ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8903100271 DOC.DATE: 88/12/31 NOTARIZED: NO DOCKET #
FACIL:50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251
AUTH.NAME AUTHOR AFFILIATION
CONWAY,W.F. Florida Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION

See Rpt

SUBJECT: "Semiannual Radioactive Effluent Release Rept Jul-Dec 1988." W/890302 ltr.

DISTRIBUTION CODE: IE48D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 40
TITLE: 50.36a(a)(2) Semiannual Effluent Release Reports

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD2-2 LA	1	0	PD2-2 PD	5	5
	EDISON,G	1	1			
INTERNAL:	AEOD/DSP/TPAB	1	1	ARM TECH ADV	1	1
	NRR/DEST/PSB 8D	1	1	NRR/DREP/RPB 10	2	2
	NUDOCS-ABSTRACT	1	1	REG FILE 01	1	1
	RGN2 DRSS/RPB	2	2	RGN2 FILE 02	1	1
EXTERNAL:	BNL TICHLER,J03	1	1	EG&G SIMPSON,F	2	2
	LPDR	1	1	NRC PDR	1	1

RIDS/ADDS

RIDS/ADDS

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 22 ENCL 21

ER-1

FPL

P.O. Box 14000, Juno Beach, FL 33408-0420

MARCH 2 1989

L-89-75

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

Gentlemen:

Re: Turkey Point Unit 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 July 1988 through December 1988 for Turkey Point Units 3 and 4, as required by Technical Specification 6.9.4.

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

Very truly yours,

C. Ashton Pell for
W. F. Conway
Senior Vice President - Nuclear

WFC/TCG/gp

Attachment

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

IE48
1

TURKEY POINT PLANT

UNITS 3 AND 4

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JULY 1988 THROUGH DECEMBER 1988

SUBMITTED BY

NUCLEAR CHEMISTRY DEPARTMENT

TURKEY POINT PLANT

FLORIDA POWER AND LIGHT COMPANY

RNS/md★C1:1

IE48

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
SUPPLEMENTAL INFORMATION
JULY 1988 THROUGH DECEMBER 1988

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

The maximum permissible concentrations for liquid and airborne releases are described in Sections 1.1-a and 1.2-a of this report.

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.

4.1 Liquid Effluents

Aliquots of representative pre-release samples were either isotopically analyzed for gamma emitting isotopes on a multichannel analyzer, or evaporated and analyzed for gross beta-gamma activity in a 2π gas flow proportional counter. The efficiency of the gas flow proportional counter is adjusted so that the activity determined by gross beta-gamma analysis approximates the isotopic activities determined by gamma spectrum analysis and selected beta determinations, exclusive of tritium and dissolved gases.

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

Each batch of liquid effluent from the waste disposal system was analyzed monthly 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 total the dissolved gases released.

4.2 Gaseous Effluents

Airborne releases to the atmosphere occurred from: release of gas decay tanks, the instrument bleedline, containment purges, and sporadic 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 sporadic 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 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.

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	±3%	±9%
Gaseous	±3%	±4%

5.0 BATCH RELEASES

		Unit 3	Unit 4	
5.1	**Liquid**			
a)	Number of batch releases	2.06 E+02	2.06 E+02	
b)	Total time period of batch releases	1.96 E+04	1.96 E+04	Minutes
c)	Maximum time period for a batch releases	1.96 E+02	1.96 E+02	Minutes
d)	Average time period for a batch release	9.53 E+01	9.53 E+01	Minutes
e)	Minimum time period for a batch release	1.00 E+01	1.00 E+01	Minutes
f)	Average stream flow during period of release of effluent into a flowing stream	1.20 E+06	1.20 E+06	GPM
5.2	**Gaseous**			
a)	Number of batch releases	8.50 E+00	1.25 E+01	
b)	Total time period of batch releases	8.85 E+02	1.85 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	1.04 E+02	1.47 E+02	Minutes
e)	Minimum time period for a batch release	1.00 E+00	1.00 E+00	Minutes

6.0 UNPLANNED RELEASES

6.1	**Liquid**			
a)	Number of releases	0	1	
b)	Total activity releases	0.00 E+00	2.82 E-01	Curies
6.2	**Gaseous**			
a)	Number of releases	0	0	
b)	Total activity releases	0.00 E+00	0.00 E+00	Curies

6.3 See attachments (#1) for:

a) A description of the event and equipment involved.

b) Cause(s) for the unplanned release.

7.0 The assessment of radiation dose from radioactive effluents to the general public due to their activities inside the site boundry assumes a visitor was on-site at the "Red Barn" recreational area for 12 hours a day, 2 days each week of the year, receiving exposure from both units at Turkey Point. The "Red Barn" is located approximately 0.39 miles NNE of the plant site. These dose calculations were made using historical meteorological data.

VISITOR DOSE SUMMATION
JANUARY 1987 THROUGH DECEMBER 1987
UNITS 3 AND 4

Age Group: Adult	Location: Red Barn
Inhalation	Dose(mRem)
Bone	8.37 E-07
Liver	8.25 E-04
Thyroid	1.05 E-03
Kidney	8.25 E-04
Lung	8.25 E-04
GI-LLI	8.19 E-04
Total Body	8.19 E-04

NOBLE GAS EXPOSURE

Gamma Air Dose	2.93 E-03 mRads
Beta Air Dose	6.72 E-03 mRads

8.0 Offsite Dose Calculation Manual Revisions

There were no ODCM revisions during this reporting period.

9.0 Solid Waste and Irratiated 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 summation of these shipments is given in Table 6 of this report.

10.0 Process Control Program Revisions

See Attachment 3

11.0 Special Reports

See Attachment 2

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 1
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 3	Quarter 4
A. Fission and Activation Products			
1. Total Release (not including tritium, gases, alpha)	Ci	1.75 E-01	6.91 E-02
2. Average diluted concentration during period	µCi/ml	2.29 E-09	1.81 E-10
B. Tritium			
1. Total Release	Ci	1.38 E+02	5.50 E+01
2. Average diluted concentration during period	µCi/ml	1.80 E-06	5.45 E-07
C. Dissolved and Entrained Gases			
1. Total Release	Ci	2.09 E-01	6.95 E-02
2. Average diluted concentration during period	µCi/ml	2.73 E-09	6.88 E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	1.12 E-07	<1.53 E-08*
E. Volume of Waste Released (prior to dilution)	Liters	1.69 E+06	3.55 E+06
F. Volume of Dilution Water Used During Period	Liters	7.65 E+10	1.01 E+11

*MDA Value in µCi/ml

Approved by _____

Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 2
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Ag-110m	Ci	-----	-----	2.39 E-04	1.04 E-04
Co-57	Ci	-----	-----	1.75 E-06	-----
Co-58	Ci	-----	-----	2.37 E-03	1.02 E-02
Co-60	Ci	-----	-----	1.48 E-01	7.10 E-03
Cr-51	Ci	-----	-----	1.19 E-03	1.73 E-03
Cs-134	Ci	-----	-----	2.03 E-04	1.23 E-03
Cs-136	Ci	-----	-----	2.13 E-03	5.15 E-03
Cs-137	Ci	-----	-----	7.80 E-04	-----
Fe-59	Ci	-----	-----	-----	3.09 E-04
I-131	Ci	-----	-----	4.28 E-04	4.58 E-04
I-133	Ci	-----	-----	4.00 E-05	2.28 E-05
La-140	Ci	-----	-----	1.72 E-05	5.80 E-05
Mn-54	Ci	-----	-----	8.15 E-03	5.10 E-03
Mo-99	Ci	-----	-----	7.05 E-06	1.82 E-04
Na-24	Ci	-----	-----	1.49 E-05	1.47 E-06
Nb-95	Ci	-----	-----	2.91 E-05	4.17 E-05
Ru-103	Ci	-----	-----	-----	2.96 E-05
Sb-124	Ci	-----	-----	3.97 E-06	2.30 E-03
Sb-125	Ci	-----	-----	3.38 E-03	6.15 E-03
Zn-65	Ci	-----	-----	4.10 E-06	1.29 E-05
Zr-95	Ci	-----	-----	-----	4.20 E-05
Ce-139	Ci	-----	-----	1.11 E-06	-----
Ba-139	Ci	-----	-----	2.17 E-04	4.33 E-05
Sn-117m	Ci	-----	-----	9.90 E-06	1.37 E-05
Sr-90	Ci	-----	-----	5.25 E-05	-----
Fe-55	Ci	-----	-----	7.69 E-03	3.02 E-02
Sr-89	Ci	-----	-----	-----	1.95 E-04
Unidentified	Ci				
Total for Period Above	Ci	-----	-----	1.75 E-01	6.91 E-02

Approved by Stephen Bennin
Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 2 (Continued)
LIQUID EFFLUENTS

Liquid Dissolved Gas

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Kr-85	Ci	-----	-----	6.81 E-03	3.63 E-03
Kr-85m	Ci	-----	-----	2.82 E-04	-----
Xe-131m	Ci	-----	-----	3.46 E-03	1.36 E-03
Xe-133	Ci	-----	-----	1.97 E-01	6.43 E-02
Xe-133m	Ci	-----	-----	1.19 E-03	1.24 E-04
Xe-135	Ci	-----	-----	1.88 E-04	1.05 E-04
Xe-135m	Ci	-----	-----	2.34 E-06	1.38 E-05
	Ci				
Total for Period Above	Ci	-----	-----	2.09 E-01	6.95 E-02

LIQUID EFFLUENTS -DOSE SUMMATION
JANUARY 1988 THROUGH DECEMBER 1988

UNIT 3

Age Group: Teenager Location: Cooling Canal

Shoreline Deposition	Dose (mRem)	% of Annual Limit
Total Body	8.14 E-03	2.71 E-01

Approved by C Berg for Steve Quinn

Date 3-1-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 3
GAS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 3	Quarter 4
A. Fission and Activation Products			
1. Total Release	Ci	5.12 E+02	3.02 E+02
2. Average Release Rate for Period	µCi/sec	6.44 E+01	3.79 E+01
B. Iodines			
1. Total Iodine-131	Ci	1.17 E-03	5.94 E-04
2. Average Release Rate for Period	µCi/sec	1.47 E-04	7.47 E-05
Particulates			
1. Particulates T - 1/2>8 Days	Ci	5.12 E-05	5.54 E-05
2. Average Release Rate for Period	µCi/sec	6.44 E-06	6.97 E-06
3. Gross Alpha Radioactvity	Ci	1.87 E-08	<8.40 E-09*
D. Tritium			
1. Total Release	Ci	1.12 E+02	1.60 E+00
2. Average Release Rate for Period	µCi/sec	1.41 E+01	2.01 E-01

*MDA Value in µCi/ml

Approved by _____

Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 4
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
1. Fission Gases					
Ar-41	Ci	2.66 E-01	1.05 E-01	1.56 E-03	4.62 E-03
Kr-85	Ci	5.37 E-01	1.50 E-03	3.13 E-01	1.21 E-01
Kr-85m	Ci	5.69 E-02	4.93 E-01	1.15 E-03	-----
Kr-87	Ci	7.25 E-03	-----	1.57 E-06	-----
Kr-88	Ci	2.49 E-02	-----	-----	-----
Xe-131m	Ci	1.06 E+01	9.95 E-03	4.60 E-01	5.97 E-01
Xe-133	Ci	4.59 E+02	2.73 E+02	2.89 E+01	2.15 E+01
Xe-133m	Ci	1.31 E+00	1.65 E-03	1.97 E-01	1.52 E-01
Xe-135	Ci	1.00 E+01	5.43 E+00	5.64 E-02	1.79 E-01
Unidentified	Ci				
Total for Period Above	Ci	4.82 E+02	2.79 E+02	2.99 E+01	2.26 E+01
2. Iodines					
I-131	Ci	5.15 E-04	5.10 E-04	-----	-----
I-133	Ci	3.79 E-04	7.65 E-05	-----	-----
Br-82		2.78 E-04	7.80 E-06	-----	-----
Total for Period Above	Ci	1.17 E-03	5.94 E-04	-----	-----

Approved by Stephen Sessim

Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 4 (Continued)
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode	
		Quarter 3	Quarter 4
3. Particulates			
Cr-51	Ci	-----	1.24 E-05
Mn-54	Ci	2.62 E-06	-----
Co-58	Ci	5.00 E-07	1.84 E-05
Co-60	Ci	1.42 E-06	1.14 E-05
I-131	Ci	1.74 E-06	3.51 E-07
Cs-134	Ci	8.10 E-06	-----
Cs-136	Ci	3.48 E-06	-----
Cs-137	Ci	2.03 E-05	1.28 E-05
Ba-140	Ci	1.30 E-05	-----
Sr-89	Ci	6.50 E-11	-----
	Ci		
Unidentified	Ci		
Total for Period Above	Ci	5.12 E-05	5.54 E-05

Approved by Stephen Bevins

Date 2-23-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 3 TABLE 5
DOSE DUE TO IODINE, H-3, AND PARTICULATES

Pathway	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	Total Body
Cow Milk - Infant	2.40 E-04	1.80 E-03	6.38 E-02	7.17 E-04	1.52 E-03	1.52 E-03	-----	1.63 E-03
Fruit & Veg - Fresh	1.37 E-05	1.84 E-03	1.82 E-03	1.84 E-03	1.82 E-03	1.83 E-03	-----	1.83 E-03
Ground Plane	1.97 E-05	1.97 E-05	1.97 E-05	1.97 E-05	1.97 E-05	1.97 E-05	2.31 E-05	1.97 E-05
Inhalation-Adult	6.99 E-07	6.83 E-04	8.74 E-04	6.83 E-04	6.83 E-04	6.82 E-04	-----	6.82 E-04
Unit Totals (mRem)	2.74 E-04	4.34 E-03	6.65 E-02	3.26 E-03	4.04 E-03	4.05 E-03	2.31 E-05	4.16 E-03
% Annual Limit	2.74 E-03	4.34 E-02	6.65 E-01	3.26 E-02	4.04 E-02	4.05 E-02	2.31 E-04	4.16 E-02

DOSE - NOBLE GASES

Gamma Air Dose	8.71 E-03 mRad	% of Annual Limit	8.71 E-02 %/Yr
Beta Air Dose	2.47 E-02 mRad	% of Annual Limit	1.24 E-01 %/Yr

Approved by Stephen Sumin

Date 2-23-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 1
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 3	Quarter 4
A. Fission and Activation Products			
1. Total Release (not including tritium, gases, alpha)	Ci	1.75 E-01	6.91 E-02
2. Average diluted concentration during period	µCi/ml	2.29 E-09	1.81 E-10
B. Tritium			
1. Total Release	Ci	1.38 E+02	5.50 E+01
2. Average diluted concentration during period	µCi/ml	1.80 E-06	5.45 E-07
C. Dissolved and Entrained Gases			
1. Total Release	Ci	2.09 E-01	6.95 E-02
2. Average diluted concentration during period	µCi/ml	2.73 E-09	6.88 E-10
D. Gross Alpha Radioactivity			
1. Total Release	Ci	1.12 E-07	<1.53 E-08*
E. Volume of Waste Released (prior to dilution)	Liters	1.69 E+06	3.55 E+06
F. Volume of Dilution Water Used During Period	Liters	7.65 E+10	1.01 E+11

*MDA Value in µCi/ml

Approved by Stephen Quinn

Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 2
LIQUID EFFLUENTS

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Ag-110m	Ci	-----	-----	2.39 E-04	1.04 E-04
Co-57	Ci	-----	-----	1.75 E-06	-----
Co-58	Ci	-----	-----	2.37 E-03	1.02 E-02
Co-60	Ci	-----	-----	1.48 E-01	7.10 E-03
Cr-51	Ci	-----	-----	1.19 E-03	1.73 E-03
Cs-134	Ci	-----	-----	2.03 E-04	1.23 E-03
Cs-136	Ci	-----	-----	2.13 E-03	5.15 E-03
Cs-137	Ci	-----	-----	7.80 E-04	-----
Fe-59	Ci	-----	-----	-----	3.09 E-04
I-131	Ci	-----	-----	4.28 E-04	4.58 E-04
I-133	Ci	-----	-----	4.00 E-05	2.28 E-05
La-140	Ci	-----	-----	1.72 E-05	5.80 E-05
Mn-54	Ci	-----	-----	8.15 E-03	5.10 E-03
Mo-99	Ci	-----	-----	7.05 E-06	1.82 E-04
Na-24	Ci	-----	-----	1.49 E-05	1.47 E-06
Nb-95	Ci	-----	-----	2.91 E-05	4.17 E-05
Ru-103	Ci	-----	-----	-----	2.96 E-05
Sb-124	Ci	-----	-----	3.97 E-06	2.30 E-03
Sb-125	Ci	-----	-----	3.38 E-03	6.15 E-03
Zn-65	Ci	-----	-----	4.10 E-06	1.29 E-05
Zr-95	Ci	-----	-----	-----	4.20 E-05
Ce-139	Ci	-----	-----	1.11 E-06	-----
Ba-139	Ci	-----	-----	2.17 E-04	4.33 E-05
Sn-117m	Ci	-----	-----	9.90 E-06	1.37 E-05
Sr-90	Ci	-----	-----	5.25 E-05	-----
Fe-55	Ci	-----	-----	7.69 E-03	3.02 E-02
Sr-89	Ci	-----	-----	-----	1.95 E-04
Unidentified	Ci				
Total for Period Above	Ci	-----	-----	1.75 E-01	6.91 E-02

Approved by Stephen Quinn
Date 2-23-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 2 (Continued)
LIQUID EFFLUENTS

Liquid Dissolved Gas

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
Kr-85	Ci	-----	-----	6.81 E-03	3.63 E-03
Kr-85m	Ci	-----	-----	2.82 E-04	-----
Xe-131m	Ci	-----	-----	3.46 E-03	1.36 E-03
Xe-133	Ci	-----	-----	1.97 E-01	6.43 E-02
Xe-133m	Ci	-----	-----	1.19 E-03	1.24 E-04
Xe-135	Ci	-----	-----	1.88 E-04	1.05 E-04
X3-135m	Ci	-----	-----	2.34 E-06	1.38 E-05
	Ci				
Total for Period Above	Ci	-----	-----	2.09 E-01	6.95 E-02

LIQUID EFFLUENTS -DOSE SUMMATION
JANUARY 1988 THROUGH DECEMBER 1988

UNIT 4

Age Group: Teenager Location: Cooling Canal

Shoreline Deposition	Dose (mRem)	% of Annual Limit
Total Body	8.14 E-03	2.71 E-01

Approved by for Steve Quinn

Date 3-1-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 3
GAS EFFLUENTS - SUMMATION OF ALL RELEASES

	Units	Quarter 3	Quarter 4
A. Fission and Activation Products			
1. Total Release	Ci	5.73 E+02	2.84 E+02
2. Average Release Rate for Period	µCi/sec	7.21 E+01	3.57 E+01
B. Iodines			
1. Total Iodine-131	Ci	1.17 E-03	5.94 E-04
2. Average Release Rate for Period	µCi/sec	1.47 E-04	7.47 E-05
Particulates			
1. Particulates T - 1/2>8 Days	Ci	5.12 E-05	5.54 E-05
2. Average Release Rate for Period	µCi/sec	6.44 E-06	6.97 E-06
3. Gross Alpha Radioactvity	Ci	1.87 E-08	<8.40 E-09*
D. Tritium			
1. Total Release	Ci	1.12 E+02	1.60 E+00
2. Average Release Rate for Period	µCi/sec	1.41 E+01	2.01 E-01

*MDA Value in µCi/ml

Approved by Stephen Quinn

Date 2-23-89

RNS/md★C1:1

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 4
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode		Batch Mode	
		Quarter 3	Quarter 4	Quarter 3	Quarter 4
1. Fission Gases					
Ar-41	Ci	2.66 E-01	1.05 E-01	3.96 E-01	-----
Kr-85	Ci	5.37 E-01	1.50 E-03	3.13 E-01	1.12 E-01
Kr-85m	Ci	5.69 E-02	4.93 E-01	4.20 E-02	-----
Kr-87	Ci	7.25 E-03	-----	1.57 E-06	-----
Kr-88	Ci	2.49 E-02	-----	3.54 E-02	-----
Xe-131m	Ci	1.06 E+01	9.95 E-03	1.29 E+00	2.47 E-01
Xe-133	Ci	4.59 E+02	2.73 E+02	8.71 E+01	4.19 E+00
Xe-133m	Ci	1.31 E+00	1.65 E-03	7.80 E-01	4.87 E-02
Xe-135	Ci	1.00 E+01	5.43 E+00	9.37 E-01	6.34 E-02
Unidentified	Ci				
Total for Period Above	Ci	4.82 E+02	2.79 E+02	9.09 E+01	4.66 E+00
2. Iodines					
I-131	Ci	5.15 E-04	5.10 E-04	-----	-----
I-133	Ci	3.79 E-04	7.65 E-05	-----	-----
Br-82	Ci	2.78 E-04	7.80 E-06	-----	-----
Total for Period Above	Ci	1.17 E-03	5.94 E-04	-----	-----

Approved by Stephen Sussman

Date 2-23-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 4 (Continued)
GASEOUS EFFLUENTS

Nuclides Released	Units	Continuous Mode	
		Quarter 3	Quarter 4
3. Particulates			
Cr-51	Ci	-----	1.24 E-05
Mn-54	Ci	2.62 E-06	-----
Co-58	Ci	5.00 E-07	1.84 E-05
Co-60	Ci	1.42 E-06	1.14 E-05
I-131	Ci	1.74 E-06	3.51 E-07
Cs-134	Ci	8.10 E-06	-----
Cs-136	Ci	3.48 E-06	-----
Cs-137	Ci	2.03 E-05	1.28 E-05
Ba-140	Ci	1.30 E-05	-----
Sr-89	Ci	6.50 E-11	-----
	Ci		
	Ci		
	Ci		
	Ci		
	Ci		
Unidentified	Ci		
Total for Period Above	Ci	5.12 E-05	5.54 E-05

Approved by Stephen Jensen

Date 2-23-89

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNIT 4 TABLE 5
DOSE DUE TO IODINE, H-3, AND PARTICULATES

Pathway	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	Total Body
Cow Milk - Infant	2.38 E-04	1.80 E-03	6.31 E-02	7.16 E-04	1.52 E-03	1.52 E-03	-----	1.63 E-03
Fruit & Veg - Fresh	1.36 E-05	1.84 E-03	4.18 E-03	1.84 E-03	1.82 E-03	1.83 E-03	-----	1.83 E-03
Ground Plane	1.96 E-05	1.96 E-05	1.96 E-05	1.96 E-05	1.96 E-05	1.96 E-05	2.29 E-05	1.96 E-05
Inhalation-Adult	6.94 E-07	6.83 E-04	8.72 E-04	1.83 E-04	6.83 E-04	6.82 E-04	-----	6.82 E-04
Unit Totals (mRem)	2.72 E-04	4.34 E-03	6.82 E-02	3.26 E-03	4.04 E-03	4.05 E-03	2.29 E-05	4.16 E-03
% Annual Limit	2.72 E-03	4.34 E-02	6.82 E-01	3.26 E-02	4.04 E-02	4.05 E-02	2.29 E-04	4.16 E-02

DOSE - NOBLE GASES

Gamma Air Dose	1.38 E-02 mRad	% of Annual Limit	1.38 E-01 %/Yr
Beta Air Dose	2.69 E-02 mRad	% of Annual Limit	1.35 E-01 %/Yr

Approved by C Berg for Steve Quinn
Date 3-1-89

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNITS 3 AND 4 TABLE 6

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL

1.	TYPE OF WASTE	UNIT	6 MO PERIOD	%ERR
a.	Spent resin, filter, sludge evaporator bottoms, etc.	m^3	2.36 E0	
		Ci	1.49 E2	20
b.	Dry compressable waste (NOTE 1)	m^3	3.8 E1	
		Ci	4.34 E-1	
c.	Irradiated components, control rods, etc.	m^3	0.00 E-0	
		Ci	0.00 E-0	20
d.	Other non-compressable metal waste (NOTE 2)	m^3	1.81 E1	
		Ci	2.31 E-1	20

2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION BY TYPE OF WASTE

a.	Co-60	%	54
	Fe-55	%	17
	Ni-63	%	9
	Cs-137	%	9
	Cs-134	%	3
	I-131	%	3
	Co-58	%	2
	Sb-125	%	1
	Mn-54	%	1
b.	Co-60	%	56
	C-14	%	14
	Fe-55	%	12
	Ni-63	%	10
	H-3	%	3
	Cs-137	%	1
	Sb-125	%	1
	Mn-54	%	1
c.	____	___	____
d.	Co-60	%	51
	Cs-137	%	31
	Fe-55	%	8
	Ag-110m	%	6
	Ni-63	%	3
	MN-54	%	1

3. SOLID WASTE DISPOSITION

No. of Shipments	Mode of Transporation	Destination
1	Sole use truck	Barnwell, SC
10 (NOTE 3)	Sole use truck	Oak Ridge, TN

B. IRRADIATED FUEL SHIPMENTS NONE

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNITS 3 AND 4 TABLE 6
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	1982.2	0.665	None	PWR Compactable and Non-campactable Trash		Non-Spec Strong, Tight Package	N/A
Class B	83.4	149.0	Sr.90, Ni-63 Co-60, Cs-137 T1/2 < 5 yr.	PWR Ion Exchange Resins	1.a	NRC Certified LSA > Type A	N/A

MSD/eb/07

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT UNIT NOS. 3 & 4 TABLE 6
SEMI-ANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988

NOTE 1: Dry Compressible Waste Volume indicates volume shipped to burial site following volume reduction by a waste processing facility. Volume shipped to the waste processing facility was 2.71 E2 m^3.

NOTE 2: Other noncompressable metal waste indicates volume shipped to burial site following decontmination and volume reduction by a waste processing facility. Volume shipped to the waste processing facility was 7.25 E1 m^3.

NOTE 3: Material transported to Oak Ridge, Tennessee, was consigned to licensed processing facilities for volume reduction activities. The remaining material was transported by the processor to Barnwell, S.C. for burial.

NOTE 4: The total curie quantity and radionuclide composition of solid waste shipped from the Turkey Point Units 3 & 4 are determined using a combination of qualitative and quantitive techniques. In general, the Turkey Point 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 difficult to measure isotopes. 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. Offiste analyses are used to establish scaling factors or other estimates for difficult to measure isotopes.

NOTE 5: "Principal Radionuclides" refer to those radionuclides contained in the waste in concentrations greater than .01 times the concentration of the nuclide listed in Table 1 or .01 times the smallest concentration of that nuclide listed in Table 2 of 10CFR61.

NOTE 6: "Type of Waste" is generally specified as described in NUREG 0782, Draft Environment Impact Statement on 10CFR61 "Licensing Requirements for Land Disposal of Radioactive Waste".

NOTE 7: "Type of Container" refers to the transport package.

ATTACHMENT 1

UNPLANNED RELEASES

At approximately midnight on August 15, 1988 an unplanned release occurred when 3,166 gallons of water leaked from the Unit 4 Spent Fuel Pit (SFP) to the ground and canal system. Analysis of the Unit 4 SFP showed an activity level of 2.35 E-02 Co-60. Basing release calculations on this activity and the 3,166 gallons released yields a total of 2.819 E-01 Ci being discharged. A portion of this total was released to the canal system via the RCA storm drains while the remainder was cleaned up under the direction of the Health Physics Department.

ATTACHMENT 2

SPECIAL REPORTS

On December 3, 1988 the Unit 3 Spent Fuel Pit SPING-4 monitor was taken out of service for its 18 month Preventive Maintenance Program. At this time alternate sampling methods were initiated to ensure compliance with Technical Specification 3.9.2.d.

On December 5, 1988 the grab sample valves failed the leakrate test and were declared inoperable. With these valves out of service it was determined that representative sampling was no longer possible. Due to being unable to sample, the effluent release via the Unit 3 Spent Fuel Pit exhaust stack was terminated.

The valves which had failed the leak test are no longer manufactured. A Request for Engineering Assistance was submitted to replace these valves and rebuilding kits have been purchased for the interim. The repairs are in process at this time.

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT PLANT
SEMIANNUAL REPORT
JULY 1988 THROUGH DECEMBER 1988
UNITS 3 AND 4
ATTACHMENT 3

Summary of the Revision to Florida Power & Light Company Turkey Point Units 3 and 4 Operating Procedure 11550.48, Process and Control Program for Dewatering Radioactive Waste Liners.

Page 1

Page 1 has been revised to show the date of PNSC review and Plant Manager's approval of the current revision and to update the list of effective pages.

This change does not affect conformance of the dewatered waste to existing criteria.

Page 2

In Section 3.2, the words "disposal site criteria" have been changed to "disposal site licenses". This more accurately reflects the regulatory basis for the authority to perform this procedure. This is especially true for those disposal sites which have no published criteria.

This change does not affect conformance of the dewatered waste to existing criteria.

In Section 3.3.3 the definition for a process control program has been changed for grammatical enhancement only. No substantive change has been made to the definition.

This change does not affect conformance of the dewatered waste to existing criteria.

Page 3

The precautionary statement pertaining to solidification has been deleted. This procedure is directed specifically to dewatering of waste media.

This change does not affect conformance of the dewatered waste to existing criteria.

In Section 4.5.2 the words "conformance of dewatered bead resins" have been changed to "dewatered waste". This has been done to make the scope of this precautionary statement compatible with that of this procedure.

This change does not affect conformance of the dewatered waste to existing criteria.

PAGE 4

Page 4 has been revised for consistency in numbering and pagination only. No substantive changes have been made.

This changes does not affect conformance of the dewatered waste to existing criteria.

Page 5

Section 7.1 has been revised for grammatical enhancement only. No substantive change has been made to this notification requirement.

This change does not affect conformance of the dewatered waste to existing criteria.

In Section 7.2 the words "Health Physics Supervisor or his designee" has been changed to "Radwaste Supervisor". This change in notification requirement has been made coincident with the creation of the Radwaste Supervisor position. The individual filling this management position is responsible for oversight of all solid waste processing.

This change does not affect conformance of the dewatered waste to existing criteria.

Page 6

Section 8.1 and 8.2 has been revised to disallow the use of a visual inspection of waste media to determine that the applicable freestanding liquid criteria has been met. This technique is no longer practiced at Turkey Point Units 3 and 4.

This change does not affect conformance of the dewatered waste to existing criteria.

Section 8.3 has been revised to specify the actual numerical limits for freestanding liquid in steel liners and high-integrity containers.

This change does not affect conformance of the dewatered waste to existing criteria.

This procedure may be affected by an O T S.C (On The Spot Change) verify information prior to use
Date verified_____ Initials_____

FLORIDA POWER AND LIGHT COMPANY
TURKEY POINT UNITS 3 AND 4
OPERATING PROCEDURE 11550.48
HEALTH PHYSICS PROCEDURE HP-48
JANUARY 5, 1989

CONTROLLED DOCUMENT
NO. # 15

1.0 Title:

PROCESS CONTROL PROGRAM FOR DEWATERING RADIOACTIVE WASTE LINERS

2.0 Approval and List of Effective Pages:

2.1 Approval:

Change Dated 1/5/89 Reviewed by Plant Nuclear Safety Committee: 89-004

and Approved by Plant Manager - Nuclear: 1/5/89

2.2 List of Effective Pages:

Page	Date	Page	Date	Page	Date
1	01/05/89	4	01/05/89	7	01/05/89
2	01/05/89	5	01/05/89	8	01/05/89
3	01/05/89	6	01/05/89	9	01/05/89

3.0 Purpose:

The Turkey Point Process Control Program (PCP) implements requirements of the Turkey Point 3 and 4 Technical Specifications and provides instructions for the removal of free standing water from liners containing radioactive bead resin, powdex resin, or charcoal.

3.1 Discussion:

The PCP contains provisions to assure that dewatering of radioactive bead resin, powdex resin and charcoal results in a waste form with characteristics that meet the requirements of 10 CFR 61 as implemented by 10 CFR 20 and of the low level radioactive waste disposal site. The Process Control Program includes in addition to this procedure, the following related documents:

3.1.1 Bead Dewatering Procedure for CNSI 14-195 or Smaller Liners; Chem Nuclear Procedure FO-OP-023.

3.1.2 CNSI Dewatering Containers Report Number CNSI-11118-01-P.

3.1.3 Dewatering procedure for the 24-inch diameter pressure demineralizing vessel containing ion-exchange resin CNSI No. FO-OP-004.

3.1.4 CNSI Test Data, Engineering Project-11475

RTS 1898, 88-2985
/em

3.1.5 Turkey Point HN-100 liner dewatering test report and correspondence dated February 4, 1981

3.1.6 Hittman Liner Dewatering Report No. I-843-3

3.1.7 Hittman Process Control Program for dewatering ion-exchange resin and activated charcoal filter media to 1/2 percent drainable liquid. No. STD-P-04-002

3.1.8 Duratek Corporation Dewatering Test Results completed March 7, 1985.

3.1.9 TFC Nuclear Associates, Inc. NUHIC-1200(BR) Dewatering Procedure

3.1.10 Duratek Corporation Operating Procedure No. OP 3.10 for NuPac High Integrity Containers.

3.1.11 Duratek Corporation Dewatering Test Results completed September 16, 1985

3.1.12 CNSI Operating Procedure FO-OP-022; Ecodex Precoat/Powdex/Soka-Floc/Diatomaceous Earth Dewatering Procedure

3.2 Authority:

| The authority and responsibility to perform this procedure come from 10 CFR 20, 10 CFR 61, Turkey Point Plant Units 3 and 4 Technical Specifications, and disposal site licenses. |

3.3 Definitions:

3.3.1 Dewatering: The process of removing "Free Standing" water from a final disposal package.

3.3.2 "Free Standing Water": Liquid which is not retained by the waste form.

3.3.3 | Process Control Program (PCP): A program which contains the provisions, based on full scale testing, to assure that dewatering of radioactive bead resin, powdered resin or charcoal results in a waste form with the properties that meet the requirements of 10 CFR 61 (as implemented by 10 CFR 20) and of the low level radioactive waste disposal site. |

4.0 Precautions:

4.1 Instructions used for the dewatering of liners which establish the conditions that must be met shall be based on full scale testing. This is to provide reasonable assurance that the dewatering will result in volumes of free standing water, at the time of disposal, within the limits of 10 CFR, Part 61 as implemented by 10 CFR 20 and of the low level radioactive waste disposal site.

DELETED

4.2 Class "B" and "C" radioactive waste (as determined by 10 CFR 61 and O-HPA-040-Shipping and Receiving Radioactive Material) may be transferred to the disposal site in an approved High Integrity Container (HIC). No other containers may be used without PNSC approval.

4.3 Do not use High Integrity Containers for radioactive material that could chemically or physically damage or otherwise exceed the allowable limits of the HIC.

4.4 All changes to Turkey Point Plant Process Control Program must be reviewed and approved by the PNSC before they become effective.

4.5 All changes to the Turkey Point Plant Process Control Program must be submitted to the NRC in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal must contain the following:

4.5.1 Sufficiently detailed information to support the rationale for the change.

4.5.2 | A determination that the change did not reduce the overall conformance of the dewatered waste to existing criteria for stabilized waste form. |

4.5.3 Documentation of the fact that the change has been reviewed and found acceptable by the PNSC.

4.6 Disposal of radioactive bead resin is limited to the following containers:

4.6.1 CNSI Conical Bottom High Integrity Container Type PL6-80CR

4.6.2 CNSI Conical Bottom High Integrity Container Type PL14-195CR

4.6.3 HN 100 Steel Liner

4.6.4 CNSI 24-inch Diameter Pressure Demineralizer Liner

4.6.5 TFC Nuclear Associates, Inc. High Integrity Container Type NUHIC-1200(BR)

4.6.6 NuPac High Integrity Container EL-210

4.7 Disposal of charcoal filter media is limited to the following container:

4.7.1 HN 100 Steel Liner

4.7.2 TFC Nuclear Associates, Inc. High Intergrity Container Type NUHIC-1200(BR)

4.7.3 NuPac High-Integrity Container EL-210

4.8 Disposal of Condensate Polishing Resin is limited to the following containers:

4.8.1 CNSI Steel Liner L14-195 BTF with bottom drain

4.8.2 CNSI Steel Liner L14-195 BTFP with Powdex Dewatering Equipment

4.9 Personnel performing dewatering procedure should be aware that strong oxidizing agents such as nitric acid, when in contact with organic ion-exchange material and in the presence of air, may produce a slightly degraded resin in an exothermic reaction, up to an explosion. The first indication of an exothermic reaction due to the presence of oxidizing agents is some fuming and a slight rise in temperature on the outside of the container. If this condition is found when dewatering a vessel, the immediate action to be taken is to refill the vessel with water. This will eliminate one of the ingredients necessary for the reaction (air) and will dissipate the majority of the heat, returning the temperature of the vessel to ambient. This is a stable condition. Then your immediate supervisor must be notified.

5.0 Responsibilities:

5.1 It is the responsibility of the Plant Manager to assure that all necessary procedures, equipment and support are provided to properly implement the PCP.

5.2 It is the responsibility of the Health Physics Supervisor or his designee to assure that all liners will be dewatered in accordance with the PCP.

6.0 References:

6.1 Turkey Point Units 3 and 4 Technical Specifications No. 3.9.3

6.2 Bead Dewatering Procedure for CNSI 14-195 or Smaller Liners; Chem Nuclear Procedure No. FO-OP-023

6.3 CNSI Dewatering Containers Report No. CNSI-11118-01-P

6.4 Dewatering Procedure for the 24-inch diameter pressure demineralizing vessel containing ion-exchange resin CNSI No. FO-OP-004

6.5 CSNI Test Data, Engineering Project - 11475

6.6 Turkey Point HN-100 liner dewatering test report and correspondence dated February 4, 1981

6.7 Hittman Liner Dewatering Report No. I-843-3

6.8 Hittman Process Control Program for dewatering ion-exchange resin and activated charcoal filter media to 1/2 percent drainable liquid. No. STD-P-04-002.

6.9 Health Physics Administrative Procedure, O-HPA-040 "Shipping and Receiving Radioactive Material."

6.10 49 CFR

6.11 10 CFR 61

6.12 OP-5333.1 "WDS - Transfering Spent Storage Tank To Shielded Shipping Cask."

6.13 Duratek Corporation Dewatering Test Results completed March 7, 1985

6.14 TFC Nuclear Associates, Inc. NUHIC-1200(BR) Dewatering Procedure

6.15 Duratek Corporation Operating Procedure NO. OP-3.10, for NuPac High Intergrity Containers

6.16 Duratek Corporation Dewatering Test Results completed September 16, 1985

6.17 CNSI Operating Procedure FO-OP-022-Ecodex Precoat/Powdex/ Solka-Floc/Diatomaceous Earth Dewatering Procedure

7.0 Records and Notifications:

7.1 If it is suspected that the free standing water requirements may not have been met for any container shipped to a disposal site, the Plant Manager and the Health Physics Supervisor shall be notified.

7.2 If the Process Control Procedures have not been followed or if free standing water is suspected in the final shipping container in amounts greater than allowed by regulations, the Radwaste Supervisor shall be notifed.

7.3 Completed copies of the below listed section(s), enclosure(s) and or attachment(s) constitute Quality Assurance Records and shall be transmitted to Document Control and be retained for a minimum of 5 years in accordance with Quality Assurance records requirements:

7.3.1 Specification Container Shipping Release Form (HP-72C)

7.3.2 Powdex Resin Liner Shipping Release Form (HP-72-L)

7.3.3 User Checklist for High Integrity Container (HP-115)

7.3.4 Certification Statement for Disposal of Enviro-Safe High Integrity Container (HP-117)

7.3.5 CNSI Conical Bottom Enviro-Safe High Integrity Container Dewatering Completion Record to 1 percent FSW (HP-116)

7.3.6 CNSI 24-inch Diameter Container Dewatering Record (HP-116.1)

7.3.7 170 ft^3 Liner Dewatering Record (HP-116.2)

7.3.8 NUHIC-120 Dewatering Record (HP-116.3)

7.3.9 Duratek Dewatering Log (HP-116.4)

7.3.10 Dewatering Completion Record (HP-116.5)

7.3.11 Powdex Resin Leak Check Record (HP-116.6)

8.0 Instructions:

8.1 | Dewatering shall be performed in accordance with the applicable vendor procedure for each liner or high integrity container.

8.2 If the dewatering is not performed in accordance with the vendor procedure the process shall be terminated. The package shall not be shipped for disposal until it is dewatered in accordance with the vendor procedure.

8.3 If the final waste form is found to be unacceptable (freestanding liquid in excess of 0.5% of the waste volume for steel liners or 1.0% for high integrity containers) processing and shipping shall be stopped until the procedures and/or dewatering equipment are corrected to prevent recurrance. |

8.4 Dewatering of Chem-Nuclear Conical Bottom High Integrity Containers (containing bead type ion-exchange resin)

8.4.1 Chem Nuclear Conical Bottom High Integrity Containers containing bead type ion-exchange resin shall be dewatered in accordance with Chem Nuclear Systems, Inc. Procedure FO-OP-023, as amended.

8.4.2 Completion of the dewatering procedure shall be documented on Form HP-116, "Bead Dewatering Procedure for CNSI 14-195 or Smaller Liners."

8.4.3 High Integrity Containers shall be dewatered to <1% free standing water.

8.5 Dewatering of Chem-Nuclear 24 inch Diameter Pressure Demineralizer Liner.

8.5.1 Chem Nuclear 24 inch Diameter Pressure Demineralizer Liners shall be dewatered in accordance with Chem Nuclear Procedure FO-OP-004, as amended.

8.5.2 Completion of the dewatering procedure shall be documented on Form HP-116.1 "CNSI 24 inch Diameter Pressure Demineralizer Containing Ion-Exchange Resins Dewatering Completion Record - .5% FSW."

8.6 Dewatering of Nuclear Packaging EL-210 High Integrity Containers Containing Bead Resins and Charcoal Filter Media

8.6.1 Dewatering of Nuclear Packaging EL-210 High Integrity Containers containing bead resins and charcoal filter media shall be performed in accordance with Duratek Corporation Operating Procedure OP-3.10, as amended.

8.6.2 Completion of the dewatering procedure shall be documented on Form HP-116.4, "Duratek Dewatering Log."

8.7 Dewatering of Chem Nuclear 14-195 BTFP Liners Containing Powdex Resin

8.7.1 Chem Nuclear 14-195 BTFP Liners containing powdex resin shall be dewatered in accordance with Chem Nuclear Procedure FO-OP-022, as amended.

8.7.2 Completion of the dewatering procedure shall be documented on Form HP-116.5 "Dewatering Completion Record."

8.8 Packaging of Powdex Resin in Chem Nuclear 14-195 BTF Steel Liners with Bottom Drains

8.8.1 Powdex resin to be packaged in Chem Nuclear 14-195 BTF Steel Liners shall be dewatered using the resin press at the condensate polisher area

8.8.2 Health Physics shall monitor the transfer of resin to the burial liner to vertify the absence of free standing water.

8.8.3 Upon completion of filling, the liner shall be tilted approximately 10° with the bottom drain at the low point.

8.8.4 Remove the bottom drain plug. Direct any leakage to an appropriate container.

8.8.5 Record the date and time of begining the leak check on Form HP-116.6 "Powder Resin Leak Check Record."

8.8.6 Inspect the container at least every 24 hours for continued leakage. When inspection indicates that leakage has stopped, enter the date, time, and total collected volume of liquid on Form HP-116.6

8.8.7 Continue the leak check for 72 hours following the time noted in 8.10.6. Collect any leakage during this period.

8.8.8 Upon completion of the 72 hour leak check, record the date, time, and volume of liquid collected on Form HP-116.6 If the collected liquid volume is less than 500 ml, the leak check is complete. If the collected liquid volume is greater than 500 ml, repeat 8.9.5 through 8.9.8.

8.8.9 Prepare the liner for shipment by installing the drain plug and lid.

8.9 Dewatering of Hittman HN 100 with bottom drain.

8.9.1 Upon completion of waste processing remove the liner from service.

8.9.2 Set in tipped configuration (Approx. 10° with bottom drain at low point).

8.9.3 Connect the dewatering line to the suction side of a positive displacement, air operated diaphram pump and to the connection on the bottom drain of the Hittman Liner. Remove vent cap cover.

8.9.4 Start the dewatering pump and run at $\geq$ 2 strokes per second for 24 hours. Stop the pump after 24 hours.

8.9.5 Let the liner stand for 16 hours.

8.9.6 Obtain a container to collect discharge of pump.

CAUTION: Water will be highly radioactive.

8.9.7 Start the pump and collect discharge for 8 hours. Before securing the pump, lift the suction hose to remove any trapped water in the line.

8.9.8 If collected water is greater than 500 ml, repeat Steps 8.7.5 thru 8.7.7 until less than 500 ml is collected.

8.9.9 If collected water is less than 500 ml, proceed to Step 8.7.10.

8.9.10 Remove the dewatering line from the bottom drain and attach the line to the underdrain connection located on the top of the liner.

8.9.11 Obtain a container to collect discharge of pump.

8.9.12 Run pump for 8 hours collecting all pump discharge. Before securing the pump, lift the suction hose to remove any trapped water in the line.

8.9.13 If collected water is greater than 500 ml, reconnect the suction hose to the bottom drain and repeat all Steps from 8.7.5 thru 8.7.12.

8.9.14 If collected water is less than 500 ml, proceed to Step 8.7.15. The final dewatering shall be performed within 72 hours of shipping liner for disposal.

8.9.15 Disconnect the dewatering line and ensure that the plug is secured in the bottom drain.

8.9.16 Install the vent cap covers and the top cover on the liner. Secure the liner for shipment.

8.9.17 Complete the 170 ft^3 Liner Dewatering Record Form HP-116.2.