

FLORIDA POWER CORPORATION
CRYSTAL RIVER UNIT 3
DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

ATTACHMENT A

2000 Radioactive Effluent Release Report

RADIOACTIVE EFFLUENT
RELEASE REPORT
2000

FLORIDA POWER CORPORATION
CRYSTAL RIVER - UNIT 3

Facility Operating License No. DPR-72

Docket No. 50-302

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INTRODUCTION

This report is submitted as required by the Offsite Dose Calculation Manual, section 6.5.

The scope of this report includes:

- A summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the plant.
- Quarterly and annual dose summaries.
- A list and description of unplanned releases to unrestricted areas.
- A description of any changes to the:
 - Process Control Program (PCP), and
 - Offsite Dose Calculation Manual (ODCM).
- Significant changes to any radioactive waste treatment system.
- A list of new dose calculation location changes identified by the annual land-use census.
- Information relating to effluent monitors or required supporting instrumentation being inoperable for 30 or more days.

TABLE 1

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

| Unit | Quarter 1 | Quarter 2 | Est. Total Error % |
|------|--------------|--------------|-----------------------|
|------|--------------|--------------|-----------------------|

A. Fission and activation gases

| | | | | |
|---|---------------------------|----------|----------|----|
| 1. Total release | Ci | 8.11E-01 | 4.24E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 1.03E-01 | 5.39E-01 | |
| 3. Percent of technical specification limit | % | 7.40E-04 | 4.72E-03 | |

B. Iodines

| | | | | |
|---|---------------------------|----------|----------|----|
| 1. Total Iodine-131 | Ci | 2.68E-06 | 0.00E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 3.41E-07 | 0.00E+00 | |
| 3. Percent of technical specification limit | % | 2.99E-02 | 0.00E+00 | |

C. Particulates*

| | | | | |
|---|---------------------------|----------|----------|----|
| 1. Particulates with half-lives > 8 days | Ci | 1.58E-06 | 5.35E-08 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 2.02E-07 | 6.81E-09 | |
| 3. Percent of technical specification limit | % | 2.99E-02 | 1.14E-02 | |
| 4. Gross alpha radioactivity | Ci | 0.00E+00 | 0.00E+00 | |

D. Tritium

| | | | | |
|---|---------------------------|----------|----------|----|
| 1. Total release | Ci | 2.22E+00 | 3.55E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 2.82E-01 | 4.51E-01 | |
| 3. Percent of technical specification limit | % | 2.99E-02 | 1.14E-02 | |

* The sum of the particulates reported on this page may be less than the sum from Table 2, as Table 2 includes all particulates, while this table includes only those with half-lives greater than 8 days.

TABLE 2
EFFLUENT AND WASTE DISPOSAL REPORT - 2000
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

| Nuclides Released | Unit | CONTINUOUS MODE | | BATCH MODE | |
|-------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 1 | Quarter 2 | Quarter 1 | Quarter 2 |

A. Fission gases

| | | | | | |
|------------------|----|----------|----------|----------|----------|
| Argon-41 | Ci | | | | |
| Krypton-85 | Ci | | | | 3.40E-01 |
| Krypton-85m | Ci | | | | |
| Krypton-87 | Ci | | | | |
| Krypton-88 | Ci | | | | |
| Xenon-131m | Ci | | | | |
| Xenon-133 | Ci | 6.87E-01 | 1.31E+00 | 6.59E-02 | 1.73E+00 |
| Xenon-133m | Ci | | | | |
| Xenon-135 | Ci | 5.83E-02 | 6.99E-01 | | 1.61E-01 |
| Xenon-135m | Ci | | | | |
| Xenon-138 | Ci | | | | |
| Total for period | Ci | 7.45E-01 | 2.01E+00 | 6.59E-02 | 2.23E+00 |

B. Iodines

| | | | | | |
|------------------|----|----------|----------|----------|----------|
| Iodine-131 | Ci | 2.68E-06 | | | |
| Iodine-132 | Ci | | | | |
| Iodine-133 | Ci | 1.14E-06 | | 1.28E-08 | |
| Iodine-135 | Ci | | | | |
| Total for period | Ci | 3.82E-06 | 0.00E+00 | 1.28E-08 | 0.00E+00 |

C. Particulates

| | | | | | |
|------------------|----|----------|----------|----------|----------|
| Zinc-72 | Ci | 1.77E-07 | 3.16E-08 | | |
| Cobalt-57* | Ci | | | | |
| Cobalt-60* | Ci | | | | |
| Strontium-89* | Ci | | | | |
| Strontium-90* | Ci | | | | |
| Niobium-95m | Ci | | | | |
| Technicium-99m | Ci | | | | |
| Tellurium-132 | Ci | | | | |
| Cesium-134* | Ci | | | | |
| Cesium-137* | Ci | 3.87E-07 | | 3.34E-09 | |
| Cesium-138 | Ci | | | | |
| Barium-139 | Ci | | | | |
| Lanthanum-142 | Ci | | | | |
| Cerium-141* | Ci | | 5.35E-08 | | |
| Cerium-144* | Ci | 1.19E-06 | | | |
| Rhenium-188 | Ci | 1.26E-07 | | | |
| Total for period | Ci | 1.88E-06 | 8.51E-08 | 3.34E-09 | 0.00E+00 |

* > 8 day half-life

TABLE 3
EFFLUENT AND WASTE DISPOSAL REPORT - 2000
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

| | Unit | Quarter 3 | Quarter 4 | Est. Total Error % |
|---|---------------------------|--------------|--------------|-----------------------|
| A. Fission and activation gases | | | | |
| 1. Total release | Ci | 1.84E+01 | 1.79E+01 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 2.31E+00 | 2.26E+00 | |
| 3. Percent of technical specification limit | % | 1.85E-02 | 3.13E-02 | |
| B. Iodines | | | | |
| 1. Total Iodine-131 | Ci | 0.00E+00 | 0.00E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 0.00E+00 | 0.00E+00 | |
| 3. Percent of technical specification limit | % | 0.00E+00 | 0.00E+00 | |
| C. Particulates* | | | | |
| 1. Particulates with half-lives > 8 days | Ci | 1.96E-07 | 0.00E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 2.47E-08 | 0.00E+00 | |
| 3. Percent of technical specification limit | % | 4.04E-02 | 0.00E+00 | |
| 4. Gross alpha radioactivity | Ci | 0.00E+00 | 0.00E+00 | |
| D. Tritium | | | | |
| 1. Total release | Ci | 1.26E+01 | 4.95E+00 | 30 |
| 2. Average release rate for period | $\mu\text{Ci}/\text{sec}$ | 1.59E+00 | 6.23E-01 | |
| 3. Percent of technical specification limit | % | 4.04E-02 | 1.58E-02 | |

* The sum of the particulates reported on this page may be less than the sum from Table 4, as Table 4 includes all particulates, while this table includes only those with half-lives greater than 8 days.

TABLE 4

EFFLUENT AND WASTE DISPOSAL REPORT - 2000
GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

| Nuclides Released | Unit | CONTINUOUS MODE | | BATCH MODE | |
|-------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 3 | Quarter 4 | Quarter 3 | Quarter 4 |

A. Fission gases

| | | | | | |
|------------------|----|----------|----------|----------|----------|
| Argon-41 | Ci | | | 1.40E-03 | 1.63E-03 |
| Krypton-85 | Ci | | | 9.31E-02 | |
| Krypton-85m | Ci | | 2.60E-01 | 1.64E-02 | 3.05E-04 |
| Krypton-87 | Ci | 1.01E-02 | | 4.86E-03 | |
| Krypton-88 | Ci | | | 2.08E-02 | |
| Xenon-131m | Ci | | | 1.02E-02 | |
| Xenon-133 | Ci | 2.45E+00 | 9.11E+00 | 1.30E+01 | 1.59E-01 |
| Xenon-133m | Ci | | | 1.02E-01 | |
| Xenon-135 | Ci | 1.23E+00 | 8.41E+00 | 1.43E+00 | 1.13E-02 |
| Xenon-135m | Ci | | | | |
| Xenon-138 | Ci | | | | |
| Total for period | Ci | 3.69E+00 | 1.78E+01 | 1.47E+01 | 1.72E-01 |

B. Iodines

| | | | | | |
|------------------|----|----------|----------|----------|----------|
| Iodine-131 | Ci | | | | |
| Iodine-132 | Ci | | | | |
| Iodine-133 | Ci | | | | |
| Iodine-135 | Ci | | | | |
| Total for period | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

C. Particulates

| | | | | | |
|------------------|----|----------|----------|-----------|----------|
| Zinc-72 | Ci | | | | |
| Cobalt-58* | Ci | | | | |
| Chromium-51* | Ci | | | | |
| Strontium-89* | Ci | | | | |
| Strontium-90* | Ci | | | | |
| Niobium-95m | Ci | | | | |
| Tin-113* | Ci | 7.60E-08 | | | |
| Indium-113m | Ci | 1.09E-07 | | | |
| Tellurium-132 | Ci | | | | |
| Cesium-137* | Ci | 1.18E-07 | | 1.79E-09 | |
| Cesium-138 | Ci | | | | |
| Barium-139 | Ci | | | | |
| Lanthanum-142 | Ci | | | | |
| Cerium-141* | Ci | | | | |
| Cerium-144* | Ci | | | | |
| Rhenium-188 | Ci | | | | |
| Total for period | Ci | 3.04E-07 | 0.00E+00 | 1.790E-09 | 0.00E+00 |

* > 8 day half-life

TABLE 5

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

| Unit | Quarter 1 | Quarter 2 | Est. Total Error % |
|------|-----------|-----------|--------------------|
|------|-----------|-----------|--------------------|

A. Fission and activation products

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release (not including tritium, gases, alpha) | Ci | 4.22E-03 | 1.66E-02 | 25 |
| 2. Average diluted concentration during period | μCi/ml | 7.81E-12 | 2.94E-11 | |
| 3. Percent of applicable limit | % | 1.20E-03 | 1.36E-03 | |

B. Tritium

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release | Ci | 9.45E+01 | 1.95E+02 | 30 |
| 2. Average diluted concentration during period | μCi/ml | 1.75E-07 | 3.45E-07 | |
| 3. Percent of applicable limit | % | 1.68E-01 | 3.21E-01 | |

C. Dissolved and entrained gases

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release | Ci | 7.06E-03 | 3.35E-02 | 25 |
| 2. Average diluted concentration during period | μCi/ml | 1.31E-11 | 5.93E-11 | |
| 3. Percent of applicable limit | % | 6.36E-04 | 2.76E-03 | |

D. Gross alpha radioactivity

| | | | | |
|------------------|----|----------|----------|----|
| 1. Total release | Ci | 0.00E+00 | 0.00E+00 | 30 |
|------------------|----|----------|----------|----|

E. Volume of waste released (prior to dilution)

| | | | | |
|-------------------------------|--------|----------|----------|----|
| 1. Batch and continuous modes | Liters | 6.28E+06 | 7.49E+06 | 10 |
|-------------------------------|--------|----------|----------|----|

F. Volume of dilution water used during period

| | | | | |
|-------------------------------|--------|----------|----------|----|
| 1. Batch and continuous modes | Liters | 5.40E+11 | 5.65E+11 | 10 |
|-------------------------------|--------|----------|----------|----|

TABLE 6
EFFLUENT AND WASTE DISPOSAL REPORT - 2000
LIQUID EFFLUENTS

| Fission and activation products | Unit | CONTINUOUS MODE | | BATCH MODE | |
|---------------------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 1 | Quarter 2 | Quarter 1 | Quarter 2 |
| Sodium-24 | Ci | | | 1.85E-06 | 2.23E-06 |
| Chromium-51 | Ci | | | 6.42E-06 | 7.79E-04 |
| Manganese-54 | Ci | | | 1.17E-05 | 6.55E-06 |
| Manganese-56 | Ci | | | | |
| Iron-55 | Ci | | | 1.20E-04 | 5.69E-04 |
| Iron-59 | Ci | | | | |
| Cobalt-57 | Ci | | | | |
| Cobalt-58 | Ci | | | 4.81E-04 | 1.16E-04 |
| Cobalt-60 | Ci | | | 2.00E-04 | 9.41E-05 |
| Zinc-72 | Ci | | | 6.08E-06 | |
| Strontium-85 | Ci | | | 2.13E-06 | |
| Strontium-89 | Ci | | | | |
| Strontium-90 | Ci | | | | |
| Yttrium-91m | Ci | | | | 1.46E-06 |
| Yttrium-92 | Ci | | | | |
| Yttrium-93 | Ci | | | | |
| Niobium-95 | Ci | | | 3.12E-05 | 1.72E-05 |
| Niobium-95m | Ci | | | 8.82E-06 | 1.20E-05 |
| Zirconium-95 | Ci | | | 5.68E-06 | 3.49E-06 |
| Zirconium-97 | Ci | | | 1.58E-05 | 2.85E-05 |
| Molybdenum-99 | Ci | | | | |
| Technetium-99m | Ci | | | | 9.69E-08 |
| Technetium-101 | Ci | | | | |
| Ruthenium-103 | Ci | | | 6.97E-07 | |
| Ruthenium-106 | Ci | | | 1.72E-05 | |
| Silver-110m | Ci | | | 2.65E-04 | 5.00E-04 |
| Tin-113 | Ci | | | | 2.38E-05 |
| Indium-113m | Ci | | | | 4.04E-05 |
| Antimony-122 | Ci | | | | |
| Antimony-124 | Ci | | | 1.53E-04 | |
| Antimony-125 | Ci | | | 2.34E-03 | 1.43E-02 |
| Tellurium-129 | Ci | | | | |
| Tellurium-132 | Ci | | | | 4.06E-06 |
| Iodine-131 | Ci | | | 1.36E-06 | 1.50E-05 |
| Iodine-132 | Ci | | | | |
| Iodine-133 | Ci | | | 5.46E-06 | 2.99E-05 |
| Cesium-134 | Ci | | | | 3.02E-07 |
| Cesium-137 | Ci | | | 1.13E-05 | 2.94E-05 |
| Cesium-138 | Ci | | | | |
| Barium-139 | Ci | | | | |
| Barium-140 | Ci | | | | |
| Cerium-141 | Ci | | | 7.93E-06 | |
| Cerium-143 | Ci | | | | 5.74E-06 |
| Cerium-144 | Ci | | | 9.90E-05 | |
| Praseodymium-144 | Ci | | | 4.26E-04 | |
| Neodymium-147 | Ci | | | 4.97E-06 | 7.47E-07 |
| Total for period | Ci | 0.00E+00 | 0.00E+00 | 4.22E-03 | 1.66E-02 |

TABLE 6 (CONTINUED)

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

LIQUID EFFLUENTS

| Dissolved and entrained gases | Unit | CONTINUOUS MODE | | BATCH MODE | |
|-------------------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 1 | Quarter 2 | Quarter 1 | Quarter 2 |
| Argon-41 | Ci | | | | |
| Krypton-85 | Ci | | | 4.98E-04 | |
| Krypton-85m | Ci | | | | |
| Krypton-87 | Ci | | | | |
| Krypton-88 | Ci | | | | |
| Xenon-131m | Ci | | | | 6.13E-05 |
| Xenon-133 | Ci | | | 5.68E-03 | 2.86E-02 |
| Xenon-133m | Ci | | | 9.86E-05 | 4.38E-04 |
| Xenon-135 | Ci | | | 7.83E-04 | 4.40E-03 |
| Xenon-135m | Ci | | | | |
| Total for period | Ci | 0.00E+00 | 0.00E+00 | 7.06E-03 | 3.35E-02 |
| Tritium | Ci | 0.00E+00 | 9.31E-02 | 9.45E+01 | 1.95E+02 |

TABLE 7

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

| Unit | Quarter 3 | Quarter 4 | Est. Total Error % |
|------|--------------|--------------|-----------------------|
|------|--------------|--------------|-----------------------|

A. Fission and activation products

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release (not including tritium, gases, alpha) | Ci | 3.29E-03 | 1.33E-02 | 25 |
| 2. Average diluted concentration during period | μCi/ml | 6.10E-12 | 2.28E-11 | |
| 3. Percent of applicable limit | % | 1.03E-02 | 1.61E-03 | |

B. Tritium

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release | Ci | 2.89E+02 | 2.80E+01 | 30 |
| 2. Average diluted concentration during period | μCi/ml | 5.36E-07 | 4.79E-08 | |
| 3. Percent of applicable limit | % | 4.70E-01 | 4.78E-01 | |

C. Dissolved and entrained gases

| | | | | |
|--|--------|----------|----------|----|
| 1. Total release | Ci | 1.63E-01 | 1.87E-01 | 25 |
| 2. Average diluted concentration during period | μCi/ml | 3.00E-10 | 3.21E-10 | |
| 3. Percent of applicable limit | % | 1.32E-02 | 1.60E-02 | |

D. Gross alpha radioactivity

| | | | | |
|------------------|----|----------|----------|----|
| 1. Total release | Ci | 0.00E+00 | 0.00E+00 | 30 |
|------------------|----|----------|----------|----|

E. Volume of waste released (prior to dilution)

| | | | | |
|-------------------------------|--------|----------|----------|----|
| 1. Batch and continuous modes | Liters | 1.33E+07 | 4.98E+06 | 10 |
|-------------------------------|--------|----------|----------|----|

F. Volume of dilution water used during period

| | | | | |
|-------------------------------|--------|----------|----------|----|
| 1. Batch and continuous modes | Liters | 5.39E+11 | 5.84E+11 | 10 |
|-------------------------------|--------|----------|----------|----|

TABLE 8

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

LIQUID EFFLUENTS

| Fission and activation products | Unit | CONTINUOUS MODE | | BATCH MODE | |
|---------------------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 3 | Quarter 4 | Quarter 3 | Quarter 4 |
| Sodium-24 | Ci | | | | |
| Chromium-51 | Ci | | | | |
| Manganese-54 | Ci | | | 6.24E-06 | 2.06E-05 |
| Manganese-56 | Ci | | | | |
| Iron-55 | Ci | | | 1.06E-03 | 1.02E-03 |
| Iron-59 | Ci | | | | |
| Cobalt-57 | Ci | | | | |
| Cobalt-58 | Ci | | | 1.15E-04 | 2.14E-03 |
| Cobalt-60 | Ci | | | 8.00E-05 | 3.17E-04 |
| Zinc-69 | Ci | | | | 1.25E-07 |
| Zinc-72 | Ci | | | | |
| Strontium-85 | Ci | | | 7.47E-06 | |
| Strontium-89 | Ci | | | | |
| Strontium-90 | Ci | | | | |
| Strontium-92 | Ci | | | | |
| Yttrium-91 | Ci | | | | |
| Yttrium-93 | Ci | | | | |
| Rubidium-88 | Ci | | | | |
| Niobium-95 | Ci | | | 1.50E-06 | 5.93E-05 |
| Zirconium-95 | Ci | | | | 4.66E-06 |
| Zirconium-97 | Ci | | | 7.40E-05 | 1.43E-05 |
| Molybdenum-99 | Ci | | | | |
| Technetium-99m | Ci | | | | 9.80E-05 |
| Technetium-101 | Ci | | | 6.43E-06 | |
| Ruthenium-106 | Ci | | | 1.61E-05 | |
| Silver-110m | Ci | | | 1.60E-03 | 4.38E-04 |
| Tin-113 | Ci | | | | |
| Indium-113m | Ci | | | | |
| Antimony-122 | Ci | | | 4.33E-06 | |
| Antimony-124 | Ci | | | 1.23E-05 | 3.57E-04 |
| Antimony-125 | Ci | | | 1.43E-04 | 2.76E-03 |
| Tellurium-129 | Ci | | | | |
| Tellurium-132 | Ci | | | | |
| Iodine-131 | Ci | | | 5.01E-05 | 2.57E-03 |
| Iodine-133 | Ci | | | 2.34E-05 | 2.30E-03 |
| Iodine-135 | Ci | | | | 1.74E-04 |
| Cesium-134 | Ci | | | | |
| Cesium-136 | Ci | | | | |
| Cesium-137 | Ci | | | 1.95E-05 | 2.45E-05 |
| Barium-133m | Ci | | | 4.74E-05 | |
| Barium-139 | Ci | | | 2.66E-05 | |
| Lanthanum-140 | Ci | | | | 1.02E-03 |
| Cerium-144 | Ci | | | | |
| Praseodymium-144 | Ci | | | | |
| Tungsten-187 | Ci | | | | 1.06E-05 |
| Rhenium-188 | Ci | | | | |
| Total for period | Ci | 0.00E+00 | 0.00E+00 | 3.29E-03 | 1.33E-02 |

TABLE 8 (CONTINUED)

EFFLUENT AND WASTE DISPOSAL REPORT - 2000

LIQUID EFFLUENTS

| Dissolved and entrained gases | Unit | CONTINUOUS MODE | | BATCH MODE | |
|-------------------------------|------|-----------------|-----------|------------|-----------|
| | | Quarter 3 | Quarter 4 | Quarter 3 | Quarter 4 |
| Argon-41 | Ci | | | | |
| Krypton-85 | Ci | | | 1.75E-03 | |
| Krypton-85m | Ci | | | 7.82E-05 | 2.32E-05 |
| Krypton-87 | Ci | | | | |
| Krypton-88 | Ci | | | | |
| Xenon-131m | Ci | | | 3.13E-04 | |
| Xenon-133 | Ci | | | 1.39E-01 | 1.30E-01 |
| Xenon-133m | Ci | | | 3.18E-03 | 4.36E-03 |
| Xenon-135 | Ci | | | 1.78E-02 | 5.31E-02 |
| Xenon-135m | Ci | | | | 8.12E-05 |
| Total for period | Ci | 0.00E+00 | 0.00E+00 | 1.62E-01 | 1.88E-01 |
| Tritium | Ci | 1.14E-01 | 0.00E+00 | 2.89E+02 | 2.80E+02 |

TABLE 9
EFFLUENT AND WASTE DISPOSAL REPORT - 2000
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR PROCESSING OR BURIAL (Non-irradiated fuel)

| 1. Type of waste | Unit | 12 month period | Est. Total Error % | | | |
|--|--------|-----------------|--------------------|------|--------|-----|
| a. Spent resins, filter sludges, evaporator bottoms, etc. | m3 | 9.41E+00 | 25 | | | |
| | Ci | 1.12E+01 | | | | |
| b. Dry compressible waste, contaminated equipment, etc. | m3 | 3.89E+02 | 25 | | | |
| | Ci | 2.62E+00 | | | | |
| c. Irradiated components, control rods, etc. | M3 | 3.62E+01 | 25 | | | |
| | Ci | 5.94E-02 | | | | |
| d. Other (describe): Expended charcoal | M3 | 2.97E+01 | 25 | | | |
| | Ci | 1.46E-01 | | | | |
| 2. Estimate of major nuclide composition (by type of waste in %)* | | | | | | |
| a. | Co-58 | 24.9 | Cs-137 | 12.1 | C-14 | 2.6 |
| | Fe-55 | 23.4 | Ni-63 | 9.2 | Mn-54 | 2.1 |
| | Co-60 | 13.3 | Cs-134 | 4.6 | H-3 | 1.8 |
| b. | Ni-63 | 23.4 | Co-60 | 14.1 | Ce-144 | 4.3 |
| | Co-58 | 19.9 | Cs-137 | 12.7 | | |
| | Fe-55 | 15.8 | Nb-95 | 4.7 | | |
| c. | Co-60 | 49.0 | | | | |
| | Fe-55 | 46.5 | | | | |
| | Ni-63 | 3.4 | | | | |
| d. | H-3 | 56.8 | Ce-144 | 8.7 | | |
| | Cs-137 | 10.5 | Ni-63 | 6.9 | | |
| | Co-60 | 10.0 | Pu-241 | 6.8 | | |

3. Solid Waste Disposition

| Number of Shipments | Mode of Transportation | Destination |
|---------------------|------------------------|---------------------------|
| 2 | Exclusive use truck | Barnwell Waste Mngmt (SC) |
| 1 | Exclusive use truck | Chem-Nuclear (SC) |
| 9 | Exclusive use truck | Duratek (TN) |

B. IRRADIATED FUEL SHIPMENTS (Disposition)

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

* Curie values and principle radionuclides are estimates based on a combination of direct and indirect methods.

Unplanned Releases

There were no unplanned releases during 2000.

Radioactive Waste Treatment Systems

There were no significant changes to the radioactive waste treatment systems.

Annual Land Use Census

The August, 2000 land-use census did not identify any new dose calculation locations.

Effluent Monitor Instrument Operability

Required effluent monitor instrumentation was not out of service for more than 30 days during 2000.

ODCM & PCP Changes

The PCP was not revised during 2000.

The ODCM was revised 12/20/00. The affected pages are 31, 47, 76, 92, 140, and 148.

Emergency Feed Pump 2

Emergency Feed Pump 2 (EFP-2) overspeed testing is performed quarterly using steam from CR-3's steam generators. Due to a small primary to secondary leak, an evaluation was performed to estimate the quantity of radioactive material which was released during 2000 due to operation of this pump. The results of this evaluation are given below in units of Curies/year.

| | | | | | |
|--------|----------|-------|----------|--------|----------|
| Xe-133 | 6.40E-08 | I-131 | 3.12E-09 | Cs-137 | 1.32E-10 |
| Xe-135 | 8.40E-08 | I-133 | 3.60E-08 | H-3 | 2.00E-06 |

These values are not included in Tables 1 through 4.

2000 Appendix I Dose Summary

Maximum Hypothetical Individual

Liquid Effluent Dose Limits

Total Body: 1.5 mrem/quarter, 3 mrem/year
Any Organ: 5 mrem/quarter, 10 mrem/year

Liquid Effluent Dose Summary

| | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Annual Total |
|---------------------------|-----------|-----------|-----------|-----------|--------------|
| Total Body Dose (mrem) | 3.58E-06 | 1.11E-05 | 4.20E-05 | 1.36E-05 | 7.03E-05 |
| Maximum Organ Dose (mrem) | 6.00E-05 | 6.79E-05 | 5.13E-04 | 8.04E-05 | 7.21E-04 |
| Maximum Organ was GI | | | | | |

Gaseous Effluent Dose Limits

Gamma Air Dose: 5 mrad/quarter, 10 mrad/year
Beta Air Dose: 10 mrad/quarter, 20 mrad/year

Any Organ: 7.5 mrem/quarter, 15 mrem/year

Gaseous Release Dose Summary

| | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Annual Total |
|---------------------------|-----------|-----------|-----------|-----------|--------------|
| Gamma Air Dose (mrad) | 2.99E-05 | 2.16E-04 | 8.74E-04 | 1.57E-03 | 2.69E-03 |
| Beta Air Dose (mrad) | 7.40E-05 | 4.72E-04 | 1.85E-03 | 2.45E-03 | 4.85E-03 |
| Total Body Dose (mrem) | 5.38E-04 | 8.52E-04 | 3.03E-04 | 1.19E-03 | 5.61E-03 |
| Maximum Organ Dose (mrem) | 2.24E-04 | 8.52E-04 | 3.03E-03 | 1.19E-03 | 7.31E-03 |
| Maximum Organ was Thyroid | | | | | |