

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

SURRY POWER STATION

(January 1, 1985 Through June 30, 1985)

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## FORWARD

This report is submitted as required by Appendix A to Operating License No.'s DPR-32 and DPR-37, Technical Specifications for Surry Power Station, Units 1 and 2, Virginia Electric and Power Company, Docket No.'s 50-280, 50-281, Section 6.6.3.C.

**RADIOACTIVE EFFLUENT RELEASE REPORT**  
**FOR THE**  
**SURRY POWER STATION**  
**(January 1, 1985 Through June 30, 1985)**

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## 1.0 Purpose and Scope

The Radioactive Effluent Release Report includes a summary of the quantities of radioactive liquid and gaseous effluents and solid waste as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants", Revision 1, June 1974, with data summarized on a quarterly basis following the format of Tables 1, 2 and 3 of Appendix B thereof. The report submitted within 60 days after January 1 of each year includes an assessment of radiation doses to the maximum exposed member of the public due to radioactive liquid and gaseous effluents released from the site during the previous calendar year. The report also includes a list of unplanned releases during the reporting period.

As required by Technical Specification 6.8B, changes to the ODCM for the time period covered by this report are included. Information is provided to support the changes along with a package of those pages of the ODCM changed.

This report includes changes to the PCP with information and documentation necessary to support the rationale for the changes as required by Technical Specification 6.8A.

Major changes to the radioactive liquid, gaseous and solid waste treatment systems are reported as required by Technical Specification 6.9. Information to support the reason for the change and a summary of the 10CFR50.59 evaluation are included. In lieu of reporting major changes in this report, major changes to the radioactive waste treatment systems may be submitted as part of the annual FSAR update.

As required by Technical Specification 3.7E.2, a list and explanation for the inoperability of radioactive liquid and/or gaseous effluent monitors is provided in this report.

## 2.0 Discussion

The basis for the calculation of the percent of technical specification for the critical organ in Table 1A of Attachment 1, is Technical Specification 3.11B.1.a (ii). Technical Specification 3.11B.1.a (ii) requires that the dose rate for iodine - 131, for tritium, and for all radionuclides in particulate form with half lives greater than 8 days shall be less than or equal to 1500 mRem/yr to the critical organ at or beyond the site boundary. The critical organ is the child's thyroid, inhalation pathway.

The basis for the calculation of percent of technical specification for the total body and skin in Table 1A of Attachment 1, is Technical Specification 3.11B.1.a (i). Technical Specification 3.11B.1.a 1.0(i) requires that the dose rate for noble gases to areas at or beyond site boundary shall be less than or equal to 500 mRem/yr to the total body and less than or equal to 3000 mRem/yr to the skin.

The basis for the calculation of the percent of technical specification in Table 2A of Attachment 1, is Technical Specification 3.11A.1.a. Technical Specification 3.11A.1.a states that the concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10CFR20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $2 \times 10^{-4}$  microcuries/ml.

Percent of technical specification calculations are based on the total gaseous or liquid effluents released for that respective quarter.

The annual and quarterly doses, as reported in Attachment 2, were calculated according to the methodology presented in the ODCM. The beta and gamma air doses due to noble gases released from the site were calculated at site boundary. The maximum exposed member of the public from the release of airborne iodine - 131, tritium and all radionuclides in particulate form with half lives greater than 8 days, is defined as an infant, exposed through the grass-cow-milk pathway, with the critical organ being the thyroid. The maximum exposed member of the public from radioactive materials in liquid effluents in unrestricted areas is defined as an adult, exposed by either the invertebrate or fish pathway, with the critical organ being either the thyroid or GI-LLL. The total body dose was also determined for this individual.

Unplanned releases presented in Attachment 7 are defined in Technical Specification 6.6.3.C as those gaseous releases exceeding Technical Specification 3.11.B.1.a and those liquid releases exceeding Technical Specification 3.11.A.1.a.

### 3.0 Supplemental Information

Technical Specification 3.11.D.1.d requires the identification of the cause for the unavailability of milk or leafy vegetation samples, required by Technical Specification, Table 4.9-3, and identification for obtaining replacement samples. All milk and leafy vegetation samples required by Table 4.9-3 were available for collection during the period of January 1, 1985 through June 30, 1985.

Technical Specification 3.11.D.2.b requires the identification of new sample locations determined with the Land Use Census as yielding a calculated dose or dose commitment greater than the values being calculated in Technical Specification 4.9.C. No new sample location(s) that may yield a greater dose or dose commitment that are currently used in Technical Specification 4.9.C, were identified in the Land Use Census.

**EFFLUENT RELEASE DATA**

(January 1, 1985 Through June 30, 1985)

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
PERIOD: 1/ 1/85 TO 6/30/85  
GASEOUS EFFLUENT-SUMMATION OF ALL RELEASES

SURRY POWER STATION UNITS 1&2	UNIT	FIRST QTR.	SECOND QTR.	* EST. ERROR
<b>A. FISSION &amp; ACTIVATION GASES</b>				
1. TOTAL RELEASE	CI	2.84E 02	6.47E 02	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	3.65E 01	8.23E 01	
<b>B. IODINE</b>				
1. TOTAL I-131	CI	1.00E-02	7.89E-03	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	1.29E-03	1.00E-03	
<b>C. PARTICULATE</b>				
1. HALF-LIVES >8 DAYS	CI	2.65E-04	3.44E-04	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	3.40E-05	4.38E-05	
3. GROSS ALPHA RADIOACTIVITY	CI	4.13E-07	7.48E-07	
<b>D. TRITIUM</b>				
1. TOTAL RELEASE	CI	9.19E 00	8.29E 00	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	1.18E 00	1.05E 00	
<b>PERCENTAGE OF T.S. LIMITS</b>				
CRITICAL ORGAN DOSE RATE	*	8.70E-02	6.23E-02	
TOTAL BODY DOSE RATE	*	1.85E-01	1.93E-01	
SKIN DOSE RATE	*	6.58E-02	7.58E-02	

TABLE 1B

**EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT**  
**PERIOD: 1/ 1/85 TO 6/30/85**  
**GASEOUS EFFLUENTS-MIXED-MODE RELEASES**

SURREY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE		BATCH MODE	
		FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
<b>1. FISSION &amp; ACTIVATION GASES</b>					
KR-85	CI	0.00E-01	0.00E-01	0.00E-01	3.92E-02
KR-85M	CI	1.29E-03	0.00E-01	0.00E-01	0.00E-01
KR-87	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR-88	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE-133	CI	3.13E 01	1.59E 02	4.61E 00	9.18E 01
XE-135	CI	8.37E-01	4.15E-01	0.00E-01	7.34E-02
XE-135M	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE-138	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR-41	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE-131M	CI	0.00E-01	0.00E-01	7.72E-02	1.03E 00
XE-133M	CI	0.00E-01	0.00E-01	0.00E-01	6.73E-01
<b>TOTAL FOR PERIOD</b>	<b>CI</b>	<b>3.21E 01</b>	<b>1.60E 02</b>	<b>4.69E 00</b>	<b>9.36E 01</b>
<b>2. IODINES</b>					
I-131	CI	1.64E-07	8.74E-05	3.34E-06	7.89E-04
I-133	CI	2.50E-07	0.00E-01	4.42E-08	1.63E-05
I-135	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
I-132	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
<b>TOTAL FOR PERIOD</b>	<b>CI</b>	<b>4.14E-07</b>	<b>8.74E-05</b>	<b>3.38E-06</b>	<b>8.05E-04</b>
<b>3. PARTICULATES</b>					
SR-89	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR-90	CI	1.08E-09	0.00E-01	0.00E-01	0.00E-01
CS-134	CI	7.62E-07	5.80E-07	3.00E-08	0.00E-01
CS-137	CI	2.52E-06	2.40E-06	8.19E-08	1.51E-07
BA-140	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA-140	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE-132	CI	0.00E-01	1.23E-07	0.00E-01	0.00E-01
RB-88	CI	0.00E-01	0.00E-01	0.00E-01	6.10E-05
CS-138	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CO-60	CI	1.00E-05	4.59E-06	0.00E-01	7.99E-08
CO-58	CI	1.84E-08	4.39E-07	4.62E-09	2.13E-09
MN-54	CI	2.26E-07	0.00E-01	0.00E-01	0.00E-01
CO-57	CI	1.51E-08	0.00E-01	0.00E-01	0.00E-01
SB-125	CI	5.84E-08	0.00E-01	0.00E-01	0.00E-01



TABLE 1C

**EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT**  
**PERIOD: 1/ 1/85 TO 6/30/85**  
**GASEOUS EFFLUENTS-GROUND LEVEL RELEASES**

SURREY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE		BATCH MODE	
		FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
<b>1. FISSION &amp; ACTIVATION GASES</b>					
KR-85	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
KR-85M	CI	0.00E-01	0.00E-01	0.00E-01	2.38E-03
KR-87	CI	1.84E 00	0.00E-01	0.00E-01	4.61E-04
KR-88	CI	0.00E-01	0.00E-01	0.00E-01	2.69E-03
XE-133	CI	2.39E 02	2.39E 02	0.00E-01	1.48E 02
XE-135	CI	1.84E 00	6.45E 00	0.00E-01	1.61E-02
XE-135M	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
XE-138	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
AR-41	CI	3.98E 00	0.00E-01	0.00E-01	6.55E-04
XE-131M	CI	0.00E-01	0.00E-01	0.00E-01	4.91E-01
XE-133M	CI	0.00E-01	0.00E-01	0.00E-01	1.89E-03
<b>TOTAL FOR PERIOD</b>	<b>CI</b>	<b>2.47E 02</b>	<b>2.45E 02</b>	<b>0.00E-01</b>	<b>1.48E 02</b>
<b>2. IODINES</b>					
I-131	CI	9.95E-03	5.48E-03	7.03E-05	1.54E-03
I-133	CI	7.03E-03	4.16E-03	2.55E-05	1.14E-04
I-135	CI	1.55E-03	2.49E-03	0.00E-01	0.00E-01
I-132	CI	2.84E-04	2.95E-04	0.00E-01	5.18E-07
<b>TOTAL FOR PERIOD</b>	<b>CI</b>	<b>1.88E-02</b>	<b>1.24E-02</b>	<b>9.58E-05</b>	<b>1.65E-03</b>
<b>3. PARTICULATES</b>					
SR-89	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR-90	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
CS-134	CI	3.01E-05	2.16E-05	3.35E-06	1.04E-05
CS-137	CI	1.41E-04	8.45E-05	1.42E-05	4.05E-05
BA-140	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
LA-140	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
TE-132	CI	2.09E-05	0.00E-01	0.00E-01	0.00E-01
RB-88	CI	8.13E-04	0.00E-01	0.00E-01	2.06E-04
CS-138	CI	1.41E-03	0.00E-01	0.00E-01	0.00E-01
CO-60	CI	5.19E-05	8.27E-05	1.93E-06	1.94E-05
CO-58	CI	7.87E-06	6.63E-05	0.00E-01	8.48E-06
MN-54	CI	0.00E-01	2.09E-06	0.00E-01	0.00E-01
CO-57	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB-125	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01

TABLE 2A

**EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
PERIOD: 1/ 1/85 TO 6/30/85  
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES**

<b>SURRY POWER STATION UNITS 1&amp;2</b>	<b>UNIT</b>	<b>FIRST QTR.</b>	<b>SECOND QTR.</b>	<b>* EST. ERROR</b>
<b>A. FISSION AND ACTIVATION PRODUCTS</b>				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CI	2.71E 00	2.17E 00	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	5.18E-09	5.25E-09	
3. PERCENT OF APPLICABLE LIMIT	*	1.92E-01	1.17E-01	
<b>B. TRITIUM</b>				
1. TOTAL RELEASE	CI	2.14E 02	1.86E 02	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	4.09E-07	4.50E-07	
3. PERCENT OF APPLICABLE LIMIT	*	1.36E-02	1.50E-02	
<b>C. DISSOLVED AND ENTRAINED GASES</b>				
1. TOTAL RELEASE	CI	1.43E 00	2.80E-01	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	2.74E-09	6.77E-10	
3. PERCENT OF APPLICABLE LIMIT	*	1.37E-03	3.38E-04	
<b>D. GROSS ALPHA RADIOACTIVITY</b>				
1. TOTAL RELEASE	CI	2.23E-04	3.40E-12	2.50E 01
<b>E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)</b>				
	LITERS	1.13E 08	9.96E 07	3.50E 00
<b>F. VOLUME OF DILUTION WATER USED DURING PERIOD</b>				
	LITERS	5.24E 11	4.14E 11	3.50E 00

TABLE 2B

**EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT**  
**PERIOD: 1/ 1/85 TO 6/30/85**  
**LIQUID EFFLUENTS**

SURREY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE		BATCH MODE	
		FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
SR-89	CI	0.00E-01	0.00E-01	1.67E-03	8.33E-04
SR-90	CI	0.00E-01	0.00E-01	0.00E-01	8.92E-05
CS-134	CI	7.23E-03	5.24E-03	3.18E-01	7.10E-02
CS-137	CI	2.89E-02	2.00E-02	8.41E-01	1.81E-01
I-131	CI	9.61E-04	6.78E-05	2.48E-01	1.22E-01
CO-58	CI	1.38E-03	2.74E-05	5.55E-01	7.37E-01
CO-60	CI	1.10E-02	1.40E-04	3.08E-01	4.73E-01
FE-59	CI	0.00E-01	0.00E-01	1.62E-03	1.90E-03
ZN-65	CI	0.00E-01	0.00E-01	9.00E-05	3.38E-04
MN-54	CI	5.71E-05	0.00E-01	9.34E-03	3.72E-02
CR-51	CI	0.00E-01	0.00E-01	1.32E-01	2.57E-01
ZR-95	CI	0.00E-01	0.00E-01	5.27E-03	6.56E-03
NB-95	CI	0.00E-01	0.00E-01	1.14E-02	2.24E-02
MO-99	CI	0.00E-01	0.00E-01	3.15E-03	3.92E-04
TC-99M	CI	1.62E-04	0.00E-01	3.83E-03	1.35E-03
BA-140	CI	0.00E-01	0.00E-01	3.79E-05	1.97E-04
LA-140	CI	0.00E-01	0.00E-01	5.12E-04	2.08E-03
CE-141	CI	1.40E-05	0.00E-01	1.07E-04	0.00E-01
I-133	CI	4.00E-03	0.00E-01	6.88E-02	2.85E-02
RU-103	CI	3.76E-05	0.00E-01	6.59E-04	7.87E-05
CE-144	CI	0.00E-01	0.00E-01	5.83E-03	1.07E-03
SB-125	CI	0.00E-01	0.00E-01	8.02E-03	5.37E-02
AG-110M	CI	0.00E-01	0.00E-01	5.14E-04	3.77E-02
SR-92	CI	0.00E-01	0.00E-01	3.31E-04	1.17E-02
CO-57	CI	0.00E-01	0.00E-01	6.41E-04	1.64E-03
NA-24	CI	3.31E-04	0.00E-01	8.15E-02	2.24E-04
SB-124	CI	0.00E-01	0.00E-01	2.21E-03	1.11E-02
RB-88	CI	0.00E-01	0.00E-01	2.76E-04	0.00E-01
I-135	CI	1.73E-03	0.00E-01	8.05E-03	2.72E-03
I-132	CI	5.43E-05	0.00E-01	1.19E-03	1.33E-04
W-187	CI	0.00E-01	0.00E-01	1.06E-04	0.00E-01
TE-132	CI	0.00E-01	0.00E-01	1.30E-05	3.87E-05
NA-22	CI	0.00E-01	0.00E-01	4.27E-06	3.70E-07
ND-147	CI	0.00E-01	0.00E-01	6.46E-05	2.58E-05
CS-136	CI	0.00E-01	0.00E-01	2.44E-04	4.11E-04
I-134	CI	0.00E-01	0.00E-01	3.52E-04	4.06E-05
CS-138	CI	0.00E-01	0.00E-01	2.53E-04	0.00E-01
FE-55	CI	0.00E-01	0.00E-01	3.59E-02	8.33E-02
BI-207	CI	0.00E-01	0.00E-01	1.97E-06	0.00E-01
<b>TOTAL FOR PERIOD</b>	CI	<b>5.59E-02</b>	<b>2.55E-02</b>	<b>2.65E 00</b>	<b>2.15E 00</b>
XE-133	CI	2.32E-04	3.73E-02	9.99E-01	1.54E-01
XE-135	CI	1.18E-03	1.24E-03	3.99E-01	8.12E-02
AR-41	CI	0.00E-01	0.00E-01	2.47E-04	1.20E-04
XE-135M	CI	5.43E-04	0.00E-01	1.73E-02	3.81E-03
KR-85M	CI	0.00E-01	0.00E-01	1.32E-03	5.31E-05
KR-88	CI	0.00E-01	0.00E-01	6.68E-04	1.25E-04
XE-133M	CI	0.00E-01	0.00E-01	9.52E-03	7.21E-04
KR-87	CI	0.00E-01	0.00E-01	1.20E-04	0.00E-01
XE-131M	CI	0.00E-01	0.00E-01	3.84E-03	1.34E-03

TABLE 3  
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

PERIOD: 01/01/85-06/30/85

SURRY POWER STATION

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Type of waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup>	4.67E+01	5.00E+00
	Ci	9.39E+02	3.00E+01
b. Dry compressible waste, contaminated equip., etc.	m <sup>3</sup>	1.17E+03	5.00E+00
	Ci	3.05E+01	3.00E+01
c. Irradiated components, control rods, etc.	m <sup>3</sup>	0.00E+00	0.00E+00
	Ci	0.00E+00	0.00E+00
d. Other (describe)	m <sup>3</sup>	0.00E+00	0.00E+00
	Ci	0.00E+00	0.00E+00

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

a.	Co-60	%	3.87E+01
	Co-58	%	3.32E+01
	Ni-63	%	7.74E+00
	Fe-55	%	6.82E+00
	Te-125m	%	4.80E+00
	Mn-54	%	2.31E+00
	Cr-51	%	1.47E+00
b.	Fe-55	%	2.43E+01
	Co-60	%	2.23E+01
	Cs-137	%	2.18E+01
	H-3	%	1.09E+01
	Cs-134	%	8.49E+00
	Co-58	%	6.50E+00
c.	_____	%	0.00E+00
	_____	%	0.00E+00

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
31	Truck	Barnwell, SC
19	Truck	Richland, WA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination
1	Truck	E. G. & G. Idaho (for U. S. Department of Energy)

ANNUAL AND QUARTERLY DOSES

The Semi-Annual Radioactive Effluent Release Report submitted within 60 days after January 1 of each year, shall include an assessment of radiation doses to the maximum exposed member of the public due to radioactive liquid and gaseous effluents released from the site during the previous calendar year.

REVISIONS TO OFFSITE DOSE CALCULATION MANUAL (ODCM)

1. A revision to the Offsite Dose Calculation Manual was approved by the Station Nuclear Safety and Operating Committee on January 10, 1985.
  - a. ODCM section 12 referenced an incorrect Technical Specification number when referring to Semi Annual Radioactive Effluent Report criteria listed in Surry Technical Specifications.
  - b. The following pages contain a copy of the changes to the ODCM and documentation that the change was reviewed by the Station Nuclear Safety Operating Committee.

No. 888.36D

REQUEST TO CHANGE PROCEDURE  
SURREY POWER STATION  
VIRGINIA ELECTRIC AND POWER COMPANY

Adm 21-05 -07

TO SUPERVISOR RESPONSIBLE FOR FOLLOWING PROCEDURE:

- |   |  |   |  |
|---|--|---|--|
| <input type="checkbox"/> ABNORMAL       | <input type="checkbox"/> CURVE BOOK            | <input type="checkbox"/> OPERATING      | <input type="checkbox"/> WELDING         |
| <input type="checkbox"/> ADMINISTRATIVE | <input type="checkbox"/> EMERGENCY             | <input type="checkbox"/> PERIODIC TEST  | <input checked="" type="checkbox"/> ODCM |
| <input type="checkbox"/> ANNUNCIATOR    | <input type="checkbox"/> IN-SERVICE INSPECTION | <input type="checkbox"/> HEALTH PHYSICS | <input type="checkbox"/>                 |
| <input type="checkbox"/> CALIBRATION    | <input type="checkbox"/> MAINTENANCE           | <input type="checkbox"/> SPECIAL TEST   | <input type="checkbox"/>                 |
| <input type="checkbox"/> CHEMISTRY      | <input type="checkbox"/> NON-DESTRUCTIVE TEST  | <input type="checkbox"/> START-UP TEST  | <input type="checkbox"/>                 |

PROCEDURE NO: <b>H.P.-ODCM-12</b>	UNIT NO: <b>142</b>	REVISION DATE: <b>June 28, 1984</b>
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TITLE:  
**OFFSITE DOSE CALCULATION MANUAL**

CHANGE REQUESTED: (GIVE STEP NUMBER, EXACT SUGGESTED WORDING, AND LIST REFERENCES. STAPLE COPY OF PROCEDURE, WITH SUGGESTED CHANGES MARKED, TO THIS FORM.)

**HP-ODCM-12, STEP 1: CHANGE REFERENCE FROM TECH SPEC 6.9.1.12 TO 6.6.3.C.**

REFERENCES:  
**QA AUDIT 584-32, SURREY TECHNICAL SPECIFICATIONS**

REASON FOR CHANGE:

**WRONG REFERENCE** **RECEIVED**  
**FEB 1 1985**  
**STATION RECORDS**

CHANGE REQUESTED BY: <b>Barry Fisher</b>	DATE: <b>1-3-85</b>
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ACTION TAKEN:

**FOR REVIEW**

- DOES THIS CHANGE THE OPERATING METHODS AS DESCRIBED IN THE FSAR?  YES  NO
- DOES THIS CHANGE INVOLVE A CHANGE TO THE TECH. SPECS.?  YES  NO
- DOES THIS CHANGE INVOLVE A POSSIBLE UNREVIEWED SAFETY QUESTION?  YES  NO

IF ALL "NO", NO "SAFETY ANALYSIS" IS REQUIRED. IF ANY "YES", A "SAFETY ANALYSIS" IS REQUIRED. (10CFR50.59)

RECOMMENDED ACTION:  APPROVED  DISAPPROVED

BY: <b>[Signature]</b>	DATE: <b>1/10/85</b>
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REVIEWED FOR QUALITY CONTROL REQUIREMENTS:

BY: <b>[Signature]</b>	DATE: <b>1-10-85</b>
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REVIEWED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE:  APPROVED  DISAPPROVED  APPROVED AS MODIFIED BY COMMITTEE

CHAIRMAN SIGNATURE: <b>Harry L. Miller</b>	DATE: <b>JAN 10 1985</b>
---	-----------------------------

NEW PROCEDURE REVISION DATE:

ACTION COMPLETED BY: <b>[Signature]</b>	DATE: <b>JAN 23 1985</b>
--	-----------------------------

<p>SURRY POWER STATION PROCEDURE</p>	<p>PROCEDURE NUMBER: HP-ODCM (1)</p>
	<p>DATE: JAN 10 1985 (2)</p>
<p>TYPE PROCEDURE: (3) HEALTH PHYSICS PROCEDURE</p>	<p>UNIT #: (4) 1 &amp; 2</p>
<p>TITLE: (5) OFFSITE DOSE CALCULATION MANUAL</p>	

LIST OF EFFECTIVE REVISIONS:

<u>SECTION</u>	<u>DATE</u>
1.	06-28-84
2.	06-28-84
3.	06-28-84
4.	06-28-84
5.	06-28-84
6.	06-28-84
7.	06-28-84
8.	06-28-84
9.	06-28-84
10.	06-28-84
11.	06-28-84
12.	JAN 10 1985
13.	06-28-84
14.	06-28-84
Appendix A	06-28-84
Appendix B	06-28-84

FOR REVIEW ONLY

# THINK ALARA

<p>RECOMMEND APPROVAL: (7) <i>[Signature]</i></p>	<p>(8) DATE: 1/10/85</p>
<p>QUALITY CONTROL REVIEW: (9) <i>[Signature]</i></p>	<p>(10) DATE: 1-10-85</p>
<p>APPROVED STATION NUCLEAR SAFETY AND OPERATING COMMITTEE: (11) <i>[Signature]</i></p>	<p>(12) DATE: JAN 10 1985</p>



JAN 10 1985

1. TECHNICAL SPECIFICATION REQUIREMENT

Technical Specification 6.6.3.C requires that the Semiannual Radioactive Release Report submitted within 60 days after January 1 of each year include, in part, an assessment of the radiation doses to individuals due to the radioactive liquid and gaseous effluents from the station during the previous calendar year, and an assessment of the radiation doses to the maximum exposed member of the public from reactor releases and radiation.

2. DOSE ASSESSMENT

1. The radiation doses to individuals due to the radioactive liquid and gaseous effluents from the station during the previous calendar year shall be calculated using the methodology presented in this Manual or in Regulatory Guide 1.109 (Revision 1), October 1977, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR Part 50, Appendix I" (see Appendix B). Population doses are not to be included in the dose assessment.
2. The dose to the maximum exposed member of the public due to the radioactive liquid and gaseous effluents from the station shall be incorporated with the dose assessment performed above. If the dose to the maximum exposed member of the public exceeds twice the limits of Specifications 3.11.A.2, 3.11.B.2 or 3.11.B.3, the dose assessment shall include the contribution from direct radiation. U.S. Nuclear Regulatory Commission NUREG-0543, February 1980, "Methods for Demonstrating LWR Compliance With the EPA Uranium Fuel Cycle Standard (40CFR Part 190)", states "There is reasonable assurance that sites with up to four operating reactors that have releases within Appendix I design objective values are also in conformance with the EPA Uranium Fuel Cycle Standard, 40CFR Part 190".
3. The meteorological conditions during the previous calendar year or historical annual average atmospheric dispersion conditions shall be used for determining the gaseous pathway doses.

FOR REVIEW ONLY

REVISIONS TO THE PROCESS CONTROL PROGRAM (PCP)

There were no licensee initiated changes made to the Process Control Program during the period January 1, 1985 through June 30, 1985.

MAJOR CHANGES TO RADIOACTIVE LIQUID, GASEOUS AND  
SOLID WASTE TREATMENT SYSTEMS

There were no major changes to Surry's Radioactive Liquid, Gaseous or Solid Waste Treatment Systems during the period of January 1, 1985 through June 30, 1985.

**INOPERABILITY OF RADIOACTIVE LIQUID AND GASEOUS  
EFFLUENT MONITORING INSTRUMENTATION**

Technical Specification 3.7.E.2 requires the Semi-Annual Report to include an explanation why monitors required by Technical Specification Tables 3.7-5 (a) and 3.7-5 (b) which were determined inoperable, were not returned to operable status within 30 days.

Three monitors require explanation under this criteria for the period of January 1, 1985 through June 30, 1985. They are the Component Cooling Service Water Monitor, Unit #2 Discharge Tunnel Monitor and the Waste Gas Holdup System Explosive Gas Oxygen Monitor.

1. The Component Cooling Service Water Monitor (RM-SW-107) was inoperable prior to this reporting period. The offline Radiation Monitor is operable but pumps bringing service water to the monitor failed. Repeated efforts to return the pumps to operable status failed and on June 4, 1984, a Design Change (84-25) was initiated to replace the monitoring system using an in-line gamma scintillation detector in each of the service water discharge lines from the Component Cooling Heat Exchanges.

Upon further review it was determined that such an installation was not feasible because of shielding requirements and physical configuration of the heat exchangers and the heat exchanger outlet piping. The Design Change is currently being rewritten to install a "Snow Plow" type monitor.

The rewritten Design Change is scheduled to be completed and submitted to SNSOC by December 31, 1985. Based on current equipment lead times, installation of the monitor(s) are scheduled for the summer of 1986.

Grab Sampling, required by Table 3.7-5 (a) when the monitor is out of service, has been performed since the monitor became inoperable. The Grab Sampling will continue until Design Change 84-25 is completed.

2. The Unit #2 Discharge Tunnel Monitor (RM-SW-220) was determined inoperable prior to this reporting period. The inline monitor housing experienced corrosion problems and requires redesign to provide stronger support. An Engineering Work Request (EWR 83-12) was initiated on October 28, 1983.

Parts required for installation were received in July 1985. Installation of a stronger support and reinstallation of the monitor is currently in progress and is scheduled to be completed by September 30, 1985.

All Effluent Releases via this pathway have been diverted to the Unit #1 Discharge Tunnel.

3. The Waste Gas Holdup System Explosive Gas Oxygen Monitor (GW-102A and GW-102B) was inoperable prior to this reporting period. Repeated attempts to return the monitor to service during the months of June, July and August of 1984 failed and an Engineering Work Request (EWR 84-266) was initiated on August 31, 1984 to correct the problem.

EWR-84-266 required both monitors to be replaced. The monitors specified by the EWR were received at the station but were returned to the vendor to correct deficiencies. Installation will continue upon return of the repaired monitors. Scheduled completion date is December 31, 1985.

Grab Sampling, required by Technical Specification Table 3.7-5 (b) when the monitor is out of service, has been performed since the monitor became inoperable. The Grab Sampling will continue to satisfy the monitoring requirements until the installation of the new monitors.

UNPLANNED RELEASES

There has been no Unplanned Liquid or Gaseous Releases that exceeded Technical Specification 3.11.A.1.a or 3.11.B.1.a during the period of January 1, 1985 through June 30, 1985.

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

W. L. STEWART  
VICE PRESIDENT  
NUCLEAR OPERATIONS

August 30, 1985

Dr. J. Nelson Grace  
Regional Administrator  
Region II  
U. S. Nuclear Regulatory Commission  
101 Marietta Street, Suite 2900  
Atlanta, Georgia 30303

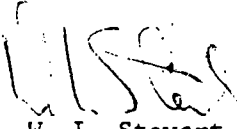
Serial No. 85-6297  
NO/JBL:acm  
Docket Nos. 50-280 D  
50-281  
License Nos. DPR-32  
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY  
SURRY POWER STATION, UNITS 1 AND 2  
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

Enclosed is the Surry Power Station Semi-Annual Radioactive Effluent Release Report for January 1, 1985 through June 30, 1985. The report, submitted pursuant to Surry Power Station Technical Specification 6.6.3.c, includes a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released during the previous six months, as outlined in Regulatory Guide 1.21, Revision 1, June 1974.

Very truly yours,

  
W. L. Stewart

Enclosure

cc: Mr. Steven A. Varga, Chief  
Operating Reactors Branch No. 1  
Division of Licensing

Mr. D. J. Burke  
NRC Resident Inspector  
Surry Power Station

DESIGNATED ORIGINAL  
Certified By Carlene Scott

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