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SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

SURRY POWER STATION

(July 1, 1985 Through December 31, 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.B.3.

RADIOACTIVE EFFLUENT RELEASE REPORT

FOR THE

SURRY POWER STATION

(July 1, 1985 Through December 31, 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 are 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).This Technical Specification 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 2×10^{-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-LLI. The total body dose was also determined for this individual.

Unplanned releases presented in Attachment 7 are defined in Technical Specification 6.6.B.3 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 July 1, 1985 through December 31, 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.

Attachment 1

EFFLUENT RELEASE DATA

(July 1, 1985 Through December 31, 1985)

TABLE 1A

EFFLUENT ...D WASTE DISPOSAL SEMIANNUAL REPORT
PERIOD: 7/ 1/85 TO 12/31/85
GASEOUS EFFLUENT-SUMMATION OF ALL RELEASES

SURRY POWER STATION UNITS 1&2	UNIT	THIRD QTR.	FOURTH QTR.	% EST. ERROR
A. FISSION & ACTIVATION GASES				
1. TOTAL RELEASE	CI	5.55E 02	5.81E 02	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	6.98E 01	7.31E 01	
B. IODINE				
1. TOTAL I-131	CI	5.53E-03	2.10E-03	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	6.95E-04	2.64E-04	
C. PARTICULATE				
1. HALF-LIVES >8 DAYS	CI	4.18E-04	1.99E-04	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	5.26E-05	2.50E-05	
3. GROSS ALPHA RADIOACTIVITY	CI	6.46E-07	1.34E-06	
D. TRITIUM				
1. TOTAL RELEASE	CI	7.31E 00	7.91E 00	2.50E 01
2. AVG RELEASE RATE FOR PERIOD	UCI/SEC	9.19E-01	9.95E-01	
PERCENTAGE OF T.S. LIMITS				
CRITICAL ORGAN DOSE RATE	%	4.83E-02	2.11E-02	
TOTAL BODY DOSE RATE	%	2.04E-01	1.70E-01	
SKIN DOSE RATE	%	8.14E-02	6.94E-02	

TABLE 1B

EFFLUENT ...D WASTE DISPOSAL SEMIANNUAL REPORT
PERIOD: 7/ 1/85 TO 12/31/85
GASEOUS EFFLUENTS-MIXED-MODE RELEASES

SURRY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE THIRD QUARTER	CONTINUOUS MODE FOURTH QUARTER	BATCH MODE THIRD QUARTER	BATCH MODE FOURTH QUARTER
1. FISSION & ACTIVATION GASES					
KR-85	CI	0.00E-01	0.00E-01	0.00E-01	8.60E 00
KR-85M	CI	0.00E-01	1.82E-02	1.49E-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	1.07E-01	0.00E-01
XE-133	CI	1.80E 01	3.56E 01	9.80E 01	1.50E 02
XE-135	CI	2.41E-01	1.40E 00	3.55E 00	1.15E-01
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
XE-133M	CI	7.88E-02	0.00E-01	9.42E-01	8.22E-01
XE-131M	CI	2.26E-08	0.00E-01	1.43E 00	2.71E 00
TOTAL FOR PERIOD	CI	1.83E 01	3.71E 01	1.04E 02	1.62E 02
2. IODINES					
I-131	CI	1.44E-06	1.40E-06	1.06E-04	1.01E-05
I-133	CI	7.28E-09	1.40E-06	4.06E-06	1.15E-06
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
TOTAL FOR PERIOD	CI	1.45E-06	2.80E-06	1.10E-04	1.13E-05
3. PARTICULATES					
SR-89	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR-90	CI	3.49E-09	7.87E-10	0.00E-01	0.00E-01
CS-134	CI	3.74E-06	5.23E-07	0.00E-01	0.00E-01
CS-137	CI	1.49E-05	2.16E-06	1.68E-09	1.99E-09
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
CO-60	CI	6.34E-05	1.04E-05	0.00E-01	0.00E-01
CO-58	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SB-125	CI	6.83E-07	6.43E-08	0.00E-01	0.00E-01
MN-54	CI	1.12E-06	9.70E-08	0.00E-01	0.00E-01
CO-57	CI	6.39E-09	0.00E-01	0.00E-01	0.00E-01
RB-88	CI	0.00E-01	0.00E-01	1.61E-03	1.99E-05
CS-138	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
SR-92	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
ND-147	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
NA-24	CI	0.00E-01	1.83E-09	0.00E-01	0.00E-01

TABLE 1C

EFFLUENT ...D WASTE DISPOSAL SEMIANNUAL REPORT
PERIOD: 7/ 1/85 TO 12/31/85
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

SURRY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE THIRD QUARTER	CONTINUOUS MODE FOURTH QUARTER	BATCH MODE THIRD QUARTER	BATCH MODE FOURTH QUARTER
1. FISSION & ACTIVATION GASES					
KR-85	CI	0.00E-01	0.00E-01	2.94E-01	0.00E-01
KR-85M	CI	0.00E-01	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	2.40E 02	3.69E 02	1.78E 02	1.27E 01
XE-135	CI	6.04E 00	0.00E-01	1.16E-02	0.00E-01
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
XE-133M	CI	0.00E-01	0.00E-01	5.49E-01	0.00E-01
XE-131M	CI	0.00E-01	0.00E-01	7.30E 00	0.00E-01
TOTAL FOR PERIOD	CI	2.46E 02	3.69E 02	1.87E 02	1.27E 01
2. IODINES					
I-131	CI	4.26E-03	1.97E-03	1.16E-03	1.18E-04
I-133	CI	2.85E-03	2.09E-03	3.37E-05	9.09E-05
I-135	CI	1.22E-03	1.33E-03	0.00E-01	1.93E-05
I-132	CI	5.38E-04	2.77E-04	0.00E-01	3.97E-06
TOTAL FOR PERIOD	CI	8.87E-03	5.66E-03	1.20E-03	2.32E-04
3. PARTICULATES					
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	3.93E-05	1.31E-05	3.86E-06	0.00E-01
CS-137	CI	1.59E-04	6.57E-05	2.59E-05	5.89E-06
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
CO-60	CI	7.09E-05	4.47E-05	1.06E-05	6.77E-06
CO-58	CI	2.14E-05	4.28E-05	1.22E-06	5.60E-06
SB-125	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
MN-54	CI	7.63E-07	5.91E-07	6.49E-07	0.00E-01
CO-57	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01
RB-88	CI	3.39E-05	0.00E-01	0.00E-01	0.00E-01
CS-138	CI	0.00E-01	0.00E-01	0.00E-01	1.47E-05
SR-92	CI	0.00E-01	0.00E-01	0.00E-01	6.03E-08
ND-147	CI	0.00E-01	0.00E-01	0.00E-01	2.94E-08
NA-24	CI	0.00E-01	0.00E-01	0.00E-01	0.00E-01

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
PERIOD: 7/ 1/85 TO 12/31/85
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

SURRY POWER STATION UNITS 1&2	UNIT	THIRD QTR.	FOURTH QTR.	% EST. ERROR
A. FISSION AND ACTIVATION PRODUCTS				
1. TOTAL RELEASE (NOT INCLUDING TRITIUM, GASES, ALPHA)	CI	1.61E 00	2.06E 00	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	2.69E-09	3.34E-09	
3. PERCENT OF APPLICABLE LIMIT	%	6.29E-02	3.08E-02	
B. TRITIUM				
1. TOTAL RELEASE	CI	3.50E 02	3.40E 02	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	5.83E-07	5.50E-07	
3. PERCENT OF APPLICABLE LIMIT	%	1.94E-02	1.83E-02	
C. DISSOLVED AND ENTRAINED GASES				
1. TOTAL RELEASE	CI	3.39E-01	6.61E 00	2.50E 01
2. AVG DIL. CONC. DURING PERIOD	UCI/ML	5.65E-10	1.07E-08	
3. PERCENT OF APPLICABLE LIMIT	%	2.82E-04	5.35E-03	
D. GROSS ALPHA RADIOACTIVITY				
1. TOTAL RELEASE	CI	1.64E-05	1.26E-05	2.50E 01
E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)	LITERS	1.45E 08	6.39E 07	3.50E 00
F. VOLUME OF DILUTION WATER USED DURING PERIOD	LITERS	6.00E 11	6.18E 11	3.50E 00

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
PERIOD: 7/ 1/85 TO 12/31/85
LIQUID EFFLUENTS

SURRY POWER STATION UNITS 1&2	UNIT	CONTINUOUS MODE THIRD QUARTER	CONTINUOUS MODE FOURTH QUARTER	BATCH MODE THIRD QUARTER	BATCH MODE FOURTH QUARTER
SR-89	CI	0.00E-01	0.00E-01	6.31E-04	4.30E-04
SR-90	CI	0.00E-01	0.00E-01	2.87E-05	0.00E-01
CS-134	CI	1.01E-02	5.52E-03	1.16E-01	9.81E-02
CS-137	CI	4.50E-02	2.45E-02	3.29E-01	2.21E-01
I-131	CI	1.38E-06	6.64E-05	9.53E-02	3.77E-02
CO-58	CI	6.67E-04	3.52E-05	3.42E-01	5.36E-01
CO-60	CI	7.05E-03	3.60E-04	4.47E-01	5.76E-01
FE-59	CI	0.00E-01	0.00E-01	3.68E-04	8.96E-03
ZN-65	CI	0.00E-01	0.00E-01	5.45E-04	4.71E-04
MN-54	CI	0.00E-01	0.00E-01	1.71E-02	2.01E-02
CR-51	CI	2.73E-04	1.19E-04	3.01E-02	1.59E-01
ZR-95	CI	0.00E-01	0.00E-01	2.16E-03	9.02E-03
NB-95	CI	0.00E-01	0.00E-01	9.28E-03	1.69E-02
MO-99	CI	0.00E-01	0.00E-01	1.17E-03	9.11E-05
TC-99M	CI	0.00E-01	0.00E-01	1.99E-03	3.39E-04
BA-140	CI	0.00E-01	0.00E-01	2.88E-05	0.00E-01
LA-140	CI	0.00E-01	0.00E-01	2.85E-03	2.70E-03
CE-141	CI	1.38E-05	0.00E-01	8.71E-06	5.73E-06
I-133	CI	0.00E-01	0.00E-01	6.60E-03	1.06E-02
NA-24	CI	0.00E-01	0.00E-01	4.91E-05	1.20E-03
SB-124	CI	0.00E-01	0.00E-01	1.57E-03	1.99E-02
SB-125	CI	6.63E-05	0.00E-01	1.76E-02	1.52E-01
AG-110M	CI	0.00E-01	0.00E-01	5.42E-03	7.59E-03
SR-92	CI	0.00E-01	0.00E-01	2.20E-03	2.92E-03
CO-57	CI	0.00E-01	0.00E-01	1.11E-03	1.87E-03
CS-136	CI	0.00E-01	0.00E-01	2.46E-03	3.69E-04
CE-144	CI	0.00E-01	0.00E-01	2.09E-03	4.53E-03
ND-147	CI	0.00E-01	0.00E-01	7.47E-06	0.00E-01
RU-103	CI	0.00E-01	0.00E-01	3.18E-04	6.03E-04
NA-22	CI	0.00E-01	0.00E-01	2.67E-06	6.71E-06
TE-132	CI	0.00E-01	0.00E-01	3.85E-05	2.47E-05
I-135	CI	0.00E-01	0.00E-01	8.29E-05	6.99E-04
FE-55	CI	0.00E-01	0.00E-01	1.15E-01	1.45E-01
I-134	CI	0.00E-01	0.00E-01	0.00E-01	8.95E-05
MN-56	CI	0.00E-01	0.00E-01	0.00E-01	1.94E-04
W-187	CI	0.00E-01	0.00E-01	0.00E-01	1.89E-04
I-132	CI	0.00E-01	0.00E-01	0.00E-01	1.55E-05
TOTAL FOR PERIOD	CI	6.31E-02	3.06E-02	1.55E 00	2.03E 00
XE-133	CI	1.61E-02	2.24E-03	2.42E-01	6.16E 00
XE-135	CI	0.00E-01	0.00E-01	7.74E-02	3.63E-01
XE-135M	CI	0.00E-01	0.00E-01	6.92E-04	8.60E-03
XE-133M	CI	0.00E-01	0.00E-01	1.75E-03	2.63E-02
KR-85M	CI	0.00E-01	0.00E-01	4.13E-05	1.25E-04
AR-41	CI	0.00E-01	0.00E-01	5.27E-06	2.07E-04
KR-88	CI	0.00E-01	0.00E-01	1.45E-04	1.40E-04
XE-131M	CI	0.00E-01	0.00E-01	8.66E-04	4.87E-02

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

PERIOD: 07/01/85-12/31/85

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^3	2.44E+01	5.00E+00
	Ci	2.02E+02	3.00E+01
b. Dry compressible waste, contaminated equip., etc.	m^3	7.11E+02	5.00E+00
	Ci	3.05E+01	3.00E+01
c. Irradiated components, control rods, etc.	m^3	0.00E+00	0.00E+00
	Ci	0.00E+00	0.00E+00
d. organic waste (i.e. oil and scintillation fluid)	m^3	7.26E+01	5.00E+00
	Ci	4.41E+00	3.00E+00

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

a.	Co-60	%	3.63E+01
	Co-58	%	2.44E+01
	Cs-137	%	1.29E+01
	Fe-55	%	1.08E+01
	Ni-63	%	7.91E+00
	Cs-134	%	4.19E+00
	H-3	%	1.44E+00
b.	H-3	%	2.92E+01
	Co-60	%	1.68E+01
	Fe-55	%	1.64E+01
	Cs-137	%	1.56E+01
	C-14	%	5.83E+00
	Cs-134	%	5.60E+00
	Co-58	%	4.55E+00
c.	———	%	0.00E+00
d.	Ni-63	%	7.68E+01
	Fe-55	%	1.41E+01
	C-14	%	3.76E+00
	Pu-241	%	1.50E+00
	Co-60	%	1.50E+00

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
29	Truck	Barnwell, SC
05	Truck	Richland, WA

B. IRRADIATED FUEL SHIPMENTS (Disposition)

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

ANNUAL AND QUARTERLY DOSES

	LIQUID			GASEOUS		
	Total Body (mRem)	Thyroid (mRem)	GI-LLI (mRem)	Gamma (mRad)	Beta (mRad)	Thyroid (mRem)
1st Quarter	1.14 E-2	2.27 E-2	3.14 E-2	2.60 E-1	5.49 E-1	1.99 E-1
2nd Quarter	6.83 E-3	1.59 E-2	9.09 E-2	2.86 E-1	8.13 E-1	1.50 E-2
3rd Quarter	6.27 E-3	8.78 E-3	3.17 E-2	3.07 E-1	8.86 E-1	1.11 E-2
4th Quarter	6.01 E-3	2.89 E-3	4.91 E-2	2.58 E-1	7.70 E-1	4.37 E-3
Annual	3.05 E-2	5.03 E-2	2.03 E-1	1.11 E+0	3.02 E+0	2.30 E-1

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 November 5, 1985.

   a. Surry Station radioiodine and particulate sample location has been moved from its onsite protected area location to a site boundary location of highest annual average D/Q. The new location provides redundant monitoring for near site boundary sampling of radioiodines and particulates as required by Surry Technical Specification Table 4.9-3.

   b. The location of the North North East(06) environmental TLD location, as indicated by degrees from true north, has been changed to reflect proper direction.

   c. 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.

ADM 21-04-0

No. 888.36D

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

TO SUPERVISOR RESPONSIBLE FOR FOLLOWING PROCEDURE: 1

☐ ABNORMAL	☐ CURVE BOOK	☐ OPERATING	☐ WELDING
☐ ADMINISTRATIVE	☐ EMERGENCY	☐ PERIODIC TEST	☑ ODCM
☐ ANNUNCIATOR	☐ IN-SERVICE INSPECTION	☐ HEALTH PHYSICS	☐
☐ CALIBRATION	☐ MAINTENANCE	☐ SPECIAL TEST	☐
☐ CHEMISTRY	☐ NON-DESTRUCTIVE TEST	☐ START-UP TEST	☐

PROCEDURE NO: 2	UNIT NO: 3	REVISION DATE: 4
HP-ODCM	1	JULY 18, 1985

TITLE: 5
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.) 6

HP-ODCM-13, pg 2 of 14 : CHANGE SAMPLE LOCATION DESCRIPTION FOR SURRY STATION AIR SAMPLER.
pg 10 of 14 : CHANGE DISTANCE, DIRECTION, DEGREES AND ADD REMARKS AS ATTACHED; CORRECT TLD DIRECTION AND DEGREES FOR TLD #6.; DELETE TLD LOCATION 01 AND REFERENCE TO ONSITE LOCATION.

REFERENCES:

REASON FOR CHANGE: 7

- SURRY SAMPLE LOCATION FOR PARTICULATE AND IODINE HAS BEEN CHANGED BECAUSE OF SITE CONSTRUCTION. NEW LOCATION LOCATED AT SITE BOUNDARY LOCATION OF HIGHEST D/Q. SURRY ONSITE TLD LOCATION DELETED (SITE BOUNDARY TLD LOCATIONS ALREADY PRESENT AT LOCATION # 5 AND #6).
- CORRECT TYPO ON NORTH NORTH EAST TLD LOCATION.

CHANGE REQUESTED BY: 8	DATE: 9
Barry Garber	9-13-85

ACTION TAKEN: 10

RECEIVED
NOV 13 1985
STATION RECORDS

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: 11 ☑ APPROVED ☐ DISAPPROVED

BY: 12	DATE: 13
[signature]	10/24/85

REVIEWED FOR QUALITY CONTROL REQUIREMENTS: 14

BY: 15	DATE: 16
[signature]	10-30-85

REVIEWED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE: 17
☑ APPROVED ☐ DISAPPROVED ☐ APPROVED AS MODIFIED BY COMMITTEE

CHAIRMAN SIGNATURE: 18	DATE: 19
H L Mills	NOV 5 1985

NEW PROCEDURE REVISION DATE: 20

ACTION COMPLETED BY: 21	DATE: 22
E. M. Salyers	11-12-85

SURRY POWER STATION PROCEDURE	PROCEDURE NUMBER: HP-ODCM (1)
	DATE: NOV 0 5 1985 (2)

TYPE PROCEDURE: HEALTH PHYSICS PROCEDURE (3)

UNIT: 1 & 2 (4)

TITLE: OFFSITE DOSE CALCULATION MANUAL (5)

(6)

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SECTION

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14. 07-18-85

Appendix A 06-28-84
Appendix B 06-28-84

FOR REFERENCE ONLY

Think ALARA

RECOMMEND APPROVAL: (7) DATE: 10/24/85 (8)

QUALITY CONTROL REVIEW: (9) DATE: 10-30-85 (10)

APPROVED STATION NUCLEAR SAFETY AND OPERATING COMMITTEE: (11) DATE: NOV 5 1985 (12)

Harry L. Mills

20DCMD

NOV 0 5 1985

SURRY POWER STATION

OFFSITE DOSE CALCULATION MANUAL

SECTION 13

Radiological Environmental Monitoring Locations

Part	Subject	Page
1	Land Based Samples	2
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3	Figures	

FOR REFERENCE ONLY

NOV 0 5 1985

1.0 LAND BASED SAMPLES

Particulate and Charcoal Air Samples

Hog Island Reserve (HIR) -	Route 650 to Hog Island Reserve, end of dirt road of reserve. On Virginia Power pole on right side of road.
Bacon's Castle (BC) -	50 yards back on Rt. 617 from intersection of Rt. 617 and Rt. 10 on Virginia Power pole near Addison's Grocery #2.
Alliance (ALL) -	Route 10 to Route 634 north; 1.4 miles on Virginia Power pole on right side of road.
Colonial Parkway (CP) -	Take Route 31 from James River Ferry, Jamestown, to Route 359. Take Colonial Parkway for approx. 2.9 miles; sampler on right side of road on Virginia Power pole.
Dow Chemical -	Route 60 east to Dow Chemical Road at Badische Corp. sign. Follow road parallel to railroad tracks. At first curve in road, turn left at substation. Air sampler inside substation.
Fort Eustis (FE) -	Route 60 east to Fort Eustis entrance road. Straight to circle, first right out of circle onto Lee Blvd. Left on Harrison Road to stop sign; continue on Harrison Road to small railroad house on left. Virginia Power pole by this house on left.
Newport News (N.N.) -	Route 60 east (Warwick Blvd.) to 34th Street. Left on 34th Street, one block to Jefferson Avenue, left on Jefferson Avenue. Sampler inside Virginia Power substation.
Surry Station (SS) -	Sampler located at site boundary between TLD location #4 and #5.

Environmental TLD's

Control - (00)	Control TLD located in shield in count room.
Surry Station - (01)	See air sample location - Surry Power Station
West North West - (02)	Located on the center, rear fence of the sewage treatment plant.
Station Discharge - (03)	End of discharge structure.

FOR REFERENCE ONLY

NOV 0 5 1985

RADIOLOGICAL SAMPLING STATIONS
DISTANCES AND DIRECTION FROM UNIT #1
CONTAINMENT

SAMPLE MEDIA	LOCATION		DISTANCE (MILES)	DIRECTION	DEGREES	REMARKS
Air Charcoal and Particulate	Surry Station		.37	NNE	15°	Site Boundary Location at Sector with Highest D/Q
	Hog Island Reserve (HIR)		2.0	NNE	26°	
	Bacons Castle (BC)		4.5	SSW	202°	
	Alliance (ALL)		5.1	WSW	248°	
	Colonial Parkway (CP)		3.7	NNW	330°	
	Dow Chemical (DOW)		5.1	ENE	70°	
	Fort Eustis (FE)		4.8	ESE	107°	
	Newport News (NN)		16.5	ESE	122°	Control Location
Environmental TLD's	Control	(00)	-	-	-	Onsite**
	West North West	(02)	0.17	WNW	292°	Site Boundary
	Surry Station Discharge	(03)	0.6	NW	309°	Site Boundary
	North North West	(04)	0.4	NNW	330°	Site Boundary
	North	(05)	0.33	N	357°	Site Boundary
	North North East	(06)	0.28	NNE	22°	Site Boundary
	North East	(07)	0.31	NE	45°	Site Boundary
	East North East	(08)	0.43	ENE	68°	Site Boundary
	East (Exclusion)	(09)	0.31	E	90°	Onsite
	West	(10)	0.40	W	270°	Site Boundary
	West South West	(11)	0.45	WSW	250°	Site Boundary
	South West	(12)	0.30	SW	225°	Site Boundary
	South South West	(13)	0.43	SSW	203°	Site Boundary

FOR REFERENCE ONLY

NOV 0 5 1985

RADIOLOGICAL SAMPLING STATIONS
DISTANCES AND DIRECTION FROM UNIT #1
CONTAINMENT

SAMPLE MEDIA	LOCATION	DISTANCE (MILES)	DIRECTION	DEGREES	REMARKS
Clams	Hog Island Point	2.4	NE	52°	
	Jamestown	5.1	WNW	300°	
	Lawnes Creek	2.4	SE	131°	
Oysters	Deep Water Shoals	3.9	ESE	105°	
	Point of Shoals	6.4	SSE	157°	
	Newport News	12.0	SE	140°	
Crabs	Surry Station Discharge	0.6	NW	312°	
Fish	Surry Station Discharge	0.6	NW	312°	
Shoreline Sediment	Hog Island Reserve	0.8	N	5°	
	Burwell's Bay	7.76	SSE	167°	

** Onsite Location - in Lead Shield.

*** Onsite sample of Well Water - taken from tapwater at Surry Environmental Building.

FOR REFERENCE ONLY

REVISIONS TO THE PROCESS CONTROL PROGRAM (PCP)

1. A revision to the Process Control Program was approved by the Station Nuclear Safety and Operating Committee on October 29, 1985.

   a. The processing of wet wastes to eleminate the presence of free standing liquids has been changed to include the use of approved absorbent materials. Changes also include the definition and description of the absorption process, surveillance requirements and processed waste acceptability requirements.

   b. The stabilization of spent mechanical filter elements by encapsulation process has been deleted. Spent filter elements will be encapsulated in cement to eliminate free standing liquids, then placed into high integrity containers for stabilization and shipment, as required by 10CFR61.56 and burial site criteria.

   c. References to criteria used to determine waste classification have been changed to reference 10CFR61.55 waste classification.

ADM-21-05 -07

No. 888.36D

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

TO SUPERVISOR RESPONSIBLE FOR FOLLOWING PROCEDURE: 1

- [ ] ABNORMAL
- [ ] ADMINISTRATIVE
- [ ] ANNUNCIATOR
- [ ] CALIBRATION
- [ ] CHEMISTRY
- [ ] CURVE BOOK
- [ ] EMERGENCY
- [ ] IN-SERVICE INSPECTION
- [ ] MAINTENANCE
- [ ] NON-DESTRUCTIVE TEST
- [ ] OPERATING
- [ ] PERIODIC TEST
- [ ] HEALTH PHYSICS
- [ ] SPECIAL TEST
- [ ] START-UP TEST
- [ ] WELDING
- [x] PROCESS CONTROL PROGRAM

PROCEDURE NO: PCP 2 | UNIT NO: 1&2 3 | REVISION DATE: 11-27-84 4

TITLE: RADIOACTIVE WASTE PROCESS CONTROL PROGRAM 5

CHANGE REQUESTED: (GIVE STEP NUMBER, EXACT SUGGESTED WORDING, AND LIST REFERENCES. STAPLE COPY OF PROCEDURE, WITH SUGGESTED CHANGES MARKED, TO THIS FORM.) 6

REVISIONS AS SHOWN ON ATTACHED COPY.

RECEIVED
NOV 05 1985
STATION RECORDS

REFERENCES: N/A

REASON FOR CHANGE: 7

NRC GENERIC LETTER 84-12, QA AUDIT S85-25

CHANGE REQUESTED BY: M. R. BECKHAM / R. LASALLE 8 | DATE: 10/25/85 9

ACTION TAKEN: 10

FOR REFERENCE ONLY

DOES THIS CHANGE THE OPERATING METHODS AS DESCRIBED IN THE FSAR? [ ] YES [x] NO

DOES THIS CHANGE INVOLVE A CHANGE TO THE TECH. SPECS.? [ ] YES [x] NO

DOES THIS CHANGE INVOLVE A POSSIBLE UNREVIEWED SAFETY QUESTION? [ ] YES [x] NO

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

RECOMMENDED ACTION: 11 [x] APPROVED [ ] DISAPPROVED

BY: 12 | DATE: 10/28/85 13

REVIEWED FOR QUALITY CONTROL REQUIREMENTS: 14

BY: W. D. Grady 15 | DATE: 10/28/85 16

REVIEWED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE: 17

[x] APPROVED [ ] DISAPPROVED [ ] APPROVED AS MODIFIED BY COMMITTEE

CHAIRMAN SIGNATURE: H. L. Miller 18 | DATE: OCT 29 1985 19

NEW PROCEDURE REVISION DATE: 20

ACTION COMPLETED BY: E. M. Salyer 21 | DATE: 11-04-85 22

SURRY POWER STATION PROCEDURE	PROCEDURE NUMBER: Process Contr. Prog. (1)
	DATE: OCT 2 9 1985 (2)

TYPE PROCEDURE: PROCESS CONTROL PROGRAM (3)	UNIT: 1 & 2 (4)

TITLE: RADIOACTIVE WASTE PROCESS CONTROL PROGRAM (5)

(6)

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1. Scope and Purpose
2. Definitions
3. System and Process Descriptions
4. Waste Sources and Characteristics
5. Sampling, Analysis and Process Surveillance
6. Contractor Services/Station Interface and Requirements
7. Station Records
8. References

FOR REFERENCE ONLY

Think ALARA

RECOMMEND APPROVAL: (7)	DATE: 10/28/85 (8)
QUALITY CONTROL REVIEW: (9)	DATE: 10/28/85 (10)
APPROVED STATION NUCLEAR SAFETY AND OPERATING COMMITTEE: (11)	DATE: OCT 2 9 1985 (12)

SPS

OCT 29 1985

Surry Power Station

Radioactive Waste

Process Control Program

Table of Contents

1.0 Scope and Purpose

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3.0 System and Process Descriptions

4.0 Waste Sources and Characteristics

5.0 Sampling, Analysis and Process Surveillance

6.0 Contractor Services/Station Interface and Requirements

7.0 Station Records

8.0 References

FOR REFERENCE ONLY

OCT 2 9 1985

SURRY POWER STATION
RADIOACTIVE WASTE
PROCESS CONTROL PROGRAM

1.0 Scope and Purpose

The Process Control Program (PCP) for Surry Power Station provides the minimum requirements and guidelines to be followed to assure that "wet" radioactive wastes are processed and packaged in accordance with all Federal and State regulations.

The program encompasses those forms of radioactive wastes as defined in section 2.0 and establishes the processing parameters through sampling, testing and determinations, to ensure an acceptable product for transportation and burial.

Methods will be provided to assure that waste solidification/dewatering systems are operating properly and to substantiate an acceptable solidified/dewatered and/or absorption process product.

The Process Control Program shall be implemented by all personnel who operate dewatering and solidification equipment and/or control absorption processing, collect and process samples used to establish process parameters and those who prepare documentation for shipping of radioactive wastes.

FOR REFERENCE ONLY

OCT 29 1985

2.0 Definitions

2.1 Batch - A discrete quantity of waste material exhibiting certain chemical and physical properties which may be considered a homogeneous mixture for the purposes of sampling, testing and processing.

2.2 Sample - A reasonably representative aliquot of a batch, as defined above, to be obtained for the purpose of determining/verifying solidification parameters, absorption processing or radioactive constituents.

2.3 Direct Measurements/Analysis - The methodology used to quantify the radioactive concentrations existing in the waste. Direct gamma spectroscopy measurements/analysis of the waste form itself and/or the acquisition of samples for subsequent measurement/analysis, constitutes an acceptable means of quantifying the radioactive content of the waste.

2.4 Indirect Measurements/Analysis - The methodology used to estimate the radioactive concentrations existing in the radioactive waste. A representative composite of the waste stream influent and effluent concentrations may be considered a reasonably representative sample for the purpose of performing radiological analysis. For radioisotopes not readily measured, the establishment of an inferential measurement program to allow the ratios of readily measurable isotopes to those not easily measured, may also constitute an acceptable means of performing radiological content analysis.

FOR REFERENCE ONLY

OCT 28 1985

2.0 Definitions [continued]

2.5 Wet Wastes - Those forms of radioactive materials normally generated as by-products from the liquid waste processing systems, including spent bead resins and filter elements which contain greater than one half percent by volume of liquids per container.

In addition, wet wastes will also include radioactively contaminated oily wastes that require disposal at a licensed facility.

2.6 Solidification - Solidification is the conversion of radioactive wet waste to a homogeneous, monolithic, immobilized free standing solid, with a definite volume and shape.

2.7 Absorption process - The use of absorbent material to eliminate the presence of free standing liquid in wet wastes.

2.8 High Integrity Container - A container that has been certified to meet the requirements of burial site criteria for waste form stabilization, which may be used in lieu of solidification.

FOR REFERENCE ONLY

OCT 2 8 1985

3.0 System and Process Descriptions

Burial ground requirements for waste stabilization, and elimination of free standing liquids are complied with by processing the wet wastes via the following systems and/or methods:

3.1 Dewatering System

The Dewatering System consists of a dewatering container (usually a shipping container), a dewatering pump and associated hose and piping. Station personnel use the following procedures, approved by the Station Nuclear Safety Operating Committee, to transfer and dewater spent resins in preparation for shipment or solidification:

- Station Procedure OP-20.1.1, Resin Waste System - Transferring spent resin from primary demineralizer to shipping container
- Station Procedure OP-22.9.5, Liquid Waste - receiving, filling and dewatering a spent media receiving container

The above procedures specify (or reference) the minimum time periods for dewatering pump operation, settling time and subsequent verification that the waste contains "no detectable free standing liquids" as required by applicable radioactive waste burial ground license conditions.

These procedures also require that each step be initialed, thus insuring that the operating personnel comply with the dewatering procedures and document their completion.

FOR REFERENCE ONLY

OCT 29 1985

3.0 System Description [continued]

3.2 Solidification System

Wet wastes, as defined in Section 2.0, which are classified, pursuant to 10CFR61.55, as Class B or Class C wastes, shall be solidified prior to burial or disposed of in approved high integrity containers.

Surry Power Station currently has no installed solidification system onsite to process wet wastes. In the event that such processing is required, an outside contractor will provide a solidification system to the Station. The contractor shall also furnish to the Station a system description, system operating procedures that specify the process control parameters, and a copy of the topical report or equivalent documentation indicating compliance with 10CFR Part 61 and burial site requirements.

Solidification parameters may include but are not limited to waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, and mixing and curing times. Once established, the process control parameters will provide boundary conditions which assure solidification will be complete and that the requirements for waste form stability and for no detectable free standing liquids are met.

FOR REFERENCE ONLY

OCT 29 1985

3.0 System Description [continued]

3.2 Solidification System [continued]

The system operating procedures for solidification and a copy of the topical report or equivalent documentation will be submitted to the Station for determination of compliance with the Process Control Program. Upon approval by the Station Nuclear Safety and Operating Committee, the procedures will be incorporated into the appropriate Operations and/or Health Physics Procedures as an attachment or by reference.

The solidification system will not be considered operable until the operating procedures are approved by the Station.

The topical report or equivalent document must be reviewed by the Station prior to the performance of any solidification processing.

3.3 Absorption Processing

Wet wastes, including oily wastes, as defined in Section 2.0, meeting the criteria for Class A wastes, as per 10CFR 61.55, may be processed by absorption to eliminate free standing liquids.

Sufficient absorbent shall be used to ensure that the waste contains "no detectable free standing liquids" prior to sealing the container.

Processing of such wastes with absorbents shall be performed in compliance with procedures approved by the Station Nuclear Safety Operating Committee, and only with materials approved by the burial site.

FOR REFERENCE ONLY

OCT 29 1985

4.0 Waste Sources and Characteristics

4.1 Bead Resin

Four (4) systems currently exist at Surry Power Station for processing radioactive liquids.

4.1.1 The Liquid Waste Processing System processes radioactive liquids normally associated with primary and secondary leakage which are collected from various sumps/tanks and transferred to the high and low level waste tanks for processing. Liquids collected in these waste tanks are pumped through one or more trains of filters and/or ion exchange resins and transferred to the liquid waste test tank. The liquid waste tank is isolated, recirculated, sampled and analyzed for radioactive content. The tank may then be released to the discharge canal provided the radioactivity is within the release limits.

4.1.2 The Primary Coolant System is purified by processing the letdown flow through the letdown filters and one of two mixed bed demineralizers. The mixed bed is a combination of anion and cation bead resin, used for removal of fission and corrosion products. A cation bed is used intermittently to adjust primary coolant pH by removal of Li-7 and a deborating demineralizer (anion resin) used to reduce boron concentrations. Primary coolant is passed through a post resin filter, then returned to the system through the volume control tank.

FOR REFERENCE ONLY

OCT 2 9 1985

4.0 Waste Sources and Characteristics [continued]

4.1 Bead Resin [continued]

4.1.3 The Boron Recovery System processes primary vents and drains for the purpose of recycling or disposal of boric acid and removal of gaseous products. Liquids are pumped from the primary drains tanks to the Gas Stripper System, through the Cesium Removal Ion Exchangers (cation resin), the Boron Recovery Filters and finally to the Boron Recovery Tanks.

4.1.4 The Spent Fuel Pit Purification System provides a means to cool the Spent Fuel Pit water. The purification system is a closed system, circulating spent fuel pit water through a heat exchanger, a filter element and ion exchanger (anion/cation resin), and discharging back into the fuel pit.

Resins from these various systems are considered "spent" when decontamination factors indicate a significant decrease or when activity levels reach a pre-determined level. Spent resins are transferred to shipping containers using primary grade water.

Resins will remain in the shipping container while the sluice water passes through a retaining element, discharging into the liquid waste system.

Bead resins are normally processed by solidification or dewatering. When solidified, the normal solidification agent is cement. When alternate solidification agents are used, the description shall be provided in the contractors solidification system operating procedures.

FOR REFERENCE ONLY

4.0 Waste Sources and Characteristics [continued]

4.2 Filter Elements

Mechanical filters with wound fiber cartridges are used for removing particulate matter from liquid systems. Spent filter elements are removed from systems and placed in storage bunkers to await processing and shipment. The filter elements are encapsulated in cement to eliminate free standing liquid prior to placement in high integrity containers for stabilization and shipment, as required by 10CFR part 61 and burial site criteria.

4.3 Organic Waste

Oil used in systems for cooling and lubrication which comes into contact with radioactive contamination, must be processed to ensure compliance with Burial site requirements. Oily waste is generated by system leakage or from normal system replacement and stored until the waste can be processed. Contaminated oily waste shall meet the criteria for Class A, as per 10CFR 61.55 and may be processed, using approved procedures, by absorption or solidification and sealed in a container meeting burial site requirements. Solidification equipment, materials and procedures will normally be supplied by a contractor.

FOR REFERENCE ONLY

5.0 Sampling, Analysis, and Process Surveillance

5.1 Collection of Samples

At least one representative sample from at least every tenth batch of wet radioactive waste, shall be tested to verify solidification and/or absorption.

For collection and handling of high activity wastes, where handling of samples could result in personnel radiation exposures inconsistent with ALARA practices, representative nonradioactive samples may be used for solidification testing. Nonradioactive samples shall be as representative as possible to the actual waste with regard to chemical properties.

Samples of actual waste are also used for direct radiological analysis to determine waste classification in accordance with 10CFR 61.55. Samples should be drawn reasonably close to date of shipment or date of processing.

5.2 Analysis

Analysis shall be performed on radioactive waste to define process control parameters, prior to waste solidification. The type of analysis to be performed on waste samples will be dependent on the specific solidification operation procedures submitted by contractor services. Results of analysis will be recorded on Waste Solidification Data Sheets, contained in solidification operating procedures.

Samples of wet waste, taken to determine isotopic content, shall be analyzed for major gamma emmitters by radioassay techniques in accordance with approved Health Physics Procedures.

FOR REFERENCE ONLY

OCT 29 1985

5.0 Sampling, Analysis, and Process Surveillance [continued]

5.3 Process Surveillance

5.3.1 If any sample, taken to verify solidification, fails to solidify, the solidification batch under test shall be suspended until such time as additional samples can be obtained, alternative solidification parameters can be determined in accordance with the Process Control Program or its supporting procedures, and a subsequent test verifies solidification. Solidification of the batch may then be resumed using the alternative solidification parameters determined.

If the initial sample from a batch of waste fails to verify solidification, then representative samples shall be collected from each consecutive batch of the same type of wastes until three consecutive initial test specimens demonstrate solidification. The Process Control Program and/or its supporting procedures shall be modified as required to ensure solidification of subsequent batches of waste.

5.3.2 If the waste is processed by absorption, a test sample shall be obtained from at least one of every ten batches to verify ratios of absorbent to wet waste volumes are adequate to ensure complete elimination of free liquids.

If a test sample used to verify absorption shows free standing liquid, then the batch under test shall be suspended until such time that the procedures can be modified to ensure sufficient absorption to eliminate any free standing liquids.

FOR REFERENCE ONLY

OCT 2 9 1985

5.0 Sampling, Analysis, and Process Surveillance [continued]

5.4 Acceptance Criteria

5.4.1 Solidification Acceptability - The following criteria define an acceptable solidification process and process parameters:

Sample solidifications used to verify batch solidification will be considered acceptable if there are no visible or drainable free liquids.

Sample solidifications are considered acceptable if upon inspection the waste will retain its shape when removed from the test container.

Solidified containers of actual waste shall be inspected to ensure proper curing (i.e.hardness) prior to closing.

5.4.2 Radioassay Acceptability - The results of the radioassay are considered acceptable, when it has been verified and documented that the waste material is packaged in a container which is acceptable for transportation and burial, considering the radioactivity concentrations which exist in the waste. Strong-tight containers are acceptable for waste meeting Class A criteria of 10CFR 61.55 with no free standing liquid. High integrity containers or solidification is required for Class B and Class C wastes.

FOR REFERENCE ONLY

5.0 Sampling, Analysis, and Process Surveillance [continued]

5.4 Acceptance Criteria [continued]

5.4.3 Dewatering Acceptability - Procedures for dewatering containers are specified in Section 3.1. These procedures specify the minimum time periods for dewatering pump operation, settling time and subsequent verification that the waste contains "No detectable free standing liquids" (less than 1% by waste volume).

5.4.4 Absorption Acceptability - Samples used to verify proper absorption will be considered acceptable if there are no visible or drainable free liquids.

FOR REFERENCE ONLY

OCT 29 1985

6.0 Contractor Services/Station Interface and Requirements

Currently there is no installed solidification system onsite to process wastes that require solidification. In the event such services are required, a contractor will be requested to submit, for approval, solidification system operating procedures, a list of physical interfaces, materials required, and a list of expected utility/contractor responsibilities.

The solidification system operating procedures will be reviewed in accordance with the Process Control Program to determine adequate station control and Quality Assurance criteria are met. Once approved by the Station Nuclear Safety Operating Committee, the system operating procedures will be incorporated into, or referenced by existing Health Physics and/or Operations Controlling Procedures.

A copy of the topical report or equivalent documentation indicating compliance with 10CFR Part 61 and burial site requirements must be reviewed prior to performing solidification processing.

FOR REFERENCE ONLY

OCT 29 1985

7.0 Station Records

7.1 Process Documentation

Station records shall be maintained, to document that the dewatering and solidification process was carried out in accordance with the Process Control Program. Applicable procedures specified in Section 3.0, a copy of the topical report or equivalent documentation provided by the contractor, and the contractor's operating procedures utilized during solidification, will be retained.

Data sheets shall be used to record test sample solidification data. The data sheets may include but are not limited to, type of waste to be solidified, major constituents, pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, mixing and curing times.

Data sheets should also include batch number, batch volume, and date processed for each batch solidification and/or absorption.

Station records shall be maintained for any Direct or Indirect Measurements/Analysis performed on the waste material.

FOR REFERENCE ONLY

7.0 Station Records [continued]

7.2 Changes to Process Control Program

Changes to the Process Control Program shall be submitted in the Semi-annual Radioactive Effluent Report. The report shall include detailed information that totally supports the rationale for the change, determination that the change did not reduce the overall conformance of the solidified waste product to the existing criteria for solid wastes, and documentation that it has been reviewed by the Station Nuclear Safety Operating Committee. Changes to the Process Control Program shall become effective upon review and acceptance by the Station Nuclear Safety Operating Committee.

FOR REFERENCE ONLY

8.0 References

8.1 Surry Power Station Technical Specifications

8.2 State of South Carolina Radioactive Materials License No. 097, and amendments

8.3 Surry Power Station Operating Procedures

8.4 Branch Technical Position - ETSB 11-3

8.5 State of Washington Radioactive Materials License No. WN-I019-2, and amendments

8.6 10CFR Part 20, Paragraph 311

8.7 10CFR Part 61, Paragraphs 55 and 56

FOR REFERENCE ONLY

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 July 1, 1985 through December 31, 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 July 1, 1985 through December 31, 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) continues to be inoperable as described in the previous Semi-Annual Report. Design Change 84-25, which was to install "Snow-Plow" type radiation monitors on the exterior of each of the four Heat Exchanger Service Water outlets is currently being re-evaluated. "Snow-Plow" type monitors have been found to be insufficiently sensitive for this type of application. Engineering is reviewing alternate radiation monitoring schemes and/or the feasibility of proposing Tech Spec changes to require periodic Service Water sampling in lieu of a revised Radiation Monitoring scheme.

   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 this matter is resolved.

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 required 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 was completed on September 11, 1985. The monitor was returned to service on September 16, 1985.

   All Effluent Releases via this pathway were diverted to the Unit #1 Discharge Tunnel during the period when Unit #2 Discharge Monitor was out of service.

3. Replacement of the Waste Gas Holdup System Oxygen Monitors as per EWR 84-266 was completed on February 14, 1986, however difficulties have been encountered with the calibration of these monitors. Engineering is working to resolve the calibration difficulties with the Instrument Department.

   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. Grab sampling will continue to satisfy the monitoring requirements until the calibration problems have been resolved.

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 July 1, 1985 through December 31, 1985.

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

W. L. STEWART
VICE PRESIDENT
NUCLEAR OPERATIONS

February 28, 1986

Dr. J. Nelson Grace
Regional Administrator
Region II
U. S. Nuclear Regulatory Commission
Suite 2900
101 Marietta St., N.W.
Atlanta, Georgia 30323

Serial No. 86-122
NO/ETS/acm
Docket Nos. 50-280
50-281
License Nos. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNIT NOS. 1 AND 2
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

Enclosed is the Surry Power Station Semi-Annual Radioactive Effluent Release Report for July 1, 1985 through December 31, 1985. The report, submitted pursuant to Surry Power Station Technical Specification 6.6.B.3, 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

August 28th
Report missing
50-280 signed
by Stewart

cc: Mr. Roger D. Walker, Director
Division of Reactor Projects
NRC Region II

Mr. Lester S. Rubenstein, Director
PWR Project Directorate #2
Division of PWR Licensing-A

Mr. Donald J. Burke
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