James A. FitzPatrick Nuclear Power Plant P.O. Box 41 Lycoming, New York 13093 315 342 3840



August 24, 1995 JAFP-95-0387

United States Nuclear Regulatory Commission Region 1 475 Allendale Road King of Prussia, PA 19406

ATTENTION:	Mr. Thomas T. Martin
	Regional Administrator

SUBJECT:

JAMES A. FITZPATRICK NUCLEAR POWER PLANT DOCKET NO. 50-333, LICENSE NO. DPR-59

Gentlemen:

Attached is the <u>Semi-Annual Radioactive Effluent Release Report</u> for the period of January 1, 1995 through June 30, 1995. This report is submitted in accordance with the requirements of Amendment 93, Appendix B, Section 7.3.C of the James A. FitzPatrick Nuclear Power Plant Technical Specifications.

Included as Attachment 7 are corrections to Attachment 2, Summary of Changes to the Process Control Program, for the Semi-Annual Radioactive Release Reports for 1993 & 1994. The format used for the effluent data is outlined in Appendix B of Regulatory Guide 1.21, Revision 1. Distribution is in accordance with Regulatory Guide 10.1, Revision 4.

If you have any questions concerning the attached report, please contact Alfred Jarvis, Chemistry General Supervisor, at the James A. FitzPatrick Nuclear Power Plant.

Very truly yours,

HARRY P. SALMON, JR.

HPS/AJ/WH/jbh Attachments

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JANUARY 1, 1995 - JUNE 30, 1995

DOCKET NO.: 50-333 LICENSE NO.: DPR-59

SUPPLEMENTAL INFORMATION

FACILITY: JAFNPP LICENSEE: NEW YORK POWER AUTHORITY

1. Technical Specification Lim. 3

a. Fission and Activation Gases:

- (1) The dose rate at or beyond the site boundary due to radioactive materials released from the plant in gaseous effluent shall be limited as follows:
 - (a) Less than or equal to 500 mrem/year to the whole body and less than or equal to 3000 mrem/year to the skin from noble gases.
- (2) The air dose to areas at or beyond the site boundary from noble gases released from the plant in gaseous effluent shall be limited:
 - (a) During any calendar quarter, to less than or equal to 5 mrad from gamma radiation, and less than or equal to 10 mrad from beta radiation; and,
 - (b) During any calendar year, to less than or equal to 10 mrad from gamma radiation and less than or equal to 20 mrad from beta radiation.
- b. Tritium, Iodines and Particulates, Half Lives > 8 days:
 - (1) The dose to a member of the public at or beyond the site boundary from Iodine-131, Iodine-133, Tritium, and radionuclides in particulate form with half-lives greater than 8 days released from the plant in gaseous effluent shall be limited:
 - (a) During any calendar quarter to less than or equal to 7.5 mrem to any organ; and,
 - (b) During any calendar year to less than or equal to 15 mrem to any organ.
 - (c) Less than 0.1% of the limits of Specification 3.4.a.1 and 3.4.a.2 as a result of burning contaminated oil.
 - (2) The dose rate at or beyond the site boundary due to radioactive materials released from the plant in gaseous effluents shall be limited as follows:
 - (a) Less than or equal to 1500 mrem/year to any organ from Iodine-131, Iodine-133, Tritium and for radioactive materials in particulate form with half-lives greater than 8 days (inhalation pathway only).

SUPPLEMENTAL INFORMATION (Continued)

c. Liquid Effluents:

- (1) The concentration of radioactive materials released to the unrestricted areas shall not exceed the values specified in 10 CFR 20, Appendix B, Table II, Column 2. For dissolved or entrained noble gases the concentration shall be limited to 2.00E-04 μCi/ml.
- (2) The dose to a member of the public from radioactive materials released from the plant in liquid effluents to unrestricted areas shall be limited as follows:
 - (a) During any calendar quarter, limited to less than or equal to 1.5 mrem to the whole body and to less than or equal to 5 mrem to any organ; and,
 - (b) During any calendar year, limited to less than or equal to 3 mrem to the whole body and to less than or equal to 10 mrem to any organ.

2. Maximum Permissible Concentrations

a.	Fission and activation gases:	(None	specified)
b.	Iodines:	(None	specified)
c.	Particulates, half-lives >8 days:	(None	specified)
d.	Liquid effluents:	Quarter 1	Quarter 2
	 (1) Fission and activation products (mixture MPC) (μCi/ml) 	NONE	4.51E-05
	(2) Tritium (µCi/ml)	3.00E-03	3.00E-03
	(3) Dissolved and entrained gases (μCi/ml)	2.00E-04	2.00E-04

SUPPLEMENTAL INFORMATION (Continued)

3. Average Energy

(None specified)

4. Measurements and Approximations of Total Radioactivity

- a. Fission and Activation Gases: Continuous monitor on each release path calibrated to a marinelli grab sample analyzed by gamma spectroscopy; bubbler grab sample analyzed for Tritium.
- b. Iodines: Gamma spectral analysis of charcoal cartridge and particulate filter on each release path.
- c. Particulates: Gamma spectral analysis of each particulate filter and charcoal cartridge for each release path. A four week per quarter composite of particulate filters for each release path for Strontium-89 and Strontium-90. One week per month particulate filter for each release path for gross alpha.
- d. Liquid Effluents: Gamma spectral analysis of each batch discharged, except composite analysis for Strontium-89, Strontium-90, Iron-55, Tritium, and Alpha.
- e. Solid Waste: Gamma spectral analysis of a representative sample of each waste shipment. Scaling factors established from off-site composite sample analyses to estimate concentration of non-gamma emitters. Low activity trash shipments, curie content estimated by dose rate measurement and application of appropriate scaling factors.
- f. Error Estimation Method: Overall error for sampling and analysis estimated by combining individual errors using error propagation methods. This processs composed of determinate and undeterminate errors.
 - Determinate Pump flowrates, volume measurements and analysis collection yields
 - Undeterminate Random counting error estimated using accepted statistical calculations

SUPPLEMENTAL INFORMATION (Continued)

5. Batch Releases

a. Liquid:	Quarter 1	Quarter 2
(1) Number of batch releases:	NONE	5.00E+00
(2) Total time period for batch release: (min)	NONE	3.51E+02
(3) Maximum time period for batch release: (min)	NONE	7.40E+01
(4) Average time period for batch release: (min)	NONE	7.02E+01
(5) Minimum time period for batch release: (min)	NONE	6.60E+01

b. Gaseous:

There were no gaseous batch releases for this report period.

6. Abnormal Releases

a.	Liquid:	Quarter 1	Quarter 2
	(1) Number of releases:	None	None
	(2) Total activity released:	None	None
b.	Gaseous		
	(1) Number of releases:	None	None
	(2) Total activity released:	None	None

TABLE 1A

GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

А.	FISSION AND ACTIVATION G	UNIT ASES	QUARTER 1	QUARTER 2	ERROR %
	 Total Release Average release rate for 	Ci	1.85E+01	2.30E+01	≤2.50E+01
	period	µCi/sec	2.38E+00	2.93E+00	
	3. Tech. Spec. Limit	%	*	*	
B.	IODINE-131				
	1. Total Iodine-131	Ci	2.35E-04	5.85E-04	≤2.50E+01
	2. Average release rate for				
	period	µCi/sec	3.02E-05	7.44E-05	
	3. Tech. Spec. Limit	%	*	*	
C.	IODINE-133 AND PARTICULAT	ES			
	1. Iodine-133 and Particulates				
	with half-lives >8 days	Ci	2.68E-03	7.42E-03	≤2.50E+01
	2. Average release rate for				
	period	#Ci/sec	3.45E-04	9.44E-04	
	3. Tech. Spec. Limit	%	*	*	
	4. Gross alpha radioactivity	Ci	8.78E-07	5.20E-07	≤2.50E+01
D.	TRITIUM				
	1. Total Release	Ci	4.15E-01	3.18E+00	≤2.50E+01
	2. Average release rate for				
	period	µCi/sec	5.34E-02	4.04E-01	
	3. Tech. Spec. Limit	%	*	*	
*E.	PERCENT OF TECHNICAL SPECIFICATION LIMITS				
	FISSION AND ACTIVATION GAS	ES			
	1. Quarterly gamma air dose limit	%	9.47E-03	1.62E-02	
	2. Quarterly beta air dose limit	%	8.10E-04	1.79E-03	
	3. Yearly gamma air dose limit	%	4.73E-03	8.08E-03	
	4. Yearly beta air dose limit	%	4.05E-04	8.95E-04	
	5. Whole body dose rate limit	%	7.53E-03	6.78E-03	
	6. Skin dose rate limit	%	1.64E-03	1.45E-03	
	HALOGENS, TRITIUM AND PAR WITH HALF-LIVES >8 DAYS	RTICULATES			
	7. Quarterly dose limit (organ)	%	3.62E-02	1.04E-01	
	8. Yearly dose limit (organ)	%	1.81E-02	5.21E-02	
	9. Organ dose rate limit	%	5.41E-01	5.41E-01	

TABLE 1B GASEOUS EFFLUENTS-ELEVATED RELEASE

		CONTINUOUS MODE		
NUCLIDES RELEASED	UNIT	QUARTER 1	QUARTER 2	
1. Fission Gases				
Argon-41	Ci	9.47E-02	5.81E+00	
Krypton-85m	Ci	9.83E-01	4.37E+00	
Krypton-87	Ci	3.85E+00	5.90E-01	
Krypton-88	Ci	2.92E+00	3.26E+00	
Xenon-133	Ci	1.97E-01	1.17E+00	
Xenon-135	Ci	4.07E+00	1.16E+00	
Xenon-135m	Ci	1.47E+00	1.17E+00	
Xenon-138	Ci	4.94E+00	2.42E+00	
TOTAL	Ci	1.85E+01	1.99E+01	
2. Iodines				
Iodine-131	Ci	2.31E-04	4.06E-04	
Iodine-133	Ci	1.11E-03	1.13E-03	
Iodine-135	Ci	1.45E-03	2.24E-04	
TOTAL	Ci	2.79E-03	1.66E-03	
3. Particulates				
Manganese-54	Ci		3.82E-07	
Cobalt-60	Ci		2.06E-07	
Strontium-89	Ci		7.23E-07	
Barium/Lanthanum-140	Ci	1.18E-06	8.93E-07	
TOTAL	Ci	1.18E-06	2.20E-06	
4. <u>Tritium</u>				
Hydrogen-3	Ci	5.51E-02	1.90E-01	

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Note: There were no batch releases for this report period.

TABLE 1C GASEOUS EFFLUENTS--GROUND LEVEL RELEASES

		CONTINUOUS MODE		
NUCLIDES RELEASED	UNIT	QUARTER 1	QUARTER 2	
1. Fission Gases				
Krypton-87	Ci		6.37E-01	
Krypton-88	Ci		1.40E+00	
Xenon-135	Ci		3.35E-01	
Xenon-135M	Ci		7.52E-01	
TOTAL	Ci		3.12E+00	
2. Iodines				
Iodine-131	Ci	3.78E-06	1.79E-04	
Iodine-133	Ci	2.12E-05	2.15E-03	
Iodine-135	Ci		3.95E-03	
TOTAL	Ci	2.50E-05	6.28E-03	
3. Particulates				
Manganese-54	Ci	1.28E-05	3.99E-06	
Cobalt-60	Ci	2.52E-05	1.30E-05	
Zinc-65	Ci	6.74E-06		
Strontium-89	Ci		3.12E-05	
Silver-110M	Ci		5.47E-06	
Barium/Lanthanum-140	Ci		4.95E-05	
Cerium-144	Ci		1.35E-05	
TOTAL	Ci	4.47E-05	6.72E-05	
4. <u>Tritium</u>				
Hydrogen-3	Ci	3.60E-01	2.99E+00	

Note: There were no batch releases for this report period.

TABLE 2A LIQUID EFFLUENTS--SUMMATION OF ALL RELEASES

		UNIT	QUARTER 1	QUARTER 2	EST TOTAL ERROR %
Α.	FISSION AND ACTIVATION PROD	UCTS			
	1. Total Release (not including				
	tritium, gases and alpha) 2. Average diluted concentra-	Ci		6.39E-05	≤2.50E+01
	tion during period	µCi/ml	-	3.39E-13	
	3. Applicable limit	%		7.52E-07	
в.	TRITIUM				
	1 Total Pelease	Ci		3 655-01	<2 50E+01
	2. Average diluted concentra-	Ci		2.000.01	52,0010101
	tion during period	µCi/ml		1.94E-09	
	3. Applicable limit	%		6.47E-05	
c.	DISSOLVED AND ENTRAINED GAS	ES			
	1. Total Release	Ci		10000	≤2.50E+01
	2. Average diluted concentra-				
	tion during period	µCi/ml			
	3. Applicable Limit	%			
D.	GROSS ALPHA RADIOACTIVITY				
	1. Total Release	Ci			≤2.50E+01
E.	VOLUME OF WASTE RELEASED				
	(PRIOR TO DILUTION)	liters		2.28E+05	
F.	VOLUME OF DILUTION WATER				
	USED DURING PERIOD	liters	3.23E+10	1.89E+11	
G.	PERCENT OF TECHNICAL SPECIFICATION LIMITS				
	1. Quarterly Whole Body Dose	%		2.90E-05	
	2. Quarterly Organ Dose	%		1.74E-05	
	3. Annual Whole Body Dose	%		1.45E-05	
	4. Annual Organ Dose	%		8.69E-06	

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TABLE 2B LIQUID EFFLUENTS

NUCLIDES RELEASED	UNIT	BATCH QUARTER 1	MODE QUARTER 2
1. Fission and Activation Products			
Manganese-54 Cobait-60	Ci Ci		2.73E-05 3.66E-05
TOTAL	Ci		6.39E-05
2. Tritium			
Hydrogen-3	Ci		3.65E-01
3. Dissolved and Entrained Gases			
NONE	Ci		

Note: There were no continuous mode discharges during this report period.

TABLE 3A SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

					6-month Period		Est Total
1.	Ty	pe of Waste	<u>Unit</u>	Class A	<u>Class B</u>	Class C	Error %
	a.	Spent resins, filter sludges,	m ³	0.00E+00	0.00E+00	0.00E+00	
		evaporator bottoms, etc.	Ci	0.00E+00	0.00E+00	0.00E+00	
	ь.	Dry compressible waste,	m ³	0.00E+00	0.00E+00	0.00E+00	
		contaminated equipment, etc.	Ci	0.00E+00	0.00E+00	0.00E+00	* *
	c.	Irradiated components,	m ³	0.00E+00	0.00E+00	0.00E+00	
		control rods, etc.	Ci	0.00E+00	0.00E+00	0.00E+00	
	d.	Other: Dry compressible waste,	m ³	6.23E+02	0.00E+00	0.00E+00	
		contaminated equipment, etc. for Volume Reduction	Ci	4.46E-01	0.00E+00	0.00E+00	2.50E+01

2. Estimate of Major Nuclide Composition (by type of waste)

- a. Spent resins, filter sludges, evaporator bottoms, etc. None
- b. Dry compressible waste, contaminated equipment, etc. None
- c. Irradiated components, control rods, etc. None
- d. Other: Dry compressible waste, contaminated equipment, etc. for Volume Reduction.

Isotope	Percent	Curies		Isotope	Percent	Curies	
Cobalt-60	4.88E+01	2.18E-01	E	Cesium-137	4.53E+00	2.02E-02	E
Zinc-65	1.64E+01	7.33E-02	E	Carbon-14	1.75E+00	7.80E-03	E
Iron-55	1.56E+01	6.94E-02	E	Cesium-134	1.08E+00	4.80E-03	E
Manganese-54	1.07E+01	4.78E-02	E	Nickel-63	9.27E-01	4.13E-03	E

(E - ESTIMATED M - MEASURED)

Percentage of nuclides and total activities are based on a combination of direct measurements and scaling for non-gamma emitting nuclides.

TABLE 3A (continued) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

3. Solid Waste Disposition

No. of Shipments	Mode of Transportation	Destination
11	Truck	*Scientific Ecology Group Oak Ridge, TN
* Volume I	Reduction Facility	

B. IRRADIATED FUEL SHIPMENTS (Disposition)

No. of Shipments Mode of Transportation

Destination

None

N/A

N/A

TABLE 3B SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. NRC CLASS A

SOURCE OF PI WASTE I	ROCESSING EMPLOYED	CONTAINER VOLUME	TYPE OF CONTAINER	NUMBER CONTAINERS
Dry Compressible				
waste, Contaminated				
Equipment, Etc.	Non-compacted	2080 ft ³	STC	5
Dry Compressible				
Waste, Contaminated				
Equipment, Etc.	Non-compacted	1040 ft ³	STC	12

Solidification Agent: None

HIC - High Integrity Container STC - Strong Tight Container

ATTACHMENT NO. 1

CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL (ODCM)

In accordance with Section 7.3.C.3 of Amendment 93 to the James A. FitzPatrick Nuclear Power Plant Technical Specifications, changes made to the Offsite Dose Calculation Manual (ODCM) during the reporting period shall be included in the Semi-Annual Radioactive Effluent Release Report.

No changes were made to the ODCM this report period.

ATTACHMENT NO. 2

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

In accordance with Section 7.3.C.3 of Amendment 93 to the James A. FitzPatrick Nuclear Power Plant Technical Specifications, changes made to the Process Control Program (PCP) during the reporting period shall be included in the Semi-Annual Radioactive Effluent Release Report.

1. PROCESS CONTROL IMPLEMENTING PROCEDURES

Listed below is a brief summary of the revisions made to the plant process control implementing procedures. These changes do not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes.

- SP-03.06 Representative Sampling and Determination of Radioactive Material, Revision 1, effective 3/22/95 (PORC Meeting 95-037, 2/22/95). Revision 1
 contains changes to clarify counting files used for Gamma Spectral Analysis and several editorial corrections.
- RPP-15 Radioactive Waste Shipping, Revision 5, effective 6/26/95 (PORC Meeting 95-088 6/14/95). Changes to include onsite storage of radioactive waste. Changes to clarify the definition of a High Integrity container; Added signature spaces on data forms for processing technicians and Supervisor Review; added clarification for reportable quantities and instructions for the disposition of records. Also included were several minor editorial corrections.

ATTACHMENT NO. 3

SUMMARY OF CHANGES TO THE ENVIRONMENTAL MONITORING AND DOSE CALCULATION LOCATIONS

In accordance with Section 7.3.C.3 of Amendment 93 to the James A. FitzPatrick Nuclear Power Plant Technical Specifications, a listing of new locations for dose calculation and/or environmental monitoring identified by the land use census shall be included in the Semi-Annual Radioactive Effluent Release Report.

CHANGES IN ENVIRONMENTAL MONITORING LOCATIONS

During the report period, no changes in the Environmental Monitoring Locations required by Technical Specifications were made based on the land use census.

NEW LOCATIONS FOR DOSE CALCULATIONS

During the report period, no changes in Dose Calculation Receptor Locations were required based on the results of the land use census.

ATTACHMENT NO. 4

DEVIATIONS FROM THE REQUIRED ENVIRONMENTAL SAMPLING SCHEDULE

In accordance with Section 7.3.C.7 of Amendment 93 to the James A. FitzPatrick Nuclear Power Plant Technical Specifications, the cause for unavailability of any environmental samples required during the report period shall be included in the Semi-Annual Radioactive Effluent Release Report.

EXCEPTIONS TO THE ENVIRONMENTAL SAMPLING PROGRAM

1. The air sampling pumps at the R-3 and R-4 offsite Environmental Sampling Stations were inoperable for approximately 2.5 hours on 04/12/95 (21:00-23:30 hrs). These pump inoperabilities were caused by a general power failure as a result of a substation malfunction.

ATTACHMENT NO. 5

SEMI-ANNUAL SUMMARY OF HOURLY METEOROLOGICAL DATA

In accordance with Section 7.3.C.2 of Amendment 93 to the James A. FitzPatrick Nuclear Power Plant Technical Specifications, an annual summary of meteorological data may be included and submitted in the Semi-Annual Radioactive Effluent Release Report within 60 days after January 1 of each year.

Meteorological data for the period of January 1, 1995 through June 30, 1995 will be included with the second half of the 1995 report.

ATTACHMENT NO. 6

REPORT NOTES

Table 2A Section A and B and Table 2B Normal Liquid Effluents

The values for Tritium, Strontium-89, Strontium-90, and Iron-55 were calculated from the most recent available sample data. If the actual sample data significantly alters the percent of allowable release limits, the report will be revised and redistributed.

ATTACHMENT NO. 7

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT CORRECTIONS

- Revisions to Chem Nuclear Procedure (CNSI DM-OP-046-45230) Operation of the FTDS at James A. FitzPatrick Nuclear Power Plant were incorrectly reported in the January-June 1993, July - December 1993, January - June 1994 and July-December 1994 Semi-Annual Radioactive Effluent Release Reports. This procedure is not part of the Process Control Program.
- 2) A statement that the revisions to the Process Control Program "did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes" was inadvertently omitted from the January - June 1993, July - December 1993 and January - June 1994 Semi-Annual Radioactive Effluent Release Reports.