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FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT UNITS NO. 1 & 2
LICENSE NUMBERS DPR-67 & NPF-16

COMBINED SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
FOR THE PERIOD
JULY 1, 1993 THROUGH DECEMBER 31, 1993

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EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION

1. Regulatory Limits

1.1 For Liquid Waste Effluents

- A. The concentration of radioactive material released from the site shall be 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 concentration shall be limited to 2E-4 micro-Curies/ml total activity.
- B. The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, to UNRESTRICTED AREAS shall be limited to:
 - During any calendar quarter to ≤ 1.5 mrems to the whole body and to ≤ 5 mrems to any organ, and
 - During any calendar year to ≤ 3 mrems to the whole body and to ≤ 10 mrems to any organ.

1.2 For Gaseous Waste Effluents:

- A. The dose rate in UNRESTRICTED AREAS due to radioactive materials released in gaseous effluents from the site shall be limited to:
 - For Noble Gases: ≤ 500 mrems/yr to the whole body and ≤ 3000 mrems/yr to the skin, and
 - For Iodine-131, Iodine-133, Tritium, and all radionuclides in particulate form with half-lives greater than 8 days: ≤ 1500 mrems/yr to any organ.
- *B. The air dose due to noble gases released in gaseous effluents from each unit, to areas at and beyond the SITE BOUNDARY shall be limited to the following:
 - During any calendar quarter, to ≤ 5 mrad for gamma radiation, and ≤ 10 mrad for beta radiation and, during any calendar year to ≤ 10 mrad for gamma radiation and ≤ 20 mrad for beta radiation.
- *C. The dose to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, Tritium, and all radionuclides in particulate form, with half-lives > 8 Days in gaseous effluents released, from each unit to areas at and beyond the site boundary, shall be limited to the following:
 - During any calendar quarter to ≤ 7.5 mrem to any organ, and
 - During any calendar year to ≤ 15 mrem to any organ.
- * The calculated doses contained in an annual report shall not apply to any ODCM Control. The reported values are based on actual release conditions instead of historical conditions that the ODCM Control dose calculations are based on. The ODCM Control dose limits are therefore included in Item 1 of the report, for information only.

EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION (Continued)

2. Maximum Permissible Concentrations

Water: As per 10 CFR Part 20, Appendix B, Table II, Column 2, except for entrained or dissolved noble gases as described in 1.1.A of this report.

Air: Release concentrations are limited to dose rate limits described in 1.2.A. of this report.

3. Average Energy of fission and activation gases in gaseous effluents is not applicable.

4. Measurements and approximations of total radioactivity

Where alpha, tritium, and listed nuclides are shown as zero Curies released, this should be interpreted as "no activity was detected on the samples using the ODCM Control analyses techniques to achieve required Lower Limit of Detection (LLD) sensitivity for radioactive effluents".

A summary of liquid effluent accounting methods is described in Table 3.1.

A summary of gaseous effluent accounting methods is described in Table 3.2.

4.1 Estimate of Errors

Error Topic	LIQUID		GASEOUS	
	Avg. %	Max. %	Avg. %	Max. %
Release Point Mixing	2	5	NA	NA
Sampling	1	5	2	5
Sample Preparation	1	5	1	5
Sample Analysis	3	10	3	10
Release Volume	2	5	4	15
	-----	-----	-----	-----
Total %	9	30	10	35

The predictability of error for radioactive releases can only be applied to nuclides that are predominant in sample spectrums. Nuclides that are near background relative to the predominant nuclides in a given sample could easily have errors greater than the above listed maximums.

EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION (Continued)

4. Measurements and Approximations of Total Radioactivity (Cont.)

4.1 (Continued)

B. (Continued)

TABLE 3.1

RADIOACTIVE LIQUID EFFLUENT SAMPLING AND ANALYSIS

Liquid Source	Sampling Frequency	Type of Analysis	Method of Analysis
Monitor Tank 1 Releases	Each Batch	Principal Gamma Emitters	p.h.a.
	Monthly Composite	Tritium Gross Alpha	L.S. G.F.P.
	Quarterly Composite	Sr-89, Sr-90, & Fe-55	
Continuous Releases	Daily Grab Samples	Principal Gamma Emitters & I-131 for 4/M Composite Analysis	p.h.a.
		Dissolved & Entrained Gases One Batch/ Month	p.h.a.
		Tritium Composite Monthly	L.S.
		Alpha Composite Monthly	G.F.P.
		Sr-89, Sr-90, & Fe-55 Composite Quarterly	C.S.

1-Boric Acid Evaporator Condensate is normally recovered to the Primary Water Storage Tank for recycling into the reactor coolant system and does not contribute to Liquid Waste Effluent Totals.

p.h.a.-Gamma Spectrum Pulse Height Analysis using Germanium Detectors. All peaks are identified and quantified.

L.S.-Liquid Scintillation Counting

C.S.-Chemical Separation

G.F.P.-Gas Flow Proportional Counting

4/M-Four per Month

EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION (Continued)

4. Measurements and Approximations of Total Radioactivity (Continued)

4.1 (Continued)

B. (Continued)

TABLE 3.2

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS

Gaseous Source	Sampling Frequency	Type of Analysis	Method of Analysis
Waste Gas Decay Tank Releases	Each Batch	Principal Gamma Emitters	p.h.a.
Containment Purge Releases	Each Purge	Principal Gamma Emitters Tritium	p.h.a. L.S.
	4/M	Principal Gamma Emitters Tritium	p.h.a. L.S.
Plant Vent	Monthly Composite	Particulate Gross Alpha	G.F.P.
	Quarterly Composite	Particulate Sr-89 & Sr-90	C.S.

p.h.a.-Gamma Spectrum Pulse Height Analysis using Germanium Detectors. All peaks are identified and quantified.

L.S.-Liquid Scintillation Counting

C.S.-Chemical Separation

G.F.P.-Gas Flow Proportional Counting

4/M-Four per Month

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EFFLUENT & WASTE DISPOSAL - SUPPLEMENTAL INFORMATION (CONTINUED)

5. Batch Releases

A. Liquid

1. Number of batch releases:	20	
2. Total time period for batch releases:	8614	minutes
3. Maximum time period for a batch release:	615	minutes
4. Average time period for a batch release:	431	minutes
5. Minimum time period for a batch release:	243	minutes
6. Average dilution stream flow during the period:	993910	gpm

All liquid releases are summarized in tables.

B. Gaseous

1. Number of batch releases:	7	
2. Total time period for batch releases:	4648	minutes
3. Maximum time period for a batch release:	1200	minutes
4. Average time period for a batch release:	664	minutes
5. Minimum time period for a batch release:	265	minutes

All gaseous waste releases are summarized in tables.

6. Unplanned Releases

A. Liquid

1. Number of releases:	1	
2. Total activity of releases:	6.59E+00	Curies

B. Gaseous

1. Number of releases:	0	
2. Total activity of releases:	0.00E+00	Curies

C. See attachments (if applicable) for:

1. A description of the event and equipment involved.
2. Cause(s) for the unplanned release.
3. Actions taken to prevent a recurrence.
4. Consequences of the unplanned release.

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EFFLUENT & WASTE DISPOSAL - SUPPLEMENTAL INFORMATION (CONTINUED)

5. Batch Releases

A. Liquid

1. Number of batch releases:	20	
2. Total time period for batch releases:	8614	minutes
3. Maximum time period for a batch release:	615	minutes
4. Average time period for a batch release:	431	minutes
5. Minimum time period for a batch release:	243	minutes
6. Average dilution stream flow during the period:	993910	gpm

All liquid releases are summarized in tables.

B. Gaseous

1. Number of batch releases:	64	
2. Total time period for batch releases:	13291	minutes
3. Maximum time period for a batch release:	565	minutes
4. Average time period for a batch release:	208	minutes
5. Minimum time period for a batch release:	48	minutes

All gaseous waste releases are summarized in tables.

6. Unplanned Releases

A. Liquid

1. Number of releases:	0	
2. Total activity of releases:	0.00E+00	Curies

B. Gaseous

1. Number of releases:	0	
2. Total activity of releases:	0.00E+00	Curies

C. See attachments (if applicable) for:

1. A description of the event and equipment involved.
2. Cause(s) for the unplanned release.
3. Actions taken to prevent a recurrence.
4. Consequences of the unplanned release.

EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION
(Continued)

7. Assessment of radiation dose from radioactive effluents to MEMBERS OF THE PUBLIC due to their activities inside the SITE BOUNDARY assumes the visitor onsite for 7 hours per day for 312 days per year at a distance of 1.6 kilometers in the South East Sector. The VISITOR received exposure from each of the two reactors on the Site.

VISITOR DOSE RESULTS FOR CALENDAR YEAR 1993 were:

<u>NOBLE GAS EXPOSURE</u>	<u>DOSE (mrad)</u>
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Gamma Air Dose	2.63E-03
Beta Air Dose	5.56E-03

<u>GASEOUS PARTICULATE & IODINE EXPOSURE</u>	<u>DOSE (mRem)</u>
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Bone	2.32E-06
Liver	1.17E-04
Thyroid	8.35E-04
Kidney	5.50E-05
Lung	1.19E-04
GI-LLI	1.14E-04
Whole Body	2.41E-04

8. Offsite Dose Calculation Manual Revisions (ODCM):
ODCM revisions 12 and 13 were implemented during the reporting interval. The revisions were made to support License Amendments for Rev. 12) Moving Radioactive Effluent LCO's from the Technical Specifications to the ODCM as ODCM Controls as per guidance of NRC Generic Letter 89-01, and for Rev. 13) Implementing the new 10 CFR Part 20 revision new Maximum Permissible Concentrations where compliance was required by January 1, 1994.

In each case, the changes were made to conform to standardized regulatory guidance, except where existing plant Technical Specifications were more stringent than NRC generic guidance. ODCM Methodology for Dose Calculations was not changed. Revision 13 to the ODCM did require recalculation of Site Limit Calculation Steps. These changes are outlined in Attachment - B to this report with a complete copy of each ODCM Revision.

9. Solid Waste and Irradiated Fuel Shipments:
No irradiated fuel shipments were made from the site. Common Solid waste from St. Lucie Units 1 and 2 were shipped jointly. A tabulated summation of these shipments is provided in this report.
10. Process Control Program (PCP) Revisions:
The PCP was not revised during the reporting interval.

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TABLE 3.3-1 LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QTR#3	QTR#4
A. Fission and Activation Products			
1. Total Release - (Not including Tritium, Gases, and Alpha)	Ci	2.15E-01	4.72E-02
2. Average Diluted Concentration During Period	uci/ml	4.29E-10	9.53E-11
B. Tritium			
1. Total Release	Ci	6.99E+01	9.86E+01
2. Average Diluted Concentration During Period	uci/ml	1.39E-07	1.99E-07
C. Dissolved and Entrained Gases			
1. Total Release	Ci	5.27E-03	9.09E-02
2. Average Diluted Concentration During Period	uci/ml	1.05E-11	1.84E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	9.01E-06	0.00E+00
E. Volume of Waste Released (Prior to Dilution)	Liters	1.35E+06	1.17E+06
F. Volume of Dilution Water Used During Period	Liters	5.02E+11	4.95E+11



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ST. LUCIE UNIT # 2
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TABLE 3.3-2 LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QTR#3	QTR#4
A. Fission and Activation Products			
1. Total Release - (Not including Tritium, Gases, and Alpha)	Ci	1.39E-01	4.72E-02
2. Average Diluted Concentration During Period	uci/ml	2.77E-10	9.53E-11
B. Tritium			
1. Total Release	Ci	6.34E+01	9.86E+01
2. Average Diluted Concentration During Period	uci/ml	1.26E-07	1.99E-07
C. Dissolved and Entrained Gases			
1. Total Release	Ci	5.27E-03	9.09E-02
2. Average Diluted Concentration During Period	uci/ml	1.05E-11	1.84E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	4.18E-06	0.00E+00
E. Volume of Waste Released (Prior to Dilution)	Liters	1.14E+06	1.17E+06
F. Volume of Dilution Water Used During Period	Liters	5.02E+11	4.95E+11

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TABLE 3.4-1 LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
NA-24	Ci	0.00E+00	0.00E+00	4.14E-05	3.71E-04
CR-51	Ci	9.21E-03	0.00E+00	5.03E-03	5.04E-04
MN-54	Ci	3.50E-04	0.00E+00	1.14E-03	4.77E-04
FE-55	Ci	3.76E-02	0.00E+00	6.17E-02	1.23E-02
MN-56	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57	Ci	0.00E+00	0.00E+00	0.00E+00	1.03E-05
CO-58	Ci	5.87E-03	0.00E+00	6.72E-03	4.30E-03
FE-59	Ci	5.14E-04	0.00E+00	1.50E-04	0.00E+00
CO-60	Ci	4.44E-03	0.00E+00	7.32E-03	8.24E-03
ZN-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-65	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BR-82	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RB-88	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-89	Ci	5.87E-05	0.00E+00	3.41E-06	0.00E+00
SR-90	Ci	3.65E-06	0.00E+00	1.25E-05	4.69E-04
Y-90	Ci	3.65E-06	0.00E+00	1.25E-05	4.69E-04
SR-91	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-92	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ZR-95	Ci	1.94E-03	0.00E+00	1.81E-03	4.95E-04
NB-95	Ci	3.85E-03	0.00E+00	3.23E-03	1.09E-03
ZR-97	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NB-97	Ci	0.00E+00	0.00E+00	9.74E-04	3.00E-04
TC-99M	Ci	0.00E+00	0.00E+00	0.00E+00	1.85E-05
MO-99	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RU-103	Ci	2.34E-05	0.00E+00	0.00E+00	0.00E+00
AG-110	Ci	1.07E-04	0.00E+00	7.28E-04	2.21E-04
SN-113	Ci	2.23E-04	0.00E+00	1.78E-04	6.10E-05
SB-122	Ci	0.00E+00	0.00E+00	2.84E-04	3.22E-04
SB-124	Ci	1.48E-03	0.00E+00	8.95E-03	3.03E-04
SB-125	Ci	2.37E-03	0.00E+00	3.12E-02	3.92E-03



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TABLE 3.4-1 LIQUID EFFLUENTS (CONTINUED)

NUCLIDES RELEASED	UNIT	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
TE-129	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TE-129M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	Ci	0.00E+00	0.00E+00	2.16E-04	7.02E-04
TE-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	Ci	0.00E+00	0.00E+00	2.45E-05	2.70E-04
I-134	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134	Ci	3.32E-03	0.00E+00	3.99E-03	4.53E-03
I-135	Ci	0.00E+00	0.00E+00	0.00E+00	3.21E-05
CS-136	Ci	0.00E+00	0.00E+00	0.00E+00	1.02E-04
CS-137	Ci	5.02E-03	0.00E+00	5.05E-03	6.80E-03
CS-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BA-140	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LA-140	Ci	0.00E+00	0.00E+00	1.34E-04	1.15E-04
CE-141	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CE-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PR-144	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W-187	Ci	0.00E+00	0.00E+00	2.43E-04	7.51E-04
NP-239	Ci	0.00E+00	0.00E+00	3.12E-05	0.00E+00
TOTAL FOR PERIOD	CI	7.63E-02	0.00E+00	1.39E-01	4.72E-02
AR-41	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-131M	CI	0.00E+00	0.00E+00	0.00E+00	1.43E-04
XE-133M	CI	0.00E+00	0.00E+00	5.66E-05	1.87E-03
XE-133	CI	0.00E+00	0.00E+00	5.15E-03	8.69E-02
XE-135M	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	CI	0.00E+00	0.00E+00	6.37E-05	2.02E-03

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TABLE 3.4-2 LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
NA-24	CI	0.00E+00	0.00E+00	4.14E-05	3.71E-04
CR-51	CI	0.00E+00	0.00E+00	5.03E-03	5.04E-04
MN-54	CI	0.00E+00	0.00E+00	1.14E-03	4.77E-04
FE-55	CI	0.00E+00	0.00E+00	6.17E-02	1.23E-02
MN-56	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CO-57	CI	0.00E+00	0.00E+00	0.00E+00	1.03E-05
CO-58	CI	0.00E+00	0.00E+00	6.72E-03	4.30E-03
FE-59	CI	0.00E+00	0.00E+00	1.50E-04	0.00E+00
CO-60	CI	0.00E+00	0.00E+00	7.32E-03	8.24E-03
ZN-65	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NI-65	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BR-82	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RB-88	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-89	CI	0.00E+00	0.00E+00	3.41E-06	0.00E+00
SR-90	CI	0.00E+00	0.00E+00	1.25E-05	4.69E-04
Y-90	CI	0.00E+00	0.00E+00	1.25E-05	4.69E-04
SR-91	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SR-92	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-92	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ZR-95	CI	0.00E+00	0.00E+00	1.81E-03	4.95E-04
NB-95	CI	0.00E+00	0.00E+00	3.23E-03	1.09E-03
ZR-97	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NB-97	CI	0.00E+00	0.00E+00	9.74E-04	3.00E-04
TC-99M	CI	0.00E+00	0.00E+00	0.00E+00	1.85E-05
MO-99	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RU-103	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
AG-110	CI	0.00E+00	0.00E+00	7.28E-04	2.21E-04
SN-113	CI	0.00E+00	0.00E+00	1.78E-04	6.10E-05
SB-122	CI	0.00E+00	0.00E+00	2.84E-04	3.22E-04
SB-124	CI	0.00E+00	0.00E+00	8.95E-03	3.03E-04
SB-125	CI	0.00E+00	0.00E+00	3.12E-02	3.92E-03

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TABLE 3.4-2 LIQUID EFFLUENTS (CONTINUED)

NUCLIDES RELEASED	UNIT	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
TE-129	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TE-129M	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	CI	0.00E+00	0.00E+00	2.16E-04	7.02E-04
TE-132	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-132	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	CI	0.00E+00	0.00E+00	2.45E-05	2.70E-04
I-134	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CS-134	CI	0.00E+00	0.00E+00	3.99E-03	4.53E-03
I-135	CI	0.00E+00	0.00E+00	0.00E+00	3.21E-05
CS-136	CI	0.00E+00	0.00E+00	0.00E+00	1.02E-04
CS-137	CI	0.00E+00	0.00E+00	5.05E-03	6.80E-03
CS-138	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BA-140	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LA-140	CI	0.00E+00	0.00E+00	1.34E-04	1.15E-04
CE-141	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CE-144	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PR-144	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W-187	CI	0.00E+00	0.00E+00	2.43E-04	7.51E-04
NP-239	CI	0.00E+00	0.00E+00	3.12E-05	0.00E+00
TOTAL FOR PERIOD	CI	0.00E+00	0.00E+00	1.39E-01	4.72E-02
AR-41	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85M	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-85	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-131M	CI	0.00E+00	0.00E+00	0.00E+00	1.43E-04
XE-133M	CI	0.00E+00	0.00E+00	5.66E-05	1.87E-03
XE-133	CI	0.00E+00	0.00E+00	5.15E-03	8.69E-02
XE-135M	CI	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	CI	0.00E+00	0.00E+00	6.37E-05	2.02E-03

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE UNIT NO. 1

SEMI-ANNUAL REPORT

JULY 1, 1993 THROUGH DECEMBER 31, 1993

TABLE 3.5-1

LIQUID EFFLUENTS - DOSE SUMMATION

AGE GROUP: ADULT LOCATION: ANY ADULT

EXPOSURE INTERVAL: JANUARY 1, 1993 THROUGH DECEMBER 31, 1993

FISH AND SHELLFISH	CALENDER YEAR
ORGAN	DOSE (mrem)
-----	-----
BONE	1.68E-01
LIVER	7.43E-01
THYROID	1.36E-03
KIDNEY	2.34E-03
LUNG	8.60E-01
GI-LLI	5.66E-01
WHOLE BODY	1.99E-01

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE UNIT NO. 2

SEMI-ANNUAL REPORT

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TABLE 3.5-2

LIQUID EFFLUENTS - DOSE SUMMATION

AGE GROUP: ADULT LOCATION: ANY ADULT

EXPOSURE INTERVAL: JANUARY 1, 1993 THROUGH DECEMBER 31, 1993

FISH AND SHELLFISH	CALENDER YEAR
ORGAN	DOSE (mrem)
-----	-----
BONE	1.45E-01
LIVER	6.43E-01
THYROID	1.35E-03
KIDNEY	2.13E-03
LUNG	7.46E-01
GI-LLI	4.95E-01
WHOLE BODY	1.73E-01

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE UNIT # 1

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TABLE 3.6-1 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QTR#3	QTR#4
A. Fission and Activation Gases			
1. Total Release	Ci	6.32E+00	1.09E+01
2. Average Release Rate For Period	uCi/sec	7.95E-01	1.38E+00
B. Iodines			
1. Total Iodine-131	Ci	2.71E-04	1.90E-04
2. Average Release Rate For Period	uCi/sec	3.41E-05	2.40E-05
C. Particulates			
1. Particulates (Half Life > 8 days)	Ci	0.00E+00	4.32E-05
2. Average Release Rate For Period	uCi/sec	0.00E+00	5.44E-06
3. Gross Alpha Radioactivity	Ci	1.29E-07	1.62E-07
D. Tritium			
1. Total Release	Ci	1.30E+00	1.27E+01
2. Average Release Rate For Period	uCi/sec	1.64E-01	1.59E+00

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE UNIT # 2

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TABLE 3.6-2 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	UNIT	QTR#3	QTR#4
A. Fission and Activation Gases			
1. Total Release	Ci	3.86E+01	1.94E+01
2. Average Release Rate For Period	uCi/sec	4.86E+00	2.44E+00
B. Iodines			
1. Total Iodine-131	Ci	1.05E-04	8.62E-05
2. Average Release Rate For Period	uCi/sec	1.32E-05	1.08E-05
C. Particulates			
1. Particulates (Half Life > 8 days)	Ci	9.92E-08	4.67E-06
2. Average Release Rate For Period	uCi/sec	1.25E-08	5.87E-07
3. Gross Alpha Radioactivity	Ci	5.53E-08	9.03E-08
D. Tritium			
1. Total Release	Ci	1.57E+00	3.33E+00
2. Average Release Rate For Period	uCi/sec	1.98E-01	4.19E-01

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT # 1
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TABLE 3.7-1 GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
1. Fission Gases					
AR-41	Ci	3.81E-01	0.00E+00	4.51E-02	0.00E+00
KR-85M	Ci	4.44E-02	0.00E+00	8.86E-03	0.00E+00
KR-85	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-87	Ci	0.00E+00	0.00E+00	2.39E-03	0.00E+00
KR-88	Ci	0.00E+00	0.00E+00	1.25E-02	0.00E+00
KR-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-127	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-131M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-133M	Ci	0.00E+00	0.00E+00	7.50E-03	0.00E+00
XE-133	Ci	1.54E+00	4.89E+00	5.36E-01	1.29E-01
XE-135M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	Ci	3.57E+00	5.92E+00	1.68E-01	5.39E-04
XE-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD	Ci	5.54E+00	1.08E+01	7.80E-01	1.29E-01
2. Iodines					
I-131	Ci	2.71E-04	1.90E-04		
I-132	Ci	0.00E+00	0.00E+00		
I-133	Ci	8.96E-04	2.31E-04		
I-134	Ci	0.00E+00	0.00E+00		
I-135	Ci	0.00E+00	0.00E+00		
TOTAL FOR PERIOD	Ci	1.17E-03	4.22E-04		
3. Particulates (> 8 Days)					
Cr-51	Ci	0.00E+00	0.00E+00		
Mn-54	Ci	0.00E+00	0.00E+00		
Fe-55	Ci	0.00E+00	0.00E+00		
Co-57	Ci	0.00E+00	0.00E+00		
Co-58	Ci	0.00E+00	0.00E+00		
Fe-59	Ci	0.00E+00	0.00E+00		
Co-60	Ci	0.00E+00	3.77E-05		
Zn-65	Ci	0.00E+00	0.00E+00		
Zr-95	Ci	0.00E+00	0.00E+00		
Nb-95	Ci	0.00E+00	0.00E+00		

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT # 1
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TABLE 3.7-1 GASEOUS EFFLUENTS - GROUND LEVEL RELEASES (CONTINUED)

Nuclides Released	Unit	Continuous Mode	
		QTR#3	QTR#4
3. Particulates (> 8 Days) (continued)			
Sr-89	Ci	0.00E+00	0.00E+00
Sr-90	Ci	0.00E+00	0.00E+00
Y-90	Ci	0.00E+00	0.00E+00
Ru-103	Ci	0.00E+00	0.00E+00
Ag-110	Ci	0.00E+00	0.00E+00
Sn-113	Ci	0.00E+00	0.00E+00
Sb-124	Ci	0.00E+00	0.00E+00
Sb-125	Ci	0.00E+00	0.00E+00
Te-129m	Ci	0.00E+00	0.00E+00
Cs-134	Ci	0.00E+00	0.00E+00
Cs-136	Ci	0.00E+00	0.00E+00
Cs-137	Ci	0.00E+00	5.55E-06
Ba-140	Ci	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00

TOTAL FOR PERIOD	Ci	0.00E+00	4.32E-05
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4. Particulates (< 8 Days)

Mn-56	Ci	0.00E+00	0.00E+00
Ni-65	Ci	0.00E+00	0.00E+00
Br-82	Ci	0.00E+00	0.00E+00
Rb-88	Ci	0.00E+00	0.00E+00
Rb-89	Ci	0.00E+00	0.00E+00
Sr-91	Ci	0.00E+00	0.00E+00
Sr-92	Ci	0.00E+00	0.00E+00
Y-92	Ci	0.00E+00	0.00E+00
Zr-97	Ci	0.00E+00	0.00E+00
Nb-97	Ci	0.00E+00	0.00E+00
Tc-99m	Ci	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	5.18E-05
Sb-122	Ci	0.00E+00	0.00E+00
Te-129	Ci	0.00E+00	0.00E+00
Te-132	Ci	0.00E+00	0.00E+00
Cs-138	Ci	0.00E+00	0.00E+00
La-140	Ci	0.00E+00	0.00E+00
Pr-144	Ci	0.00E+00	0.00E+00
W-187	Ci	0.00E+00	0.00E+00
Np-239	Ci	0.00E+00	0.00E+00

TOTAL FOR PERIOD	Ci	0.00E+00	5.18E-05
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FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT # 2
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TABLE 3.7-2 GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		QTR#3	QTR#4	QTR#3	QTR#4
1. Fission Gases					
AR-41	Ci	0.00E+00	0.00E+00	2.05E-01	1.53E-01
KR-85M	Ci	0.00E+00	0.00E+00	5.47E-03	1.13E-02
KR-85	Ci	0.00E+00	0.00E+00	8.24E-02	5.92E-03
KR-87	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-88	Ci	0.00E+00	0.00E+00	8.10E-04	4.17E-03
KR-89	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
KR-90	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-127	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-131M	Ci	0.00E+00	0.00E+00	5.57E-02	3.72E-02
XE-133M	Ci	0.00E+00	0.00E+00	1.48E-01	1.45E-01
XE-133	Ci	1.81E+01	7.17E+00	1.08E+01	8.12E+00
XE-135M	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-135	Ci	9.00E+00	3.30E+00	2.38E-01	4.65E-01
XE-137	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
XE-138	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL FOR PERIOD		Ci	2.71E+01 1.05E+01	1.15E+01	8.94E+00
2. Iodines					
I-131	Ci	1.05E-04	8.62E-05		
I-132	Ci	0.00E+00	0.00E+00		
I-133	Ci	9.75E-04	8.22E-04		
I-134	Ci	0.00E+00	0.00E+00		
I-135	Ci	0.00E+00	0.00E+00		
TOTAL FOR PERIOD		Ci	1.08E-03 9.08E-04		
3. Particulates (> 8 Days)					
Cr-51	Ci	0.00E+00	0.00E+00		
Mn-54	Ci	0.00E+00	0.00E+00		
Fe-55	Ci	0.00E+00	0.00E+00		
Co-57	Ci	0.00E+00	0.00E+00		
Co-58	Ci	0.00E+00	0.00E+00		
Fe-59	Ci	0.00E+00	0.00E+00		
Co-60	Ci	0.00E+00	0.00E+00		
Zn-65	Ci	0.00E+00	0.00E+00		
Zr-95	Ci	0.00E+00	0.00E+00		
Nb-95	Ci	0.00E+00	0.00E+00		

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT # 2
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TABLE 3.7-2 GASEOUS EFFLUENTS - GROUND LEVEL RELEASES (CONTINUED)

Nuclides Released	Unit	Continuous Mode QTR#3 QTR#4	
3. Particulates (> 8 Days) (continued)			
Sr-89	Ci	0.00E+00	0.00E+00
Sr-90	Ci	4.96E-08	0.00E+00
Y-90	Ci	4.96E-08	0.00E+00
Ru-103	Ci	0.00E+00	0.00E+00
Ag-110	Ci	0.00E+00	0.00E+00
Sn-113	Ci	0.00E+00	0.00E+00
Sb-124	Ci	0.00E+00	0.00E+00
Sb-125	Ci	0.00E+00	0.00E+00
Te-129m	Ci	0.00E+00	0.00E+00
Cs-134	Ci	0.00E+00	0.00E+00
Cs-136	Ci	0.00E+00	2.57E-06
Cs-137	Ci	0.00E+00	2.09E-06
Ba-140	Ci	0.00E+00	0.00E+00
Ce-141	Ci	0.00E+00	0.00E+00
Ce-144	Ci	0.00E+00	0.00E+00
TOTAL FOR PERIOD	Ci	9.92E-08	4.67E-06

4. Particulates (< 8 Days)

Mn-56	Ci	0.00E+00	0.00E+00
Ni-65	Ci	0.00E+00	0.00E+00
Br-82	Ci	0.00E+00	0.00E+00
Rb-88	Ci	0.00E+00	0.00E+00
Rb-89	Ci	0.00E+00	0.00E+00
Sr-91	Ci	0.00E+00	0.00E+00
Sr-92	Ci	0.00E+00	0.00E+00
Y-92	Ci	0.00E+00	0.00E+00
Zr-97	Ci	0.00E+00	0.00E+00
Nb-97	Ci	0.00E+00	0.00E+00
Tc-99m	Ci	0.00E+00	0.00E+00
Mo-99	Ci	0.00E+00	0.00E+00
Sb-122	Ci	0.00E+00	0.00E+00
Te-129	Ci	0.00E+00	0.00E+00
Te-132	Ci	0.00E+00	0.00E+00
Cs-138	Ci	0.00E+00	0.00E+00
La-140	Ci	0.00E+00	0.00E+00
Pr-144	Ci	0.00E+00	0.00E+00
W-187	Ci	0.00E+00	0.00E+00
Np-239	Ci	0.00E+00	0.00E+00
TOTAL FOR PERIOD	Ci	0.00E+00	0.00E+00

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT UNIT # 1

TABLE 3.8-1

GASEOUS EFFLUENTS - DOSE SUMMATION

AGE GROUP: INFANT

EXPOSURE INTERVAL: JANUARY 1, 1993 THROUGH DECEMBER 31, 1993

NOTE: The below dose results were calculated using actual meteorological data during the specified time interval with Met data reduced as per Reg. Guide 1.111, March 1976.

PATHWAY	BONE mrem	LIVER mrem	THYROID mrem	KIDNEY mrem
GROUND PLANE (A)				
COW -MILK (B)	1.35E-04	2.78E-04	4.17E-02	8.58E-05
INHALATION (A)	2.78E-06	1.41E-04	9.85E-04	6.14E-05
TOTAL	1.37E-04	4.20E-04	4.27E-02	1.47E-04

PATHWAY	LUNG mrem	GI-LLI mrem	T. BODY mrem
GROUND PLANE (A)			1.63E-04
COW -MILK (B)	1.21E-04	1.23E-04	1.96E-04
INHALATION (A)	1.46E-04	1.38E-04	1.40E-04
TOTAL	2.67E-04	2.62E-04	4.99E-04

(A) SECTOR: SE RANGE: 1.5
(B) SECTOR: SW RANGE: 4.25

NOBLE GASES CALENDER YEAR (mrad)

GAMMA AIR DOSE 3.34E-03

BETA AIR DOSE 7.98E-03

SECTOR: SE RANGE: 1.5 MILES



FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT UNIT # 2

TABLE 3.8-1

GASEOUS EFFLUENTS - DOSE SUMMATION

AGE GROUP: INFANT

EXPOSURE INTERVAL: JANUARY 1, 1993 THROUGH DECEMBER 31, 1993

NOTE: The below dose results were calculated using actual meteorological data during the specified time interval with Met data reduced as per Reg. Guide 1.111, March 1976.

PATHWAY	BONE mrem	LIVER mrem	THYROID mrem	KIDNEY mrem
GROUND PLANE (A)				
COW -MILK (B)	4.20E-05	1.16E-04	1.09E-02	3.83E-05
INHALATION (A)	1.61E-06	7.96E-05	5.97E-04	3.44E-05
TOTAL	4.36E-05	1.95E-04	1.15E-02	7.27E-05

PATHWAY	LUNG mrem	GI-LLI mrem	T. BODY mrem
GROUND PLANE (A)			6.14E-05
COW -MILK (B)	6.76E-05	6.79E-05	8.59E-05
INHALATION (A)	7.99E-05	7.76E-05	7.81E-05
TOTAL	1.47E-04	1.45E-04	2.25E-04

(A) SECTOR: SE RANGE: 1.5
(B) SECTOR: SW RANGE: 4.25

NOBLE GASES CALENDER YEAR (mrad)

GAMMA AIR DOSE 1.83E-03

BETA AIR DOSE 2.91E-03

SECTOR: SE RANGE: 1.5 MILES

**FLORIDA POWER AND LIGHT COMPANY
ST. LUCIE PLANT
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UNITS 1 AND 2, TABLE 3.9**

A. Solid Waste Shipped Off-Site for Burial or Disposal

1.	Type of Waste	Unit	6 Mo. Period	Error %
a.	Spent Resin, Process Filters	M3 Ci	2.99E+1 1.79E+2	2.0 E+1
b.	Dry Compressible Waste (Note 5)	M3 Ci	3.61E+1 1.80E+1	2.0 E+1
c.	Irradiated Components	M3 Ci	0.00E+0 0.00E+0	N/A *
d. 1.	Other Non-Compressible Metal (DAW) (Note 6)	M3 CI	2.40E-1 8.72E-3	2.0 E+1

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

Category	Nuclides	%
a.	Fe 55	3.49E+1
	Co 60	1.75E+1
	Cs 137	1.31E+1
	Cs 134	1.19E+1
	Ni 63	7.45E+0
	Co 58	4.89E+0
	Mn 54	2.28E+0
	Be 7	1.81E+0
	I 131	1.42E+0
	Nb 95	1.08E+0
	Cr 51	9.90E-1
	Zr 95	7.70E-1
	Sb 125	7.70E-1

Category	Nuclides	%
b.	Co 60	2.93E+1
	Fe 55	2.56E+1
	Cs 137	1.58E+1
	Ni 63	1.17E+1
	Cs 134	5.74E+0
	Co 58	4.39E+0
	Sb 125	2.14E+0
	MN 54	1.66E+0
	Ag 110m	1.66E+0
	C 14	1.14E+0
c.	N/A	N/A
d.1.	Fe 55	4.16E+1
	Co 60	2.96E+1
	Ni 63	1.18E+1
	Co 58	7.09E+0
	Cs 137	6.72E+0
	Cs 134	3.01E+0
	Nb 95	1.84E+0
	C 14	1.13E+0

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
8	Sole Use Truck	Barnwell, S.C.
5	Sole Use Truck	S.E.G. Oak Ridge, TN
3	Sole Use Truck	Quadrex, Oak Ridge, TN

B. Irradiated Fuel Shipments

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

* N/A = Not Applicable

/dac



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UNITS 1 AND 2, TABLE 3.9 (CONTINUED)

Waste Class	Total Volume Cubic Ft.	Total Curies (Note 1)	Principal Radionuclides (Notes 1 & 2)	Type of Waste (Note 3)	Category Reg-Guide 1.21	Type of Container (Note 4)	Solidification Agent
Class A	871.4	1.655	N/A	PWR Compactible Trash (Note 5)	1.b	Non-Specification Strong Tight Package	None
Class A	8.48	8.70E-3	N/A	PWR Non-Compactible Trash (Note 6)	1.d.1	Non-Specification Strong Tight Package	None
Class A	404.2	16.360	Ni 63, Sr 90, Cs 137	PWR Compactible Trash	1.b	NRC Certified LSA Type A	None
Class A	613.7	12.765	Ni 63, Sr 90, Cs 137	PWR Ion-Exchange Resin	1.a	NRC Certified LSA Type A	None
Class B	120.3	72.230	Ni63, Sr90, Cs137, Sum of Nuclides with T 1/2 < 5 years	PWR Ion-Exchange Resin	1.a	NRC Certified LSA Type A	None
Class C	202.1	3.035	C14, Pu 241, TRU, Co 60, Ni63, Sr 90, I 129, Cs 137, Sum of Nuclides with T 1/2 < 5 years	PWR Process Filters	1.a	NRC Certified LSA Type A	None
Class C	120.3	90.575	C14, Pu 241, Tc 99, TRU, Co 60, Ni63, Sr 90, Cs 137, Sum of Nuclides with T 1/2 < 5 years	PWR Process Filters	1.a	NRC Certified Type B	None

**FLORIDA POWER AND LIGHT COMPANY
ST. LUCIE PLANT
SEMI-ANNUAL REPORT
JULY 1, 1993 THROUGH DECEMBER 31, 1993
UNITS 1 AND 2, TABLE 3.9 (CONTINUED)**

SOLID WASTE SUPPLEMENT

NOTE 1: The total curie quantity and radionuclide composition of solid waste shipped from the St. Lucie Plant, Units 1 and 2 are determined using a combination of qualitative and quantitative techniques. In general, the St. Lucie Plant follows the guidelines outlined in the Low Level Waste Licensing Branch Technical Position (BTP) on Radioactive Waste Classification (5/11/83) for these determinations.

The most frequently used techniques for determining the total curie quantity in a package are the dose to curie methods and the (concentration) x (volume or mass) calculations. Where appropriate, engineering type activation analyses may be applied. Since each of the above methodologies involves to some extent qualitative parameters, the total curie quantity is considered to be an estimate.

The composition of radionuclides in the waste is determined by both on-site analyses for principal gamma emitters and periodic off-site analyses for other radionuclides. The on-site analyses are performed either on a batch basis or on a routine basis using reasonably representative samples as appropriate for the waste type. Off-site analyses are used to establish scaling factors or other estimates for radionuclides such as ^3H , ^{14}C , ^{99}Tc , ^{129}I , TRU , ^{241}Pu , ^{242}Cm , ^{63}Ni , ^{55}Fe , and ^{90}Sr .

NOTE 2: "Principal Radionuclides" refer to those radionuclides contained in the waste in concentrations greater than .01 times the concentration of the nuclides listed in Table 1 or .01 times the smallest concentration of the nuclides listed in Table 2 of 10 CFR 61.

NOTE 3: "Type of Waste" is generally specified as described in NUREG 0782, Draft Environment Impact Statement on 10 CFR 61, "Licensing Requirements for Land Disposal of Radioactive Waste".

NOTE 4: "Type of Container" refers to the transport package.

NOTE 5: The volume and activity listed for Dry Compressible Waste represent the quantity of material that during the reporting period was sent to the Barnwell, South Carolina burial facility. This material was shipped to a contracted vendor for volume reduction prior to final disposal at the Barnwell, South Carolina burial facility. During the reporting period, two shipments of Dry Compressible Waste (1,840 cubic feet, 7.54E-1 curies) were made from the St. Lucie Plant to the volume reduction facility. This material was shipped via "Sole Use Trucks" in non-specification strong tight packages. Also, during the reporting period, one shipment of grit blasting material in non-specifications strong tight packages (736 cubic feet, 9.413E-5 curies) and two shipments of dried tank and sump solids in NRC Certified LSA, Type A packages (404.2 cubic feet, 7.54E-1 curies) were shipped via "Sole Use Trucks" from the St. Lucie Plant to the contracted vendor for volume reduction processing and disposal.

NOTE 6: The volume and activity listed for non-compressible metal represent the quantity of material that during the reporting period could not be recycled by the contracted vendor and required disposal at the Barnwell, South Carolina disposal facility. During the reporting period, two shipments of non-compressible metal waste (2,620 cubic feet, $3.811\text{E-}2$ curies) and one shipment of secondary bead resin (637 cubic feet, $4.286\text{E-}5$ curies) were made from the St. Lucie Plant to the volume reduction facility. This material was shipped via "Sole Use Trucks" in non-specification strong tight packages.

ATTACHMENT - A

UNPLANNED LIQUID EFFLUENT RELEASE
of June/July 1993

Quantification of Curies Released

Attachment - A

The January 1, 1993 through June 30, 1993 Semiannual Report contained a Description and analysis of the Unplanned Release as per Attachment - B to the Report. That Report stated that the Curie quantification of the release would be submitted on the July-December 1993 Semiannual Release Report once Sr-89, Sr-90, and Fe-55 composite analyses were done.

This attachment fulfills the requirement to fully quantify the Radionuclide assessment of the unplanned release referenced in the January 1 through June 30, 1993 Report.

The Refueling Water Tank # 1 release totals were as follows:

Nuclide	Curies	Release Volume: 2.09 E+05 Liters
-----	-----	Release Start : June 15, 1993
		Release End : July 18, 1993
Alpha	4.80E-6	
Tritium	6.51E 0	
Cr-51	9.21E-3	
Mn-54	3.50E-4	
Fe-55	3.76E-2	
Co-58	5.87E-3	
Fe-59	5.14E-4	
Co-60	4.44E-3	
Sr-89	5.87E-5	
Sr-90	3.65E-6	
Y -90	3.65E-6	
Zr-95	1.94E-3	
Nb-95	3.85E-3	
Ru-103	2.34E-5	
Ag-110	1.07E-4	
Sn-113	2.23E-4	
Sb-124	1.48E-3	
Sb-125	2.37E-3	
Cs-134	3.32E-3	
Cs-137	5.02E-3	

The above quantities are included in Unit # 1 Releases in Tables 3.3-1 and 3.4-1 as a Continuous Mode Release during Quarter Number 3.

No recurrence of this release path have been observed. Three Sets of Monitoring Wells Samples have been obtained around the affected area. The results of these samples are being provided to the Region II NRC I & E Inspector during on-site audits.



ATTACHMENT - B

SUBMITTAL OF CHANGES TO THE
OFFSITE DOSE CALCULATION MANUAL

(Required by Technical Specification 6.14)

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Attachment - B

There were two revisions to the Offsite Dose Calculation Manual during the reporting interval.

Revision 12 was issued to implement NRC Generic Letter 89-01 guidance where the Radioactive Effluent Sections of the Technical Specifications were relocated to the ODCM. The ODCM Dose Methodology was not changed. This revision did replace "Total Body" with new "Whole Body" as per the 89-01 guidance. Appropriate administrative references to the ODCM Controls and/or Technical Specification Administrative Sections were also changed accordingly.

Revision 13 was approved on December 22, 1993 and became effective in January 1994. This revision implemented the new 10 CFR Part 20 revision for Radioactive Effluents. ODCM Table L-1 "Maximum Permissible Concentrations in Water in UNRESTRICTED AREAS" and Table G-1 "Maximum Permissible Concentrations in Air in UNRESTRICTED AREAS" were revised as per the new Part 20 Limits.

One methodology step was recalculated for compliance with the new Part 20 Limits:

ODCM Step 1.3 "Determining Setpoint for Radioactive Liquid Effluent Monitors" was recalculated using the new Part 20 MPC's. The setpoint was adjusted accordingly.

An ODCM referenced procedures C-70 "Processing Aerated Liquid Waste" was also modified for the new setpoints, and

ODCM referenced procedure C-72 "Processing Gaseous Wastes" was revised where Equivalent Xe-133 factors for Noble Gas were recalculated as per the ODCM revised MPC values in ODCM Table G-1.

No Dose Methodology changes were made, only recalculation of steps for compliance with new regulatory limits.

Each ODCM Revision is attached as a complete copy.

