shield Building	<	2.0E-07 $\mu\text{Ci}/\text{cc}$ (Ref. 10 CFR 20, Table II, Column 1)
Auxiliary Building	<	2.0E-07 $\mu\text{Ci}/\text{cc}$ (Ref. 10 CFR 20, Table II, Column 1)

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION (CONTINUED)

FIRST HALF 1982

1. Regulatory Limits (Continued)

Service Building	<	2.0E-07 $\mu\text{Ci/cc}$ (Ref. 10 CFR 20, Table II, Column 1)
Condenser Vacuum Exhaust	<	2.0E-07 $\mu\text{Ci/cc}$ (Ref. 10 CFR 20, Table II, Column 1)

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 sampling 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 twice 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).

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION (CONTINUED)

FIRST HALF 1982

4. Measurements and Approximations of Total Radioactivity (Continued)

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

b. & c. Iodines and Particulates

Iodine and particulate activity is continuously monitored and recorded. Charcoal and particulate samples are taken from the shield 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 twice 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.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION (CONTINUED)

FIRST HALF 1982

4. Measurements and Approximations of Total Radioactivity (Continued)

(2) Continuous Releases and Periodic Continuous Releases

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

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

5. Batch

	<u>Value</u>		<u>Units</u>
	<u>First Quarter</u>	<u>Second Quarter</u>	
a. <u>Liquid (Radwaste Only)</u>			
(1) Number of batches released	168	203	Each
(2) Total time period for batch releases	27,252	32,918	Minutes
(3) Maximum time period for a batch release	790	287	Minutes
(4) Average time period for batch release	162	162	Minutes
(5) Minimum time period for a batch release	75	47	Minutes
(6) Average stream flow during periods of effluent into a flowing stream:	(a)	(a)	
(a) See Radiological Hygiene Branch's portion of semi-annual effluent release report.			
b. <u>Gaseous</u>			
(1) Number of batches released	43	179	Each
(2) Total time period for batch releases	13,546	28,947	Minutes
(3) Maximum time period for a batch release	1,380	1,440	Minutes
(4) Average time period for batch releases	315	162	Minutes
(5) Minimum time period for a batch release	52	10	Minutes

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION (CONTINUED)

FIRST HALF 1982

6. Abnormal Releases

a. Liquid

(1) Number of Releases (See NOTE on Page 5)	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

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
 BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES  
 RADWASTE  
 FIRST HALF 1982

	<u>Unit</u>	<u>First Quarter</u>	<u>Total % Error</u>	<u>Second Quarter</u>	<u>Total % Error</u>
<u>A. Fission and Activation Products</u>					
1. Total Releases	Curies	1.47E+00	+1.0E+01	3.40E-01	+1.0E+01
2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	6.42E-07		1.24E-07	
3. Percent of Applicable Limit ( $\sum_{i=1}^N \text{MPC} \leq 1$ )	%	2.19E+00		4.23E+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.					
<u>B. Tritium</u>					
1. Total Release	Curies	1.74E+02	+1.0E+01	3.23E+02	+1.0E+01
2. Average Diluted Conc. During Period	µCi/ml	7.60E-05		1.18E-04	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	2.53E+00		3.93E+00	
<u>C. Dissolved and Entrained Gases</u>					
1. Total Release	Curies	1.32E-02	+1.5E+01	2.74E-01	+1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	5.77E-09		1.00E-07	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	2.88E-03		5.00E-02	
<u>D. Gross Alpha Radioactivity</u>					
1. Total Release	Curies	0.00E-01	+1.5E+01	0.00E-01	+1.5E+01
<u>E. Volume of Waste Release</u>					
(Before Dilution)	Liters	9.21E+06	+1.0E+01	1.11E+07	+1.0E+01
<u>F. Volume of Dilution Water for Period</u>					
	Liters	2.28E+09	+1.0E+01	2.73E+09	+1.0E+01

## EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

## BATCH LIQUID RELEASES

## RADWASTE

FIRST HALF 1982

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
1.	Strontium-89		8.90E-02	0.00E-01
2.	Strontium-90		0.00E-01	2.96E-03
3.	Cesium-134		1.34E-03	1.20E-03
4.	Cesium-137		4.35E-03	4.96E-02
5.	Iodine-131		1.66E-03	2.72E-02
6.	Cobalt-58		6.64E-01	9.28E-02
7.	Cobalt-60		7.27E-02	1.57E-02
8.	Iron-59		5.59E-02	3.78E-03
9.	Zinc-65		2.61E-03	0.00E-01
10.	Manganese-54		3.46E-02	9.13E-03
11.	Chromium-51		4.25E-01	9.12E-03
12.	Zirconium-Niobium-95		5.53E-02	6.64E-04
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		2.85E-06	2.01E-04
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	0.00E-01
17.	Sodium-24		2.46E-04	1.22E-02
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		1.41E+00	2.25E-01



EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

RADWASTE

FIRST HALF 1982

G. <u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
<u>Others (Not Required for Reg. Guide 1.21)</u>			
1. Xenon-133		7.79E-03	6.85E-02
2. Xenon-135		4.91E-03	2.35E-02
3. Iodine-133		2.88E-04	4.93E-03
4. Cobalt-57		4.23E-04	0.00E-01
5. Xenon-131m		5.05E-04	1.48E-02
6. Krypton-85m		0.00E-01	2.46E-04
7. Argon-41		2.58E-05	5.53E-05
8. Cerium-144		5.39E-03	1.06E-02
9. Tungsten-187		1.44E-03	9.14E-03
10. Ruthenium-106		0.00E-01	2.70E-04
11. Phosphorus-32		2.17E-02	9.03E-02
12. Iron-55		3.23E-02	0.00E-01
13. Yttrium-88		0.00E-01	3.41E-05
14. Yttrium-91m		0.00E-01	6.09E-09
15. Tellurium-132		0.00E-01	9.26E-06
16. Krypton-85		0.00E-01	1.66E-01
17. Xenon-133m		0.00E-01	5.39E-04
Total for Period		7.48E-02	3.89E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
 BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES  
 CONDENSATE REGENERANTS  
 FIRST HALF 1982

	<u>Unit</u>	<u>First Quarter</u>	<u>Total % Error</u>	<u>Second Quarter</u>	<u>Total % Error</u>
<u>A. Fission and Activation Products</u>					
1. Total Releases	Curies	0.00E-01	+1.0E+01	0.00E-01	+1.0E+01
2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit ( $\sum_{i=1}^N \text{MPC} \leq 1$ )	%	0.00E-01		0.00E-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.					
<u>B. Tritium</u>					
1. Total Release	Curies	0.00E-01	+1.0E+01	0.00E-01	1.0E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	0.00E-01		0.00E-01	
<u>C. Dissolved and Entrained Gases</u>					
1. Total Release	Curies	0.00E-01	+1.5E+01	0.00E-01	+1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		0.00E-01	
<u>D. Gross Alpha Radioactivity</u>					
1. Total Release	Curies	0.00E-01	+1.5E+01	0.00E-01	+1.5E+01
<u>E. Volume of Waste Release</u>					
(Before Dilution)	Liters	2.56E+07	+1.0E+01	1.29E+07	+1.0E+01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

CONDENSATE REGENERANTS

FIRST HALF 1982

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		0.00E-01	0.00E-01
4.	Cesium-137		0.00E-01	0.00E-01
5.	Iodine-131		0.00E-01	0.00E-01
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	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	0.00E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

CONDENSATE REGENERANTS

FIRST HALF 1982

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
	<u>Others (Not Required for Reg. Guide 1.21)</u>			
1.	Xenon-133		0.00E-01	0.00E-01
2.	Xenon-135		0.00E-01	0.00E-01
3.	Iodine-133		0.00E-01	0.00E-01
4.	Cesium-136		0.00E-01	0.00E-01
5.	Manganese-56		0.00E-01	0.00E-01
6.	Antimony-122		0.00E-01	0.00E-01
7.	Antimony-124		0.00E-01	0.00E-01
8.	Copper-64		0.00E-01	0.00E-01
9.	Arsenic-76		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
	Total for Period		0.00E-01	0.00E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
 CONTINUOUS LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

TURBINE BUILDING SUMP

FIRST HALF 1982

	<u>Unit</u>	<u>First Quarter</u>	<u>Total % Error</u>	<u>Second Quarter</u>	<u>Total % Error</u>
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Releases	Curies	2.06E-03	+1.0E+01	5.60E-06	+1.0E+01
2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	6.34E-09		1.85E-11	
3. Percent of Applicable Limit ( $\sum_{i=1}^N \text{MPC} \leq 1$ )	%	2.11E-02		6.18E-05	
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	+1.0E+01	0.00E-01	1.0E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	0.00E-01		0.00E-01	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1. Total Release	Curies	0.00E-01	+1.5E+01	5.34E-03	+1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		1.77E-08	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		8.85E-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. <u>Volume of Waste Release</u></b>					
(Before Dilution)	Liters	3.25E+08	+1.0E+01	3.02E+08	+1.0E+01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

TURBINE BUILDING SUMP

FIRST HALF 1982

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		0.00E-01	0.00E-01
4.	Cesium-137		0.00E-01	0.00E-01
5.	Iodine-131		0.00E-01	0.00E-01
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	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		2.06E-03	5.60E-06
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		2.06E-03	5.60E-06

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

TURBINE BUILDING SUMP

FIRST HALF 1982

G. <u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
<u>Others (Not Required for Reg. Guide 1.21)</u>			
1. Xenon-133		0.00E-01	5.34E-03
2. Xenon-135		0.00E-01	0.00E-01
3. Iodine-133		0.00E-01	0.00E-01
4. Cesium-136		0.00E-01	0.00E-01
5. Manganese-56		0.00E-01	0.00E-01
6. Antimony-122		0.00E-01	0.00E-01
7. Antimony-124		0.00E-01	0.00E-01
8. Copper-64		0.00E-01	0.00E-01
9. Arsenic-76		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
Total for Period		0.00E-01	5.34E-03

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

STEAM GENERATOR BLOWDOWN

FIRST HALF 1982

	<u>Unit</u>	<u>First Quarter</u>	<u>Total % Error</u>	<u>Second Quarter</u>	<u>Total % Error</u>
<b>A. <u>Fission and Activation Products</u></b>					
1. Total Releases	Curies	3.70E-01	+1.0E+01	4.05E-02	+1.0E+01
2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	8.77E-07		3.75E-07	
3. Percent of Applicable Limit ( $\sum_{i=1}^N \text{MPC} \leq 1$ )	%	2.92E+00		1.25E+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	+1.0E+01	0.00E-01	1.0E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	0.00E-01		0.00E-01	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1. Total Release	Curies	0.00E-01	+1.5E+01	0.00E-01	+1.5E+01
2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		0.00E-01	
<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	1.88E+07	+1.0E+01	5.93E+06	+1.0E+01
<b>F. <u>Volume of Dilution Water for Period</u></b>					
	Liters	4.03E+08	+1.0E+01	1.02E+08	+1.0E+01



EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

STEAM GENERATOR BLOWDOWN

FIRST HALF 1982

G.	<u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		0.00E-01	0.00E-01
4.	Cesium-137		0.00E-01	0.00E-01
5.	Iodine-131		0.00E-01	0.00E-01
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	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		3.70E-01	4.05E-02
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		3.70E-01	4.05E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
 CONTINUOUS LIQUID RELEASES  
 STEAM GENERATOR BLOWDOWN  
 FIRST HALF 1982

G. <u>Isotope Summary</u>	<u>Curies</u>	<u>First Quarter</u>	<u>Second Quarter</u>
<u>Others (Not Required for Reg. Guide 1.21)</u>			
1. Xenon-133		0.00E-01	0.00E-01
2. Xenon-135		0.00E-01	0.00E-01
3. Iodine-133		0.00E-01	0.00E-01
4. Cesium-136		0.00E-01	0.00E-01
5. Manganese-56		0.00E-01	0.00E-01
6. Antimony-122		0.00E-01	0.00E-01
7. Antimony-124		0.00E-01	0.00E-01
8. Copper-64		0.00E-01	0.00E-01
9. Arsenic-76		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
Total for Period		0.00E-01	0.00E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES  
 GROUND LEVEL RELEASES  
 FIRST HALF 1982

<u>Summation of All Releases</u>	<u>Unit</u>	<u>First Quarter</u>	<u>Total % Error</u>	<u>Second Quarter</u>	<u>Total % Error</u>
<u>A. Fission and Activation Products</u>					
1. Total Releases	Ci	5.74E+02	+1.0E+01	1.97E+03	+1.0E+01
2. Average Release Rate for Period	μCi/ml	7.38E+01		2.51E+02	
3. Percent of Technical Specification Limit	%	2.81E-02		1.20E-01	
<u>B. Iodines</u>					
1. Total Iodine-131	Ci	7.21E-06	+1.0E+01	8.77E-06	+1.0E+01
2. Average Release Rate for Period	μCi/sec	9.27E-07		1.10E-06	
3. Percent of Technical Specification Limit (7.80E-02 μCi/sec)	%	1.19E-03		1.41E-03	
<u>C. Particulates</u>					
1. Particulates with half-lives >8 Days	Ci	8.86E-06	+1.5E+01	1.15E-01	+1.5E+01
2. Average Release Rate for Period	μCi/ml	1.14E-06		1.48E-02	
3. Percent of Technical Specification Limit	%	1.19E-03		3.12E-02	
4. Gross Alpha Radioactivity	Ci	0.00E-01		0.00E-01	
<u>D. Tritium</u>					
1. Total Release	Ci	3.02E+00	+1.0E+01	4.23E+01	+1.0E+01
2. Average Release Rate for Period	μCi/sec	3.88E-01		5.38E+00	
3. Total Volume Discharged From Site	CC	9.01E+14		9.37E+14	
4. Percent of Technical Specification Limit (2.0E-07 μCi/cc)	%	1.68E+00		2.26E+01	

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

GASEOUS EFFLUENTS GROUND LEVEL RELEASE

FIRST HALF 1982

1. <u>Fission Gases</u>	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>
Krypton-85	Ci	1.66E-01	5.12E-01
Krypton-85m	Ci	8.34E-02	7.89E+00
Krypton-87	Ci	0.00E-01	8.28E-05
Krypton-88	Ci	0.00E-01	9.44E-04
Xenon-133	Ci	5.54E+02	1.75E+03
Xenon-135	Ci	1.82E+01	1.45E+02
Xenon-135m	Ci	0.00E-01	0.00E-01
Xenon-138	Ci	0.00E-01	0.00E-01
Others (Specify) Xe-133m	Ci	1.08E+00	5.24E+01
Argon-41	Ci	1.63E-01	1.18E+01
Xenon-131m	Ci	1.97E-01	5.03E-01
Total for Period		5.74E+02	1.97E+03
2. <u>Iodines</u>			
Iodine-131	Ci	7.21E-06	8.77E-06
Iodine-133	Ci	0.00E-01	9.65E-07
Iodine-135	Ci	0.00E-01	0.00E-01
Total for Period		7.21E-06	9.74E-06

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

GASEOUS EFFLUENTS GROUND LEVEL RELEASE

FIRST HALF 1982

3. <u>Particulates</u>	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>
Strontium-89	Ci	1.71E-06	0.00E-01
Strontium-90	Ci	5.95E-06	9.98E-07
Cesium-134	Ci	0.00E-01	0.00E-01
Cesium-137	Ci	0.00E-01	0.00E-01
Barium-140	Ci	0.00E-01	0.00E-01
Zirconium-95	Ci	0.00E-01	0.00E-01
Niobium-95	Ci	0.00E-01	0.00E-01
Cobalt-58	Ci	0.00E-01	1.13E-01
Manganese-54	Ci	0.00E-01	2.08E-03
Zinc-65	Ci	0.00E-01	0.00E-01
Iron-59	Ci	0.00E-01	0.00E-01
Cobalt-60	Ci	0.00E-01	0.00E-01
Others (Specify) Cobalt-57	Ci	8.83E-07	0.00E-01
Cerium-144	Ci	2.79E-07	0.00E-01
Technetium-99m	Ci	3.54E-08	0.00E-01
Total for Period	Ci	8.86E-06	1.15E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE (RADIOACTIVE) SHIPMENTS

FIRST HALF 1982

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

1. Type of Waste	Unit	First Quarter	Second Quarter
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	13.60 11.541	9.06 4.310
b. Contaminated equip., etc.	Ci	N/A	N/A
c. Irradiated Components, Control Rods, etc.		N/A	N/A
d. Other (Describe) Boxes	Boxes Ci	32.28 2.502	34.28 1.492

2. Estimate of Major Nuclide Composition (by Type of Waste)

a. Spent resins, filter sludges, and evaporator bottoms

	Unit Ci		Unit %	
	First Quarter	Second Quarter	First Quarter	Second Quarter
a. 1. Chromium-51	4.77E-01	4.47E-02	4.16	1.04
2. Manganese-54	9.78E-01	5.49E-01	8.52	12.73
3. Cobalt-58	5.75E+00	2.161E-00	50.11	50.12
4. Iron-59	8.29E-02	2.51E-02	0.72	0.58
5. Cobalt-60	2.74E-00	8.00E-01	23.88	18.55
6. Strontium-90	0.00E-01	0.00E-01	0.00	0.00
7. Zirconium-95	2.31E-01	0.00E-01	2.01	0.00
8. Niobium-95	4.01E-01	3.61E-02	3.49	0.73
9. Iodine-131	3.48E-01	5.13E-01	3.03	11.89
10. Cesium-134	1.22E-01	2.57E-02	1.06	0.60
11. Cesium-137	3.46E-01	1.42E-01	3.02	3.29
12. Other Nuclides	0.00E-01	1.97E-02	0.00	0.46
b. Contaminated Equip	N/A	N/A	N/A	N/A
c. Irradiated Components	N/A	N/A	N/A	N/A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE (RADIOACTIVE) SHIPMENTS

FIRST HALF 1982

2. Estimate of Major Nuclide Composition (by Type of Waste) (Cont.)

d. Other (Drums and Boxes)

	Unit Ci		Unit %	
	<u>First Quarter</u>	<u>Second Quarter</u>	<u>First Quarter</u>	<u>Second Quarter</u>
1. Chromium-51	1.68E-01	2.01E-01	6.72	13.49
2. Manganese-54	2.30E-01	2.10E-01	9.19	13.49
3. Cobalt-58	1.135E-00	8.19E-01	45.36	54.94
4. Iron-59	4.88E-02	1.04E-02	1.95	0.75
5. Cobalt-60	4.77E-01	3.61E-01	19.06	24.22
6. Strontium-90	0.00E-01	0.00E-01	0.00	0.00
7. Zirconium-95	6.91E-02	0.00E-01	2.76	0.00
8. Niobium-95	1.31E-01	4.48E-03	5.22	0.29
9. Iodine-131	1.59E-01	3.28E-02	6.36	2.19
10. Cesium-134	2.45E-02	2.98E-03	0.98	0.21
11. Cesium-137	5.91E-02	5.82E-02	2.36	3.87
12. Other Nuclides	0.00E-01	0.00E-01	0.00	0.00

3. Solid Waste Disposition

<u>Number of Shipments</u>		<u>Mode of Transportation</u>	<u>Destination</u>
<u>First Quarter</u>	<u>Second Quarter</u>		
4	3	Sole Use - Truck	Chem Nuclear Systems, Inc. Barnwell, SC

B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>		<u>Mode of Transportation</u>	<u>Destination</u>
<u>First Quarter</u>	<u>Second Quarter</u>		
None	None	N/A	N/A

SEQUOYAH NUCLEAR PLANT

UNITS 1 & 2

PROCESS CONTROL PROGRAM CHANGES



The Sequoyah Nuclear Plant Process Control Program (PCP) was first issued and approved by the Commission in February, 1980. Since its original issue, the PCP has been changed once to reflect a change in solidification vendors as previously reported.

On May 18, 1982, the Plant Operations Review Committee (PORC) approved another change to the PCP as a result of the termination of contract with Chem-Nuclear Systems and issue of contract to Hittman Nuclear and Development Corporation (Contract #82P68-180480). The vendor change was based upon economic considerations only.

The new Hittman contract stipulates the use of cement for the solidifying media. The Chem-Nuclear system provided for alternative solidification media (i.e., cement or urea formaldehyde). The new PCP contained within the Hittman contract provides for a solidified product which satisfies all current burial site and transport criteria. It has been determined that the PCP change does not reduce overall conformance to existing radioactive waste regulations.

The revised PCP has been incorporated into plant written procedures in detailed step-by-step format.