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SUSQUEHANNA STEAM ELECTRIC STATION
SEMIANNUAL EFFLUENT & WASTE DISPOSAL REPORT
DATA PERIOD: JANUARY – JUNE 1988

Pennsylvania Power & Light Company
Two North Ninth Street
Allentown, Pennsylvania 18101

August 1988

IE48
111

SUSQUEHANNA STEAM ELECTRIC STATION
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
REPORT PERIOD: 01/01/88 - 06/30/88

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SECTION 1

INTRODUCTION AND SUPPLEMENTAL INFORMATION

INTRODUCTION

The Susquehanna Steam Electric Station (SSES) is located in Salem Township, Luzerne County, Pennsylvania. It is on the west bank of the Susquehanna River, 8 km northeast of Berwick. The Station consists of two boiling water reactor generating units, each with 1,050 MW net electrical capacity. The reactor and generating units were supplied by General Electric, while the Bechtel Corporation served as architect-engineer and constructor.

Construction of the Station began in the early 1970s. Fuel load began in Unit 1 in July of 1982. Initial criticality was achieved in the Unit 1 reactor on September 10, 1982. The reactor reached 100% power for the first time on February 4, 1983. Commercial operation of Unit 1 was declared on June 8, 1983. Initial criticality of Unit 2 occurred on May 8, 1984. Unit 2 was declared commercial on February 12, 1985.

Airborne effluents are released from the Susquehanna Station via five rooftop vents on the reactor building (see Figure 1). Each vent is continuously monitored, and a program of periodic sampling and analysis is conducted as specified in the plant Technical Specifications. All waterborne effluents are released in batch mode and are sampled and analyzed prior to release. Waterborne effluents from the site are released into the cooling tower blowdown line for dilution prior to release to the Susquehanna River (See Figure 2). Blowdown line flow rates are at least 5,000 gpm during periods of liquid radwaste release. The diluted effluent is introduced to the river by way of a perforated diffuser pipe placed on the river bed. The diffuser serves to rapidly and uniformly mix the the station discharge with the main flow of the river.

This report presents a summary of the quantities of radioactive materials which were released from the Susquehanna Steam Electric Station during the period from January 1, 1988 to June 30, 1988. In addition, this report serves as a medium for notifying the US Nuclear Regulatory Commission staff of changes to PP&L's Offsite Dose Calculation Manual (ODCM) and Solid Waste Process Control Program (PCP) and documentation of any exceptions to the SSES effluent monitoring program which must be reported per Technical Specifications 3.3.7.10 and 3.3.7.11.

Table 1 contains supplemental information pertaining to effluents from the Susquehanna plant. Included are regulatory limits, sampling and analysis methods, and characterization of the number and duration of batch and abnormal releases, if any.

Table 2 contains a summation of all airborne releases, grouped into the radionuclide categories of gases, particulates, iodine-131 and tritium. Average release rates are presented and compared to the applicable limits. Table 3 presents the totals of specific radionuclides in airborne effluents.

Waterborne effluents are summarized in Table 4. Average diluted concentrations are presented and compared to the applicable limits. Table 5 presents the release quantities of specific radionuclides in waterborne effluents over the report period.

Tables 6 through 9 present a characterization of the solid radioactive waste shipped off site during the report period. Included are the volumes and curie contents associated with each type of solid waste. An estimate of major nuclide composition is presented for each waste type, as well as the number of waste shipments from the site, how they were transported, and their final destination.

Table 10 contains estimates of the errors associated with the measurements involved in quantifying effluents. Errors associated with sampling, counting, flow rate and volume determination all contribute to the total error of the effluent measurements. Error estimates are presented for each category of radionuclides detected in airborne and waterborne effluents and solid wastes during the report period.

Table 11 presents effluent data from previous report periods which was not available at preparation time for the associated semiannual report.

Section 3 of this report is reserved for documentation of changes (if any) to the Offsite Dose Calculation Manual and the Solid Waste Process Control Program.

Section 4 presents a listing of cases (if any) in which airborne or waterborne effluent monitoring instrumentation was declared inoperable and was not restored to operability within the time period specified in Technical Specification Table 3.3.7.10-1 or 3.3.7.11-1 Action Statements.

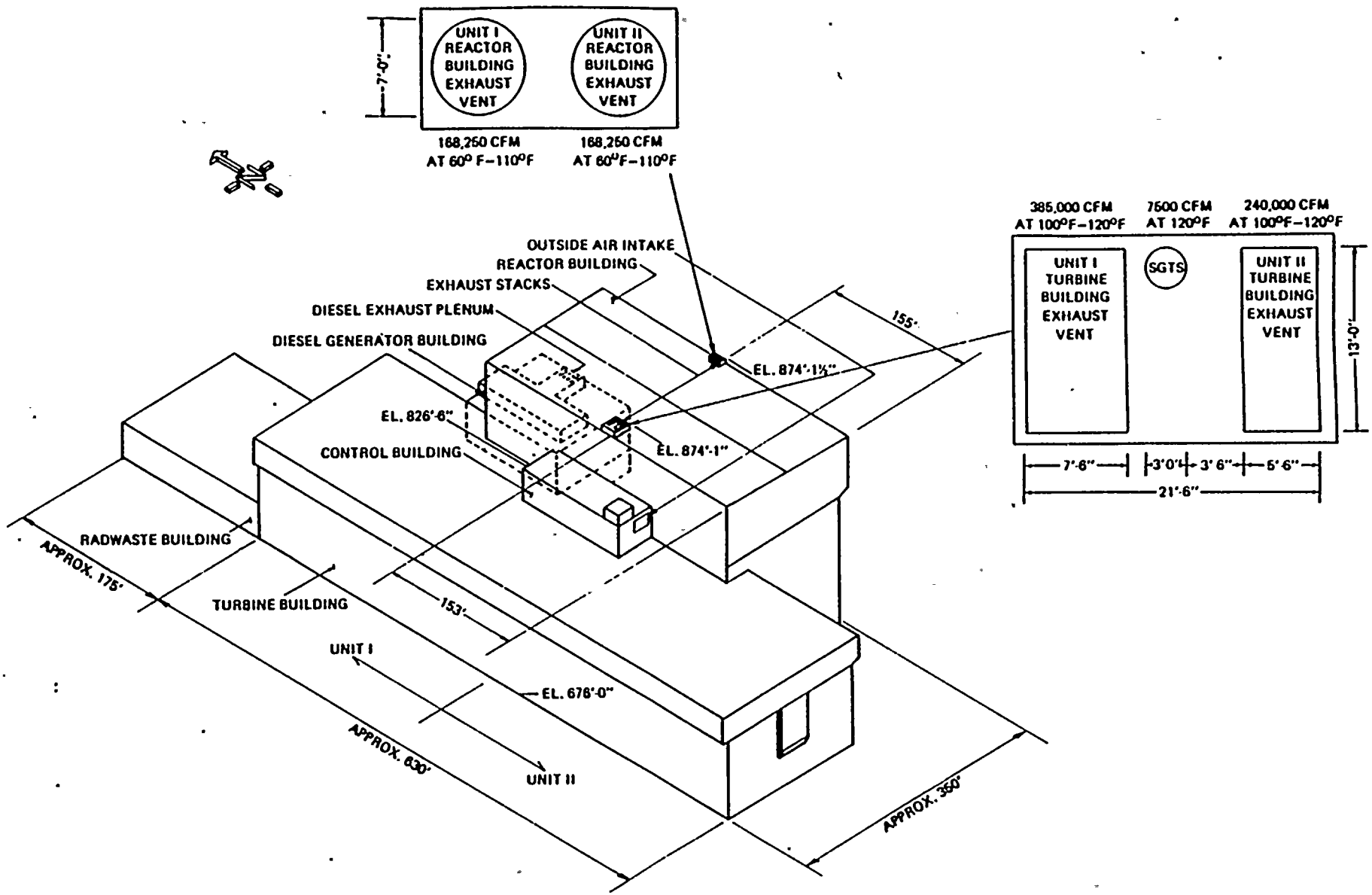

FIGURE 4 AIRBORNE EFFLUENT RELEASE POINTS - LOCATION AND DETAIL

FIGURE 2 SSES WATERBORNE EFFLUENTS - RELEASE PATHWAY

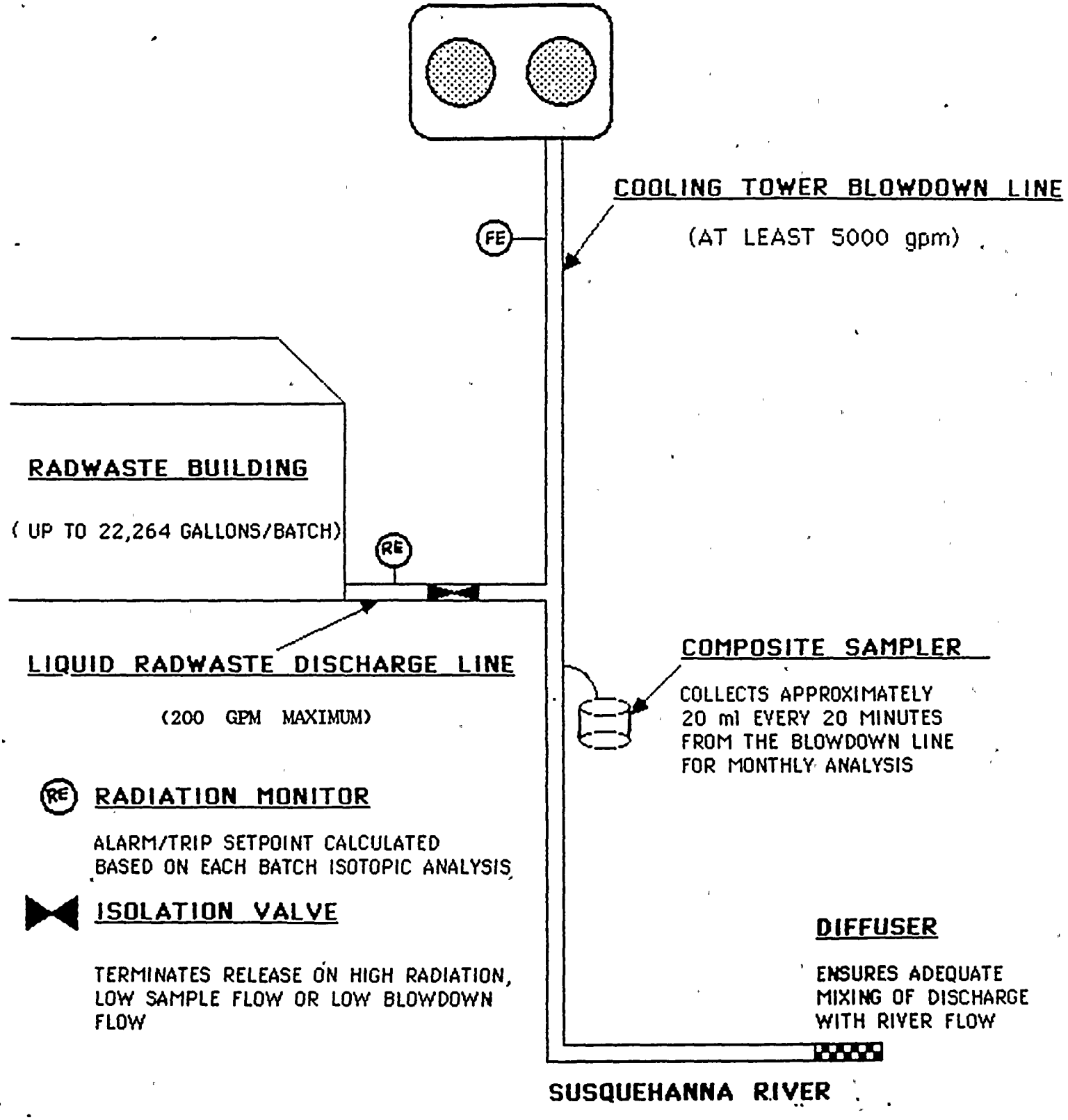

TABLE 1
SEMIANNUAL EFFLUENT & WASTE DISPOSAL REPORT
DATA PERIOD: JANUARY - JUNE 1988
SUPPLEMENTAL INFORMATION

1. Regulatory Limits

   a. Fission and Activation Gases: 0.851 Ci/minute (Release rate limit based on Technical Specification dose rate limit of 500 mrem/yr from noble gases). This number is calculated based on the expected mix of noble gas radionuclides presented in Table 4.4 of the SSES Final Environmental Statement, NUREG-0564.

   b. Iodine-131: 141 microcuries/minute (Release rate limit based on Technical Specification dose rate limit of 1500 mrem/yr from iodine-131, tritium, and particulates with half-lives greater than eight days).

   c. Particulates: 772 microcuries/minute (Release rate limit based on Technical Specification dose rate limit of 1500 mrem/yr from iodine-131, tritium, and particulates with half-lives greater than eight days). This number is calculated based on the expected mix of particulate radionuclides presented in Table 4.4 of the SSES Final Environmental Statement, NUREG-0564.

2. Maximum Permissible Concentrations

   The concentrations of radioactive materials in waterborne effluents are limited to the concentrations specified in 10 CFR Part 20 Appendix B Table II, Column 2, for radionuclides other than dissolved or entrained noble gases.

   For dissolved or entrained noble gases, the concentrations are limited to the following values, as stated in the applicable Technical Specification:

Nuclide	MPC (uCi/ml)
^{85}Kr m	2 E-4
^{85}Kr	5 E-4
^{87}Kr	4 E-5
^{88}Kr	9 E-5
^{41}Ar	7 E-5
^{133}Xe m	5 E-4
^{133}Xe	6 E-4
^{135}Xe m	2 E-4
^{135}Xe	2 E-4

   These values are calculated using Equation 20 of ICRP Publication 2 (1959), adjusted for infinite cloud submersion in water.

3. Methods of Quantifying Effluents

   a. Fission and Activation Gases: Gas samples are routinely collected monthly and analyzed with a Ge(Li) detector system which incorporates a data reduction program to determine radionuclide composition in

terms of specific activity. Data tapes from the continuous vent monitors are used to determine the average concentration of noble gases. The Ge(Li) isotopic scan is used to convert the continuous vent monitor activity to actual activity based on the determined nuclide mixture. The vent and sample flow rates are continuously monitored, and the average flow rates for each vent are used to calculate the total activity released in a given time period. When the continuous monitors are out of service, manual grab samples are taken from each vent once each eight hours (once each four hours for the standby gas treatment vent).

b. Iodines: Iodine is continuously collected via an isokinetic sampling assembly in each vent. Filters are normally exchanged once per week and analyzed on a Ge(Li) system. The daily average flow rates for the vents and sample pumps are averaged for the duration of the sampling period, and a ratio of vent flow rate to sample flow rate is determined. The ratio is used to determine the total activity of each isotope released during the time period in question. When the continuous monitors are out of service, iodine is continuously collected on charcoal cartridges attached to air samplers which draw directly from the affected rooftop vent(s) or from alternate sampling ports available on the sample lines.

c. Particulates: Particulates are continuously collected via an isokinetic sampling assembly in each vent. Filters are normally exchanged once per week and analyzed on a Ge(Li) system. Flow rate corrections are performed as for iodines. When the continuous vent monitors are out of service, particulates are continuously sampled directly from the affected rooftop vent(s) or from alternate sampling ports available on the sample lines.

d. Waterborne Effluents: Each tank of liquid radwaste is sampled and analyzed for principle gamma emitters prior to release. Each sample tank is recirculated for a sufficient amount of time prior to sampling to ensure that a representative sample is obtained. Samples are analyzed on a Ge(Li) system and release permits are generated based on the values obtained from the isotopic analysis and the most recent values for tritium, gross alpha, iron-55, and strontium-89 and -90. An aliquot based on release volume is saved and added to monthly and quarterly composite containers. The monthly tritium analysis is done in-house. The quarterly composite is sent to a vendor laboratory for iron-55, strontium-89 and -90, and gross alpha analyses.

The concentration of each radionuclide in each batch is decayed from the time of counting to the midpoint of the release period, and is then multiplied by the volume of the batch to determine the total quantity of each nuclide released in each batch. The isotopic totals for each are summed to determine the total source term for the report period.

4. Batch Releases

a. Waterborne

1. Number of Batch Releases:	134	
2. Total Time Period for Batch Releases:	2.56E+04	minutes
3. Maximum Time Period for a Batch Release:	2.75E+02	minutes
4. Average Time Period for a Batch Release:	1.91E+02	minutes
5. Minimum Time Period for a Batch Release:	1.50E+01	minutes
6. Average Stream Flow During Period of Release of Effluent into a Flowing Stream:	>5.97E+03	gpm (cooling tower blowdown)
	5.41E+06	gpm (Susq. River)

b. Airborne

1. Number of Batch Releases:	0
2. Total Time Period for Batch Releases:	NA
3. Maximum Time Period for a Batch Release:	NA
4. Average Time Period for a Batch Release:	NA
5. Minimum Time Period for a Batch Release:	NA

5. Abnormal Releases

a. Waterborne

1. Number of Releases:	0
2. Volume Released:	NA
3. Total Activity Released:	NA

b. Airborne

1. Number of Releases:	0
2. Total Activity Released:	NA

SECTION 2

EFFLUENT AND WASTE DISPOSAL DATA

TABLE 2
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT - 1988
AIRBORNE EFFLUENTS - SUMMATION OF ALL RELEASES

Nuclide Category	Unit	First Quarter		Second Quarter	
A. Fission and Activation Gases					
1. Total Release[1]	Ci	3.67E+01		0.00E+00	
2. Average Release Rate for Period	uCi/sec	4.67E+00		0.00E+00	
3. Percent of Applicable Limit[2]	%	3.29E-02		0.00E+00	
B. Iodine-131					
1. Total Release	Ci	≥6.98E-04	<8.33E-04	≥9.46E-06	<2.90E-04
2. Average Release Rate for Period	uCi/sec	≥8.88E-05	<1.06E-04	≥1.20E-06	<3.69E-05
3. Percent of Applicable limit[2]	%	≥3.78E-03	<4.51E-03	≥5.12E-05	<1.57E-03
C. Particulates					
1. Particulates with Half-lives >8 Days Released	Ci	≥3.23E-04	<1.24E-03	≥7.99E-05	<2.35E-03
2. Average Release Rate for Period	uCi/sec	≥4.11E-05	<1.58E-04	≥1.02E-05	<2.99E-04
3. Percent of Applicable Limit[2]	%	≥3.19E-04	<1.22E-03	≥7.90E-05	<2.32E-03
4. Gross Alpha Activity Released	Ci		<8.62E-07		<1.46E-06
D. Tritium					
1. Total Release	Ci	≥3.64E+00	<9.54E+00	≥1.10E+01	<1.58E+01
2. Average Release Rate for Period	uCi/sec	≥4.63E-01	<1.21E+00	≥1.40E+00	<2.01E+00
3. Percent of Applicable Limit[3]	%	≥9.49E-03	<2.49E-02	≥2.87E-02	<4.12E-02

[1]Notation: The first value presented (≥) includes only activity positively detected at the 95% confidence level. The second value (<) includes detected activity plus the Lower Limit of Detection values of any samples in which activity was not detected at the 95% CL.
[2]Based on release rate limit derived from dose rate Technical Specification.
[3]Based on a release rate (4.88E+03 uCi/sec) corresponding to the ^{3}H Maximum Permissible Concentration (2.0E-07 uCi/cc) in unrestricted areas. A relative concentration of 4.1E-05 sec/m^3 is assumed.

TABLE 3
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT - 1988
AIRBORNE EFFLUENTS (Curies)[1]

Nuclide	First Quarter		Second Quarter	
A. Gases				
^{133}Xe	3.67E+01			
Total	3.67E+01			
B. Iodines				
^{131}I	≥6.98E-04	<8.33E-04	≥9.46E-06	<2.90E-04
C. Particulates with Half-lives > 8 d				
^{51}Cr			3.24E-05	
^{54}Mn	≥2.28E-04	<3.09E-04	≥4.63E-05	<2.69E-04
^{59}Fe		<1.48E-04		<3.34E-04
^{58}Co	≥3.95E-05	<9.84E-05		<1.47E-04
^{60}Co	≥5.38E-05	<1.61E-04	≥1.18E-06	<3.02E-04
^{65}Zn		<1.64E-04		<3.94E-04
^{89}Sr	≥7.81E-07	<4.51E-06		<4.95E-06
^{90}Sr		<3.98E-07		<6.59E-07
^{134}Cs		<5.84E-05		<1.48E-04
^{137}Cs		<6.02E-05		<1.43E-04
^{141}Ce		<5.42E-05		<1.54E-04
^{144}Ce		<1.85E-04		<4.18E-04
Total	≥3.22E-04	<1.24E-03	≥7.99E-05	<2.35E-03

[1]Notation: The first value presented (≥) includes only activity positively detected at the 95% confidence level. The second value (<) includes detected activity plus the Lower Limit of Detection values of any samples in which activity was not detected at the 95% CL.

TABLE 4
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT - 1988
WATERBORNE EFFLUENTS - SUMMATION OF ALL RELEASES

Nuclide Category	Unit	First Quarter		Second Quarter	
A. Fission & Activation Products					
1. Total Release[1]	Ci	≥2.27E-02	<3.25E-02	≥2.54E-02	<3.52E-02
2. Average Diluted Concentration	uCi/ml	≥9.20E-08	<1.32E-07	≥7.46E-08	<1.03E-07
3. Percent of Applicable Limit[2]	%	9.33E-04		3.04E-03	
B. Tritium					
1. Total Release	Ci	3.01E+00		3.57E+00	
2. Average Diluted Concentration	uCi/ml	1.22E-05		1.05E-05	
3. Percent of Applicable limit[3]	%	4.07E-01		3.50E-01	
C. Dissolved and Entrained Gases					
1. Total Release	Ci	≥5.48E-04	<5.56E-02	≥6.75E-05	<8.77E-02
2. Average Diluted Concentration	uCi/ml	≥2.22E-09	<2.25E-07	≥1.98E-10	<2.58E-07
3. Percent of Applicable Limit[4]	%	≥5.56E-03	<5.64E-01	≥4.96E-04	<6.44E-01
D. Gross Alpha Radioactivity Released	Ci		<2.07E-04		<1.67E-04
E. Volume of Waste Released (Prior to Dilution)	gal.	9.56E+05		1.14E+06	
	liters	3.62E+06		4.30E+06	
F. Volume of Dilution Water Used					
1. During Periods of Release	gal.	>6.44E+07		>8.91E+07	
	liters	>2.43E+08		>3.36E+08	
2. Over Entire Period	gal.	>7.22E+08		>8.40E+08	
	liters	>2.73E+09		>3.17E+09	

[1]Notation: The first value presented (≥) includes only activity positively detected at the 95% confidence level. The second value (<) includes detected activity plus the Lower Limit of Detection values of any samples in which activity was not detected at the 95% CL.
[2]Based on quarterly dose limits from liquid effluents.
[3]Based on the Maximum Permissible Concentration for ^{3}H in effluents to unrestricted areas (3.0 E-03 uCi/cc).
[4]Based on the most restrictive Maximum Permissible Concentration for a noble for a gas, 4.0 E-05 uCi/cc (^{87}Kr) from SSES Tech Spec Table 3.11.1.1-1.

TABLE 5
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT - 1988
WATERBORNE EFFLUENTS (Curies)[1]

Nuclide	First Quarter		Second Quarter	
A. Tritium	3.01E+00		3.57E+00	
B. Fission and Activation Products				
^{51}Cr	2.08E-02		4.81E-04	
^{54}Mn	≥6.99E-04	<9.59E-04	≥1.12E-02	<1.13E-02
^{55}Fe		<3.62E-03	8.18E-03	
^{59}Fe		<5.14E-04	≥9.65E-05	<1.09E-03
^{58}Co	≥2.51E-05	<3.28E-04	≥1.14E-04	<6.21E-04
^{60}Co	≥6.13E-04	<9.77E-04	≥4.76E-03	<5.41E-03
^{65}Zn	≥4.63E-04	<1.21E-03	≥1.31E-04	<1.25E-03
^{89}Sr		<1.09E-04		<2.15E-04
^{90}Sr		<1.09E-05		<3.01E-05
^{99}Mo		<1.59E-03		<2.75E-03
^{110}Ag m	1.29E-04		3.83E-04	
^{131}I		<1.74E-04		<3.19E-04
^{134}Cs		<2.52E-04	≥2.61E-05	<4.77E-04
^{137}Cs		<3.26E-04		<6.16E-04
^{141}Ce		<2.88E-04		<3.75E-04
^{144}Ce		<1.26E-03		<1.66E-03
Total	≥2.27E-02	<3.25E-02	≥2.54E-02	<3.52E-02
C. Dissolved and Entrained Gases				
^{41}Ar		<1.92E-05		<4.46E-05
^{85}Kr m		<5.96E-05		<7.73E-05
^{85}Kr		<5.30E-02		<8.45E-02
^{87}Kr		<1.12E-05		<2.63E-05
^{88}Kr		<9.29E-05		<1.51E-04
^{133}Xe m		<1.30E-03		<1.96E-03
^{133}Xe	≥2.09E-04	<7.22E-04	≥3.00E-05	<7.69E-04
^{135}Xe m		<1.31E-08		<5.27E-08
^{135}Xe	≥3.39E-04	<4.07E-04	≥3.75E-05	<1.78E-04
Total	≥5.48E-04	<5.56E-02	≥6.75E-05	<8.77E-02

[1]Notation: The first value presented (≥) includes only activity positively detected at the 95% confidence level. The second value (<) includes detected activity plus the Lower Limit of Detection values of any samples in which activity was not detected at the 95% CL.

TABLE 6

SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
Data Period: January 1, 1988 - June 30, 1988

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL

Number of Shipments	Mode of Transportation	Destination
83	Truck	Barnwell, SC

B. IRRADIATED FUEL SHIPMENTS

Number of Shipments	Mode of Transportation	Destination
NONE	NOT APPLICABLE	NOT APPLICABLE

TABLE 7
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
SOLID RADIOACTIVE WASTE- CLASS A*
Data Period: January 1, 1988 - June 30, 1988

Source of Waste and Processing Employed (Waste Stream)	Condensate Demineralizer (Bead Resin)	Condensate Demineralizer (Bead Resin)	Reactor Water, Fuel Pool Clean-up (Powdex)	Condensate Demineralizer Regeneration (Evaporator Concentrates)
Container Volume (ft^3)	1974.1	3723.3	73.4	3735.9
Total Activity Content (Ci)	74.700	42.6028	99.2	1.1688
Above Determined By: a) measurement b) estimation c) measurement and correlation factors	C	C	C	C
Principle Radionuclides (Identity and Percent Composition)	Co-60 27 % Fe-55 25 % Mn-54 23 % Zn-65 7 % Cr-51 7 % C-14 4 % Co-58 3 % Ni-63 3% Pu-241 1%	Co-60 29 % Mn-54 27 % Fe-55 22 % Zn-65 6 % C-14 5 % Ni-63 3 % Cr-51 3 % CO-58 3 % Fe-59 2 %	Fe-55 53 % Co-60 19 % Mn-54 16 % Zn-65 7 % Co-58 2 % Cr-51 2 % Ni-63 1 %	Fe-55 71 % H-3 13 % Co-60 6 % Ni-63 5 % Mn-54 4 % Zn-65 1 %
Above Determined by: a) measurement b) estimation c) measurement and correlation factors	C	C	C	C
Type of Container	Carbon Steel Liner	Carbon Steel Liner	High Integrity Container	Carbon Steel Liner
Solidification Agent or Absorbent	Dewatered	Portland Cement	Dewatered	Portland Cement

* As defined in 10 CFR Part 61.

TABLE 7
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
SOLID RADIOACTIVE WASTE- CLASS A*
Data Period: January 1, 1988 - June 30, 1988

Source of Waste and Processing Employed (Waste Stream)	Liquid RW Filters (Filter Media, Sludge, Evapor. Concentrates)	Non-Compactible Trash	Compacted Trash	Compacted Trash
Container Volume (ft^3)	3735.9	2340	0	17130
Total Activity Content (Ci)	758.45	0.443	0	3.924
Above Determined By: a) measurement b) estimation c) measurement and correlation factors	C	B	N/A	B
Principle Radionuclides (Identity and Percent Composition)	Fe-55 73 % Mn-54 11 % Cr-51 7 % Co-60 6 % Zn-65 1 % Fe-59 1 % Co-58 1 %	Fe-55 62 % Mn-54 14 % Co-60 9 % Cr-51 5 % Zn-65 4 % Tc-99 4 % Co-58 2 %	N/A	Fe-55 64 % Mn-54 14 % Co-60 9 % Cr-51 5 % Zn-65 4 % Co-58 2 % Tc-99 2 %
Above Determined by: a) measurement b) estimation c) measurement and correlation factors	C	B	B	B
Type of Container	Carbon Steel Liner	Strongtight Container	55 Gallon 17H Drums	Strongtight Container
Solidification Agent or Absorbent	Portland Cement	N/A	N/A	N/A

* As defined in 10 CFR Part 61.

TABLE 8

SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

SOLID RADIOACTIVE WASTE- CLASS B*

Data Period: January 1, 1988 - June 30, 1988

Source of Waste and Processing Employed (Waste Stream)	* NO CLASS B WASTE GENERATED *			
Container Volume (ft^3)				
Total Activity Content (Ci)				
Above Determined By: a) measurement b) estimation c) measurement and correlation factors				
Principle Radionuclides (Identity and Percent Composition)				
Above Determined by: a) measurement b) estimation c) measurement and correlation factors				
Type of Container				
Solidification Agent or Absorbent				

* As defined in 10 CFR Part 61.

TABLE 9
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
SOLID RADIOACTIVE WASTE- CLASS C*
Data Period: January 1, 1988 - June 30, 1988

Source of Waste and Processing Employed (Waste Stream)	* NO CLASS C WASTE GENERATED *			
Container Volume (ft^3)				
Total Activity Content (Ci)				
Above Determined By: a) measurement b) estimation c) measurement and correlation factors				
Principle Radionuclides (Identity and Percent Composition)				
Above Determined by: a) measurement b) estimation c) measurement and correlation factors				
Type of Container				
Solidification Agent or Absorbent				

* As defined in 10 CFR Part 61.

TABLE 10
SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT
ESTIMATED TOTAL ERRORS ASSOCIATED WITH EFFLUENT MEASUREMENTS
Data Period: January 1, 1988 - June 30, 1988

Measurement	Estimated Total Error
1. Airborne Effluents	
a. Fission and Activiation Gases	15.9 %
b. I-131	13.3 %
c. Particulates	15.8 %
d. Tritium	5.7 %
2. Waterborne Effluents	
a. Fission and Activation Products	5.0 %
b. Tritium	3.3 %
c. Dissolved and Entrained Gases	8.4 %
3. Solid Wastes	
a. Condensate Demineralizers (Bead Resin - Dewatered)	15.1 %
b. Reactor Water Clean-up (Fuel Pool - Dewatered)	15.1 %
c. Condensate Demineralizer Regeneration (Evaporator Concentrates - Solidified)	15.1 %
d. Liquid RW Filters (Filter Media, Sludge and Evaporator Concentrates - Solidified)	15.1 %
e. Non-Compactable Trash	25 %
f. Compacted Trash	25 %

TABLE 11

SEMIANNUAL EFFLUENT AND WASTE DISPOSAL REPORT - 1988
EFFLUENT DATA NOT AVAILABLE FOR PREVIOUS SEMIANNUAL REPORT

NUCLIDE CATEGORY	UNIT	FOURTH QUARTER 1987	
A. Airborne Effluents			
1. Sr-89	Ci	≥1.09E-06	<5.27E-06
2. Sr-90	Ci		<4.38E-07
3. Gross Alpha	Ci		<2.37E-06
B. Waterborne Effluents			
1. Sr-89	Ci		<2.64E-04
2. Sr-90	Ci		<4.75E-05
3. Fe-55	Ci		<2.90E-02
4. Gross Alpha	Ci		<1.88E-04

SECTION 3

CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL AND THE SOLID WASTE PROCESS CONTROL PROGRAM

CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL

There were no revisions to the SSES Offsite Dose Calculation Manual during the report period.

CHANGES TO THE SOLID WASTE PROCESS CONTROL PROGRAM

Revision 8 to the SSES plant procedure AD-QA-311, Solid Waste Process Control Program, were prepared and approved during the report period. Copies of the affected pages are included following this page.

The changes made do not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes.

...S PROCEDURE CHANGE APPROVAL FORM	(1) CHANGE NO. 1-88-402	(2) Page 1 of 2

(3) PROCEDURE NO.	REV.	COL NO.	REV.
AD - QA - 311	8	N/A	N/A

(4) TITLE
SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

PROCEDURE TYPE: PORC (✓), NON PORC ( )

(5) REQUESTED CHANGE — CHANGE APPLICABILITY UNIT 1 (✓); UNIT 2 ( )

PER ATTACHED

(6) REASON FOR CHANGE
To prevent the use of old/degraded cement and additives when preparing the test solidification

REF SOOR 1-87-337

(NOTE: SEE REVERSE SIDE, ITEMS I, II, III AND IV, THEN COMPLETE PART 7 & 8)

(7) DOES THIS CHANGE ALTER THE INTENT OF THE PROCEDURE? YES ___ NO ✓
(8A) DOES THIS CHANGE CONSTITUTE AN UNREVIEWED 10-59 QUESTION? YES ___ NO ✓
(8B) DOES THIS CHANGE CONSTITUTE AN UNREVIEWED SAFETY QUESTION? YES ___ NO ✓
(9) RECOMMENDED FOR PERMANENT STATUS YES (✓) NO ( )

(10) EXPIRATION DATE N/A "NA" FOR PERMANENT STATUS
60 DAYS MAXIMUM FOR TEMPORARY STATUS

(11) INITIATOR	TITLE	DATE
Keith Matthews	Power Production Engr	6-17-88

(12) AUTHORIZATION

SHIFT SUPERVISOR	DATE	MANAGEMENT MEMBER	DATE
[signature]	6-20-88	A/D [signature]	6/20/88

(13) REVIEWS AND APPROVAL

A. PORC REVIEW: PORC MTG NO. _____
*PORC RECOMMENDED: YES ___ NO ___; PORC REVISED: YES ___ NO ___

B. *RECOMMENDED: _____ (For Non-Porc Procedure)
YES ___ NO ___ SECTION HEAD/MANAGER

*NOTE: If 'NO', complete PART V, Reverse Side.

C. APPROVED _____ Date _____
Superintendent
(Initials)

OPS TRAINING INFO	
OTHER UNIT — SAME CHANGE	☐
HOT BOX	☐
PCI	☐
SUPV OF OPS AGENDA	☐
NONE	☒

f. Test solidifications may be performed with waste from samples obtained by the Chemistry Group as follows:

(1) Direct sampling of the liner after mixing.

(2) Sampling of the tank to be transferred.

(3) Sampling of the solids in the liner and the liquid for hydration, then mixed to the ratios that exist in the liner.

g. Test Solidification Procedures shall be developed for each specific waste type.

h. Cement and additives to be used in actual solidification shall be used in preparation of test solidification

6.3.5 Curing Time

a. A minimum of 30 hours shall be allowed for curing prior to capping or transporting the container. If the liner contains an unstable waste form, this requirement may be wavied by the Radwaste Supervisor.

b. The liner may be moved during the first hour after solidification but must remain undisturbed for the remaining 29 hours.

c. Deviations from the minimum required curing time shall be approved by the Radwaste Supervisor and justifications documented in the remarks section of Solidification Data Sheet. (Form AD-QA-311-1)

d. A temperature recorder should be used to monitor the exothermic reaction. The temperature profiles will be used for information only.

6.3.6 Solidification Product Quality

a. Solidification product quality is assured by use of the predetermined mixing ratios of waste, cement and additive. Liquid to be used for solidification may be demineralized water or liquid radwaste.

b. Mixing ratios are based on laboratory testing non-radioactive waste materials.

SECTION 4

REPORTS OF EXCEPTION TO THE SSES EFFLUENT MONITORING PROGRAM

There were no instances during the report period in which airborne or waterborne effluent monitoring instrumentation was declared inoperable and was not restored to operability within the time period specified in Technical Specification Table 3.3.7.10-1 or 3.3.7.11-1 Action Statements.

PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101 • 215/770-5151

AUG 31 1988

Harold W. Keiser
Senior Vice President-Nuclear
215/770-4194

Mr. William T. Russell
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
SEMI-ANNUAL RADIOACTIVE EFFLUENT
RELEASE REPORT
PLA-3080 FILE R41-2A

Docket Nos. 50-387/NPF-14
and 50-388/NPF-22

Dear Mr. Russell:

In accordance with 10CFR50.36a(a)(2) and the Susquehanna SES Unit 1 and 2 Technical Specifications, attached is the Semi-Annual Radioactive Effluent Release Report for SSES Units 1 and 2 covering the period January 1 through June 30, 1988.

Very truly yours,

H. W. Keiser

Attachment

cc: NRC Document Control Desk (original)
NRC Region I
Mr. F. I. Young, NRC Resident Inspector
Mr. M. C. Thadani, NRC Project Manager

IE48
1/1