

**Enclosure 2**

**Joseph M. Farley Nuclear Plant  
Annual Radiological Environmental Operating Report for 2003**

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| SECTION | TITLE                                                    | PAGE |
|---------|----------------------------------------------------------|------|
| 1.0     | LIQUID EFFLUENTS                                         | 1    |
| 1.1     | Regulatory Requirements                                  | 1    |
| 1.1.1   | Concentration Limits                                     | 1    |
| 1.1.2   | Dose Limits                                              | 1    |
| 1.2     | Effluent Concentration Limit (ECL)                       | 1    |
| 1.3     | Measurements and Approximation<br>of Total Radioactivity | 2    |
| 1.3.1   | Total Radioactivity Determination                        | 2    |
| 1.3.2   | Total Error Estimation                                   | 3    |
| 1.4     | Liquid Effluents - Release Data                          | 3    |
| 1.5     | Radiological Impact Due to Liquid Releases               | 3    |
| 1.6     | Liquid Effluents - Batch Releases                        | 3    |
| 1.7     | Liquid Effluents - Abnormal Releases                     | 4    |
| 2.0     | GASEOUS EFFLUENTS                                        | 36   |
| 2.1     | Regulatory Requirements                                  | 36   |
| 2.1.1   | Dose Rate Limits                                         | 36   |
| 2.1.2   | Air Doses Due to Noble Gases in<br>Gaseous Releases      | 36   |
| 2.1.3   | Doses to a Member of the Public                          | 37   |
| 2.2     | Measurements and Approximation<br>of Total Radioactivity | 37   |
| 2.2.1   | Sample Collection and Analysis                           | 37   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| SECTION | TITLE                                                              | PAGE |
|---------|--------------------------------------------------------------------|------|
| 2.2.2   | Total Quantities of Radioactivity, Dose Rates and Cumulative Doses | 38   |
| 2.2.2.1 | Fission and Activation Gases                                       | 38   |
| 2.2.2.2 | Radioiodine, Tritium and Particulate Releases                      | 38   |
| 2.2.2.3 | Gross Alpha Release                                                | 39   |
| 2.2.3   | Total Error Estimation                                             | 40   |
| 2.3     | Gaseous Effluent Release Data                                      | 40   |
| 2.4     | Radiological Impact Due to Gaseous Releases                        | 41   |
| 2.5     | Gaseous Effluents - Batch Releases                                 | 41   |
| 2.6     | Gaseous Effluents - Abnormal Releases                              | 41   |
| 3.0     | SOLID WASTE                                                        | 79   |
| 3.1     | Regulatory Requirements                                            | 79   |
| 3.1.1   | Solid Radioactive Waste System                                     | 79   |
| 3.1.2   | Reporting Requirements                                             | 79   |
| 3.2     | Solid Waste Data                                                   | 79   |
| 4.0     | DOSES TO MEMBERS OF THE PUBLIC<br>INSIDE THE SITE BOUNDARY         | 85   |
| 4.1     | Regulatory Requirements                                            | 85   |
| 4.2     | Demonstration of Compliance                                        | 85   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| SECTION | TITLE                                                                        | PAGE |
|---------|------------------------------------------------------------------------------|------|
| 5.0     | TOTAL DOSE FROM URANIUM FUEL<br>CYCLE (40CFR190)                             | 92   |
| 5.1     | Regulatory Requirements                                                      | 92   |
| 5.2     | Demonstration of Compliance                                                  | 92   |
| 6.0     | METEOROLOGICAL DATA                                                          | 92   |
| 7.0     | PROGRAM DEVIATIONS                                                           | 92   |
| 7.1     | Inoperable Liquid or Gaseous Effluent<br>Monitoring Instrumentation          | 92   |
| 7.1.1   | Regulatory Requirements                                                      | 92   |
| 7.1.2   | Description of Deviations                                                    | 92   |
| 7.2     | Effluent Sample Analysis Exceeding<br>Minimum Detectable Concentration (MDC) | 93   |
| 7.2.1   | Regulatory Requirements                                                      | 93   |
| 7.2.2   | Description of Deviations                                                    | 93   |
| 7.3     | Incorrect Compositing of Liquid<br>or Gaseous Effluent Samples               | 93   |
| 7.3.1   | Regulatory Requirements                                                      | 93   |
| 7.3.2   | Description of Deviations                                                    | 93   |
| 8.0     | CHANGES TO THE PLANT FARLEY ODCM                                             | 93   |
| 8.1     | Regulatory Requirements                                                      | 93   |
| 8.2     | Description of Changes                                                       | 93   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| SECTION | TITLE                                                                    | PAGE |
|---------|--------------------------------------------------------------------------|------|
| 9.0     | MAJOR CHANGES TO LIQUID, GASEOUS, OR<br>SOLID RADWASTE TREATMENT SYSTEMS | 94   |
| 9.1     | Regulatory Requirements                                                  | 94   |
| 9.2     | Description of Major Changes                                             | 94   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| TABLE | LIST OF TABLES                                                                              | PAGE |
|-------|---------------------------------------------------------------------------------------------|------|
| 1-1A  | Liquid Effluents - Summation of<br>All Releases, Unit 1 (Quarters 1,2,<br>3 and 4)          | 5    |
| 1-1B  | Liquid Effluents - Summation of<br>All Releases, Unit 2 (Quarters 1,2,<br>3 and 4)          | 7    |
| 1-1C  | Liquid Effluents - Summation of<br>All Releases, Site (Quarters 1,2,<br>3 and 4)            | 9    |
| 1-2A  | Liquid Effluents, Unit 1 (Quarters 1,2,<br>3 and 4)                                         | 11   |
| 1-2B  | Liquid Effluents, Unit 2 (Quarters 1,2,<br>3 and 4)                                         | 15   |
| 1-2C  | Liquid Effluents, Site (Quarters 1,2,<br>3 and 4)                                           | 19   |
| 1-3A  | Doses to a MEMBER OF THE PUBLIC<br>Due to Liquid Releases, Unit 1 (Quarters<br>1,2,3 and 4) | 23   |
| 1-3B  | Doses to a MEMBER OF THE PUBLIC<br>Due to Liquid Releases, Unit 2 (Quarters<br>1,2,3 and 4) | 25   |
| 1-4   | Minimum Detectable Concentration -<br>Liquid Sample Analyses                                | 27   |
| 1-5A  | Liquid Effluents - Batch Release<br>Summary, Unit 1                                         | 28   |
| 1-5B  | Liquid Effluents - Batch Release<br>Summary, Unit 2                                         | 30   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| TABLE | LIST OF TABLES                                                                      | PAGE |
|-------|-------------------------------------------------------------------------------------|------|
| 1-6A  | Liquid Effluents - Abnormal Release<br>Summary, Unit 1                              | 32   |
| 1-6B  | Liquid Effluents - Abnormal Release<br>Summary, Unit 2                              | 34   |
| 2-1A  | Gaseous Effluents - Summation of<br>All Releases, Unit 1 (Quarters 1,2,<br>3 and 4) | 42   |
| 2-1B  | Gaseous Effluents - Summation of<br>All Releases, Unit 2 (Quarters 1,2,<br>3 and 4) | 44   |
| 2-1C  | Gaseous Effluents - Summation of<br>All Releases, Site (Quarters 1,2,<br>3 and 4)   | 46   |
| 2-2A  | Gaseous Effluents - Mixed Mode<br>Level Releases, Unit 1 (Quarters 1,2,<br>3 and 4) | 48   |
| 2-2B  | Gaseous Effluents - Mixed Mode<br>Level Releases, Unit 2 (Quarters 1,2,<br>3 and 4) | 51   |
| 2-2C  | Gaseous Effluents - Mixed Mode<br>Level Releases, Site (Quarters 1,2,<br>3 and 4)   | 53   |
| 2-3A  | Gaseous Effluents - Ground<br>Level Releases, Unit 1 (Quarters 1,2,<br>3 and 4)     | 56   |
| 2-3B  | Gaseous Effluents - Ground<br>Level Releases, Unit 2 (Quarters 1,2,<br>3 and 4)     | 58   |
| 2-3C  | Gaseous Effluents - Ground<br>Level Releases, Site (Quarters 1,2,<br>3 and 4)       | 60   |

FARLEY NUCLEAR PLANT  
ANNUAL RADIOACTIVE EFFLUENT  
RELEASE REPORT

| TABLE | LIST OF TABLES                                                                                                                             | PAGE |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------|------|
| 2-4A  | Air Doses Due to Noble Gases in<br>Gaseous Releases, Unit 1 (Quarters 1,2,<br>3 and 4)                                                     | 62   |
| 2-4B  | Air Doses Due to Noble Gases in<br>Gaseous Releases, Unit 2 (Quarters 1,2,<br>3 and 4)                                                     | 64   |
| 2-5A  | Doses to a MEMBER OF THE PUBLIC<br>Due to Radioiodines, Tritium, and<br>Particulates in Gaseous Releases,<br>Unit 1 (Quarters 1,2,3 and 4) | 66   |
| 2-5B  | Doses to a MEMBER OF THE PUBLIC<br>Due to Radioiodines, Tritium, and<br>Particulates in Gaseous Releases,<br>Unit 2 (Quarters 1,2,3 and 4) | 68   |
| 2-6   | Minimum Detectable Concentration -<br>Gaseous Effluent Analyses                                                                            | 70   |
| 2-7A  | Gaseous Effluents - Batch Release<br>Summary, Unit 1                                                                                       | 71   |
| 2-7B  | Gaseous Effluents - Batch Release<br>Summary, Unit 2                                                                                       | 73   |
| 2-8A  | Gaseous Effluents - Abnormal Release<br>Summary, Unit 1                                                                                    | 75   |
| 2-8B  | Gaseous Effluents - Abnormal Release<br>Summary, Unit 2                                                                                    | 77   |
| 3-1   | Solid Waste and Irradiated<br>Fuel Shipments                                                                                               | 80   |
| 4-1   | Doses to a MEMBER OF THE PUBLIC<br>Due to Activities Inside the Site<br>Boundary, Site                                                     | 86   |

## 1.0 LIQUID EFFLUENTS

This section contains applicable ODCM limits for liquid effluents as well as the quantities of radioactive liquid effluents released during 2003. These quantities are summarized on a quarterly basis and include any unplanned releases. A tabulation of the total body and organ doses which were calculated in accordance with ODCM 2.4 are presented to show conformance with the limits of ODCM 2.1.3.

### 1.1 Regulatory Requirements

#### 1.1.1 Concentration Limits

Technical Specifications 5.5.4.b and 5.5.4.c state that the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see ODCM Figure 10-1) shall be limited at all times to ten times the concentrations specified in 10CFR20, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $1.0\text{E-}04$  uCi/ml total activity.

#### 1.1.2 Dose Limits

Technical Specifications 5.5.4.d and 5.5.4.e state that the dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each unit, to UNRESTRICTED AREAS (see ODCM Figure 10-1) shall be limited:

- a. During any calendar quarter to less than or equal to 1.5 mrem to the total body and to less than or equal to 5 mrem to any organ, and
- b. During any calendar year to less than or equal to 3 mrem to the total body and to less than or equal to 10 mrem to any organ.

#### 1.2 Effluent Concentration Limit (ECL)

ECL values used in determining allowable liquid radwaste release rates and concentrations, for principal gamma emitters, I-131, tritium, Sr-89, Sr-90 and Fe-55, are taken from 10CFR Part 20, Appendix B, Table 2, Column 2. A tolerance factor of up to 10 is utilized to allow flexibility in establishing practical monitor setpoints which can accommodate effluent releases at concentrations higher than the ECL values stated in 10CFR20, Appendix B, Table 2, Column 2.

For dissolved or entrained noble gases in liquid radwaste, the ECL is  $1.0\text{E-}04$  uCi/ml total activity.

For gross alpha in liquid radwaste, the ECL is  $2.0\text{E-}09$  uCi/ml.

Furthermore, for all the above radionuclides, or categories of radioactivity, the overall ECL fraction is determined in accordance with 10CFR Part 20, Appendix B.

### 1.3 Measurements and Approximation of Total Radioactivity

The radionuclides listed below are considered when evaluating liquid effluents:

|       |        |
|-------|--------|
| MN-54 | CS-134 |
| FE-59 | CS-137 |
| CO-58 | CE-141 |
| CO-60 | CE-144 |
| ZN-65 | MO-99  |
| SR-89 | FE-55  |
| SR-90 | H-3    |
| I-131 |        |

#### 1.3.1 Total Radioactivity Determination

Batch Releases: Representative pre-release grab samples are obtained and analyzed in accordance with ODCM Table 2-3. Isotopic analyses are performed using the computerized pulse height analysis system utilizing high resolution germanium detectors. Isotopic values thus obtained are used for release rate calculations as specified in the ODCM. Only those nuclides that are detected are used in the calculations. All Strontium and Iron-55 samples are sent offsite to the Georgia Power Environmental Laboratory for analysis. Gross beta and gross alpha determinations are made using 2 pi gas flow proportional counters. Tritium determinations are made using liquid scintillation techniques. Dissolved gases are determined employing grab sampling techniques and then counting on the pulse height analyzer.

The sample analyses results are used along with the ECL values to determine the ECL fraction for the planned release. The ECL fraction is then used, with the appropriate safety factors, and the expected dilution stream flow, to calculate the maximum permissible release rate and a liquid effluent monitor setpoint. The monitor setpoint is calculated to assure that the limits of the ODCM are not exceeded. A monitor reading in excess of the calculated setpoint will result in automatic termination of the liquid radwaste discharge.

Radionuclide concentrations, safety factors, dilution stream flow rate, and liquid effluent radiation monitor calibration factors are used by the computer to generate a pre-release printout. If the release is not permissible, appropriate warnings will be displayed on the computer screen and on the printout. If the release is permissible, it is approved by a Chemistry Technician. The release permit is transferred from the Chemistry Department to the Operations Department for release. When the release is completed, the actual release data are provided to the Chemistry

Department. These release data, including release rate and release duration, are input into the computer and a post-release printout is generated. This printout contains the actual release rates, radionuclide concentrations and quantities, dilution flow, and calculated doses to an individual.

**Continuous Releases:** Continuous releases are analogous to batch releases except that they are analyzed on a weekly composite basis in accordance with ODCM Table 2-3.

Typically achieved liquid effluent sample analyses minimum detectable concentrations are reported in Table 1-4.

#### 1.3.2 Total Error Estimation

The maximum error associated with volume and flow measurements, based upon plant calibration practice is estimated to be + or - 10%. The average error associated with counting is estimated to be less than + or - 15%.

#### 1.4 Liquid Effluent Release Data

Summaries of all radioactive liquid effluents released from Units 1 and 2 during 2003 are presented in accordance with Regulatory Guide 1.21 Tables 2A and 2B. Information required by Table 2A is found in this report in Tables 1-1A, 1-1B, and 1-1C; Table 2-B information is presented in Tables 1-2A, 1-2B, and 1-2C. Data is presented on a quarterly basis as required by Regulatory Guide 1.21 for all four quarters.

#### 1.5 Radiological Impact Due to Liquid Releases

The total body and organ doses for Units 1 and 2 are provided in the following tables in order to show conformance with the limits of ODCM 2.1.3:

Unit 1 2003 Doses to a Member of the  
Public due to Liquid Releases: Table 1-3A

Unit 2 2003 Doses to a Member of the  
Public due to Liquid Releases: Table 1-3B

#### 1.6 Liquid Effluents - Batch Releases

Batch release information for Units 1 and 2 is summarized in the following tables:

Unit 1 2003 Liquid Effluents - Batch Release Summary: Table 1-5A

Unit 2 2003 Liquid Effluents - Batch Release Summary: Table 1-5B

### 1.7 Liquid Effluents - Abnormal Releases

There was one abnormal release on unit-1 during 2003. On 07/14/2003, approximately 10 gallons of slightly radioactive water was released to a yard drain due to an underground leak. Doses and curies from the release are included in this annual report. Details of this event are documented in condition report # 2003001616.

There were no abnormal releases on Unit 2 during 2003.

Abnormal release information for Units 1 and 2 is summarized in the following tables:

Unit 1 2003 Liquid Effluents - Abnormal Release  
Summary: Table 1-6A

Unit 2 2003 Liquid Effluents - Abnormal Release  
Summary: Table 1-6B

TABLE 1-1A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Summation of All Releases  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 3.86E-03  | 3.82E-02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 2.52E-10  | 2.47E-09  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 1.93E+02  | 4.97E+01  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.26E-05  | 3.22E-06  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 6.54E-03  | 1.06E-03  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 4.28E-10  | 6.89E-11  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 1.40E+06  | 1.00E+07  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 1.51E+10  | 1.53E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose.    See Tables  
 1-3A and 1-3B of this report.

TABLE 1-1A  
Joseph M. Farley Nuclear Plant

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Liquid Effluents - Summation of All Releases  
Unit: 1  
Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 3.31E-02  | 6.35E-03  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.97E-09  | 4.00E-10  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 8.29E+01  | 1.43E+02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 4.94E-06  | 8.98E-06  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 1.55E-05  | 2.74E-05  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 9.25E-13  | 1.72E-12  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 8.00E+05  | 5.00E+05  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 1.66E+10  | 1.57E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose.    See Tables  
1-3A and 1-3B of this report.

TABLE 1-1B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Summation of All Releases  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 6.11E-03  | 2.45E-02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 4.15E-10  | 1.69E-09  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 1.17E+02  | 1.39E+02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 7.99E-06  | 9.60E-06  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 5.82E-03  | 1.60E-03  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 3.95E-10  | 1.10E-10  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 4.53E+07  | 4.15E+07  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 1.46E+10  | 1.44E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose.    See Tables  
 1-3A and 1-3B of this report.

TABLE 1-1B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Summation of All Releases  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 1.86E-02  | 1.91E-02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.21E-09  | 1.20E-09  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 2.87E+02  | 3.52E+02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.86E-05  | 2.21E-05  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 5.43E-05  | 2.64E-04  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 3.53E-12  | 1.65E-11  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 1.23E+07  | 5.23E+07  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 1.53E+10  | 1.59E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose.    See Tables  
 1-3A and 1-3B of this report.

TABLE 1-1C  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Summation of All Releases  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 9.97E-03  | 6.26E-02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 3.33E-10  | 2.09E-09  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 3.10E+02  | 1.89E+02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.04E-05  | 6.30E-06  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 1.24E-02  | 2.66E-03  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 4.12E-10  | 8.90E-11  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 4.67E+07  | 5.15E+07  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 2.97E+10  | 2.97E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables  
 1-3A and 1-3B of this report.

TABLE 1-1C  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Summation of All Releases  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                                          | UNITS  | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|-----------------------------------------------------------|--------|-----------|-----------|---------------------|
| -----                                                     |        |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE (NOT INCLUDING<br>TRITIUM, GASES, ALPHA) | CURIES | 5.17E-02  | 2.54E-02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.60E-09  | 7.99E-10  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| B. TRITIUM                                                |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 3.69E+02  | 4.95E+02  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 1.15E-05  | 1.56E-05  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| C. DISSOLVED AND ENTRAINED GASES                          |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 6.98E-05  | 2.91E-04  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| 2. AVERAGE DILUTED CONCENTRATION<br>DURING PERIOD         | uCi/ML | 2.17E-12  | 9.14E-12  |                     |
| -----                                                     |        |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT                            | %      | *         | *         |                     |
| -----                                                     |        |           |           |                     |
| D. GROSS ALPHA RADIOACTIVITY                              |        |           |           |                     |
| -----                                                     |        |           |           |                     |
| 1. TOTAL RELEASE                                          | CURIES | 0.00E+00  | 0.00E+00  | 2.50E+01            |
| -----                                                     |        |           |           |                     |
| E. WASTE VOL RELEASED(PRE-DILUTION)                       | LITERS | 1.31E+07  | 5.28E+07  | 1.00E+01            |
| -----                                                     |        |           |           |                     |
| F. VOLUME OF DILUTION WATER USED                          | LITERS | 3.19E+10  | 3.16E+10  | 1.00E+01            |
| -----                                                     |        |           |           |                     |

\*      Applicable limits are expressed in terms of dose.    See Tables  
 1-3A and 1-3B of this report.

TABLE 1-2A\*  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Liquid Effluents  
Unit: 1  
Starting : 1-Jan-2003      Ending : 30-Jun-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 1.93E+02   | 4.97E+01  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 1.29E-03 | 1.31E-03 |
| CE-141  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.21E-06 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.74E-05 |
| CO-58   | CURIES | 0.00E+00 | 1.48E-04 | 2.26E-04 | 7.90E-03 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 7.63E-04 | 5.53E-03 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.25E-03 |
| CS-134  | CURIES | 0.00E+00 | 0.00E+00 | 8.78E-06 | 0.00E+00 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 1.54E-04 | 1.44E-04 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 9.47E-04 | 3.87E-03 |
| FE-59   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.50E-05 |
| I-132   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.89E-06 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 9.68E-06 | 3.22E-04 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 2.26E-06 | 1.08E-03 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 1.16E-04 | 1.42E-04 |
| PR-144  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.41E-03 |
| RU-103  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.17E-05 |
| SB-122  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.01E-05 |
| SB-124  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.05E-05 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.67E-05 |
| SN-113  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.78E-05 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.27E-05 |
| SR-89   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.17E-05 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 8.24E-05 | 6.12E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.69E-03 |
| TE-132  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.45E-06 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 2.54E-04 | 6.48E-03 |
| ZR-95   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.91E-04 |
| TOTALS  | CURIES | 0.00E+00 | 1.48E-04 | 3.86E-03 | 3.80E-02 |

TABLE 1-2A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                               |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE                       | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| DISSOLVED AND ENTRAINED GASES |        |                 |           |            |           |
| AR-41                         | CURIES | 0.00E+00        | 0.00E+00  | 1.52E-06   | 0.00E+00  |
| XE-133                        | CURIES | 0.00E+00        | 0.00E+00  | 6.38E-03   | 1.06E-03  |
| XE-133M                       | CURIES | 0.00E+00        | 0.00E+00  | 9.15E-05   | 0.00E+00  |
| XE-135                        | CURIES | 0.00E+00        | 0.00E+00  | 7.36E-05   | 1.23E-06  |
| TOTALS                        | CURIES | 0.00E+00        | 0.00E+00  | 6.54E-03   | 1.06E-03  |
| G-ALPHA                       | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-2A\*  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Liquid Effluents  
Unit: 1  
Starting : 1-Jul-2003      Ending : 31-Dec-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 8.29E+01   | 1.43E+02  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 4.79E-04 | 3.13E-04 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 5.40E-05 | 8.42E-06 |
| CO-58   | CURIES | 0.00E+00 | 0.00E+00 | 3.83E-03 | 3.97E-04 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 1.23E-02 | 9.66E-04 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 6.94E-05 | 1.63E-05 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 1.31E-03 | 1.19E-04 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 7.19E-03 | 4.19E-04 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 2.23E-04 | 7.38E-06 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 3.26E-04 | 7.60E-06 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 2.84E-04 | 3.36E-05 |
| RU-103  | CURIES | 0.00E+00 | 0.00E+00 | 1.04E-06 | 0.00E+00 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 1.67E-04 | 9.36E-04 |
| SN-113  | CURIES | 0.00E+00 | 0.00E+00 | 9.91E-06 | 0.00E+00 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 2.02E-05 | 1.62E-05 |
| SR-89   | CURIES | 0.00E+00 | 0.00E+00 | 1.10E-05 | 0.00E+00 |
| SR-90   | CURIES | 0.00E+00 | 0.00E+00 | 3.20E-05 | 4.09E-06 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 9.71E-05 | 1.82E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 3.27E-03 | 2.68E-03 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 3.40E-03 | 4.08E-04 |
| ZR-95   | CURIES | 0.00E+00 | 0.00E+00 | 1.66E-05 | 0.00E+00 |
| TOTALS  | CURIES | 0.00E+00 | 0.00E+00 | 3.31E-02 | 6.35E-03 |

TABLE 1-2A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                               |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE                       | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| DISSOLVED AND ENTRAINED GASES |        |                 |           |            |           |
| XE-133                        | CURIES | 0.00E+00        | 0.00E+00  | 1.55E-05   | 2.74E-05  |
| TOTALS                        | CURIES | 0.00E+00        | 0.00E+00  | 1.55E-05   | 2.74E-05  |
| G-ALPHA                       | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-2B\*  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Liquid Effluents  
Unit: 2  
Starting : 1-Jan-2003      Ending : 30-Jun-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 1.17E+02   | 1.39E+02  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 1.88E-03 | 6.66E-04 |
| AS-76   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.13E-05 |
|         |        |          |          |          |          |
| CE-141  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.88E-06 |
| CE-144  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.93E-06 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 1.24E-06 | 2.35E-05 |
| CO-58   | CURIES | 0.00E+00 | 0.00E+00 | 7.38E-04 | 3.08E-03 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 7.18E-04 | 2.38E-03 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.03E-03 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 1.60E-05 | 4.21E-05 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 7.75E-04 | 2.26E-03 |
| FE-59   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.87E-05 |
| I-130   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.78E-06 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 6.81E-06 | 3.50E-04 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 2.67E-06 | 2.48E-04 |
| NB-95M  | CURIES | 0.00E+00 | 0.00E+00 | 8.62E-04 | 0.00E+00 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 9.46E-05 | 1.64E-04 |
| PR-144  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.73E-04 |
| RU-103  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.46E-05 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.56E-04 |
| SN-113  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.83E-06 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 4.37E-07 | 5.47E-05 |
| SR-89   | CURIES | 0.00E+00 | 6.50E-04 | 0.00E+00 | 0.00E+00 |
| SR-90   | CURIES | 1.78E-04 | 1.95E-06 | 0.00E+00 | 0.00E+00 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 5.99E-05 | 3.85E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 1.59E-04 | 8.66E-03 |
| TE-132  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.48E-05 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 6.14E-04 | 3.71E-03 |
| ZR-95   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.88E-05 |
|         |        |          |          |          |          |
| TOTALS  | CURIES | 1.78E-04 | 6.52E-04 | 5.93E-03 | 2.38E-02 |

TABLE 1-2B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                               |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE                       | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| DISSOLVED AND ENTRAINED GASES |        |                 |           |            |           |
| AR-41                         | CURIES | 0.00E+00        | 0.00E+00  | 4.47E-06   | 1.85E-06  |
| XE-133                        | CURIES | 0.00E+00        | 0.00E+00  | 5.66E-03   | 1.59E-03  |
| XE-133M                       | CURIES | 0.00E+00        | 0.00E+00  | 7.54E-05   | 3.29E-06  |
| XE-135                        | CURIES | 0.00E+00        | 0.00E+00  | 8.09E-05   | 3.96E-06  |
| TOTALS                        | CURIES | 0.00E+00        | 0.00E+00  | 5.82E-03   | 1.60E-03  |
| G-ALPHA                       | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-2B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 2.87E+02   | 3.52E+02  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 6.05E-04 | 1.36E-03 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 4.26E-05 | 3.49E-05 |
| CO-58   | CURIES | 0.00E+00 | 0.00E+00 | 2.13E-03 | 1.42E-03 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 2.31E-03 | 3.02E-03 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 2.15E-05 | 4.21E-05 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 4.21E-05 | 6.17E-05 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 2.30E-03 | 7.59E-04 |
| IN-115M | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.94E-06 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 1.09E-04 | 1.85E-05 |
| NA-22   | CURIES | 0.00E+00 | 0.00E+00 | 1.22E-06 | 0.00E+00 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 2.14E-06 | 0.00E+00 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 4.44E-05 | 6.33E-05 |
| PR-144  | CURIES | 0.00E+00 | 0.00E+00 | 3.18E-04 | 0.00E+00 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.60E-04 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 8.29E-05 | 7.19E-05 |
| SR-89   | CURIES | 7.37E-06 | 0.00E+00 | 1.23E-05 | 0.00E+00 |
| SR-90   | CURIES | 0.00E+00 | 2.94E-04 | 0.00E+00 | 3.75E-06 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 3.02E-05 | 4.61E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 9.63E-03 | 1.03E-02 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 9.40E-04 | 6.32E-04 |
| TOTALS  | CURIES | 7.37E-06 | 2.94E-04 | 1.86E-02 | 1.88E-02 |

TABLE 1-2B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                               |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE                       | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| DISSOLVED AND ENTRAINED GASES |        |                 |           |            |           |
| AR-41                         | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 1.42E-05  |
| XE-133                        | CURIES | 0.00E+00        | 0.00E+00  | 5.43E-05   | 2.49E-04  |
| TOTALS                        | CURIES | 0.00E+00        | 0.00E+00  | 5.43E-05   | 2.64E-04  |
| G-ALPHA                       | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-2C\*  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Liquid Effluents  
Unit: Site  
Starting : 1-Jan-2003      Ending : 30-Jun-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 3.10E+02   | 1.89E+02  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 3.18E-03 | 1.98E-03 |
| AS-76   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.13E-05 |
| CE-141  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.01E-05 |
| CE-144  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.93E-06 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 1.24E-06 | 6.10E-05 |
| CO-58   | CURIES | 0.00E+00 | 1.48E-04 | 9.64E-04 | 1.10E-02 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 1.48E-03 | 7.91E-03 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.28E-03 |
| CS-134  | CURIES | 0.00E+00 | 0.00E+00 | 8.78E-06 | 0.00E+00 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 1.70E-04 | 1.87E-04 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 1.72E-03 | 6.12E-03 |
| FE-59   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.37E-05 |
| I-130   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.78E-06 |
| I-132   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.89E-06 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 1.65E-05 | 6.72E-04 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 4.92E-06 | 1.33E-03 |
| NB-95M  | CURIES | 0.00E+00 | 0.00E+00 | 8.62E-04 | 0.00E+00 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 2.10E-04 | 3.06E-04 |
| PR-144  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.19E-03 |
| RU-103  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.63E-05 |
| SB-122  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.01E-05 |
| SB-124  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.05E-05 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.03E-04 |
| SN-113  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.56E-05 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 4.37E-07 | 1.07E-04 |
| SR-89   | CURIES | 0.00E+00 | 6.50E-04 | 0.00E+00 | 9.17E-05 |
| SR-90   | CURIES | 1.78E-04 | 1.95E-06 | 0.00E+00 | 0.00E+00 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 1.42E-04 | 9.97E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 1.59E-04 | 1.43E-02 |
| TE-132  | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.43E-05 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 8.68E-04 | 1.02E-02 |
| ZR-95   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.30E-04 |
| TOTALS  | CURIES | 1.78E-04 | 8.00E-04 | 9.79E-03 | 6.18E-02 |

TABLE 1-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                               |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE                       | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| DISSOLVED AND ENTRAINED GASES |        |                 |           |            |           |
| AR-41                         | CURIES | 0.00E+00        | 0.00E+00  | 5.99E-06   | 1.85E-06  |
| XE-133                        | CURIES | 0.00E+00        | 0.00E+00  | 1.20E-02   | 2.65E-03  |
| XE-133M                       | CURIES | 0.00E+00        | 0.00E+00  | 1.67E-04   | 3.29E-06  |
| XE-135                        | CURIES | 0.00E+00        | 0.00E+00  | 1.55E-04   | 5.19E-06  |
| TOTALS                        | CURIES | 0.00E+00        | 0.00E+00  | 1.24E-02   | 2.66E-03  |
| G-ALPHA                       | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|         |        | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|--------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| H-3     | CURIES | 0.00E+00        | 0.00E+00  | 3.69E+02   | 4.95E+02  |

FISSION & ACTIVATION PRODUCTS

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AG-110M | CURIES | 0.00E+00 | 0.00E+00 | 1.08E-03 | 1.68E-03 |
| CO-57   | CURIES | 0.00E+00 | 0.00E+00 | 9.66E-05 | 4.34E-05 |
| CO-58   | CURIES | 0.00E+00 | 0.00E+00 | 5.95E-03 | 1.82E-03 |
| CO-60   | CURIES | 0.00E+00 | 0.00E+00 | 1.46E-02 | 3.99E-03 |
| CR-51   | CURIES | 0.00E+00 | 0.00E+00 | 9.09E-05 | 5.84E-05 |
| CS-137  | CURIES | 0.00E+00 | 0.00E+00 | 1.36E-03 | 1.80E-04 |
| FE-55   | CURIES | 0.00E+00 | 0.00E+00 | 9.49E-03 | 1.18E-03 |
| IN-115M | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.94E-06 |
| MN-54   | CURIES | 0.00E+00 | 0.00E+00 | 3.32E-04 | 2.58E-05 |
| NA-22   | CURIES | 0.00E+00 | 0.00E+00 | 1.22E-06 | 0.00E+00 |
| NB-95   | CURIES | 0.00E+00 | 0.00E+00 | 3.28E-04 | 7.60E-06 |
| NB-97   | CURIES | 0.00E+00 | 0.00E+00 | 3.29E-04 | 9.70E-05 |
| PR-144  | CURIES | 0.00E+00 | 0.00E+00 | 3.18E-04 | 0.00E+00 |
| RU-103  | CURIES | 0.00E+00 | 0.00E+00 | 1.04E-06 | 0.00E+00 |
| SB-125  | CURIES | 0.00E+00 | 0.00E+00 | 1.67E-04 | 1.90E-03 |
| SN-113  | CURIES | 0.00E+00 | 0.00E+00 | 9.91E-06 | 0.00E+00 |
| SN-117M | CURIES | 0.00E+00 | 0.00E+00 | 1.03E-04 | 8.81E-05 |
| SR-89   | CURIES | 7.37E-06 | 0.00E+00 | 2.32E-05 | 0.00E+00 |
| SR-90   | CURIES | 0.00E+00 | 2.94E-04 | 3.20E-05 | 7.84E-06 |
| SR-92   | CURIES | 0.00E+00 | 0.00E+00 | 1.27E-04 | 6.44E-05 |
| TE-125M | CURIES | 0.00E+00 | 0.00E+00 | 1.29E-02 | 1.30E-02 |
| ZN-65   | CURIES | 0.00E+00 | 0.00E+00 | 4.34E-03 | 1.04E-03 |
| ZR-95   | CURIES | 0.00E+00 | 0.00E+00 | 1.66E-05 | 0.00E+00 |
| TOTALS  | CURIES | 7.37E-06 | 2.94E-04 | 5.17E-02 | 2.51E-02 |

TABLE 1-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|         |      | CONTINUOUS MODE |           | BATCH MODE |           |
|---------|------|-----------------|-----------|------------|-----------|
| NUCLIDE | UNIT | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |

DISSOLVED AND ENTRAINED GASES

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| AR-41   | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.42E-05 |
| XE-133  | CURIES | 0.00E+00 | 0.00E+00 | 6.98E-05 | 2.77E-04 |
| TOTALS  | CURIES | 0.00E+00 | 0.00E+00 | 6.98E-05 | 2.91E-04 |
| G-ALPHA | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 1-4 for typically achieved minimum detectable concentrations.

TABLE 1-3A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO LIQUID RELEASES  
Unit: 1  
Starting: 01-Jan-2003                      Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Units | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|---------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 5.0           | mrem  | 2.82E-02     | 5.63E-01              | 2.20E-02     | 4.40E-01              |
| Liver   | 5.0           | mrem  | 1.42E-02     | 2.85E-01              | 1.09E-02     | 2.18E-01              |
| TBody   | 1.5           | mrem  | 6.79E-03     | 4.53E-01              | 4.84E-03     | 3.23E-01              |
| Thyroid | 5.0           | mrem  | 1.63E-03     | 3.26E-02              | 9.33E-04     | 1.87E-02              |
| Kidney  | 5.0           | mrem  | 1.74E-03     | 3.48E-02              | 7.97E-03     | 1.59E-01              |
| Lung    | 5.0           | mrem  | 8.53E-03     | 1.71E-01              | 5.53E-03     | 1.11E-01              |
| GILLI   | 5.0           | mrem  | 9.55E-03     | 1.91E-01              | 1.60E-02     | 3.20E-01              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 10.0          | mrem  | 5.02E-02                  | 5.02E-01              |
| Liver   | 10.0          | mrem  | 2.51E-02                  | 2.51E-01              |
| TBody   | 3.0           | mrem  | 1.16E-02                  | 3.88E-01              |
| Thyroid | 10.0          | mrem  | 2.56E-03                  | 2.56E-02              |
| Kidney  | 10.0          | mrem  | 9.71E-03                  | 9.71E-02              |
| Lung    | 10.0          | mrem  | 1.41E-02                  | 1.41E-01              |
| GILLI   | 10.0          | mrem  | 2.56E-02                  | 2.56E-01              |

TABLE 1-3A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 DOSES TO A MEMBER OF THE PUBLIC DUE TO LIQUID RELEASES  
 Unit: 1  
 Starting: 01-Jul-2003                      Ending: 31-Dec-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Units | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
|---------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 5.0           | mrem  | 2.97E-02     | 5.95E-01              | 3.04E-02     | 6.07E-01              |
| Liver   | 5.0           | mrem  | 1.50E-02     | 3.00E-01              | 1.45E-02     | 2.89E-01              |
| TBody   | 1.5           | mrem  | 7.01E-03     | 4.67E-01              | 6.59E-03     | 4.39E-01              |
| Thyroid | 5.0           | mrem  | 9.90E-04     | 1.98E-02              | 1.42E-03     | 2.85E-02              |
| Kidney  | 5.0           | mrem  | 6.13E-03     | 1.23E-01              | 5.34E-03     | 1.07E-01              |
| Lung    | 5.0           | mrem  | 8.04E-03     | 1.61E-01              | 1.28E-02     | 2.55E-01              |
| GILLI   | 5.0           | mrem  | 1.55E-02     | 3.11E-01              | 1.38E-02     | 2.76E-01              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 10.0          | mrem  | 1.10E-01                  | 1.10E+00              |
| Liver   | 10.0          | mrem  | 5.46E-02                  | 5.46E-01              |
| TBody   | 3.0           | mrem  | 2.52E-02                  | 8.41E-01              |
| Thyroid | 10.0          | mrem  | 4.98E-03                  | 4.98E-02              |
| Kidney  | 10.0          | mrem  | 2.12E-02                  | 2.12E-01              |
| Lung    | 10.0          | mrem  | 3.49E-02                  | 3.49E-01              |
| GILLI   | 10.0          | mrem  | 5.49E-02                  | 5.49E-01              |

TABLE 1-3B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO LIQUID RELEASES  
Unit: 2  
Starting: 01-Jan-2003                      Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Units | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|---------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 5.0           | mrem  | 3.48E-03     | 6.95E-02              | 4.70E-03     | 9.40E-02              |
| Liver   | 5.0           | mrem  | 1.22E-03     | 2.44E-02              | 3.29E-03     | 6.57E-02              |
| TBody   | 1.5           | mrem  | 1.87E-03     | 1.25E-01              | 2.05E-03     | 1.37E-01              |
| Thyroid | 5.0           | mrem  | 9.87E-04     | 1.97E-02              | 2.16E-03     | 4.31E-02              |
| Kidney  | 5.0           | mrem  | 1.30E-03     | 2.60E-02              | 1.57E-02     | 3.14E-01              |
| Lung    | 5.0           | mrem  | 1.03E-03     | 2.06E-02              | 2.18E-03     | 4.36E-02              |
| GILLI   | 5.0           | mrem  | 1.78E-03     | 3.56E-02              | 1.71E-02     | 3.41E-01              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 10.0          | mrem  | 8.18E-03                  | 8.18E-02              |
| Liver   | 10.0          | mrem  | 4.51E-03                  | 4.51E-02              |
| TBody   | 3.0           | mrem  | 3.92E-03                  | 1.31E-01              |
| Thyroid | 10.0          | mrem  | 3.14E-03                  | 3.14E-02              |
| Kidney  | 10.0          | mrem  | 1.70E-02                  | 1.70E-01              |
| Lung    | 10.0          | mrem  | 3.21E-03                  | 3.21E-02              |
| GILLI   | 10.0          | mrem  | 1.88E-02                  | 1.88E-01              |

TABLE 1-3B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO LIQUID RELEASES  
Unit: 2  
Starting: 01-Jul-2003                      Ending: 31-Dec-2003

| Cumulative Doses per Quarter |               |       |              |                       |              |                       |
|------------------------------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Organ                        | ODCM<br>Limit | Units | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
| Bone                         | 5.0           | mrem  | 4.16E-03     | 8.31E-02              | 9.25E-03     | 1.85E-01              |
| Liver                        | 5.0           | mrem  | 4.00E-03     | 8.01E-02              | 4.34E-03     | 8.69E-02              |
| TBody                        | 1.5           | mrem  | 2.92E-03     | 1.95E-01              | 4.62E-03     | 3.08E-01              |
| Thyroid                      | 5.0           | mrem  | 3.25E-03     | 6.50E-02              | 3.78E-03     | 7.57E-02              |
| Kidney                       | 5.0           | mrem  | 1.69E-02     | 3.39E-01              | 1.86E-02     | 3.72E-01              |
| Lung                         | 5.0           | mrem  | 2.35E-03     | 4.70E-02              | 7.20E-03     | 1.44E-01              |
| GILLI                        | 5.0           | mrem  | 1.77E-02     | 3.54E-01              | 1.99E-02     | 3.97E-01              |

| Cumulative Doses per Year |               |       |                           |                       |
|---------------------------|---------------|-------|---------------------------|-----------------------|
| Organ                     | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
| Bone                      | 10.0          | mrem  | 2.16E-02                  | 2.16E-01              |
| Liver                     | 10.0          | mrem  | 1.29E-02                  | 1.29E-01              |
| TBody                     | 3.0           | mrem  | 1.15E-02                  | 3.82E-01              |
| Thyroid                   | 10.0          | mrem  | 1.02E-02                  | 1.02E-01              |
| Kidney                    | 10.0          | mrem  | 5.25E-02                  | 5.25E-01              |
| Lung                      | 10.0          | mrem  | 1.28E-02                  | 1.28E-01              |
| GILLI                     | 10.0          | mrem  | 5.64E-02                  | 5.64E-01              |

TABLE 1-4  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 MINIMUM DETECTABLE CONCENTRATION - LIQUID SAMPLE ANALYSES

The values in this table represent a priori Minimum Detectable Concentrations (MDC) that are typically achieved in laboratory analyses of liquid radwaste samples.

| Nuclide | MDC(uCi/ML) |
|---------|-------------|
| MN-54   | 3.14E-08    |
| CO-58   | 4.92E-08    |
| FE-59   | 7.19E-08    |
| CO-60   | 4.77E-08    |
| ZN-65   | 8.11E-08    |
| MO-99   | 1.29E-07    |
| I-131   | 2.53E-08    |
| CS-134  | 3.51E-08    |
| CS-137  | 4.28E-08    |
| CE-141  | 5.41E-08    |
| CE-144  | 1.95E-07    |

TABLE 1-5A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Batch Release Summary  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                                                                             |   |          |         |
|---------------------------------------------------------------------------------------------|---|----------|---------|
| NUMBER OF BATCH RELEASES                                                                    | : | 180      |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES                                                        | : | 17366.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 120.00   | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES                                                      | : | 96.48    | MINUTES |
| MINIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 76.00    | MINUTES |
| AVERAGE STREAM FLOW DURING PERIODS OF<br>RELEASE OF LIQUID EFFLUENT INTO A FLOWING STREAM : |   | 1.46E+04 | CFS *   |

-----

\* Average River Flow Rate, taken at Walter F. George Lock and Dam, located 30.7 miles above Farley Nuclear Plant.

TABLE 1-5A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Batch Release Summary  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                                                                             |   |          |         |
|---------------------------------------------------------------------------------------------|---|----------|---------|
| NUMBER OF BATCH RELEASES                                                                    | : | 89       |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES                                                        | : | 9087.00  | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 474.00   | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES                                                      | : | 102.10   | MINUTES |
| MINIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 62.00    | MINUTES |
| AVERAGE STREAM FLOW DURING PERIODS OF<br>RELEASE OF LIQUID EFFLUENT INTO A FLOWING STREAM : |   | 8.52E+03 | CFS *   |

-----

\* Average River Flow Rate, taken at Walter F. George Lock and Dam, located 30.7 miles above Farley Nuclear Plant.

TABLE 1-5B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Batch Release Summary  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                                                                             |   |          |         |
|---------------------------------------------------------------------------------------------|---|----------|---------|
| NUMBER OF BATCH RELEASES                                                                    | : | 108      |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES                                                        | : | 10242.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 113.00   | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES                                                      | : | 94.83    | MINUTES |
| MINIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 68.00    | MINUTES |
| AVERAGE STREAM FLOW DURING PERIODS OF<br>RELEASE OF LIQUID EFFLUENT INTO A FLOWING STREAM : |   | 1.46E+04 | CFS *   |

-----

\* Average River Flow Rate, taken at Walter F. George Lock and Dam, located 30.7 miles above Farley Nuclear Plant.

TABLE 1-5B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Batch Release Summary  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                                                                             |   |          |         |
|---------------------------------------------------------------------------------------------|---|----------|---------|
| NUMBER OF BATCH RELEASES                                                                    | : | 111      |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES                                                        | : | 10628.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 110.00   | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES                                                      | : | 95.75    | MINUTES |
| MINIMUM TIME PERIOD FOR A BATCH RELEASE                                                     | : | 75.00    | MINUTES |
| AVERAGE STREAM FLOW DURING PERIODS OF<br>RELEASE OF LIQUID EFFLUENT INTO A FLOWING STREAM : |   | 8.52E+03 | CFS *   |

-----

\* Average River Flow Rate, taken at Walter F. George Lock and Dam, located 30.7 miles above Farley Nuclear Plant.

TABLE 1-6A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Abnormal Release Summary  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                   |   |          |         |
|-----------------------------------|---|----------|---------|
| NUMBER OF RELEASES                | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES       | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES : |   | 0.00E+00 | CURIES  |

-----

TABLE 1-6A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Abnormal Release Summary  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                   |   |          |         |
|-----------------------------------|---|----------|---------|
| NUMBER OF RELEASES                | : | 1        |         |
| TOTAL TIME FOR ALL RELEASES       | : | 60.00    | MINUTES |
| MAXIMUM TIME FOR A RELEASE        | : | 60.00    | MINUTES |
| AVERAGE TIME FOR A RELEASE        | : | 60.00    | MINUTES |
| MINIMUM TIME FOR A RELEASE        | : | 60.00    | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES : |   | 5.45E-07 | CURIES  |

-----

TABLE 1-6B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Abnormal Release Summary  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                   |   |          |         |
|-----------------------------------|---|----------|---------|
| NUMBER OF RELEASES                | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES       | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES : |   | 0.00E+00 | CURIES  |

-----

TABLE 1-6B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Liquid Effluents - Abnormal Release Summary  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 LIQUID RELEASES  
 -----

|                                   |   |          |         |
|-----------------------------------|---|----------|---------|
| NUMBER OF RELEASES                | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES       | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES : |   | 0.00E+00 | CURIES  |

-----

## 2.0 GASEOUS EFFLUENTS

This section contains applicable ODCM limits for gaseous effluents as well as the quantities of radioactive gaseous effluents released during 2003. These quantities are summarized on a quarterly basis and include any unplanned releases. Tabulations are provided of the offsite air doses calculated in accordance with ODCM 3.4.2 to show conformance with the limits of ODCM 3.1.3, and the offsite organ doses to a member of the public calculated in accordance with ODCM 3.4.3 to show conformance with ODCM 3.1.4.

### 2.1 Regulatory Requirements

The requirements presented in this section are for Unit 1 and Unit 2.

#### 2.1.1 Dose Rate Limits

The dose rates 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:

- a. For noble gases: Less than or equal to 500 mrem/yr. to the whole body and less than or equal to 3000 mrem/yr. to the skin, and
- b. For Iodine-131, Iodine-133, tritium and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrem/yr. to any organ.

#### 2.1.2 Air Doses Due to Noble Gases in Gaseous Releases

Technical Specifications 5.5.4.e and 5.5.4.h state that the air dose due to noble gases released in gaseous effluents, from each reactor unit, to areas at and beyond the SITE BOUNDARY (see ODCM Figure 10-1) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and
- b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

### 2.1.3 Doses to a Member of the Public

Technical Specifications 5.5.4.e and 5.5.4.i state that the dose to a MEMBER OF THE PUBLIC from I-131, I-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each reactor unit, to areas at and beyond the SITE BOUNDARY (see ODCM Figure 10-1) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 7.5 mrem to any organ, and
- b. During any calendar year: Less than or equal to 15 mrem to any organ.

### 2.2 Measurements and Approximation of Total Radioactivity

The following noble gases are considered in evaluating gaseous effluents:

|         |        |
|---------|--------|
| KR-87   | XE-133 |
| KR-88   | XE-135 |
| XE-133M | XE-138 |

The following radioiodines and radioactive materials in particulate form are specifically considered in evaluating gaseous effluents:

|       |        |
|-------|--------|
| MN-54 | MO-99  |
| FE-59 | I-131  |
| CO-58 | CS-134 |
| CO-60 | CS-137 |
| ZN-65 | CE-141 |
| SR-89 | CE-144 |
| SR-90 | H-3    |

#### 2.2.1 Sample collection and Analysis

Periodic grab samples from plant effluent streams are analyzed by a computerized pulse height analyzer system utilizing high resolution germanium detectors. Samples are obtained and analyzed in accordance with ODCM Table 3-3. Isotopic values thus obtained are used for release rate calculations as specified in ODCM 3.4.2 and ODCM 3.4.3. Only those nuclides which are detected are used in calculations. For radioiodines and particulates, in addition to the nuclides listed above other nuclides with half-lives greater than 8 days which are identified are also considered.

Continuous Releases: Continuous sampling is performed on the continuous release points (i.e. the Plant Vent Stack, Containment Purge, and the Turbine Building Vent). Particulate material is collected by filtration. Periodically these filters are removed and analyzed on the pulse height analyzer to identify and quantify radioactive materials collected on the filters. Particulate filters

are then analyzed for gross alpha and strontium as required. Gross alpha determinations are made using a 2 pi gas flow proportional counter. All Sr-89 and SR-90 samples are sent offsite to the Georgia Power Environmental Laboratory for analysis.

Batch Releases: The processing of batch type releases (from Containment or Waste Gas Decay Tanks) is analogous to continuous releases, except that the release is not commenced until samples have been obtained and analyzed.

Typically achieved minimum detectable concentrations for gaseous effluent sample analyses are reported in Table 2-6.

#### 2.2.2 Total Quantities of Radioactivity, Dose Rates, and Cumulative Doses

The methods for determining release quantities of radioactivity, dose rates, and cumulative doses follow:

##### 2.2.2.1 Fission and Activation Gases

The released radioactivity is determined using sample analyses results collected as described in section 2.2.1 and the average release flow rates over the period represented by the collected sample.

Dose rates due to noble gases, radioiodines, tritium, and particulates are calculated (with computer assistance). The calculated dose rates are compared to the dose rate limits specified in ODCM 3.1.2 for noble gases, radioiodine, tritium, and particulates. Dose rate calculation methodology is presented in the ODCM.

Beta and gamma air doses due to noble gases are calculated for the location in the unrestricted area with the potential for the highest exposure due to gaseous releases. Air doses are calculated for each release period and cumulative totals are kept for each unit for the calendar quarter and year. Cumulative air doses are compared to the dose limits specified in ODCM 3.1.3. The current percent of the ODCM limits are shown on the printout for each release period. Air dose calculation methodology is presented in the ODCM.

##### 2.2.2.2 Radioiodine, Tritium, and Particulate Releases

Released quantities of radioiodines are determined using the weekly samples and release flow rates for the six routine release points. Radioiodine concentrations are determined by gamma spectroscopy.

Release quantities of particulates are determined using the weekly (filter) samples and release flow rates for the six routine release points. Gamma spectroscopy is used to quantify concentrations of principal gamma emitters.

After each quarter, the particulate filters from each applicable vent (plant vent stack and containment purge) are combined, fused, and a strontium separation is performed. Since sample flows and vent flows are almost constant over each quarterly period the filters from each vent can be dissolved together. Decay corrections are performed back to the middle of the quarterly collection period. If Sr-89 or Sr-90 is not detected, MDC's are calculated. Strontium concentrations are input into the composite file of the computer and used for release dose rate and individual dose calculations.

Tritium samples are obtained monthly from each vent (with the exception of containment purge, which is sampled weekly) by passing the sample stream through a cold trap or by using the bubble method. The grams of water vapor/cubic meter is measured upstream of the cold trap in order to alleviate the difficulties in determining water vapor collection efficiencies. The tritium samples are analyzed onsite and the results furnished in uCi/ml of water. The tritium concentration in water is converted to the tritium concentration in air and this value is input into the composite file of the computer and used in release, dose rate, and individual dose calculations.

Dose rates due to radioiodine, tritium and particulates are calculated for a hypothetical child exposed to the inhalation pathway at the location in the unrestricted area where the potential dose rate is expected to be the highest. Dose rates are calculated, for each release point for each release period, and the dose rates from each release point is compared to the dose rate limits specified in ODCM 3.1.2, allocated for each release point as described in ODCM 3.3.2.

Doses to a Member of the Public (individual doses) due to radioiodine, tritium and particulates are calculated for the controlling receptor, which is described in the ODCM. Individual doses are calculated for each release period, and cumulative totals are kept for each unit, for the current calendar quarter and year. Cumulative individual doses are compared to the dose limits specified in ODCM 3.1.4. The current percent of ODCM limits are shown on the printout for each release period.

#### 2.2.2.3 Gross Alpha Release

The gross alpha release is computed each month by counting the particulate filters, for each week for gross alpha activity in a proportional counter. The highest concentration calculated for any of these weeks is used for the monthly value. This value is input into the composite file of the computer and used for release calculations.

### 2.2.3 Total Error Estimation

The maximum errors associated with monitor readings, sample flow, vent flow, sample collection, monitor calibration and laboratory procedure are collectively estimated to be:

|                                 |        |              |         |
|---------------------------------|--------|--------------|---------|
| Fission and<br>Activation Gases | Iodine | Particulates | Tritium |
| 75%                             | 60%    | 50%          | 45%     |

The average error associated with counting is estimated to be:

|                                 |        |              |         |
|---------------------------------|--------|--------------|---------|
| Fission and<br>Activation Gases | Iodine | Particulates | Tritium |
| 19%                             | 28%    | 20%          | 8%      |

### 2.3 Gaseous Effluent Release Data

Regulatory Guide 1.21 Tables 1A, 1B and 1C are found in this report as Tables 2-1A, 2-1B, 2-1C, 2-2A, 2-2B, 2-2C, 2-3A, 2-3B, and 2-3C. Data are presented on a quarterly basis as required by Regulatory Guide 1.21.

To complete Tables 2-1A and 2-1B, the total release for each of the four categories (fission and activation gases, radioiodines, particulates and tritium) was divided by the number of seconds in the quarter to obtain a release rate in uCi/second for each category. However, the percent of the ODCM limits are not applicable because FNP has no curie limit for gaseous releases. Applicable limits are expressed in terms of dose. Noble gases are limited as specified in ODCM 3.1.2. The other three categories (tritium, radioiodines, and particulates) are limited as a group as specified in ODCM 3.1.2.

Dose rates due to noble gas releases and due to radioiodines, tritium and particulate releases were calculated as part of the pre-release and post-release permits. No limits were exceeded for this reporting period.

Gross alpha radioactivity is reported in Tables 2-1A, 2-1B and 2-1C as curies released in each quarter.

Limits for cumulative beta and gamma air doses due to noble gases are presented in Tables 2-4A and 2-4B along with the percent of ODCM limits.

Limits for cumulative doses to an individual due to radioiodines, tritium and particulates are specified in ODCM 3.1.4. Cumulative individual doses are presented in Tables 2-5A and 2-5B along with percent of ODCM limits.

## 2.4 Radiological Impact Due to Gaseous Releases

The air doses due to noble gases and doses to a Member of the Public due to radioiodines, tritium and particulates in gaseous effluents for Units 1 and 2 are provided in the following tables in order to show conformance with the limits of ODCM 3.1.3 and ODCM 3.1.4:

Unit 1 2003 Air Doses Due to Noble Gases  
in Gaseous Releases: Table 2-4A

Unit 2 2003 Air Doses Due to Noble Gases  
in Gaseous Releases: Table 2-4B

Unit 1 2003 Doses to a Member of the Public  
Due to Radioiodines, Tritium, and Particulates  
in Gaseous Releases: Table 2-5A

Unit 2 2003 Doses to a Member of the Public  
Due to Radioiodines, Tritium, and Particulates  
in Gaseous Releases: Table 2-5B

## 2.5 Gaseous Effluents - Batch Releases

Batch release information for Units 1 and 2 is summarized in the following tables:

Unit 1 2003 Gaseous Effluents - Batch Release  
Summary: Table 2-7A

Unit 2 2003 Gaseous Effluents - Batch Release  
Summary: Table 2-7B

## 2.6 Gaseous Effluents - Abnormal Releases

There was one abnormal release on Unit 1 during 2003. On 04/14/2003 a release occurred due to a negative pressure unit being off while work was being performed in Unit 1 Containment. Doses and Curies due to this release are included in this report. Details of this event are documented in condition report # 2003000917.

There were no abnormal releases on Unit 2 during 2003.

Abnormal release information for Units 1 and 2 is summarized in the following tables:

Unit 1 2003 Gaseous Effluents - Abnormal Release Summary: Table 2-8A  
Unit 2 2003 Gaseous Effluents - Abnormal Release Summary: Table 2-8B

TABLE 2-1A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Summation of All Releases  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                    | UNITS   | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|-------------------------------------|---------|-----------|-----------|---------------------|
| -----                               |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS    |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 1.64E+01  | 6.89E+00  | 9.40E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 2.10E+00  | 8.76E-01  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| B. RADIOIODINES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL IODINE-131                 | CURIES  | 1.52E-06  | 2.39E-05  | 8.80E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 1.95E-07  | 3.04E-06  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| C. PARTICULATES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES>8 DAYS) | CURIES  | 0.00E+00  | 2.01E-03  | 7.00E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 2.56E-04  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY        | CURIES  | 2.89E-08  | 1.82E-06  |                     |
| -----                               |         |           |           |                     |
| D. TRITIUM                          |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 5.57E-01  | 2.53E+00  | 5.30E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 7.17E-02  | 3.22E-01  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-1A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Gaseous Effluents - Summation of All Releases  
Unit: 1  
Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                      | UNITS   | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|---------------------------------------|---------|-----------|-----------|---------------------|
| -----                                 |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS      |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL RELEASE                      | CURIES  | 7.31E+00  | 7.44E+00  | 9.40E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 9.20E-01  | 9.36E-01  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| B. RADIOIODINES                       |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL IODINE-131                   | CURIES  | 0.00E+00  | 0.00E+00  | 8.80E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 0.00E+00  | 0.00E+00  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| C. PARTICULATES                       |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES > 8 DAYS) | CURIES  | 2.88E-07  | 8.60E-08  | 7.00E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 3.62E-08  | 1.08E-08  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY          | CURIES  | 4.68E-08  | 6.33E-08  |                     |
| -----                                 |         |           |           |                     |
| D. TRITIUM                            |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL RELEASE                      | CURIES  | 1.85E+00  | 3.98E+00  | 5.30E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 2.33E-01  | 5.01E-01  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-1B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Summation of All Releases  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                    | UNITS   | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|-------------------------------------|---------|-----------|-----------|---------------------|
| -----                               |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS    |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 1.68E+01  | 1.27E+01  | 9.40E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 2.16E+00  | 1.61E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| B. RADIOIODINES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL IODINE-131                 | CURIES  | 0.00E+00  | 0.00E+00  | 8.80E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 0.00E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| C. PARTICULATES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES>8 DAYS) | CURIES  | 0.00E+00  | 8.58E-08  | 7.00E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 1.09E-08  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY        | CURIES  | 4.43E-08  | 1.17E-07  |                     |
| -----                               |         |           |           |                     |
| D. TRITIUM                          |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 2.10E+00  | 2.58E+00  | 5.30E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 2.71E-01  | 3.29E-01  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-1B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Summation of All Releases  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                    | UNITS   | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|-------------------------------------|---------|-----------|-----------|---------------------|
| -----                               |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS    |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 1.09E+01  | 9.62E+00  | 9.40E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 1.37E+00  | 1.21E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| B. RADIOIODINES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL IODINE-131                 | CURIES  | 0.00E+00  | 0.00E+00  | 8.80E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 0.00E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| C. PARTICULATES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES>8 DAYS) | CURIES  | 0.00E+00  | 2.46E-07  | 7.00E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 3.10E-08  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY        | CURIES  | 1.54E-09  | 4.71E-08  |                     |
| -----                               |         |           |           |                     |
| D. TRITIUM                          |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 3.89E+00  | 3.37E+00  | 5.30E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 4.89E-01  | 4.24E-01  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-1C  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Summation of All Releases  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

| TYPE OF EFFLUENT                      | UNITS   | QUARTER 1 | QUARTER 2 | EST. TOT<br>ERROR % |
|---------------------------------------|---------|-----------|-----------|---------------------|
| -----                                 |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS      |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL RELEASE                      | CURIES  | 3.32E+01  | 1.96E+01  | 9.40E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 4.27E+00  | 2.49E+00  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| B. RADIOIODINES                       |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL IODINE-131                   | CURIES  | 1.52E-06  | 2.39E-05  | 8.80E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 1.95E-07  | 3.04E-06  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| C. PARTICULATES                       |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES > 8 DAYS) | CURIES  | 0.00E+00  | 2.01E-03  | 7.00E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 0.00E+00  | 2.56E-04  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY          | CURIES  | 7.33E-08  | 1.93E-06  |                     |
| -----                                 |         |           |           |                     |
| D. TRITIUM                            |         |           |           |                     |
| -----                                 |         |           |           |                     |
| 1. TOTAL RELEASE                      | CURIES  | 2.66E+00  | 5.12E+00  | 5.30E+01            |
| -----                                 |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD    | uCi/Sec | 3.42E-01  | 6.51E-01  |                     |
| -----                                 |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT        | %       | *         | *         |                     |
| -----                                 |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-1C  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Summation of All Releases  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

| TYPE OF EFFLUENT                    | UNITS   | QUARTER 3 | QUARTER 4 | EST. TOT<br>ERROR % |
|-------------------------------------|---------|-----------|-----------|---------------------|
| -----                               |         |           |           |                     |
| A. FISSION & ACTIVATION PRODUCTS    |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 1.82E+01  | 1.71E+01  | 9.40E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 2.29E+00  | 2.15E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| B. RADIOIODINES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL IODINE-131                 | CURIES  | 0.00E+00  | 0.00E+00  | 8.80E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 0.00E+00  | 0.00E+00  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| C. PARTICULATES                     |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. PARTICULATES (HALF-LIVES>8 DAYS) | CURIES  | 2.88E-07  | 3.32E-07  | 7.00E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 3.62E-08  | 4.18E-08  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |
| 4. GROSS ALPHA RADIOACTIVITY        | CURIES  | 4.83E-08  | 1.10E-07  |                     |
| -----                               |         |           |           |                     |
| D. TRITIUM                          |         |           |           |                     |
| -----                               |         |           |           |                     |
| 1. TOTAL RELEASE                    | CURIES  | 5.74E+00  | 7.35E+00  | 5.30E+01            |
| -----                               |         |           |           |                     |
| 2. AVERAGE RELEASE RATE FOR PERIOD  | uCi/Sec | 7.22E-01  | 9.25E-01  |                     |
| -----                               |         |           |           |                     |
| 3. PERCENT OF APPLICABLE LIMIT      | %       | *         | *         |                     |
| -----                               |         |           |           |                     |

\*      Applicable limits are expressed in terms of dose. See Tables 2-4A, 2-4B, 2-5A, and 2-5B of this report.

TABLE 2-2A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| FISSION GASES     |        |                 |           |            |           |
| AR-41             | CURIES | 1.62E+01        | 6.78E+00  | 0.00E+00   | 0.00E+00  |
| XE-135            | CURIES | 0.00E+00        | 0.00E+00  | 1.06E-02   | 0.00E+00  |
| XE-133M           | CURIES | 0.00E+00        | 0.00E+00  | 3.00E-03   | 5.91E-04  |
| XE-133            | CURIES | 0.00E+00        | 0.00E+00  | 1.48E-01   | 1.09E-01  |
| TOTAL FOR PERIOD  | CURIES | 1.62E+01        | 6.78E+00  | 1.61E-01   | 1.10E-01  |
| IODINES           |        |                 |           |            |           |
| I-133             | CURIES | 4.86E-05        | 1.17E-05  | 0.00E+00   | 0.00E+00  |
| I-131             | CURIES | 1.52E-06        | 2.39E-05  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 5.01E-05        | 3.57E-05  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| CR-51             | CURIES | 0.00E+00        | 4.90E-05  | 0.00E+00   | 0.00E+00  |
| NB-95             | CURIES | 0.00E+00        | 1.75E-05  | 0.00E+00   | 0.00E+00  |
| RU-103            | CURIES | 0.00E+00        | 2.84E-06  | 0.00E+00   | 0.00E+00  |
| SR-89             | CURIES | 0.00E+00        | 2.70E-07  | 0.00E+00   | 0.00E+00  |
| CO-58             | CURIES | 0.00E+00        | 4.22E-04  | 0.00E+00   | 7.12E-09  |
| SN-113            | CURIES | 0.00E+00        | 1.22E-05  | 0.00E+00   | 2.02E-07  |
| ZN-65             | CURIES | 0.00E+00        | 7.74E-04  | 0.00E+00   | 0.00E+00  |
| CO-57             | CURIES | 0.00E+00        | 3.15E-06  | 0.00E+00   | 0.00E+00  |
| MN-54             | CURIES | 0.00E+00        | 2.04E-05  | 0.00E+00   | 0.00E+00  |
| CO-60             | CURIES | 0.00E+00        | 7.07E-04  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 2.01E-03  | 0.00E+00   | 2.09E-07  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| H-3               | CURIES | 5.57E-01        | 2.53E+00  | 0.00E+00   | 0.00E+00  |
| G-ALPHA           | CURIES | 2.89E-08        | 1.82E-06  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2A\*  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
Gaseous Effluents-Mixed-Mode Level Releases  
Unit: 1  
Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |      | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |

FISSION GASES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| AR-41            | CURIES | 7.31E+00 | 7.44E+00 | 0.00E+00 | 0.00E+00 |
| XE-133           | CURIES | 0.00E+00 | 0.00E+00 | 4.16E-03 | 0.00E+00 |
| TOTAL FOR PERIOD | CURIES | 7.31E+00 | 7.44E+00 | 4.16E-03 | 0.00E+00 |

IODINES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

PARTICULATES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| SR-89            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CO-58            | CURIES | 5.50E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| CO-60            | CURIES | 2.33E-07 | 8.60E-08 | 0.00E+00 | 0.00E+00 |
| TOTAL FOR PERIOD | CURIES | 2.88E-07 | 8.60E-08 | 0.00E+00 | 0.00E+00 |

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| H-3     | CURIES | 1.85E+00 | 3.98E+00 | 0.00E+00 | 0.00E+00 |
| G-ALPHA | CURIES | 4.68E-08 | 6.33E-08 | 0.00E+00 | 0.00E+00 |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| FISSION GASES     |        |                 |           |            |           |
| AR-41             | CURIES | 1.49E+01        | 1.27E+01  | 0.00E+00   | 0.00E+00  |
| XE-131M           | CURIES | 1.91E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 1.68E+01        | 1.27E+01  | 0.00E+00   | 0.00E+00  |
| IODINES           |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| SR-89             | CURIES | 0.00E+00        | 4.17E-09  | 0.00E+00   | 0.00E+00  |
| CO-60             | CURIES | 0.00E+00        | 8.16E-08  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 8.58E-08  | 0.00E+00   | 0.00E+00  |
| H-3               | CURIES | 2.10E+00        | 2.58E+00  | 0.00E+00   | 0.00E+00  |
| G-ALPHA           | CURIES | 4.43E-08        | 1.17E-07  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |      | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |

FISSION GASES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| AR-41            | CURIES | 1.09E+01 | 9.62E+00 | 0.00E+00 | 2.99E-03 |
| XE-135           | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.22E-04 |
| XE-133           | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.73E-05 |
| TOTAL FOR PERIOD | CURIES | 1.09E+01 | 9.62E+00 | 0.00E+00 | 3.16E-03 |

IODINES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

PARTICULATES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| SR-89            | CURIES | 0.00E+00 | 2.46E-07 | 0.00E+00 | 0.00E+00 |
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 2.46E-07 | 0.00E+00 | 0.00E+00 |

|         |        |          |          |          |          |
|---------|--------|----------|----------|----------|----------|
| H-3     | CURIES | 3.89E+00 | 3.37E+00 | 0.00E+00 | 0.00E+00 |
| G-ALPHA | CURIES | 1.54E-09 | 4.71E-08 | 0.00E+00 | 0.00E+00 |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| FISSION GASES     |        |                 |           |            |           |
| AR-41             | CURIES | 3.11E+01        | 1.94E+01  | 0.00E+00   | 0.00E+00  |
| XE-135            | CURIES | 0.00E+00        | 0.00E+00  | 1.06E-02   | 0.00E+00  |
| XE-133M           | CURIES | 0.00E+00        | 0.00E+00  | 3.00E-03   | 5.91E-04  |
| XE-133            | CURIES | 0.00E+00        | 0.00E+00  | 1.48E-01   | 1.09E-01  |
| XE-131M           | CURIES | 1.91E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 3.30E+01        | 1.94E+01  | 1.61E-01   | 1.10E-01  |
| IODINES           |        |                 |           |            |           |
| I-133             | CURIES | 4.86E-05        | 1.17E-05  | 0.00E+00   | 0.00E+00  |
| I-131             | CURIES | 1.52E-06        | 2.39E-05  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 5.01E-05        | 3.57E-05  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| CR-51             | CURIES | 0.00E+00        | 4.90E-05  | 0.00E+00   | 0.00E+00  |
| NB-95             | CURIES | 0.00E+00        | 1.75E-05  | 0.00E+00   | 0.00E+00  |
| RU-103            | CURIES | 0.00E+00        | 2.84E-06  | 0.00E+00   | 0.00E+00  |
| SR-89             | CURIES | 0.00E+00        | 2.74E-07  | 0.00E+00   | 0.00E+00  |
| CO-58             | CURIES | 0.00E+00        | 4.22E-04  | 0.00E+00   | 7.12E-09  |
| SN-113            | CURIES | 0.00E+00        | 1.22E-05  | 0.00E+00   | 2.02E-07  |
| ZN-65             | CURIES | 0.00E+00        | 7.74E-04  | 0.00E+00   | 0.00E+00  |
| CO-57             | CURIES | 0.00E+00        | 3.15E-06  | 0.00E+00   | 0.00E+00  |
| MN-54             | CURIES | 0.00E+00        | 2.04E-05  | 0.00E+00   | 0.00E+00  |
| CO-60             | CURIES | 0.00E+00        | 7.07E-04  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 2.01E-03  | 0.00E+00   | 2.09E-07  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| H-3               | CURIES | 2.66E+00        | 5.12E+00  | 0.00E+00   | 0.00E+00  |
| G-ALPHA           | CURIES | 7.33E-08        | 1.93E-06  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-2C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Mixed-Mode Level Releases  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| FISSION GASES     |        |                 |           |            |           |
| AR-41             | CURIES | 1.82E+01        | 1.71E+01  | 0.00E+00   | 2.99E-03  |
| XE-135            | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 1.22E-04  |
| XE-133            | CURIES | 0.00E+00        | 0.00E+00  | 4.16E-03   | 4.73E-05  |
| TOTAL FOR PERIOD  | CURIES | 1.82E+01        | 1.71E+01  | 4.16E-03   | 3.16E-03  |
| IODINES           |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| SR-89             | CURIES | 0.00E+00        | 2.46E-07  | 0.00E+00   | 0.00E+00  |
| CO-58             | CURIES | 5.50E-08        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| CO-60             | CURIES | 2.33E-07        | 8.60E-08  | 0.00E+00   | 0.00E+00  |
| TOTAL FOR PERIOD  | CURIES | 2.88E-07        | 3.32E-07  | 0.00E+00   | 0.00E+00  |
| H-3               | CURIES | 5.74E+00        | 7.35E+00  | 0.00E+00   | 0.00E+00  |
| G-ALPHA           | CURIES | 4.83E-08        | 1.10E-07  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |      | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |

FISSION GASES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

IODINES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

PARTICULATES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| NB-95            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.38E-09 |
| CO-58            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.33E-07 |
| ZN-65            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.48E-07 |
| MN-54            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.87E-09 |
| CO-60            | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.46E-07 |
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.34E-07 |

|     |        |          |          |          |          |
|-----|--------|----------|----------|----------|----------|
| H-3 | CURIES | 4.49E-04 | 3.94E-04 | 0.00E+00 | 0.00E+00 |
|-----|--------|----------|----------|----------|----------|

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3A\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |      | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |

FISSION GASES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

IODINES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

PARTICULATES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

|     |        |          |          |          |          |
|-----|--------|----------|----------|----------|----------|
| H-3 | CURIES | 1.08E-03 | 7.50E-04 | 0.00E+00 | 0.00E+00 |
|-----|--------|----------|----------|----------|----------|

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |
| FISSION GASES     |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| IODINES           |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| H-3               | CURIES | 0.00E+00        | 1.14E-05  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3B\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| FISSION GASES     |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| IODINES           |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| TOTAL FOR PERIOD  | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| H-3               | CURIES | 3.32E-04        | 5.19E-04  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: Site  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

|                   |      | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT | QUARTER 1       | QUARTER 2 | QUARTER 1  | QUARTER 2 |

FISSION GASES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

IODINES

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
|------------------|--------|----------|----------|----------|----------|

PARTICULATES

|       |        |          |          |          |          |
|-------|--------|----------|----------|----------|----------|
| NB-95 | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.38E-09 |
| CO-58 | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.33E-07 |
| ZN-65 | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.48E-07 |
| MN-54 | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.87E-09 |
| CO-60 | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.46E-07 |

|                  |        |          |          |          |          |
|------------------|--------|----------|----------|----------|----------|
| TOTAL FOR PERIOD | CURIES | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.34E-07 |
|------------------|--------|----------|----------|----------|----------|

|     |        |          |          |          |          |
|-----|--------|----------|----------|----------|----------|
| H-3 | CURIES | 4.49E-04 | 4.05E-04 | 0.00E+00 | 0.00E+00 |
|-----|--------|----------|----------|----------|----------|

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-3C\*  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents-Ground Level Releases  
 Unit: Site  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

|                   |        | CONTINUOUS MODE |           | BATCH MODE |           |
|-------------------|--------|-----------------|-----------|------------|-----------|
| NUCLIDES RELEASED | UNIT   | QUARTER 3       | QUARTER 4 | QUARTER 3  | QUARTER 4 |
| FISSION GASES     |        |                 |           |            |           |
| TOTAL FOR PERIOD  |        |                 |           |            |           |
|                   | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| IODINES           |        |                 |           |            |           |
| TOTAL FOR PERIOD  |        |                 |           |            |           |
|                   | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| PARTICULATES      |        |                 |           |            |           |
| TOTAL FOR PERIOD  |        |                 |           |            |           |
|                   | CURIES | 0.00E+00        | 0.00E+00  | 0.00E+00   | 0.00E+00  |
| H-3               |        |                 |           |            |           |
|                   | CURIES | 1.41E-03        | 1.27E-03  | 0.00E+00   | 0.00E+00  |

\* Zeroes in this table indicate that no radioactivity was present at detectable levels. See Table 2-6 for typically achieved minimum detectable concentrations.

TABLE 2-4A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
AIR DOSES DUE TO NOBLE GASES IN GASEOUS RELEASES  
Unit: 1

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Gamma                        | 5.0           | mrad  | 5.16E-03     | 1.03E-01              | 2.16E-03     | 4.32E-02              |
| Beta                         | 10.0          | mrad  | 1.83E-03     | 1.83E-02              | 7.65E-04     | 7.65E-03              |

Cumulative Doses per Year

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|---------------------------|-----------------------|
| Gamma                        | 10.0          | mrad  | 7.32E-03                  | 7.32E-02              |
| Beta                         | 20.0          | mrad  | 2.59E-03                  | 1.30E-02              |

TABLE 2-4A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
AIR DOSES DUE TO NOBLE GASES IN GASEOUS RELEASES

Unit: 1

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Cumulative Doses per Quarter

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Gamma                        | 5.0           | mrads | 2.33E-03     | 4.65E-02              | 2.37E-03     | 4.74E-02              |
| Beta                         | 10.0          | mrads | 8.21E-04     | 8.21E-03              | 8.36E-04     | 8.36E-03              |

Cumulative Doses per Year

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|---------------------------|-----------------------|
| Gamma                        | 10.0          | mrads | 1.20E-02                  | 1.20E-01              |
| Beta                         | 20.0          | mrads | 4.25E-03                  | 2.12E-02              |

TABLE 2-4B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
AIR DOSES DUE TO NOBLE GASES IN GASEOUS RELEASES  
Unit: 2

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Gamma                        | 5.0           | mrads | 4.76E-03     | 9.52E-02              | 4.03E-03     | 8.06E-02              |
| Beta                         | 10.0          | mrads | 1.75E-03     | 1.75E-02              | 1.42E-03     | 1.42E-02              |

Cumulative Doses per Year

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|---------------------------|-----------------------|
| Gamma                        | 10.0          | mrads | 8.79E-03                  | 8.79E-02              |
| Beta                         | 20.0          | mrads | 3.17E-03                  | 1.59E-02              |

TABLE 2-4B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
AIR DOSES DUE TO NOBLE GASES IN GASEOUS RELEASES

Unit: 2

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Cumulative Doses per Quarter

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|--------------|-----------------------|--------------|-----------------------|
| Gamma                        | 5.0           | mrads | 3.46E-03     | 6.91E-02              | 3.06E-03     | 6.13E-02              |
| Beta                         | 10.0          | mrads | 1.22E-03     | 1.22E-02              | 1.08E-03     | 1.08E-02              |

Cumulative Doses per Year

| Type<br>of<br>Radi-<br>ation | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|------------------------------|---------------|-------|---------------------------|-----------------------|
| Gamma                        | 10.0          | mrads | 1.53E-02                  | 1.53E-01              |
| Beta                         | 20.0          | mrads | 5.47E-03                  | 2.74E-02              |

TABLE 2-5A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO RADIOIODINES, TRITIUM,  
AND PARTICULATES IN GASEOUS RELEASES

Unit: 1

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Unit | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|---------|---------------|------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 7.5           | mrem | 2.08E-07     | 2.78E-06              | 5.63E-03     | 7.51E-02              |
| Liver   | 7.5           | mrem | 7.69E-05     | 1.03E-03              | 6.61E-03     | 8.81E-02              |
| TBody   | 7.5           | mrem | 7.68E-05     | 1.02E-03              | 6.52E-03     | 8.70E-02              |
| Thyroid | 7.5           | mrem | 1.22E-04     | 1.63E-03              | 6.10E-03     | 8.14E-02              |
| Kidney  | 7.5           | mrem | 7.71E-05     | 1.03E-03              | 6.19E-03     | 8.25E-02              |
| Lung    | 7.5           | mrem | 7.68E-05     | 1.02E-03              | 5.83E-03     | 7.77E-02              |
| GILLI   | 7.5           | mrem | 7.68E-05     | 1.02E-03              | 6.49E-03     | 8.65E-02              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 15.0          | mrem  | 5.63E-03                  | 3.76E-02              |
| Liver   | 15.0          | mrem  | 6.68E-03                  | 4.46E-02              |
| TBody   | 15.0          | mrem  | 6.60E-03                  | 4.40E-02              |
| Thyroid | 15.0          | mrem  | 6.23E-03                  | 4.15E-02              |
| Kidney  | 15.0          | mrem  | 6.26E-03                  | 4.18E-02              |
| Lung    | 15.0          | mrem  | 5.90E-03                  | 3.94E-02              |
| GILLI   | 15.0          | mrem  | 6.56E-03                  | 4.38E-02              |

TABLE 2-5A  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO RADIOIODINES, TRITIUM,  
AND PARTICULATES IN GASEOUS RELEASES

Unit: 1

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Unit | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
|---------|---------------|------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 7.5           | mrem | 1.67E-06     | 2.23E-05              | 6.15E-07     | 8.20E-06              |
| Liver   | 7.5           | mrem | 2.56E-04     | 3.41E-03              | 5.45E-04     | 7.27E-03              |
| TBody   | 7.5           | mrem | 2.56E-04     | 3.41E-03              | 5.45E-04     | 7.27E-03              |
| Thyroid | 7.5           | mrem | 2.56E-04     | 3.41E-03              | 5.45E-04     | 7.27E-03              |
| Kidney  | 7.5           | mrem | 2.56E-04     | 3.41E-03              | 5.45E-04     | 7.27E-03              |
| Lung    | 7.5           | mrem | 2.56E-04     | 3.41E-03              | 5.45E-04     | 7.27E-03              |
| GILLI   | 7.5           | mrem | 2.56E-04     | 3.42E-03              | 5.45E-04     | 7.27E-03              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 15.0          | mrem  | 5.64E-03                  | 3.76E-02              |
| Liver   | 15.0          | mrem  | 7.49E-03                  | 4.99E-02              |
| TBody   | 15.0          | mrem  | 7.40E-03                  | 4.94E-02              |
| Thyroid | 15.0          | mrem  | 7.03E-03                  | 4.68E-02              |
| Kidney  | 15.0          | mrem  | 7.06E-03                  | 4.71E-02              |
| Lung    | 15.0          | mrem  | 6.71E-03                  | 4.47E-02              |
| GILLI   | 15.0          | mrem  | 7.37E-03                  | 4.91E-02              |

TABLE 2-5B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO RADIOIODINES, TRITIUM,  
AND PARTICULATES IN GASEOUS RELEASES

Unit: 2

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Unit | Quarter<br>1 | % of<br>ODCM<br>Limit | Quarter<br>2 | % of<br>ODCM<br>Limit |
|---------|---------------|------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 7.5           | mrem | 9.19E-14     | 1.22E-12              | 8.25E-07     | 1.10E-05              |
| Liver   | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |
| TBody   | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |
| Thyroid | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |
| Kidney  | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |
| Lung    | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |
| GILLI   | 7.5           | mrem | 2.87E-04     | 3.83E-03              | 3.53E-04     | 4.71E-03              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 15.0          | mrem  | 8.25E-07                  | 5.50E-06              |
| Liver   | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |
| TBody   | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |
| Thyroid | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |
| Kidney  | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |
| Lung    | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |
| GILLI   | 15.0          | mrem  | 6.41E-04                  | 4.27E-03              |

TABLE 2-5B  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSES TO A MEMBER OF THE PUBLIC DUE TO RADIOIODINES, TRITIUM,  
AND PARTICULATES IN GASEOUS RELEASES

Unit: 2

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Cumulative Doses per Quarter

| Organ   | ODCM<br>Limit | Unit | Quarter<br>3 | % of<br>ODCM<br>Limit | Quarter<br>4 | % of<br>ODCM<br>Limit |
|---------|---------------|------|--------------|-----------------------|--------------|-----------------------|
| Bone    | 7.5           | mrem | 5.85E-09     | 7.80E-08              | 3.00E-06     | 4.01E-05              |
| Liver   | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |
| TBody   | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |
| Thyroid | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |
| Kidney  | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |
| Lung    | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |
| GILLI   | 7.5           | mrem | 5.31E-04     | 7.08E-03              | 4.61E-04     | 6.14E-03              |

Cumulative Doses per Year

| Organ   | ODCM<br>Limit | Units | Year to<br>Ending<br>Date | % of<br>ODCM<br>Limit |
|---------|---------------|-------|---------------------------|-----------------------|
| Bone    | 15.0          | mrem  | 3.84E-06                  | 2.56E-05              |
| Liver   | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |
| TBody   | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |
| Thyroid | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |
| Kidney  | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |
| Lung    | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |
| GILLI   | 15.0          | mrem  | 1.63E-03                  | 1.09E-02              |

TABLE 2-6  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
MINIMUM DETECTABLE CONCENTRATIONS - GASEOUS EFFLUENT ANALYSES

The values in this table represent a priori Minimum Detectable Concentrations (MDC) that are typically achieved in laboratory analyses of gaseous radwaste samples.

| Nuclide | MDC(uCi/ML) |
|---------|-------------|
| MN-54   | 3.21E-15    |
| CO-58   | 1.53E-14    |
| FE-59   | 7.96E-15    |
| CO-60   | 1.95E-14    |
| ZN-65   | 2.34E-14    |
| MO-99   | 1.81E-13    |
| CS-134  | 1.41E-14    |
| CS-137  | 7.83E-15    |
| CE-141  | 6.96E-15    |
| CE-144  | 3.47E-14    |
| KR-87   | 8.18E-07    |
| KR-88   | 3.94E-08    |
| XE-133  | 4.30E-08    |
| XE-133M | 4.82E-08    |
| XE-135  | 1.78E-08    |
| XE-138  | 1.99E-07    |
| I-131   | 9.67E-15    |
| I-133   | 1.80E-13    |

TABLE 2-7A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Batch Release Summary  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 GASEOUS RELEASES  
 -----

|                                         |   |         |         |
|-----------------------------------------|---|---------|---------|
| NUMBER OF BATCH RELEASES                | : | 14      |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES    | : | 5484.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE | : | 580.00  | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES  | : | 391.71  | MINUTES |
| MINIMUM TIME FOR A BATCH RELEASE        | : | 250.00  | MINUTES |

-----

TABLE 2-7A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Batch Release Summary  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 GASEOUS RELEASES  
 -----

|                                         |   |        |         |
|-----------------------------------------|---|--------|---------|
| NUMBER OF BATCH RELEASES                | : | 2      |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES    | : | 951.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE | : | 506.00 | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES  | : | 475.50 | MINUTES |
| MINIMUM TIME FOR A BATCH RELEASE        | : | 445.00 | MINUTES |

-----

TABLE 2-7B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Batch Release Summary  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----

GASEOUS RELEASES

|                                         |   |      |         |
|-----------------------------------------|---|------|---------|
| NUMBER OF BATCH RELEASES                | : | 0    |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES    | : | 0.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE | : | 0.00 | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES  | : | 0.00 | MINUTES |
| MINIMUM TIME FOR A BATCH RELEASE        | : | 0.00 | MINUTES |

-----

TABLE 2-7B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Batch Release Summary  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----

GASEOUS RELEASES

|                                         |   |         |         |
|-----------------------------------------|---|---------|---------|
| NUMBER OF BATCH RELEASES                | : | 3       |         |
| TOTAL TIME PERIOD FOR BATCH RELEASES    | : | 1342.00 | MINUTES |
| MAXIMUM TIME PERIOD FOR A BATCH RELEASE | : | 518.00  | MINUTES |
| AVERAGE TIME PERIOD FOR BATCH RELEASES  | : | 447.33  | MINUTES |
| MINIMUM TIME FOR A BATCH RELEASE        | : | 365.00  | MINUTES |

-----

TABLE 2-8A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Abnormal Release Summary  
 Unit: 1  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----

GASEOUS RELEASES

|                                 |   |          |         |
|---------------------------------|---|----------|---------|
| NUMBER OF RELEASES              | : | 1        |         |
| TOTAL TIME FOR ALL RELEASES     | : | 495.00   | MINUTES |
| MAXIMUM TIME FOR A RELEASE      | : | 495.00   | MINUTES |
| AVERAGE TIME FOR A RELEASE      | : | 495.00   | MINUTES |
| MINIMUM TIME FOR A RELEASE      | : | 495.00   | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES | : | 6.34E-07 | CURIES  |

-----

TABLE 2-8A  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Abnormal Release Summary  
 Unit: 1  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 GASEOUS RELEASES  
 -----

|                                 |   |          |         |
|---------------------------------|---|----------|---------|
| NUMBER OF RELEASES              | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES     | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES | : | 0.00E+00 | CURIES  |

-----

TABLE 2-8B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Abnormal Release Summary  
 Unit: 2  
 Starting : 1-Jan-2003      Ending : 30-Jun-2003

-----  
 -----  
 GASEOUS RELEASES  
 -----

|                                 |   |          |         |
|---------------------------------|---|----------|---------|
| NUMBER OF RELEASES              | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES     | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE      | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES | : | 0.00E+00 | CURIES  |

-----

TABLE 2-8B  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 Gaseous Effluents - Abnormal Release Summary  
 Unit: 2  
 Starting : 1-Jul-2003      Ending : 31-Dec-2003

-----  
 -----  
 GASEOUS RELEASES  
 -----

|                                   |   |          |         |
|-----------------------------------|---|----------|---------|
| NUMBER OF RELEASES                | : | 0        |         |
| TOTAL TIME FOR ALL RELEASES       | : | 0.00     | MINUTES |
| MAXIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| AVERAGE TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| MINIMUM TIME FOR A RELEASE        | : | 0.00     | MINUTES |
| TOTAL ACTIVITY FOR ALL RELEASES : |   | 0.00E+00 | CURIES  |

-----

### 3.0 SOLID WASTE

#### 3.1 Regulatory Requirements

##### 3.1.1 Solid Radioactive Waste System

PCP B.3.1 states in part that the radwaste solidification system shall be operable and used for the solidification and packaging of radioactive wastes to ensure meeting the requirements of 10CFR Part 20 and 10CFR Part 71 prior to shipment of radioactive wastes from the site.

##### 3.1.2 Reporting Requirements

PCP B.5.1.1 states in part that the Annual Radioactive Effluent Release Report, submitted in accordance with Technical Specification 5.6.3, shall include a summary of the quantities of solid radwaste released from the units as outlined in Regulatory Guide 1.21, with data summarized on a six-month basis following the format of Appendix B thereof.

#### 3.2 Solid Waste Data

Regulatory Guide 1.21 Table 3 is found in this report as Table 3-1.

The error involved in determining the contents of solid radwaste shipments is estimated to be less than + or - 15%.

TABLE 3-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
Starting: 01-Jan-2003                      Ending: 30-Jun-2003

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL  
(not irradiated fuel)

| 1. Type of Waste.                                            | UNITS    | 6-Months               |
|--------------------------------------------------------------|----------|------------------------|
|                                                              | 3        |                        |
| a. Spent resins, Filter sludges,<br>evaporator bottoms, etc. | m<br>Ci* | 4.180E-01<br>1.960E-01 |
|                                                              | 3        |                        |
| b. Dry compressible waste, contaminated<br>equipment, etc.   | m<br>Ci* | 1.089E+01<br>6.760E+00 |
|                                                              | 3        |                        |
| c. Irradiated components, control<br>rods, etc.              | m<br>Ci* | None<br>None           |
|                                                              | 3        |                        |
| d. Other (describe)                                          | m<br>Ci* | None<br>None           |

2. Estimate of major nuclide composition (by type of waste).

|           |       |
|-----------|-------|
| a. SB-125 | 45.9% |
| CO-60     | 10.2% |
| NI-63     | 9.9%  |
| FE-55     | 9.0%  |
| TC-99     | 6.1%  |
| TE-125M   | 5.7%  |
| H-3       | 4.2%  |
| ZN-65     | 4.1%  |
| CO-58     | 2.6%  |
| b. FE-55  | 48.4% |
| CO-58     | 11.3% |
| NI-63     | 10.6% |
| CO-60     | 9.6%  |
| CR-51     | 4.7%  |
| ZN-65     | 4.5%  |
| ZR-95     | 2.8%  |
| NB-95     | 2.7%  |
| H-3       | 1.5%  |
| C-14      | 1.3%  |

\* Measured and/or estimated by correlations in accordance  
with 10CFR61.55.

TABLE 3-1  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
 Starting: 01-Jan-2003                      Ending: 30-Jun-2003

(continued)

3. Solid Waste Disposition

| Number of Shipments | Mode of Transportation | Destination        |
|---------------------|------------------------|--------------------|
| 12                  | Rail                   | Envirocare of Utah |
| 14                  | Highway                | Envirocare of Utah |

4. Type of Containers (Shipped offsite for burial/processing)

| Container Description | Type of Container        | Number of Containers | Container 3 Volume (m ) |
|-----------------------|--------------------------|----------------------|-------------------------|
| a. RADLOC 500         | High Integrity Container | 3                    | 3.850E+00               |
| b. 20' Seavan         | Strong Tight Container   | 8                    | 2.945E+01               |
| 55 Gallon Drum        | Strong Tight Container   | 14                   | 2.100E-01               |

5. Solidification Agent

- a. None
- b. None

B. IRRADIATED FUEL SHIPMENTS (Disposition)

| Number of Shipments | Mode of Transportation | Destination |
|---------------------|------------------------|-------------|
| None                | N/A                    | N/A         |

TABLE 3-1  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
 Starting: 01-Jul-2003                      Ending: 31-Dec-2003

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL  
 (not irradiated fuel)

| 1. Type of Waste.                                            | UNITS    | 6-Months               |
|--------------------------------------------------------------|----------|------------------------|
|                                                              | 3        |                        |
| a. Spent resins, Filter sludges,<br>evaporator bottoms, etc. | m<br>Ci* | 4.520E+00<br>3.414E+01 |
|                                                              | 3        |                        |
| b. Dry compressible waste, contaminated<br>equipment, etc.   | m<br>Ci* | 1.687E+01<br>1.736E+00 |
|                                                              | 3        |                        |
| c. Irradiated components, control<br>rods, etc.              | m<br>Ci* | 3.400E+00<br>2.250E+00 |
|                                                              | 3        |                        |
| d. Other (describe)                                          | m<br>Ci* | None<br>None           |

2. Estimate of major nuclide composition (by type of waste).

|    |         |       |
|----|---------|-------|
| a. | FE-55   | 29.0% |
|    | NI-63   | 27.8% |
|    | CO-58   | 17.6% |
|    | CO-60   | 8.5%  |
|    | ZN-65   | 6.4%  |
|    | C-14    | 3.2%  |
|    | CS-137  | 2.0%  |
|    | AG-110M | 2.0%  |
|    | H-3     | 1.5%  |
| b. | CO-58   | 24.7% |
|    | FE-55   | 19.8% |
|    | ZN-65   | 10.4% |
|    | CO-60   | 8.2%  |
|    | ZR-95   | 7.6%  |
|    | NB-95   | 6.9%  |
|    | C-14    | 4.5%  |
|    | CR-51   | 4.5%  |
|    | AG-110M | 3.1%  |
|    | NI-63   | 2.5%  |

\* Measured and/or estimated by correlations in accordance  
 with 10CFR61.55.

TABLE 3-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
Starting: 01-Jul-2003                      Ending: 31-Dec-2003

(continued)

|          |       |
|----------|-------|
| c. CO-60 | 37.8% |
| FE-55    | 33.9% |
| ZN-65    | 11.6% |
| NI-63    | 7.5%  |
| CO-58    | 5.0%  |
| CR-51    | 1.5%  |
| MN-54    | 1.4%  |

3. Solid Waste Disposition

| Number of Shipments | Mode of Transportation | Destination                                 |
|---------------------|------------------------|---------------------------------------------|
| 3                   | Highway                | CNS/Duratek<br>Barnwell, South<br>Carolina. |
| 13                  | Rail                   | Envirocare of<br>Utah                       |
| 19                  | Highway                | Envirocare of<br>Utah                       |

4. Type of Containers (Shipped offsite for burial/processing)

| Container<br>Description | Type of<br>Container        | Number<br>of<br>Containers | Container 3<br>Volume (m ) |
|--------------------------|-----------------------------|----------------------------|----------------------------|
| a. CNS 60<br>Gallon HIC  | High Integrity<br>Container | 10                         | 2.900E-01                  |
| RADLOC 500               | High Integrity<br>Container | 2                          | 3.850E+00                  |

TABLE 3-1  
 Joseph M. Farley Nuclear Plant  
 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS  
 Starting: 01-Jul-2003                      Ending: 31-Dec-2003

(continued)

|                  |                          |    |           |
|------------------|--------------------------|----|-----------|
| b. Metal Box     | Strong Tight Container   | 21 | 2.590E+00 |
| 55 Gallon Drum   | Strong Tight Container   | 14 | 2.100E-01 |
| 20' Seavan       | Strong Tight Container   | 2  | 2.945E+01 |
| c. CNS 8-120 HIC | High Integrity Container | 21 | 3.400E+00 |

5. Solidification Agent

a. None

b. None

B. IRRADIATED FUEL SHIPMENTS (Disposition)

| Number of Shipments | Mode of Transportation | Destination |
|---------------------|------------------------|-------------|
| None                | N/A                    | N/A         |

#### 4.0 DOSES TO MEMBERS OF THE PUBLIC INSIDE THE SITE BOUNDARY

##### 4.1 Regulatory Requirements

Current FNP effluent controls as established by ODCM 6.1 do not require assessment of the radiation doses from radioactive liquid and gaseous effluents to MEMBERS OF THE PUBLIC due to their activities inside the SITE BOUNDARY (ODCM Figure 10-1).

##### 4.2 Demonstration of Compliance

However, this assessment has been performed for 2003 using the methods described in ODCM 6.2 and is included in this section as Table 4-1.

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Page: 1

|                       |                                 |                  |
|-----------------------|---------------------------------|------------------|
| Location Name         | VISITOR LOCATION 1 (VIS.CENTER) |                  |
| Distance (kilometers) | 3.06E-01                        |                  |
| Sector                | WSW                             |                  |
| Occupancy Factor      | 1.37E-03                        | (1.20E+01 hr/yr) |
| Age Group             | CHILD                           |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 1.04E-04 |
| Particulate X/Q (sec/m3) | 1.04E-04 |
| Particulate D/Q (m-2)    | 4.80E-07 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 8.80E-06 |
| Particulate X/Q (sec/m3) | 8.80E-06 |
| Particulate D/Q (m-2)    | 6.20E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

|         | Units | Quarter 1 | Quarter 2 | Quarters<br>1 and 2 | Year to<br>Ending<br>Date |
|---------|-------|-----------|-----------|---------------------|---------------------------|
| Bone    | mrem  | 1.07E-04  | 1.08E-04  | 2.15E-04            | 2.15E-04                  |
| Liver   | mrem  | 1.08E-04  | 1.10E-04  | 2.18E-04            | 2.18E-04                  |
| TBody   | mrem  | 1.08E-04  | 1.10E-04  | 2.18E-04            | 2.18E-04                  |
| Thyroid | mrem  | 1.08E-04  | 1.11E-04  | 2.19E-04            | 2.19E-04                  |
| Kidney  | mrem  | 1.08E-04  | 1.10E-04  | 2.18E-04            | 2.18E-04                  |
| Lung    | mrem  | 1.08E-04  | 1.13E-04  | 2.21E-04            | 2.21E-04                  |
| GI-LLI  | mrem  | 1.08E-04  | 1.10E-04  | 2.18E-04            | 2.18E-04                  |

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Page: 2

|                       |                              |                  |
|-----------------------|------------------------------|------------------|
| Location Name         | VISITOR LOCATION 2 (SW POND) |                  |
| Distance (kilometers) | 9.66E-01                     |                  |
| Sector                | SSW                          |                  |
| Occupancy Factor      | 7.53E-03                     | (6.60E+01 hr/yr) |
| Age Group             | CHILD                        |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 4.74E-05 |
| Particulate X/Q (sec/m3) | 4.74E-05 |
| Particulate D/Q (m-2)    | 1.31E-07 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 9.75E-07 |
| Particulate X/Q (sec/m3) | 9.75E-07 |
| Particulate D/Q (m-2)    | 2.78E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

|         | Units | Quarter 1 | Quarter 2 | Quarters<br>1 and 2 | Year to<br>Ending<br>Date |
|---------|-------|-----------|-----------|---------------------|---------------------------|
| Bone    | mrem  | 6.51E-05  | 1.46E-04  | 2.11E-04            | 2.11E-04                  |
| Liver   | mrem  | 6.58E-05  | 1.47E-04  | 2.13E-04            | 2.13E-04                  |
| TBody   | mrem  | 6.58E-05  | 1.47E-04  | 2.13E-04            | 2.13E-04                  |
| Thyroid | mrem  | 6.59E-05  | 1.47E-04  | 2.13E-04            | 2.13E-04                  |
| Kidney  | mrem  | 6.58E-05  | 1.47E-04  | 2.13E-04            | 2.13E-04                  |
| Lung    | mrem  | 6.58E-05  | 1.49E-04  | 2.14E-04            | 2.14E-04                  |
| GI-LLI  | mrem  | 6.58E-05  | 1.47E-04  | 2.13E-04            | 2.13E-04                  |

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jan-2003

Ending: 30-Jun-2003

Page: 3

|                       |                                |                  |
|-----------------------|--------------------------------|------------------|
| Location Name         | VISITOR LOCATION 3 (RW DISCH.) |                  |
| Distance (kilometers) | 1.64E+00                       |                  |
| Sector                | SE                             |                  |
| Occupancy Factor      | 1.14E-02                       | (9.99E+01 hr/yr) |
| Age Group             | CHILD                          |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 1.63E-05 |
| Particulate X/Q (sec/m3) | 1.63E-05 |
| Particulate D/Q (m-2)    | 4.55E-08 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 7.05E-07 |
| Particulate X/Q (sec/m3) | 7.05E-07 |
| Particulate D/Q (m-2)    | 1.39E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

| -----   |       |           |           |                     |                           |
|---------|-------|-----------|-----------|---------------------|---------------------------|
|         | Units | Quarter 1 | Quarter 2 | Quarters<br>1 and 2 | Year to<br>Ending<br>Date |
| -----   |       |           |           |                     |                           |
| Bone    | mrem  | 7.13E-05  | 1.24E-04  | 1.95E-04            | 1.95E-04                  |
| Liver   | mrem  | 7.20E-05  | 1.25E-04  | 1.97E-04            | 1.97E-04                  |
| TBody   | mrem  | 7.20E-05  | 1.25E-04  | 1.97E-04            | 1.97E-04                  |
| Thyroid | mrem  | 7.21E-05  | 1.25E-04  | 1.97E-04            | 1.97E-04                  |
| Kidney  | mrem  | 7.20E-05  | 1.25E-04  | 1.97E-04            | 1.97E-04                  |
| Lung    | mrem  | 7.20E-05  | 1.27E-04  | 1.99E-04            | 1.99E-04                  |
| GI-LLI  | mrem  | 7.20E-05  | 1.25E-04  | 1.97E-04            | 1.97E-04                  |
| -----   |       |           |           |                     |                           |

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Page: 1

|                       |                                 |                  |
|-----------------------|---------------------------------|------------------|
| Location Name         | VISITOR LOCATION 1 (VIS.CENTER) |                  |
| Distance (kilometers) | 3.06E-01                        |                  |
| Sector                | WSW                             |                  |
| Occupancy Factor      | 1.37E-03                        | (1.20E+01 hr/yr) |
| Age Group             | CHILD                           |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 1.04E-04 |
| Particulate X/Q (sec/m3) | 1.04E-04 |
| Particulate D/Q (m-2)    | 4.80E-07 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 8.80E-06 |
| Particulate X/Q (sec/m3) | 8.80E-06 |
| Particulate D/Q (m-2)    | 6.20E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

|         |      | Units | Quarter 3 | Quarter 4 | Quarters<br>3 and 4 | Year to<br>Ending<br>Date |
|---------|------|-------|-----------|-----------|---------------------|---------------------------|
| Bone    | mrem |       | 6.20E-05  | 5.43E-05  | 1.16E-04            | 3.31E-04                  |
| Liver   | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.40E-04                  |
| TBody   | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.40E-04                  |
| Thyroid | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.41E-04                  |
| Kidney  | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.40E-04                  |
| Lung    | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.43E-04                  |
| GI-LLI  | mrem |       | 6.45E-05  | 5.74E-05  | 1.22E-04            | 3.40E-04                  |

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Page: 2

|                       |                              |                  |
|-----------------------|------------------------------|------------------|
| Location Name         | VISITOR LOCATION 2 (SW POND) |                  |
| Distance (kilometers) | 9.66E-01                     |                  |
| Sector                | SSW                          |                  |
| Occupancy Factor      | 7.53E-03                     | (6.60E+01 hr/yr) |
| Age Group             | CHILD                        |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 4.74E-05 |
| Particulate X/Q (sec/m3) | 4.74E-05 |
| Particulate D/Q (m-2)    | 1.31E-07 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 9.75E-07 |
| Particulate X/Q (sec/m3) | 9.75E-07 |
| Particulate D/Q (m-2)    | 2.78E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

|         |      | Units | Quarter 3 | Quarter 4 | Quarters<br>3 and 4 | Year to<br>Ending<br>Date |
|---------|------|-------|-----------|-----------|---------------------|---------------------------|
| Bone    | mrem |       | 3.78E-05  | 3.31E-05  | 7.09E-05            | 2.82E-04                  |
| Liver   | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.87E-04                  |
| TBody   | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.87E-04                  |
| Thyroid | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.87E-04                  |
| Kidney  | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.87E-04                  |
| Lung    | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.89E-04                  |
| GI-LLI  | mrem |       | 3.93E-05  | 3.50E-05  | 7.43E-05            | 2.87E-04                  |

TABLE 4-1  
Joseph M. Farley Nuclear Plant  
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT - 2003  
DOSE TO A MEMBER OF THE PUBLIC  
DUE TO ACTIVITIES INSIDE THE SITE BOUNDARY  
Unit: Site

Starting: 01-Jul-2003

Ending: 31-Dec-2003

Page: 3

|                       |                                |                  |
|-----------------------|--------------------------------|------------------|
| Location Name         | VISITOR LOCATION 3 (RW DISCH.) |                  |
| Distance (kilometers) | 1.64E+00                       |                  |
| Sector                | SE                             |                  |
| Occupancy Factor      | 1.14E-02                       | (9.99E+01 hr/yr) |
| Age Group             | CHILD                          |                  |

Ground Level Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 1.63E-05 |
| Particulate X/Q (sec/m3) | 1.63E-05 |
| Particulate D/Q (m-2)    | 4.55E-08 |

Mixed Mode Releases:

|                          |          |
|--------------------------|----------|
| Noble Gas X/Q (sec/m3)   | 7.05E-07 |
| Particulate X/Q (sec/m3) | 7.05E-07 |
| Particulate D/Q (m-2)    | 1.39E-08 |

Elevated Releases:

|                          |     |
|--------------------------|-----|
| Noble Gas X/Q (sec/m3)   | N/A |
| Particulate X/Q (sec/m3) | N/A |
| Particulate D/Q (m-2)    | N/A |

|         |      | Units | Quarter 3 | Quarter 4 | Quarters<br>3 and 4 | Year to<br>Ending<br>Date |
|---------|------|-------|-----------|-----------|---------------------|---------------------------|
| Bone    | mrem |       | 4.14E-05  | 3.62E-05  | 7.76E-05            | 2.73E-04                  |
| Liver   | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.78E-04                  |
| TBody   | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.78E-04                  |
| Thyroid | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.79E-04                  |
| Kidney  | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.78E-04                  |
| Lung    | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.80E-04                  |
| GI-LLI  | mrem |       | 4.30E-05  | 3.83E-05  | 8.13E-05            | 2.78E-04                  |

## 5.0 TOTAL DOSE FROM URANIUM FUEL CYCLE (40CFR190)

### 5.1 Regulatory Requirements

Technical Specification 5.5.4.j states that the dose or dose commitment to any MEMBER OF THE PUBLIC over a calendar year, due to releases of radioactivity and to radiation from uranium fuel cycle sources, shall be limited to less than or equal to 25 mrem to the total body or to any organ, except the thyroid, which shall be limited to less than or equal to 75 mrem (as stated in ODCM 5.1).

With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of ODCM 2.1.3, 3.1.3, or 3.1.4, calculations shall be made according to ODCM 5.2 methods to determine whether the above (ODCM 5.1) limits have been exceeded (as stated in ODCM 5.1.2).

### 5.2 Demonstration of Compliance

Since none of the ODCM 2.1.3, 3.1.3, or 3.1.4 limits were exceeded during 2003, no calculations were required.

## 6.0 METEOROLOGICAL DATA

Meteorological data are retained onsite; these data are available to the NRC upon request. The meteorological data include annual as well as quarterly summaries of hourly measurements of wind speed, wind direction and atmospheric stability in the form of joint frequency distribution tables.

## 7.0 PROGRAM DEVIATIONS

### 7.1 Inoperable Liquid or Gaseous Effluent Monitoring Instrumentation

#### 7.1.1 Regulatory Requirements

ODCM 7.2.2.6 states in part that the Annual Radioactive Effluent Release Report (the report) shall include deviations from the liquid and gaseous effluent monitoring instrumentation operability requirements included in Sections 2.1.1 and 3.1.1 of the ODCM. The report must also include an explanation as to why the inoperability was not corrected in a timely manner.

#### 7.1.2 Description of Deviations

There was one deviation from liquid effluent monitoring instrumentation operability requirements during 2003. On 08/23/2003, a unit-1 waste monitor tank was released with an incorrect effluent monitor setting. The actual monitor reading for the release at no time exceeded the proper setpoint. Details of this event are documented in condition report # 2003002101.

## 7.2 Effluent Sample Analysis Exceeding Minimum Detectable Concentration (MDC)

### 7.2.1 Regulatory Requirements

ODCM 7.2.2.6 states in part that the report shall include deviations from the MDC requirements included in ODCM Tables 2-3 and 3-3.

### 7.2.2 Description of Deviations

There were no deviations during 2003.

## 7.3 Incorrect Compositing of Liquid or Gaseous Effluent Samples

### 7.3.1 Regulatory Requirements

ODCM 7.2.2.6 states in part that the report shall include deviations from composite sampling requirements included in ODCM Tables 2-3 and 3-3.

### 7.3.2 Description of Deviations

There were two deviations from the composite sampling requirements of ODCM Table 2-3 during 2003. On 04/20/2003, a unit-2 turbine building sump sample was missed due to equipment failure. Details of this event are documented in condition report # 2003000989. On 10/22/2003, a unit-2 turbine building sump sample was missed due to equipment failure. Details of this event are documented in condition report # 2003002877.

## 8.0 CHANGES TO THE PLANT FARLEY ODCM

### 8.1 Regulatory Requirements

Pursuant to Technical Specification 5.5.1.c and ODCM 7.2.2.5, licensee initiated changes to the ODCM shall be submitted to the Nuclear Regulatory Commission as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period in which any changes were made. Included are changes to the radiological environmental monitoring program sampling locations or dose calculation locations or pathways, including any changes made pursuant to ODCM 4.1.2.2.2 (land use census).

### 8.2 Description of Changes

There were no changes to the ODCM during 2003.

## 9.0 MAJOR CHANGES TO LIQUID, GASEOUS, OR SOLID RADWASTE TREATMENT SYSTEMS

### 9.1 Regulatory Requirements

ODCM 7.2.2.7 states in part that, as required by ODCM 2.1.5 and 3.1.6, licensee initiated MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (liquid and gaseous) shall be reported to the Nuclear Regulatory Commission in the Annual Radioactive Effluents Release Report covering the period in which the change was reviewed and accepted for implementation.

Process Control Program (PCP) B.5.1.2 states that licensee initiated major changes to the solid radioactive waste treatment system shall be reported to the Nuclear Regulatory Commission in the Annual Radioactive Effluent Release Report for the period in which the change was implemented. The discussion of each change shall include the information specified in PCP B.4.1.

### 9.2 Description of Major Changes

There were no major changes during 2003.