FPL

P.O. Box 029100, Miami, FL, 33102-9100

AUG 27 1990

L-90-305
10 CFR 50.36(a)(2)
Tech. Spec. 6.9.4.

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Semi-Annual Radioactive Effluent Release Report

Attached is the Radioactive Effluent Release Report for the period of January 1, 1990, through June 30, 1990, for Turkey Point Units 3 and 4, as required by Technical Specification 6.9.4. and 10 CFR 50.36(a)(2).

Should there be any questions regarding this information, please contact us.

Very truly yours,

K. N. Harris
Vice President
Turkey Point Nuclear

KNH/DPS/dps

Attachment

cc: Stewart D. Ebneter, Regional Administrator, Region II, USNRC Senior Resident Inspector, USNRC, Turkey Point Plant

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TURKEY POINT NUCLEAR PLANT
UNITS 3 AND 4
SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1990 THROUGH JUNE 1990

SUBMITTED BY
NUCLEAR CHEMISTRY DEPARTMENT
TURKEY POINT NUCLEAR PLANT
FLORIDA POWER & LIGHT COMPANY

S. Quinn
Radiochemist

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Operations Superintendent

L. W. Pearce
Plant Manager-Nuclear

CHEM 1990:DAJ

24pp.

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FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
JANUARY 1990 THROUGH JUNE 1990

1.0 Regulatory Limits

1.1 Liquid Effluents

a) The concentration of radioactive material released in liquid effluents to unrestricted areas shall not exceed 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 not exceed 2×10^{-4} µCi/ml.

b) The dose or dose commitment per reactor to a member of the public from any radioactive materials in liquid effluent released to unrestricted areas shall be limited, during any calendar quarter, to ≤1.5 mrem to the total body and to ≤5 mrem to any organ, and, during any calendar year, to ≤3 mrem to the total body and ≤10 mrem to any organ.

1.2 Gaseous Effluents

a) The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to the following:

Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin due to noble gases and less than or equal to 1500 mrem/yr to any organ due to I-131, I-133, tritium and for all radioactive materials in particulate form with half lives greater than 8 days.

b) The air dose per reactor to areas at and beyond the site boundary due to noble gases released in gaseous effluents shall be limited, 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 per reactor to a member of the public, due to I-131, I-133, tritium and to particulates with half-lives greater than 8 days in airborne effluents released to areas at and beyond the site boundary shall not exceed 7.5 mrem to any organ during any calendar quarter and shall not exceed 15 mrem to any organ during any calendar year.

2.0 Maximum Permissible Concentrations

Water: As per 10CFR20 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.

3.0 Average Energy

The average energy of fission and activation gases in gaseous effluents is not applicable.

4.0 Measurements and Approximations of Total Radioactivity

All liquid and airborne discharges to the environment during this reporting period were analyzed in accordance with Technical Specification requirements. The minimum frequency of analysis as required by Regulatory Guide 1.21 was met or exceeded.

Where alpha, tritium and named nuclides are shown as ------- curies, this should be interpreted as "no activity was detected on the samples using the Plant Technical Specification analyses techniques to achieve required Lower Level of Detection (LLD) sensitivity for radioactive effluents".

4.1 Liquid Effluents

Aliquots of representative pre-release samples were isotopically analyzed for gamma emitting isotopes on a multichannel analyzer.

The above procedure was followed for all releases from the waste disposal system. Frequent periodic sampling and analysis were used to conservatively determine if any radioactivity was being released via the steam generator blowdown system and the storm drain system.

Monthly and quarterly composite samples for the waste disposal system were prepared to give proportional weight to each liquid release made during the designated period of accumulation. The monthly composite was analyzed for tritium and gross alpha activity. Tritium was determined by use of liquid scintillation techniques and gross alpha radioactivity was determined by use of a 2π gas flow proportional counter. The quarterly composite was analyzed for Sr-89/90 and Fe-55 by chemical separation.

All radioactivity concentrations determined from analysis of a pre-release composite were multiplied by the total represented volume of the liquid waste released to determine the total quantity of each isotope and of gross alpha activity released during the compositing period.

Aliquots of representative pre-release samples from the waste disposal system were analyzed on a per release basis for dissolved fission and activation gases by use of gamma spectrum analysis. The resulting isotope concentrations were multiplied by the total volume released in order to estimate the total dissolved gases released.

The liquid waste treatment system is shared by both units at the site and generally all liquid releases are allocated on a 50/50 basis to each unit.

4.2 Gaseous Effluents

Airborne releases to the atmosphere occurred from: release of gas decay tanks, the instrument bleedline, containment purges, and releases incidental to operation of the plant. The techniques employed in determining the radioactivity in airborne releases are:

a) Gamma spectrum analysis for fission and activation gases,

b) Removal of particulate material by filtration and subsequent gamma-spectrum analysis, Sr-89/90 determination and gross alpha analysis,

c) Absorption of halogen radionuclides on a charcoal filter and subsequent gamma-spectrum analysis, and

d) Analysis of water vapor in a gas sample for tritium using liquid scintillation techniques.

All gas releases from the plant which were not accounted for by the above methods were conservatively estimated as curies of Xe-133 by use of the SPING 4 Radiation Monitor and the plant vent process monitor recorder chart and the current calibration curve for the monitor.

Portions of the gas waste treatment system are shared by both units and generally all gas releases from the shared system are allocated on a 50/50 basis to each unit.

Meteorological data for the period January, 1990 to June, 1990, in the form of Joint Frequency Distribution Tables is maintained on-site.

4.3 Estimate of Errors

a) Sampling Error

The error associated with volume measurement devices, flow measuring devices, etc., based on calibration data and design tolerances has been conservatively estimated to be collectively less than ± 10%.

b) Analytical Error

Our quarterly Q.C. cross-check program involves counting unknown samples provided by an independent external lab. The errors associated with our analysis of these unknown samples, and reported to us by the independent lab, were used as the basis for deriving the following analytical error terms.

Nuclide Type	Average Error	Maximum Error
Liquid	±5	±11
Gaseous	±11	±12

5.0 BATCH RELEASES

5.1 Liquid

		Unit 3	Unit 4	
a)	Number of batch releases	2.35 E+02	2.35 E+02	
b)	Total time period of batch releases	1.92 E+04	1.92 E+04	Minutes
c)	Maximum time period for a batch releases	1.60 E+02	1.60 E+02	Minutes
d)	Average time period for a batch release	8.17 E+01	8.17 E+01	Minutes
e)	Minimum time period for a batch release	6.00 E+00	6.00 E+00	Minutes
f)	Average stream flow during period of release of effluent into a flowing stream	1.15 E+06	1.15 E+06	GPM

5.2 Gaseous

a)	Number of batch releases	3.50 E+01	3.10 E+01	
b)	Total time period of batch releases	2.93 E+03	1.97 E+03	Minutes
c)	Maximum time period for a batch release	2.40 E+02	2.40 E+02	Minutes
d)	Average time period for a batch release	8.37 E+01	6.36 E+01	Minutes
e)	Minimum time period for a batch release	1.50 E+01	1.50 E+01	Minutes

6.0 Unplanned Releases

6.1 Liquid

		UNIT 3	UNIT 4	
a)	Number of releases	0	0	
b)	Total activity released	0	0	Curies

6.2 Gaseous

a)	Number of releases	0	0	
b)	Total activity released	0	0	Curies

6.3 See Attachment (if applicable) for:
a) A description of the event and equipment involved.
b) Cause(s) for the unplanned release.

7.0 Reactor Coolant Activity

7.1 Unit 3

Reactor Coolant Activity exceeded the 1.0 µCi/gm Dose Equivalent I-131 limit for 5.5 hours during February, 1990. The 100/E-Bar limit was not exceeded. See Attachment 1.

7.2 Unit 4

Reactor Coolant Activity limits of $100/\bar{E}$ and 1.0 µCi/gm Dose Equivalent I-131 were not exceeded.

8.0 Site Radiation Dose

The assessment of radiation dose from radioactive effluents to the general public due to their activities inside the site boundry is part of the Year Ending Semiannual Report.

9.0 Offsite Dose Calculation Manual (ODCM)

There were no ODCM revisions during this reporting period.

10.0 Solid Waste and Irradiated Fuel Shipments

No irradiated fuel shipments were made from the site. Common solid waste from Turkey Point Units 3 and 4 were shipped jointly. A sumation of these shipments is given in Table 5 of this report.

11.0 Process Control Program Revisions

See Attachment 2.

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 1
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 1	Quarter 2
A. Fission and Activation Products			
1. Total Release (not including tritium, gases, alpha)	Ci	5.07 E-02	4.15 E-02
2. Average diluted concentration during period	µCi/ml	5.11 E-10	6.10 E-10
B. Tritium			
1. Total Release	Ci	6.97 E+01	9.76 E+01
2. Average diluted concentration during period	µCi/ml	7.03 E-07	1.44 E-06
C. Dissolved and Entrained Gases			
1. Total Release	Ci	1.48 E+00	1.11 E-02
2. Average diluted concentration during period	µCi/ml	1.49 E-08	1.63 E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	<1.82 E-08*	<1.87 E-08*
E. Volume of Batch Waste Released (prior to dilution)	Liters	2.79 E+06	2.37 E+06
F. Volume of Continuous Waste Released (prior to dilution)	Liters	6.25 E+05	0
G. Volume of Dilution Water Used During Period	Liters	9.92 E+10	6.80 E+10

*MDA Value in µCi/ml

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 2
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Na-24	Ci	----------	----------	6.06 E-06	----------
Cr-51	Ci	----------	----------	4.20 E-04	1.76 E-03
Mn-54	Ci	----------	----------	1.76 E-03	5.38 E-03
Fe-55	Ci	----------	----------	1.09 E-02	8.79 E-03
Co-57	Ci	----------	----------	----------	9.20 E-06
Co-58	Ci	----------	----------	1.69 E-02	1.41 E-02
Fe-59	Ci	----------	----------	1.73 E-04	1.79 E-05
Co-60	Ci	----------	----------	7.78 E-03	7.76 E-03
SR-89	Ci	----------	----------	----------	----------
Sr-90	Ci	----------	----------	----------	----------
Nb-95	Ci	----------	----------	----------	3.87 E-04
Zr-95	Ci	----------	----------	----------	2.86 E-05
Zr-97	Ci	----------	----------	1.67 E-05	6.08 E-06
Mo-99	Ci	----------	----------	2.44 E-04	----------
Ru-103	Ci	----------	----------	6.80 E-05	----------
Ag-110	Ci	----------	----------	1.29 E-03	1.41 E-03
Sn-117m	Ci	----------	----------	2.40 E-05	----------
Sb-124	Ci	----------	----------	8.75 E-04	8.29 E-06
Sb-125	Ci	----------	----------	4.69 E-03	9.34 E-04
I-131	Ci	1.62 E-04	----------	2.94 E-04	6.81 E-06
I-133	Ci	1.29 E-04	----------	2.00 E-06	4.63 E-06
Cs-134	Ci	----------	----------	9.95 E-04	1.18 E-04
Cs-137	Ci	----------	----------	4.01 E-03	7.50 E-04
Unidentified	Ci	----------	----------	----------	----------
Total for Period Above	Ci	2.91 E-04	----------	5.04 E-02	4.15 E-02

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 2 (Continued)
LIQUID EFFLUENTS

Liquid Dissolved Gas

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Kr-85	Ci	----------	----------	----------	4.07 E-03
Xe-131m	Ci	----------	----------	6.40 E-02	4.06 E-04
Xe-133	Ci	1.14 E-04	----------	1.41 E+00	6.43 E-03
Xe-133m	Ci	----------	----------	3.60 E-03	----------
Xe-135	Ci	----------	----------	9.84 E-05	1.70 E-04
Xe-135m	Ci	----------	----------	2.06 E-06	----------
Total for Period Above	Ci	1.14 E-04	----------	1.48 E+00	1.11 E-02

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 3
GAS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 1	Quarter 2
A. Fission and Activation Products			
1. Total Release	Ci	4.27 E+02	9.55 E+01
2. Average Release Rate for Period	µCi/sec	5.49 E+01	1.22 E+01
B. Iodines			
1. Total Iodine-131	Ci	4.26 E-03	3.07 E-05
2. Average Release Rate for Period	µCi/sec	5.48 E-04	3.91 E-06
C. Particulates			
1. Particulates T - 1/2>8 Days	Ci	4.47 E-05	4.90 E-05
2. Average Release Rate for Period	µCi/sec	5.75 E-06	6.23 E-06
3. Gross Alpha Radioactvity	Ci	<4.65 E-16*	<6.94 E-16*
D. Tritium			
1. Total Release	Ci	1.72 E+01	1.09 E+01
2. Average Release Rate for Period	µCi/sec	2.21 E+00	1.39 E+00

*<MDA Values Expressed in µCi/ml

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 4
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission Gases					
Ar-41	Ci	1.38 E-01	4.41 E-02	1.26 E-01	----------
Kr-85	Ci	8.81 E-01	----------	4.23 E+00	3.56 E-01
Kr-85m	Ci	2.03 E-03	4.63 E-04	1.63 E-02	4.28 E-05
Kr-87	Ci	9.89 E-04	----------	----------	----------
Xe-131m	Ci	2.98 E-01	----------	1.80 E+00	1.49 E-01
Xe-133	Ci	3.29 E+02	8.63 E+01	8.56 E+01	8.46 E+00
Xe-133m	Ci	6.37 E-02	----------	6.31 E-01	7.76 E-02
Xe-135	Ci	3.55 E+00	7.01 E-03	3.17 E-01	1.06 E-02
Xe-135m	Ci	2.35 E-03	----------	3.30 E-02	----------
Total for Period Above	Ci	3.34 E+02	8.64 E+01	9.28 E+01	9.05 E+00

2. Iodines			
I-131	Ci	4.24 E-03	3.07 E-05
I-133	Ci	1.29 E-04	2.30 E-05
	Ci		
Total for Period Above	Ci	4.37 E-03	5.37 E-05

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 3 TABLE 4 (Continued)
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode	
		Quarter 1	Quarter 2
3. Particulates			
Co-58	Ci	3.74 E-06	4.43 E-06
Co-60	Ci	3.60 E-06	4.04 E-05
I-131	Ci	1.82 E-05	----------
I-133	Ci	6.80 E-06	----------
Cs-134	Ci	3.91 E-06	----------
Cs-136	Ci	9.80 E-07	----------
Cs-137	Ci	6.70 E-06	4.15 E-06
Ru-103	Ci	7.68 E-07	----------
Total for Period Above	Ci	4.47 E-05	4.90 E-05

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 1
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 1	Quarter
A. Fission and Activation Products			
1. Total Release (not including tritium, gases, alpha)	Ci	5.06 E-02	4.15 E-02
2. Average diluted concentration during period	µCi/ml	5.10 E-10	6.10 E-10
B. Tritium			
1. Total Release	Ci	6.97 E+01	9.76 E+01
2. Average diluted concentration during period	µCi/ml	7.03 E-07	1.44 E-06
C. Dissolved and Entrained Gases			
1. Total Release	Ci	1.48 E+00	1.11 E-02
2. Average diluted concentration during period	µCi/ml	1.49 E-08	1.63 E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	<1.82 E-08*	<1.87 E-08*
E. Volume of Batch Waste Released (prior to dilution)	Liters	2.79 E+06	2.37 E+06
F. Volume of Continuous Waste Released (prior to dilution)	Liters	0	0
G. Volume of Dilution Water Used During Period	Liters	9.92 E+10	6.80 E+10

*MDA Value in µCi/ml

FLORIDA POWER &LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 2
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Na-24	Ci	----------	----------	6.06 E-06	----------
Cr-51	Ci	----------	----------	4.20 E-04	1.76 E-03
Mn-54	Ci	----------	----------	1.76 E-03	5.38 E-03
Fe-55	Ci	----------	----------	1.09 E-02	8.79 E-03
Co-57	Ci	----------	----------	----------	9.20 E-06
Co-58	Ci	----------	----------	1.69 E-02	1.41 E-02
Fe-59	Ci	----------	----------	1.73 E-04	1.79 E-05
Co-60	Ci	----------	----------	7.78 E-03	7.76 E-03
Sr-89	Ci	----------	----------	----------	----------
Sr-90	Ci	----------	----------	----------	----------
Nb-95	Ci	----------	----------	----------	3.87 E-04
Zr-95	Ci	----------	----------	----------	2.86 E-05
Zr-97	Ci	----------	----------	1.67 E-05	6.08 E-06
Mo-99	Ci	----------	----------	2.44 E-04	----------
Ru-103	Ci	----------	----------	6.80 E-05	----------
Ag-110	Ci	----------	----------	1.29 E-03	1.41 E-03
Sn-117m	Ci	----------	----------	2.40 E-05	----------
Sb-124	Ci	----------	----------	8.75 E-04	8.29 E-06
Sb-125	Ci	----------	----------	4.69 E-03	9.34 E-04
I-131	Ci	----------	----------	2.94 E-04	6.81 E-06
I-133	Ci	----------	----------	2.00 E-06	4.63 E-06
Cs-134	Ci	----------	----------	9.95 E-04	1.18 E-04
Cs-137	Ci	----------	----------	4.01 E-03	7.50 E-04
La-140	Ci	----------	----------	4.64 E-05	----------
Np-239	Ci	----------	----------	5.60 E-05	----------
Unidentified	Ci	----------	----------	----------	----------
Total for Period Above	Ci	----------	----------	5.06 E-02	4.15 E-02

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 2 (Continued)
LIQUID EFFLUENTS

Liquid Dissolved Gas

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
Kr-85	Ci	----------	----------	----------	4.07 E-03
Xe-131m	Ci	----------	----------	6.40 E-02	4.06 E-04
Xe-133	Ci	----------	----------	1.41 E+00	6.43 E-03
Xe-133m	Ci	----------	----------	3.60 E-03	----------
Xe-135	Ci	----------	----------	9.84 E-05	1.70 E-04
Xe-135m	Ci	----------	----------	2.06 E-06	----------
Total for Period Above	Ci	----------	----------	1.48 E+00	1.11 E-02

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 3
GAS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 1	Quarter 2
A. Fission and Activation Products			
1. Total Release	Ci	3.57 E+02	6.65 E+01
2. Average Release Rate for Period	µCi/sec	4.59 E+01	8.46 E+00
B. Iodines			
1. Total Iodine-131	Ci	1.55 E-03	1.35 E-05
2. Average Release Rate for Period	µCi/sec	1.99 E-04	1.72 E-06
C. Particulates			
1. Particulates T - 1/2>8 Days	Ci	2.51 E-05	4.90 E-05
2. Average Release Rate for Period	µCi/sec	3.23 E-06	6.23 E-06
3. Gross Alpha Radioactvity	Ci	<4.65 E-16*	<6.94 E-16*
D. Tritium			
1. Total Release	Ci	1.31 E+01	7.56 E+00
2. Average Release Rate for Period	µCi/sec	1.68 E+00	9.62 E-01

*MDA Values Expressed in µCi/ml

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 4
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 1	Quarter 2	Quarter 1	Quarter 2
1. Fission Gases					
Ar-41	Ci	2.46 E-01	1.53 E-01	1.04 E-01	7.22 E-02
Kr-85	Ci	---------	----------	2.74 E+00	3.56 E-01
Kr-85m	Ci	2.06 E-03	5.52 E-03	6.98 E-04	4.28 E-05
Kr-87	Ci	---------	9.91 E-04	---------	---------
Xe-131m	Ci	1.78 E-01	8.57 E-02	9.69 E-01	1.91 E-01
Xe-133	Ci	3.20 E+02	5.00 E+01	2.92 E+01	1.53 E+01
Xe-133m	Ci	9.41 E-02	5.11 E-02	6.77 E-02	1.47 E-01
Xe-135	Ci	3.56 E+00	9.86 E-02	4.64 E-02	5.80 E-02
Xe-135m	Ci	----------	----------	3.30 E-02	----------
Total for Period Above	Ci	3.24 E+02	5.04 E+01	3.32 E+01	1.61 E+01
2. Iodines					
I-131	Ci	1.54 E-03	1.35 E-05		
I-133	Ci	1.21 E-04	2.30 E-05		
Total for Period Above	Ci	1.66 E-03	3.65 E-05		

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNIT 4 TABLE 4 (Continued)
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode	
		Quarter 1	Quarter 2
3. Particulates			
Co-58	Ci	3.29 E-06	4.43 E-06
Co-60	Ci	3.60 E-06	4.04 E-05
I-131	Ci	6.09 E-06	----------
Cs-134	Ci	3.91 E-06	----------
Cs-136	Ci	9.80 E-07	----------
Cs-137	Ci	6.70 E-06	4.15 E-06
Ru-103	Ci	5.35 E-07	----------
Total for Period Above	Ci	2.51 E-05	4.90 E-05

*<MDA Values Expressed in µCi/ml

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JANUARY 1990 THROUGH JUNE 1990
UNITS 3 AND 4 TABLE 5

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL

1.	TYPE OF WASTE	UNIT	6 MONTH PERIOD		%ERR
a.	Spent resin, filters	m^3	9.57	E0	
	sludge, evaporator bottoms	Ci	2.96	E2	20
b.	Dry Compressible waste	m^3	1.08	E2	
	(note 1)	Ci	7.15	E-1	20
c.	Irradiated components	m^3	0.00	E0	
	Control rods, etc.	Ci	0.00	E0	
d.	Other non-compressible	m^3	1.75	E1	
	Waste (Note 2)	Ci	2.47	E-1	20

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION BY TYPE OF WASTE

a.	Co-60	%	69
	Ni-63	%	20
	Cs-137	%	4
	Fe-55	%	3
	Co-58	%	2
	Cs-134	%	1
b.	Co-60	%	44
	Co-58	%	27
	Fe-55	%	13
	Ni-63	%	8
	Cr-51	%	4
	I-131	%	2
	Cs-137	%	2
c.	_____	_____	_____
d.	Cs-137	%	51
	Co-60	%	37
	Ni-63	%	6
	Fe-55	%	4
	Co-58	%	1
	Cs-134	%	1

3. SOLID WASTE DISPOSITION

NUMBER OF SHIPMENTS	MODE OF TRANSPORT	DESTINATION
13 (Note 3)	Sole use truck	Oak Ridge, TN
2	Sole use truck	Barnwell, SC

B. IRRADIATED FUEL SHIPMENTS

None

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SOLID WASTE SUPPLEMENT

Waste Classification	Total Volume Ft3	(NOTE 4) Total Curie Quantity	(NOTE 5) Principal Radionuclides	(NOTE 6) Type of Waste	R.G. 1.21 Category	(NOTE 7) Type of Container	Solidification or Absorbent Agent
Class A	4431.9	0.96	None	Compactable and Non-Compactable Trash	1.b,d	Strong, Tight Package	N/A
Class A	202.1	2.03	None	Dewatered Bead Resin	1.a	Cask >Type A LSA	N/A
Class B	135.8	294	Co-60, Cs-137 Ni-63, Sr-90	Dewatered Bead Resin	1.a	Cask >Type A LSA	N/A

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SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPMENT OFFSITE FOR BURIAL OR DISPOSAL

Note 1: Dry compressible waste volume indicates volume shipped to burial site following reduction by a waste processing facility. Volume shipped to the waste processing facility was 906.2 m^3.

Note 2: Other noncompressible waste indicates volume shipped to burial site following decontamination and volume reduction by a waste processing facility. Volume shipped to the waste processing facility was 0.0 m^3.

Note 3: Material transported to Oak Ridge, Tennessee, was consigned to licensed processing facilities for volume reduction and decontamination activities. The material remaining after processing was transported by the processor to Barnwell, South Carolina, for burial.

Note 4: The total curie quantity and radionuclide composition of solid waste shipped from the Turkey Point Plant Units 3 and 4 are determined using a combination of qualitative and quantitive techniques. The Turkey Point Plant follows the guidelines in the Low Level Waste Licensing Branch Technical Position on Radioactive Waste Classification (5/11/83) for these determinations.

The most frequent used techniques for determining the total activity in a package are the dose to curie method and inference from specific activity and mass or activity concentration and volume. Activation analysis may be applied when it is appropriate. The total activity determination by any of these methods is considered to be an estimate.

The composition of radionuclides in the waste is determined by both on-site analysis for principle gamma emitters and periodic off-site analyses for difficult to measure isotopes. The on-site analyses are performed either on a batch basis or on a routine basis using representative samples appropriate for the waste type. Off-site analyses are used to establish scaling factors or other estimates for difficult to measure isotopes.

Note 5: Principle radionuclide refers to those radionuclides contained in the waste in concentrations greater than 0.01 times the concentration of the nuclide listed in Table 1 or 0.01 times the smallest concentration of the nuclide listed in Table 2 of 10 CFR 61.

Note 6: Type of waste is specified as described in NUREG 0782, Draft Environment Impact Statement on 10 CFR 61 "Licensing Requirements for Land Disposal of Radioactive Waste".

Note 7: Type of container refers to the transport package.

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ATTACHMENT 1

7.0 Reactor Coolant Activity

7.1 Unit

7.1.1 Power, Cleanup, and Dose Equivalent Iodine 48 Hr. History

Date	Time	DEQ (Ci/ml)	RX. Power (%)	Cleanup (PM)
1 FEB	0905	Not Performed	100	40
2 FEB	1130	5.28 E-02	100	45
3 FEB	0353	4.71 E-02	100	40
3 FEB	1325	6.26 E-02	100	45
3 FEB	2108	5.04 E-02	85	45
4 FEB	0030	8.97 E-01	0	90
4 FEB	0330	1.01 E+01	0	91
4 FEB	0600	9.39 E-01	0	90
4 FEB	0730	7.85 E-01	0	90

7.1.2 Degas History

Unit 3 Reactor Coolant System was degassed from 1958, 2 FEB until 0145, 3 FEB 1990.

7.1.3 Time Duration of Dose Equivalent Iodine >1µCi/gm.

Unit 3 Dose Equivalent Iodine 131 exceeded 1.0 microcurie per gram for a period of 5.5 hours.

7.1.4 Batch Average Burnups PTP3, End of Cycle II (14537 MWD/MTU)

Batch	Burnup (MWD/MTU)
10D	27830
11A	36102
11B	36894
12A	34779
12B	31079
13A	19481
13B	14851
13C	19484
13D	18967

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UNITS 3 AND 4 ATTACHMENT 2

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

During this reporting period Turkey Point Plant awarded a contract for resin dewatering equipment and services to Westinghouse Electric Corporation. Turkey Point Operating Procedure 11550.48, Process Control Program for Dewatering Radioactive Waste Liners, was substantially revised to eliminate all references to the previous vendor, Chem-Nuclear Systems, Inc., and incorporate applicable requirements for the new vendor's equipment and procedures. The new dewatering process is operated following procedures approved by the State of South Carolina, Department of Health and Environmental Control, Radioactive Waste Management Section, in applicable certificates of compliance for the vendor's disposal containers. Therefore, this change does not reduce the overall conformance of the dewatered waste to existing disposal site criteria for waste form and stability. The following is a detailed description of the revision.

Section 3.1, "Discussion", was revised to delete all references to Chem-Nuclear Systems, Inc. procedures and replace them with the following Westinghouse Electric Corporation procedures:

1. Westinghouse Radiological Services, Inc. procedure STD-D-03-009, A User's Manual for Westinghouse RADLOK-200, RADLOK-500, RADLOK-100, RADLOK-179, and RADLOK-195.

2. Westinghouse Radiological Services, Inc. procedure STD-P-03-003, RADLOK Manway Assembly Closure and Sealing Procedure.

3. Westinghouse Radiological Services, Inc. procedure STD-P-03-004, Closure of Hittman RADLOK High Integrity Container Fill Port Closure Assembly.

4. Westinghouse Radiological Services, Inc. procedure STD-P-03-046, Transfer and Dewatering Ion Exchange Resin and/or Activated Charcoal Filter Media Using the Hittman Rapid Dewatering System.

5. Westinghouse Radiological Services, Inc. procedure STD-P-03-052, Transfer and Dewatering Ion Exchange Resin and/or Filter Media Using the Press Pak System.

6. Westinghouse Radiological Services, Inc. procedure STD-P-03-010, Transfer and Dewatering Bead Resin in Hittman RADLOK High Integrity Containers With a Single Layer Underdrain Assembly to Less Than 1% Drainable Liquid.

7. Westinghouse Radiological Services, Inc. procedure STD-P-03-020, RADLOK Inspection Procedure.

8. Westinghouse Radiological Services, Inc. Process Control Program STD-PCP-03-003, Westinghouse Hittman Mobile Incontainer Dewatering and Solidification Systems.

Sections 4.6 through 4.8, which listed specific container model numbers allowable for disposal of each dewatered resin waste stream, were replaced with new Sections 4.6 through 4.10, which specify the minimum disposal container requirements for each waste stream.

Section 6.1, "References", was revised to delete all references to Chem-Nuclear Systems, Inc. procedures and replace them with the following Westinghouse Electric Corporation procedures

1. Westinghouse Radiological Services, Inc. procedure STD-D-03-009, A User's Manual for Westinghouse RADLOK-200, RADLOK-500, RADLOK-100, RADLOK-179, and RADLOK-195.

2. Westinghouse Radiological Services, Inc. procedure STD-P-03-003, RADLOK Manway Assembly Closure and Sealing Procedure.

3. Westinghouse Radiological Services, Inc. procedure STD-P-03-004, Closure of Hittman RADLOK High Integrity Container Fill Port Closure Assembly.

4. Westinghouse Radiological Services, Inc. procedure STD-P-03-046, Transfer and Dewatering Ion Exchange Resin and/or Activated Charcoal Filter Media Using the Hittman Rapid Dewatering System.

5. Westinghouse Radiological Services, Inc. procedure STD-P-03-052, Transfer and Dewatering Ion Exchange Resin and/or Filter Media Using the Press Pak System.

6. Westinghouse Radiological Services, Inc. procedure STD-P-03-010, Transfer and Dewatering Bead Resin in Hittman RADLOK High Integrity Containers With a Single Layer Underdrain Assembly to Less Than 1% Drainable Liquid.

7. Westinghouse Radiological Services, Inc. procedure STD-P-03-020, RADLOK Inspection Procedure.

8. Westinghouse Radiological Services, Inc. Process Control Program STD-PCP-03-003, Westinghouse Hittman Mobile Incontainer Dewatering and Solidification Systems.

Section 7.3 was revised to eliminate records that are no longer applicable or are generated in the new vendor procedures.

Section 8.4 was revised to replace the requirements for use of Chem-Nuclear Systems, Inc. equipment and procedures with Westinghouse Electric Corporation equipment and procedures.

Section 8.5 was deleted.

Section 8.6 was renumbered to 8.5

Section 8.7 was deleted.

Section 8.8 was renumbered to Section 8.6 and revised to replace the requirements for use of Chem-Nuclear Systems, Inc. equipment and procedures with Westinghouse Electric Corporation equipment and procedures.

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