

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT

JANUARY 1988 - JUNE 1988

DOCKET NO.: 50-333

LICENSE NO.: DPR-59

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

SUPPLEMENTAL INFORMATION

FACILITY: JAFNPP

LICENSEE: NEW YORK POWER AUTHORITY

1. Regulatory Limits

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 effluents 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 effluents 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 effluents 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.

## SUPPLEMENTAL INFORMATION (Continued)

- (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).

### 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  $2.00\text{E-}04 \mu\text{Ci/ml}$ .
- (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:                              | <u>Quarter 1</u> | <u>Quarter 2</u> |
| (1) Fission and Activation Products (Mixture MPC) | 1.54E-05         | 8.43E-07         |
| (2) Tritium                                       | 3.00E-03         | 3.00E-03         |
| (3) Dissolved and Entrained Gases                 | 2.00E-04         | 2.00E-04         |

## 3. Average Energy, $\bar{E}$ : (None specified)

## SUPPLEMENTAL INFORMATION (continued)

### 4. Measurements and Approximations of Total Radioactivity

- a. Fission and activation gases: Continuous monitor on each release path calibrated to 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 particulate filter on each release path.
- d. Liquid effluents: Gamma spectral analysis of each batch discharged, except composite analysis for Sr-89, Sr-90, Fe-55, and tritium.

### 5. Batch Releases

Liquid:

|  |                |
|--|----------------|
| (1) Number of batch releases:              | 3.00E+01       |
| (2) Total time period for batch release:   | 2.37E+03 (min) |
| (3) Maximum time period for batch release: | 1.06E+02 (min) |
| (4) Average time period for batch release: | 7.90E+01 (min) |
| (5) Minimum time period for batch release: | 4.60E+01 (min) |

### 6. Abnormal Releases

| a. Liquid:                   | <u>Quarter 3</u> | <u>Quarter 4</u> |
|------------------------------|------------------|------------------|
| (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             |

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 1A  
GASEOUS EFFLUENTS--SUMMATION OF ALL RELEASES

|   | UNIT    | QUARTER<br>1 | QUARTER<br>2 | EST TOTAL<br>ERROR % |
|---|---------|--------------|--------------|----------------------|
| A. FISSION AND ACTIVATION GASES                           |         |              |              |                      |
| 1. Total release  | Ci      | 3.95E+02     | 5.88E+02     | <25%                 |
| 2. Average release rate for<br>period                     | μCi/sec | 5.02E+01     | 7.48E+01     |                      |
| 3. Tech. Spec. Limit                                      | %       | *            | *            |                      |
| B. IODINES-131  |         |              |              |                      |
| 1. Total iodine-131                                       | Ci      | 2.52E-03     | 8.32E-03     | <25%                 |
| 2. Average release rate for<br>period                     | μCi/sec | 3.21E-04     | 1.06E-03     |                      |
| 3. Tech. Spec. Limit                                      | %       | *            | *            |                      |
| C. IODINE-133 AND PARTICULATES                            |         |              |              |                      |
| 1. Iodine-133 and Particulates<br>with half lives >8 days | Ci      | 5.92E-03     | 3.10E-02     | <25%                 |
| 2. Average release rate for<br>period                     | μCi/sec | 7.53E-04     | 3.94E-03     |                      |
| 3. Tech. Spec. Limit                                      | %       | *            | *            |                      |
| 4. Gross alpha radioactivity                              | Ci      | 3.29E-05     | 8.63E-06     | <25%                 |
| D. TRITIUM  |         |              |              |                      |
| 1. Total release  | Ci      | 3.74E+00     | 3.53E+00     | <25%                 |
| 2. Average release rate for<br>period                     | μCi/sec | 4.76E-01     | 4.49E-01     |                      |

\*E. PERCENT OF TECHNICAL  
SPECIFICATION LIMITS

FISSION AND ACTIVATION GASES

|                                   |   |          |          |
|-----------------------------------|---|----------|----------|
| 1. Quarterly gamma air dose limit | % | 2.77E-01 | 3.34E-01 |
| 2. Quarterly beta air dose limit  | % | 8.87E-02 | 7.89E-02 |
| 3. Yearly gamma air dose limit    | % | 1.38E-01 | 1.67E-01 |
| 4. Yearly beta air dose limit     | % | 4.44E-02 | 3.95E-02 |
| 5. Whole body dose rate limit     | % | 2.66E-03 | 3.20E-03 |
| 6. Skin dose rate limit           | % | 7.03E-04 | 8.23E-04 |

HALOGENS, TRITIUM AND PARTICULATES  
WITH HALF-LIVES >8 DAYS

|                                 |   |          |          |
|---------------------------------|---|----------|----------|
| 7. Quarterly dose limit (organ) | % | 3.72E-01 | 1.32E+00 |
| 8. Yearly dose limit (organ)    | % | 1.86E-01 | 6.61E-01 |
| 9. Organ dose rate limit        | % | 1.22E-04 | 5.26E-04 |

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 1B  
GASEOUS EFFLUENTS--ELEVATED RELEASE

| <u>NUCLIDES RELEASED</u> | <u>UNIT</u> | <u>CONTINUOUS MODE</u> |                  |
|--------------------------|-------------|------------------------|------------------|
|                          |             | <u>QUARTER 1</u>       | <u>QUARTER 2</u> |
| 1. <u>Fission gases</u>  |             |                        |                  |
| Argon-41                 | Ci          | 2.84E+00               | 8.00E+00         |
| Krypton-85m              | Ci          | 2.47E+01               | 1.14E+02         |
| Krypton-87               | Ci          | 1.17E-01               | ND               |
| Krypton-88               | Ci          | 1.44E+01               | 5.22E+01         |
| Xenon-133                | Ci          | 2.48E+01               | 2.67E+02         |
| Xenon-135                | Ci          | 1.13E+00               | 4.24E+00         |
| Xenon-135m               | Ci          | ND                     | 1.93E+00         |
| Xenon-133m               | Ci          | 4.43E-01               | ND               |
| Xenon-138                | Ci          | 5.30E-01               | 8.84E-02         |
| 2. <u>Iodines</u>        |             |                        |                  |
| Iodine-131               | Ci          | 5.87E-04               | 1.75E-04         |
| Iodine-133               | Ci          | 4.71E-04               | 1.52E-04         |
| 3. <u>Particulates</u>   |             |                        |                  |
| Strontium-89             | Ci          | 2.04E-05               | 1.64E-05         |
| Strontium-90             | Ci          | 5.90E-08               | 2.98E-08         |
| Cesium-134               | Ci          | 1.88E-07               | ND               |
| Barium/<br>Lanthanum-140 | Ci          | 1.82E-05               | 1.43E-05         |

There are no batch releases for this period.

ND - None Detected.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 1C  
GASEOUS EFFLUENTS--GROUND LEVEL RELEASES

| <u>NUCLIDES RELEASED</u> | <u>UNIT</u> | <u>CONTINUOUS MODE</u> |                  |
|--------------------------|-------------|------------------------|------------------|
|                          |             | <u>QUARTER 1</u>       | <u>QUARTER 2</u> |
| 1. <u>Fission gases</u>  |             |                        |                  |
| Krypton-85m              | Ci          | 1.05E+01               | 7.70E+00         |
| Krypton-87               | Ci          | 3.74E-01               | 5.53E+00         |
| Krypton-88               | Ci          | 1.96E+01               | 4.45E+00         |
| Xenon-133                | Ci          | 1.84E+02               | 3.53E+01         |
| Xenon-135                | Ci          | 2.14E+01               | 8.68E+00         |
| Xenon-133m               | Ci          | 2.97E+01               | 6.58E+00         |
| Xenon-135m               | Ci          | 3.72E+00               | 7.83E+00         |
| Xenon-138                | Ci          | 5.60E+01               | 6.53E+01         |
| 2. <u>Iodines</u>        |             |                        |                  |
| Iodine-131               | Ci          | 1.93E-03               | 8.14E-03         |
| Iodine-133               | Ci          | 4.01E-03               | 2.95E-02         |
| 3. <u>Particulates</u>   |             |                        |                  |
| Chromium-51              | Ci          | 8.01E-04               | 5.79E-04         |
| Manganese-54             | Ci          | 2.01E-05               | 6.18E-05         |
| Cobalt-58                | Ci          | 6.20E-05               | 1.59E-05         |
| Cobalt-60                | Ci          | 1.17E-04               | 9.14E-05         |
| Strontium-89             | Ci          | 8.10E-05               | 2.10E-04         |
| Strontium-90             | Ci          | 8.43E-07               | 1.21E-06         |
| Cesium-134               | Ci          | 1.57E-05               | 8.53E-07         |
| Cesium-137               | Ci          | 2.86E-05               | 1.65E-05         |
| Barium/<br>Lanthanum-140 | Ci          | 2.73E-04               | 3.33E-04         |
| Cerium-141               | Ci          | ND                     | 2.21E-07         |

There are no batch releases for this period.

ND - None detected.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 2A  
LIQUID EFFLUENTS--SUMMATION OF ALL RELEASES

|  | UNIT   | QUARTER<br>1 | QUARTER<br>2 | EST TOTAL<br>ERROR % |
|--|--------|--------------|--------------|----------------------|
| A. FISSION AND ACTIVATION PRODUCTS                 |        |              |              |                      |
| 1. Total release (not including tritium and alpha) | Ci     | 2.40E-02     | 2.18E-03     | ≤25%                 |
| 2. Average diluted concentration during period     | μCi/ml | 1.37E-10     | 1.11E-11     |                      |
| 3. Applicable limit                                | %      | 8.90E-04     | 1.32E-03     |                      |
| B. TRITIUM   |        |              |              |                      |
| 1. Total release                                   | Ci     | 2.78E+00     | 3.31E-01     | ≤25%                 |
| 2. Average diluted concentration during period     | μCi/ml | 1.59E-08     | 1.69E-09     |                      |
| 3. Applicable limit                                | %      | 5.29E-04     | 5.63E-05     |                      |
| C. DISSOLVED AND ENTRAINED GASES                   |        |              |              |                      |
| 1. Total release                                   | Ci     | 1.09E-04     | 5.59E-04     | ≤25%                 |
| 2. Average diluted concentration during period     | μCi/ml | 6.23E-13     | 2.85E-12     |                      |
| 3. Applicable limit                                | %      | 3.12E-07     | 1.43E-06     |                      |
| D. GROSS ALPHA RADIOACTIVITY                       |        |              |              |                      |
| 1. Total release                                   | Ci     | 3.83E-08     | 4.25E-08     | ≤25%                 |
| E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION)    |        |              |              |                      |
|  | liters | 1.32E+06     | 1.58E+05     |                      |
| F. VOLUME OF DILUTION WATER USED DURING PERIOD     |        |              |              |                      |
|  | liters | 1.75E+11     | 1.96E+11     |                      |
| *G. PERCENT TECHNICAL SPECIFICATION LIMITS         |        |              |              |                      |
| 1. Quarterly whole body dose                       | %      | 4.03E-01     | 1.13E-02     |                      |
| 2. Quarterly organ dose                            | %      | 1.77E-01     | 5.00E-03     |                      |
| 3. Annual whole body dose                          | %      | 2.02E-01     | 5.67E-03     |                      |
| 4. Annual organ dose                               | %      | 8.85E-02     | 2.50E-03     |                      |



NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 2B  
LIQUID EFFLUENTS

| <u>NUCLIDES RELEASED</u> | <u>UNIT</u> | CONTINUOUS MODE  |                  |
|--------------------------|-------------|------------------|------------------|
|                          |             | <u>QUARTER 1</u> | <u>QUARTER 2</u> |
| Hydrogen-3               | Ci          | 2.78E+00         | 3.31E-01         |
| Sodium-24                | Ci          | 4.41E-04         | 6.80E-05         |
| Chromium-51              | Ci          | 1.34E-04         | ND               |
| Manganese-54             | Ci          | 6.45E-04         | ND               |
| Cobalt-58                | Ci          | 1.40E-05         | ND               |
| Cobalt-60                | Ci          | 9.42E-03         | 3.17E-04         |
| Zinc-65                  | Ci          | 1.69E-04         | ND               |
| Iodine-131               | Ci          | 1.07E-04         | 4.74E-04         |
| Iodine-133               | Ci          | 1.35E-05         | 2.75E-04         |
| Iodine-135               | Ci          | ND               | 5.94E-05         |
| Xenon-133                | Ci          | 2.56E-05         | 2.62E-04         |
| Xenon-135                | Ci          | 8.34E-05         | 2.98E-04         |
| Cesium-134               | Ci          | 3.50E-03         | 1.04E-04         |
| Cesium-137               | Ci          | 9.21E-03         | 3.24E-04         |
| Neptunium-239            | Ci          | 3.34E-04         | ND               |

There were no continuous mode discharges during this period.

ND - None detected.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3A  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFF SITE FOR DISPOSAL (NOT IRRADIATED FUEL)

| <u>1. Type of Waste</u>                                     | <u>UNIT</u>          | <u>SIX-MONTH PERIOD</u> | <u>EST. TOTAL ERROR %</u> |
|---|----------------------|-------------------------|---------------------------|
| a. Spent resins, filter sludges<br>evaporator bottoms, etc. | m <sup>3</sup><br>Ci | 64.8<br>168             | <10%<br>25%               |
| b. Dry compressible waste,<br>contaminated equipment, etc.  | m <sup>3</sup><br>Ci | 100.8<br>3.08           | <10%<br>25%               |
| c. Irradiated components                                    | None                 |                         |                           |
| d. Other  | None                 |                         |                           |

2. Estimate of Major Nuclide Composition

| <u>Isotope</u> | <u>% Abundance</u> |
|----------------|--------------------|
| Co-60          | 51.9               |
| Fe-55          | 26.2               |
| Mn-54          | 7.0                |
| Cs-137         | 5.1                |
| Cr-51          | 2.4                |
| Zn-65          | 2.3                |
| Cs-134         | 1.8                |
| Co-58          | 1.7                |
| Ni-63          | 1.0                |

3. Solid Waste Disposition

| <u>Shipment</u> | <u>Qty</u> | <u>Transportation Mode</u> | <u>Destination</u> |
|-----------------|------------|----------------------------|--------------------|
| Type a          | 14         | Truck                      | Barnwell, SC       |
| Type b          | 3          | Truck                      | Richland, WA       |

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. NRC CLASS "A"

1. Solidified Bead Resin

|                       |  |
|-----------------------|--|
| Container Type:       | 181.7 Ft <sup>3</sup> Steel Liner (LSA)  |
| Solidification Media: | Cement                                   |
| Total Volume:         | 181.7 ft <sup>3</sup> 5.1 m <sup>3</sup> |
| No. of Shipments:     | 1  |
| Type:                 | Cask                                     |
| Mode:                 | Truck                                    |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 1.95          | 38.8               | M                             |
| Co-58                     | 1.16          | 23.1               | M                             |
| Mn-54                     | 0.85          | 16.9               | M                             |
| Cs-134                    | 0.38          | 7.6                | M                             |
| Cs-137                    | 0.30          | 5.9                | M                             |
| Fe-55                     | 0.12          | 2.4                | E                             |
| Zn-65                     | 0.11          | 2.3                | M                             |
| C-14                      | 0.05          | 1.0                | E                             |

TOTAL: 5.02 Curies

E = Estimated

M = Measured

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

2. Dewatered Powdered Resin/Filter Sludge

|                       |   |
|-----------------------|---|
| Container Type:       | 158.1 Ft <sup>3</sup> Ploy Hic            |
| Solidification Media: | None                                      |
| Total Volume:         | 474.3 Ft <sup>3</sup> 13.4 m <sup>3</sup> |
| No. of Shipments:     | 3   |
| Type:                 | Cask                                      |
| Mode:                 | Truck                                     |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 41.9          | 50.8               | M                             |
| Fe-55                     | 19.3          | 23.4               | E                             |
| Mn-54                     | 7.4           | 8.9                | M                             |
| Cs-137                    | 4.2           | 5.1                | M                             |
| Cr-51                     | 2.9           | 3.5                | M                             |
| Zn-65                     | 2.1           | 2.5                | M                             |
| Cs-134                    | 1.6           | 2.0                | M                             |
| Co-58                     | 1.5           | 1.8                | M                             |
| Ni-63                     | 0.9           | 1.0                | E                             |

TOTAL: 82.4 Curies

E = Estimated

M = Measured

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

3. Solidified Evaporator Bottoms

|                       |   |
|-----------------------|---|
| Container Type:       | 181.7 Ft <sup>3</sup> Steel Liner (LSA)   |
| Solidification Media: | Cement                                    |
| Total Volume:         | 545.1 Ft <sup>3</sup> 15.4 m <sup>3</sup> |
| No. of Shipments:     | 3   |
| Type:                 | Cask                                      |
| Mode:                 | Truck                                     |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 2.04          | 49.4               | M                             |
| Fe-55                     | 1.28          | 31.0               | E                             |
| Mn-54                     | 0.25          | 6.1                | M                             |
| Cs-137                    | 0.24          | 5.9                | M                             |
| Cs-134                    | 0.09          | 2.2                | M                             |
| Zn-65                     | 0.08          | 2.0                | M                             |
| Co-58                     | 0.07          | 1.8                | M                             |
| Cr-51                     | 0.05          | 1.2                | M                             |

TOTAL: 4.1 Curies

E = Estimated

M = Measured

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

4. Solidified Evaporator Bottoms/Powdered Resin

|                       |  |
|-----------------------|--|
| Container Type:       | 181.7 Ft <sup>3</sup> Steel Liner (LSA)    |
| Solidification Media: | Cement                                     |
| Total Volume:         | 1090.2 Ft <sup>3</sup> 30.9 m <sup>3</sup> |
| No. of Shipments:     | 6  |
| Type:                 | Cask                                       |
| Mode:                 | Truck                                      |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 41.2          | 54.0               | M                             |
| Fe-55                     | 23.3          | 30.5               | E                             |
| Cs-137                    | 3.7           | 4.9                | M                             |
| Mn-54                     | 3.3           | 4.3                | M                             |
| Zn-65                     | 1.6           | 2.1                | M                             |
| Cr-51                     | 1.1           | 1.4                | M                             |
| Cs-134                    | 0.86          | 1.1                | M                             |
| Ni-63                     | 0.75          | 1.0                | E                             |

TOTAL: 76.2 Curies

E = Estimated

M = Measured

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

5. Compacted/Noncompacted Dry Waste

|                       |  |
|-----------------------|--|
| Container Type:       | 107 Ft <sup>3</sup> Steel Box (LSA)      |
| Solidification Media: | None                                     |
| Total Volume:         | 2996 Ft <sup>3</sup> 84.8 m <sup>3</sup> |
| No. of Shipments:     | 3  |
| Type:                 | Flatbed                                  |
| Mode:                 | Truck                                    |

| <u>Principal<br/>Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity<br/>Determination</u> |
|-------------------------------|---------------|--------------------|-----------------------------------|
| Co-60                         | 0.33          | 51.1               | E                                 |
| Fe-55                         | 0.15          | 23.5               | E                                 |
| Mn-54                         | 0.049         | 7.6                | E                                 |
| Cs-137                        | 0.044         | 6.9                | E                                 |
| Zn-65                         | 0.021         | 3.2                | E                                 |
| Cs-134                        | 0.019         | 2.9                | E                                 |
| Cr-51                         | 0.016         | 2.5                | E                                 |
| Co-58                         | 0.008         | 1.2                | E                                 |
| Ni-63                         | 0.006         | 1.0                | E                                 |

TOTAL: 0.643 Curies

E = Estimated

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

6. Compacted/Noncompacted Dry Waste

|                       |   |
|-----------------------|---|
| Container Type:       | 92 Ft <sup>3</sup> Steel Box (LSA)      |
| Solidification Media: | None                                    |
| Total Volume:         | 460 Ft <sup>3</sup> 13.0 m <sup>3</sup> |
| No. of Shipments:     | 1                                       |
| Type:                 | Flatbed                                 |
| Mode:                 | Truck                                   |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 0.038         | 51.0               | E                             |
| Fe-55                     | 0.018         | 23.5               | E                             |
| Mn-54                     | 0.006         | 7.6                | E                             |
| Cs-137                    | 0.005         | 6.9                | E                             |
| Zr-95                     | 0.002         | 3.2                | E                             |
| Cs-134                    | 0.002         | 2.9                | E                             |
| Cr-51                     | 0.002         | 2.6                | E                             |
| Co-58                     | 0.001         | 1.2                | E                             |
| Ni-63                     | 0.001         | 1.0                | E                             |

TOTAL: 0.075 Curies

E = Estimated



NEW YORK POWER AUTHORITY  
 JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
 EFFLUENT AND WASTE DISPOSAL  
 SEMIANNUAL REPORT/JANUARY 1988 - JUNE 1988

TABLE 3B  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS (CONTINUED)

A. NRC CLASS "A" (CONT'D)

7. Compacted/Noncompacted Dry Waste

|                       |  |
|-----------------------|--|
| Container Type:       | 7.5 Ft <sup>3</sup> 55 Gallon Drum     |
| Solidification Media: | None                                   |
| Total Volume:         | 105 Ft <sup>3</sup> 3.0 m <sup>3</sup> |
| No. of Shipments:     | 1                                      |
| Type:                 | Cask                                   |
| Mode:                 | Truck                                  |

| <u>Principal Isotopes</u> | <u>Curies</u> | <u>% Abundance</u> | <u>Quantity Determination</u> |
|---------------------------|---------------|--------------------|-------------------------------|
| Co-60                     | 1.21          | 51.2               | M                             |
| Fe-55                     | 0.56          | 23.6               | E                             |
| Mn-54                     | 0.18          | 7.5                | M                             |
| Cs-137                    | 0.16          | 7.0                | M                             |
| Zn-65                     | 0.08          | 3.2                | M                             |
| Cs-134                    | 0.07          | 2.9                | M                             |
| Cr-51                     | 0.06          | 2.5                | M                             |
| Co-58                     | 0.03          | 1.2                | M                             |
| Ni-63                     | 0.02          | 1.0                | E                             |

TOTAL: 2.36 Curies

E = Estimated

M = Measured

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMI-ANNUAL REPORT/JANUARY 1988 - JUNE 1988

ATTACHMENT NO. 1

SEMIANNUAL SUMMARY OF HOURLY METEOROLOGICAL DATA

In accordance with Amendment 93 of the James A. Fitzpatrick Nuclear Power Plant Technical Specifications, an annual summary of hourly meteorological data shall be included and submitted in the Semiannual Radioactive Effluent Release Report within 60 days after January 1 of each year. Meteorological data for period of January 1, 1988 through June 30, 1988 will be included in the second half of the 1988 report.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMI-ANNUAL REPORT/JANUARY 1988 - JUNE 1988

ATTACHMENT NO. 2

SUMMARY OF CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL AND  
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) and Offsite Dose Calculation Manual (ODCM) during the reporting period are to be included in the Semiannual Radiological Effluent Release Report.

No changes were made to the PCP during this report period.

No changes were made to the ODCM during this report period.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMI-ANNUAL REPORT/JANUARY 1988 - JUNE 1988

ATTACHMENT NO. 3

SUMMARY OF CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL AND  
PROCESS CONTROL PROGRAM

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 Radioactive Effluent Release Reports.

1) CHANGES IN ENVIRONMENTAL MONITORING LOCATIONS

No change in Environmental Monitoring Locations was required based on the land use census.

2) NEW LOCATIONS FOR DOSE CALCULATIONS

Based on the most recent land use census, a new location has been identified for dose calculation for the consumption of fresh fruits/vegetables and stored fruits/vegetables 0.9 miles East (82°) of the plant.

NEW YORK POWER AUTHORITY  
JAMES A. FITZPATRICK NUCLEAR POWER PLANT  
EFFLUENT AND WASTE DISPOSAL  
SEMI-ANNUAL REPORT/JANUARY 1988 - JUNE 1988

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 shall be included in the Radioactive Effluent Release Report.

EXCEPTION TO THE ENVIRONMENTAL SAMPLING PROGRAM

1. The air sampling pump at R-3, off-site Environmental Sampling Station was inoperable from January 01, 1988 (1036 hours) to February 22, 1988 (0833 hours). Inoperability was caused by a pump mechanical failure.
2. The air sampling pump at R-4, off-site Environmental Sampling Station was inoperable from May 08, 1988 (2324 hours) to May 10, 1988 (0900 hours). Inoperability was caused by a pump mechanical failure.

James A. FitzPatrick  
Nuclear Power Plant  
P.O. Box 41  
Lycoming, New York 13093  
315 342.3840



Radford J. Converse  
Resident Manager

August 25, 1988  
JAFP-88-0798

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

Attention: Mr. William T. Russell  
Regional Administrator

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

Gentlemen:

Attached is the Semiannual Radioactive Effluent Release Report for the period of January 1, 1988 through June 30, 1988. 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.

The format used for the effluent data is as outlined in Appendix B of Regulatory Guide 1.21, Revision 1. Distribution is in accordance with Regulatory Guide 10.1, Revision 4.

Very Truly Yours,

A handwritten signature in cursive script, appearing to read 'R. Converse'.

RADFORD J. CONVERSE

RJC:WH:jmb  
Attachments

Distribution: Document Control Desk (USNRC)  
D. Sherman (ANI Library)  
J. C. Brons (NYPA/WPO)  
J. Blake (NYPA/WPO)  
J. A. Gray (NYPA/WPO)  
E. Leach (NMPC/NMP-1)  
W. V. Childs  
E. Mulcahey  
Document Control Center  
WPO Records Management

IE48  
11