



FINAL REPORT  
to

FIRSTENERGY CORPORATION  
AKRON, OHIO

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (REMP)  
for  
DAVIS-BESSE NUCLEAR POWER STATION  
OAK HARBOR, OHIO

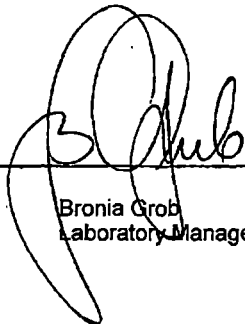
Prepared and submitted by

ENVIRONMENTAL, Inc.  
Midwest Laboratory

Project No. 8003

Reporting Period: January - December, 2015

Reviewed and  
Approved by :

 02/11/16  
Bronia Grob  
Laboratory Manager

## TABLE OF CONTENTS

| <u>Section</u>                                     | <u>Page</u> |
|----------------------------------------------------|-------------|
| List of Tables .....                               | iii         |
| 1.0 INTRODUCTION .....                             | vi          |
| 2.0 LISTING OF MISSED SAMPLES .....                | vii         |
| 3.0 DATA TABULATIONS .....                         | viii        |
| <br><u>Appendices</u>                              |             |
| A Interlaboratory Comparison Program Results ..... | A-1         |
| B Data Reporting Conventions .....                 | B-1         |
| C Supplemental Analyses .....                      | C-1         |

## LIST OF TABLES

| <u>No.</u> | <u>Title</u>                                                                                                                                                                                                         | <u>Page</u> |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1          | Airborne particulates and iodine collected at Location T-1, analyses for gross beta and iodine-131 .....                                                                                                             | 1-1         |
| 2          | Airborne particulates and iodine collected at Location T-2, analyses for gross beta and iodine-131 .....                                                                                                             | 2-1         |
| 3          | Airborne particulates and iodine collected at Location T-3, analyses for gross beta and iodine-131 .....                                                                                                             | 3-1         |
| 4          | Airborne particulates and iodine collected at Location T-4, analyses for gross beta and iodine-131 .....                                                                                                             | 4-1         |
| 5          | Airborne particulates and iodine collected at Location T-7, analyses for gross beta and iodine-131 .....                                                                                                             | 5-1         |
| 6          | Airborne particulates and iodine collected at Location T-8, analyses for gross beta and iodine-131 .....                                                                                                             | 6-1         |
| 7          | Airborne particulates and iodine collected at Location T-9, analyses for gross beta and iodine-131 .....                                                                                                             | 7-1         |
| 8          | Airborne particulates and iodine collected at Location T-11, analyses for gross beta and iodine-131 .....                                                                                                            | 8-1         |
| 9          | Airborne particulates and iodine collected at Location T-12, analyses for gross beta and iodine-131 .....                                                                                                            | 9-1         |
| 10         | Airborne particulates and iodine collected at Location T-27, analyses for gross beta and iodine-131 .....                                                                                                            | 10-1        |
| 11         | Airborne particulate data, gross beta analysis, monthly averages, minima and maxima.....                                                                                                                             | 11-1        |
| 12         | Airborne particulate samples, quarterly composites by location, analyses for strontium-89, strontium-90 and gamma-emitting isotopes .....                                                                            | 12-1        |
| 13         | Area monitors (TLD), quarterly .....                                                                                                                                                                                 | 13-1        |
| 14         | Area monitors (TLD), annual .....                                                                                                                                                                                    | 14-1        |
| 15         | Milk, analyses for strontium-89, strontium-90, iodine-131, gamma-emitting isotopes, calcium, stable potassium, and ratios of strontium-90 (pCi) per gram of calcium and cesium-137 (pCi) per gram of potassium ..... | 15-1        |
| 16         | Ground water, analyses for gross beta, tritium, strontium-89 and strontium-90 and gamma-emitting isotopes, quarterly collections, .....                                                                              | 16-1        |
| 17         | Domestic meat, analysis for gamma-emitting isotopes .....                                                                                                                                                            | 17-1        |
| 18         | Wild meat, analysis for gamma-emitting isotopes .....                                                                                                                                                                | 18-1        |

# LIST OF TABLES (continued)

| <u>No.</u> | <u>Title</u>                                                                                                                                           | <u>Page</u> |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 19         | Green leafy vegetable, analyses for strontium-89, strontium-90, iodine-131 and gamma-emitting isotopes .....                                           | 19-1        |
| 20         | Fruit, analyses for strontium-89, strontium-90, iodine-131 and gamma-emitting isotopes .....                                                           | 20-1        |
| 21         | Animal-wildlife feed, analysis for gamma-emitting isotopes .....                                                                                       | 21-1        |
| 22         | Soil, analysis for gamma-emitting isotopes .....                                                                                                       | 22-1        |
| 23         | Treated surface water, monthly composites of weekly grab samples, analysis for gross beta .....                                                        | 23-1        |
| 24         | Treated surface water, quarterly composites of weekly grab samples, analyses for tritium, strontium-89, strontium-90 and gamma-emitting isotopes ..... | 24-1        |
| 25         | Untreated surface water, monthly composites of weekly grab samples, analyses for gross beta, tritium and gamma-emitting isotopes .....                 | 25-1        |
| 26         | Untreated surface water, quarterly composites of weekly grab samples, analyses for strontium-89 and strontium-90 .....                                 | 26-1        |
| 27         | Fish, analyses for gross beta and gamma-emitting isotopes .....                                                                                        | 28-1        |
| 28         | Shoreline sediment, analysis for gamma-emitting isotopes .....                                                                                         | 29-1        |

## LIST OF TABLES (continued)

The following tables are in the Appendices:

### Appendix A

|     |                                                                                                 |      |
|-----|-------------------------------------------------------------------------------------------------|------|
|     | Attachment A: Acceptance criteria for spiked samples .....                                      | A-2  |
| A-1 | Interlaboratory Comparison Program Results .....                                                | A1-1 |
| A-2 | Interlaboratory Comparison Program Results, thermoluminescent<br>dosimeters (TLDs).....         | A2-1 |
| A-3 | Results of the analyses on in-house spiked samples.....                                         | A3-1 |
| A-4 | Results of the analyses on in-house "blank" samples.....                                        | A4-1 |
| A-5 | Results of the analyses on in-house "duplicate" samples .....                                   | A5-1 |
| A-6 | Mixed Analyte Performance Evaluation Program (MAPEP) .....                                      | A6-1 |
| A-7 | Environmental Resources Associates, Crosscheck Program Results (EML study<br>replacement) ..... | A7-1 |

### Appendix B

|     |                                  |     |
|-----|----------------------------------|-----|
| B-1 | Data Reporting Conventions ..... | B-2 |
|-----|----------------------------------|-----|

## 1.0 INTRODUCTION

The following constitutes the final 2015 Monthly Progress Report for the Radiological Environmental Monitoring Program conducted at the Davis-Besse Nuclear Power Station in Oak Harbor, Ohio. Results of completed analyses are presented in the attached tables. Missing entries indicate analyses that are not yet completed.

All activities, except gross alpha and gross beta, are decay corrected to the time of collection.

All samples were collected within the scheduled period unless noted otherwise in the Listing of Missed Samples.

## 2.0 LISTING OF MISSED SAMPLES

| Sample Type | Location | Expected<br>Collection<br>Date | Reason                         |
|-------------|----------|--------------------------------|--------------------------------|
| SWT         | T-12     | 06-02-15                       | No sample; damaged in transit. |
| TLD         | T-45     | 07-14-15                       | TLD missing in field.          |
| TLD         | T-86     | 07-14-15                       | TLD missing in field.          |
| TLD         | T-223    | 01-12-16                       | TLD missing in field.          |
| TLD         | T-45     | 01-13-16                       | Annual TLD missing in field.   |
| TLD         | T-86     | 01-13-16                       | Annual TLD missing in field.   |
| TLD         | T-223    | 01-12-16                       | Annual TLD missing in field.   |

### 3.0 DATA TABULATIONS

Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-1

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    | Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u>     |                          | <u>0.010</u>  |                         |                          | <u>0.010</u>  |
| 01-06-15                | 361                      | 0.024 ± 0.003 | 07-07-15                | 284                      | 0.028 ± 0.004 |
| 01-13-15                | 357                      | 0.023 ± 0.003 | 07-14-15                | 285                      | 0.018 ± 0.003 |
| 01-20-15                | 357                      | 0.026 ± 0.003 | 07-21-15                | 280                      | 0.024 ± 0.004 |
| 01-27-15                | 360                      | 0.017 ± 0.003 | 07-28-15                | 284                      | 0.028 ± 0.004 |
| 02-03-15                | 358                      | 0.016 ± 0.003 |                         |                          |               |
|                         |                          |               | 08-04-15                | 284                      | 0.030 ± 0.004 |
| 02-10-15                | 358                      | 0.026 ± 0.003 | 08-11-15                | 281                      | 0.020 ± 0.003 |
| 02-17-15                | 359                      | 0.022 ± 0.003 | 08-18-15                | 283                      | 0.030 ± 0.004 |
| 02-24-15                | 359                      | 0.041 ± 0.004 | 08-25-15                | 285                      | 0.027 ± 0.004 |
| 03-03-15                | 358                      | 0.032 ± 0.004 | 09-01-15                | 282                      | 0.038 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 03-10-15                | 360                      | 0.020 ± 0.003 | 09-08-15                | 284                      | 0.057 ± 0.005 |
| 03-17-15                | 357                      | 0.013 ± 0.003 | 09-15-15                | 285                      | 0.034 ± 0.004 |
| 03-24-15                | 278                      | 0.022 ± 0.004 | 09-22-15                | 283                      | 0.039 ± 0.004 |
| 03-31-15                | 285                      | 0.022 ± 0.004 | 09-29-15                | 284                      | 0.033 ± 0.004 |
| 1st Quarter Mean ± s.d. |                          | 0.023 ± 0.007 | 3rd Quarter Mean ± s.d. |                          | 0.031 ± 0.010 |
| 04-07-15                | 283                      | 0.021 ± 0.004 | 10-06-15                | 284                      | 0.014 ± 0.003 |
| 04-14-15                | 284                      | 0.023 ± 0.004 | 10-13-15                | 284                      | 0.037 ± 0.004 |
| 04-21-15                | 284                      | 0.023 ± 0.004 | 10-20-15                | 284                      | 0.022 ± 0.004 |
| 04-28-15                | 284                      | 0.014 ± 0.003 | 10-27-15                | 285                      | 0.034 ± 0.004 |
|                         |                          |               | 11-03-15                | 283                      | 0.031 ± 0.004 |
| 05-05-15                | 285                      | 0.018 ± 0.003 |                         |                          |               |
| 05-12-15                | 283                      | 0.027 ± 0.004 | 11-10-15                | 280                      | 0.034 ± 0.004 |
| 05-19-15                | 284                      | 0.024 ± 0.004 | 11-17-15                | 286                      | 0.044 ± 0.005 |
| 05-26-15                | 284                      | 0.022 ± 0.004 | 11-23-15                | 244                      | 0.028 ± 0.004 |
| 06-02-15                | 285                      | 0.018 ± 0.003 | 12-01-15                | 327                      | 0.033 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 06-09-15                | 282                      | 0.027 ± 0.004 | 12-08-15                | 286                      | 0.043 ± 0.005 |
| 06-16-15                | 285                      | 0.018 ± 0.003 | 12-15-15                | 287                      | 0.053 ± 0.005 |
| 06-23-15                | 284                      | 0.022 ± 0.004 | 12-22-15                | 287                      | 0.027 ± 0.004 |
| 06-30-15                | 284                      | 0.018 ± 0.003 | 12-29-15                | 285                      | 0.028 ± 0.004 |
| 2nd Quarter Mean ± s.d. |                          | 0.021 ± 0.004 | 4th Quarter Mean ± s.d. |                          | 0.033 ± 0.010 |
|                         |                          |               | Cumulative Average      |                          | 0.027         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 2. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-2

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           | Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u>            |                          | <u>0.010</u>         |                                |                          | <u>0.010</u>         |
| 01-06-15                       | 284                      | 0.035 ± 0.004        | 07-07-15                       | 286                      | 0.022 ± 0.003        |
| 01-13-15                       | 283                      | 0.032 ± 0.004        | 07-14-15                       | 289                      | 0.023 ± 0.004        |
| 01-20-15                       | 279                      | 0.036 ± 0.004        | 07-21-15                       | 283                      | 0.026 ± 0.004        |
| 01-27-15                       | 279                      | 0.021 ± 0.004        | 07-28-15                       | 287                      | 0.032 ± 0.004        |
| 02-03-15                       | 282                      | 0.020 ± 0.003        |                                |                          |                      |
|                                |                          |                      | 08-04-15                       | 287                      | 0.036 ± 0.004        |
| 02-10-15                       | 282                      | 0.030 ± 0.004        | 08-11-15                       | 288                      | 0.025 ± 0.004        |
| 02-17-15                       | 282                      | 0.030 ± 0.004        | 08-18-15                       | 286                      | 0.033 ± 0.004        |
| 02-24-15                       | 282                      | 0.053 ± 0.005        | 08-25-15                       | 288                      | 0.032 ± 0.004        |
| 03-03-15                       | 282                      | 0.042 ± 0.005        | 09-01-15                       | 289                      | 0.040 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 03-10-15                       | 284                      | 0.030 ± 0.004        | 09-08-15                       | 290                      | 0.048 ± 0.005        |
| 03-17-15                       | 281                      | 0.018 ± 0.004        | 09-15-15                       | 291                      | 0.032 ± 0.004        |
| 03-24-15                       | 282                      | 0.025 ± 0.004        | 09-22-15                       | 290                      | 0.035 ± 0.004        |
| 03-31-15                       | 283                      | 0.023 ± 0.004        | 09-29-15                       | 290                      | 0.047 ± 0.005        |
| <u>1st Quarter Mean ± s.d.</u> |                          | <u>0.030 ± 0.010</u> | <u>3rd Quarter Mean ± s.d.</u> |                          | <u>0.033 ± 0.008</u> |
|                                |                          |                      |                                |                          |                      |
| 04-07-15                       | 286                      | 0.024 ± 0.004        | 10-06-15                       | 290                      | 0.016 ± 0.003        |
| 04-14-15                       | 287                      | 0.023 ± 0.004        | 10-13-15                       | 291                      | 0.037 ± 0.004        |
| 04-21-15                       | 287                      | 0.017 ± 0.003        | 10-20-15                       | 289                      | 0.018 ± 0.003        |
| 04-28-15                       | 287                      | 0.013 ± 0.003        | 10-27-15                       | 291                      | 0.042 ± 0.004        |
|                                |                          |                      | 11-03-15                       | 290                      | 0.024 ± 0.004        |
| 05-05-15                       | 288                      | 0.017 ± 0.003        |                                |                          |                      |
| 05-12-15                       | 286                      | 0.027 ± 0.004        | 11-10-15                       | 290                      | 0.031 ± 0.004        |
| 05-19-15                       | 287                      | 0.021 ± 0.003        | 11-17-15                       | 290                      | 0.046 ± 0.005        |
| 05-26-15                       | 287                      | 0.023 ± 0.004        | 11-23-15                       | 248                      | 0.026 ± 0.004        |
| 06-02-15                       | 280                      | 0.020 ± 0.004        | 12-01-15                       | 327                      | 0.032 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 06-09-15                       | 285                      | 0.019 ± 0.003        | 12-08-15                       | 286                      | 0.046 ± 0.005        |
| 06-16-15                       | 288                      | 0.017 ± 0.003        | 12-15-15                       | 286                      | 0.062 ± 0.005        |
| 06-23-15                       | 287                      | 0.022 ± 0.004        | 12-22-15                       | 286                      | 0.029 ± 0.004        |
| 06-30-15                       | 287                      | 0.018 ± 0.003        | 12-29-15                       | 285                      | 0.028 ± 0.004        |
| <u>2nd Quarter Mean ± s.d.</u> |                          | <u>0.020 ± 0.004</u> | <u>4th Quarter Mean ± s.d.</u> |                          | <u>0.034 ± 0.013</u> |
|                                |                          |                      | <u>Cumulative Average</u>      |                          | <u>0.029</u>         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 3. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-3

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           | Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u>            |                          | <u>0.010</u>         |                                |                          | <u>0.010</u>         |
| 01-06-15                       | 291                      | 0.032 ± 0.004        | 07-07-15                       | 285                      | 0.022 ± 0.003        |
| 01-13-15                       | 290                      | 0.032 ± 0.004        | 07-14-15                       | 288                      | 0.018 ± 0.003        |
| 01-20-15                       | 286                      | 0.038 ± 0.004        | 07-21-15                       | 282                      | 0.026 ± 0.004        |
| 01-27-15                       | 289                      | 0.025 ± 0.004        | 07-28-15                       | 286                      | 0.025 ± 0.004        |
| 02-03-15                       | 289                      | 0.019 ± 0.003        |                                |                          |                      |
|                                |                          |                      | 08-04-15                       | 286                      | 0.031 ± 0.004        |
| 02-10-15                       | 289                      | 0.031 ± 0.004        | 08-11-15                       | 288                      | 0.018 ± 0.003        |
| 02-17-15                       | 289                      | 0.025 ± 0.004        | 08-18-15                       | 285                      | 0.036 ± 0.004        |
| 02-24-15                       | 289                      | 0.052 ± 0.005        | 08-25-15                       | 287                      | 0.027 ± 0.004        |
| 03-03-15                       | 289                      | 0.041 ± 0.005        | 09-01-15                       | 284                      | 0.037 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 03-10-15                       | 287                      | 0.028 ± 0.004        | 09-08-15                       | 286                      | 0.051 ± 0.005        |
| 03-17-15                       | 285                      | 0.017 ± 0.004        | 09-15-15                       | 287                      | 0.032 ± 0.004        |
| 03-24-15                       | 296                      | 0.023 ± 0.004        | 09-22-15                       | 285                      | 0.038 ± 0.004        |
| 03-31-15                       | 287                      | 0.022 ± 0.004        | 09-29-15                       | 283                      | 0.027 ± 0.004        |
| <u>1st Quarter Mean ± s.d.</u> |                          | <u>0.030 ± 0.010</u> | <u>3rd Quarter Mean ± s.d.</u> |                          | <u>0.030 ± 0.009</u> |
| 04-07-15                       | 285                      | 0.020 ± 0.003        | 10-06-15                       | 284                      | 0.013 ± 0.003        |
| 04-14-15                       | 286                      | 0.021 ± 0.004        | 10-13-15                       | 285                      | 0.033 ± 0.004        |
| 04-21-15                       | 286                      | 0.017 ± 0.003        | 10-20-15                       | 283                      | 0.020 ± 0.004        |
| 04-28-15                       | 286                      | 0.013 ± 0.003        | 10-27-15                       | 285                      | 0.034 ± 0.004        |
|                                |                          |                      | 11-03-15                       | 283                      | 0.029 ± 0.004        |
| 05-05-15                       | 287                      | 0.013 ± 0.003        |                                |                          |                      |
| 05-12-15                       | 285                      | 0.025 ± 0.004        | 11-10-15                       | 284                      | 0.031 ± 0.004        |
| 05-19-15                       | 286                      | 0.022 ± 0.004        | 11-17-15                       | 283                      | 0.044 ± 0.005        |
| 05-26-15                       | 286                      | 0.021 ± 0.004        | 11-23-15                       | 242                      | 0.026 ± 0.004        |
| 06-02-15                       | 288                      | 0.018 ± 0.003        | 12-01-15                       | 325                      | 0.037 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 06-09-15                       | 284                      | 0.020 ± 0.003        | 12-08-15                       | 284                      | 0.042 ± 0.005        |
| 06-16-15                       | 287                      | 0.018 ± 0.003        | 12-15-15                       | 284                      | 0.056 ± 0.005        |
| 06-23-15                       | 286                      | 0.022 ± 0.004        | 12-22-15                       | 284                      | 0.027 ± 0.004        |
| 06-30-15                       | 286                      | 0.016 ± 0.003        | 12-29-15                       | 283                      | 0.027 ± 0.004        |
| <u>2nd Quarter Mean ± s.d.</u> |                          | <u>0.019 ± 0.004</u> | <u>4th Quarter Mean ± s.d.</u> |                          | <u>0.032 ± 0.011</u> |
| <u>Cumulative Average</u>      |                          |                      |                                |                          | <u>0.028</u>         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 4. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-4

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    | Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u>     |                          | <u>0.010</u>  |                         |                          | <u>0.010</u>  |
| 01-06-15                | 288                      | 0.033 ± 0.004 | 07-07-15                | 285                      | 0.023 ± 0.004 |
| 01-13-15                | 285                      | 0.028 ± 0.004 | 07-14-15                | 283                      | 0.018 ± 0.003 |
| 01-20-15                | 280                      | 0.036 ± 0.004 | 07-21-15                | 285                      | 0.021 ± 0.003 |
| 01-27-15                | 285                      | 0.021 ± 0.004 | 07-28-15                | 286                      | 0.025 ± 0.004 |
| 02-03-15                | 283                      | 0.020 ± 0.003 |                         |                          |               |
|                         |                          |               | 08-04-15                | 286                      | 0.028 ± 0.004 |
| 02-10-15                | 283                      | 0.031 ± 0.004 | 08-11-15                | 288                      | 0.023 ± 0.004 |
| 02-17-15                | 283                      | 0.032 ± 0.004 | 08-18-15                | 285                      | 0.030 ± 0.004 |
| 02-24-15                | 284                      | 0.047 ± 0.005 | 08-25-15                | 287                      | 0.027 ± 0.004 |
| 03-03-15                | 289                      | 0.035 ± 0.004 | 09-01-15                | 284                      | 0.038 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 03-10-15                | 290                      | 0.024 ± 0.004 | 09-08-15                | 286                      | 0.052 ± 0.005 |
| 03-17-15                | 288                      | 0.015 ± 0.004 | 09-15-15                | 287                      | 0.024 ± 0.004 |
| 03-24-15                | 290                      | 0.023 ± 0.004 | 09-22-15                | 276                      | 0.022 ± 0.004 |
| 03-31-15                | 290                      | 0.023 ± 0.004 | 09-29-15                | 286                      | 0.037 ± 0.004 |
| 1st Quarter Mean ± s.d. |                          | 0.028 ± 0.009 | 3rd Quarter Mean ± s.d. |                          | 0.028 ± 0.009 |
| 04-07-15                | 288                      | 0.024 ± 0.004 | 10-06-15                | 287                      | 0.016 ± 0.003 |
| 04-14-15                | 289                      | 0.021 ± 0.003 | 10-13-15                | 288                      | 0.035 ± 0.004 |
| 04-21-15                | 305                      | 0.016 ± 0.003 | 10-20-15                | 286                      | 0.022 ± 0.004 |
| 04-28-15                | 289                      | 0.012 ± 0.003 | 10-27-15                | 288                      | 0.036 ± 0.004 |
|                         |                          |               | 11-03-15                | 287                      | 0.029 ± 0.004 |
| 05-05-15                | 290                      | 0.014 ± 0.003 |                         |                          |               |
| 05-12-15                | 288                      | 0.023 ± 0.004 | 11-10-15                | 287                      | 0.032 ± 0.004 |
| 05-19-15                | 289                      | 0.021 ± 0.003 | 11-17-15                | 287                      | 0.042 ± 0.005 |
| 05-26-15                | 290                      | 0.020 ± 0.003 | 11-23-15                | 245                      | 0.026 ± 0.004 |
| 06-02-15                | 287                      | 0.015 ± 0.003 | 12-01-15                | 328                      | 0.036 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 06-09-15                | 283                      | 0.021 ± 0.003 | 12-08-15                | 287                      | 0.044 ± 0.005 |
| 06-16-15                | 287                      | 0.018 ± 0.003 | 12-15-15                | 287                      | 0.056 ± 0.005 |
| 06-23-15                | 286                      | 0.018 ± 0.003 | 12-22-15                | 288                      | 0.029 ± 0.004 |
| 06-30-15                | 179                      | 0.014 ± 0.004 | 12-29-15                | 286                      | 0.029 ± 0.004 |
| 2nd Quarter Mean ± s.d. |                          | 0.018 ± 0.004 | 4th Quarter Mean ± s.d. |                          | 0.033 ± 0.010 |
|                         |                          |               | Cumulative Average      |                          | 0.027         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 5. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-7

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           | Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u>            |                          | <u>0.010</u>         |                                |                          | <u>0.010</u>         |
| 01-06-15                       | 289                      | 0.032 ± 0.004        | 07-07-15                       | 279                      | 0.024 ± 0.004        |
| 01-13-15                       | 289                      | 0.032 ± 0.004        | 07-14-15                       | 286                      | 0.019 ± 0.003        |
| 01-20-15                       | 289                      | 0.032 ± 0.004        | 07-21-15                       | 285                      | 0.022 ± 0.003        |
| 01-27-15                       | 289                      | 0.020 ± 0.003        | 07-28-15                       | 286                      | 0.033 ± 0.004        |
| 02-03-15                       | 295                      | 0.021 ± 0.003        |                                |                          |                      |
|                                |                          |                      | 08-04-15                       | 285                      | 0.030 ± 0.004        |
| 02-10-15                       | 282                      | 0.032 ± 0.004        | 08-11-15                       | 286                      | 0.026 ± 0.004        |
| 02-17-15                       | 289                      | 0.031 ± 0.004        | 08-18-15                       | 286                      | 0.029 ± 0.004        |
| 02-24-15                       | 289                      | 0.049 ± 0.005        | 08-25-15                       | 286                      | 0.026 ± 0.004        |
| 03-03-15                       | 295                      | 0.042 ± 0.005        | 09-01-15                       | 286                      | 0.040 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 03-10-15                       | 283                      | 0.026 ± 0.004        | 09-08-15                       | 286                      | 0.056 ± 0.005        |
| 03-17-15                       | 289                      | 0.016 ± 0.004        | 09-15-15                       | 286                      | 0.036 ± 0.004        |
| 03-24-15                       | 289                      | 0.022 ± 0.004        | 09-22-15                       | 285                      | 0.037 ± 0.004        |
| 03-31-15                       | 289                      | 0.022 ± 0.004        | 09-29-15                       | 287                      | 0.024 ± 0.004        |
| <u>1st Quarter Mean ± s.d.</u> |                          | <u>0.029 ± 0.009</u> | <u>3rd Quarter Mean ± s.d.</u> |                          | <u>0.031 ± 0.010</u> |
| 04-07-15                       | 288                      | 0.022 ± 0.004        | 10-06-15                       | 287                      | 0.018 ± 0.003        |
| 04-14-15                       | 290                      | 0.029 ± 0.004        | 10-13-15                       | 287                      | 0.035 ± 0.004        |
| 04-21-15                       | 288                      | 0.018 ± 0.003        | 10-20-15                       | 286                      | 0.022 ± 0.004        |
| 04-28-15                       | 288                      | 0.013 ± 0.003        | 10-27-15                       | 286                      | 0.033 ± 0.004        |
|                                |                          |                      | 11-03-15                       | 289                      | 0.022 ± 0.004        |
| 05-05-15                       | 289                      | 0.014 ± 0.003        |                                |                          |                      |
| 05-12-15                       | 289                      | 0.026 ± 0.004        | 11-10-15                       | 291                      | 0.030 ± 0.004        |
| 05-19-15                       | 286                      | 0.017 ± 0.003        | 11-17-15                       | 291                      | 0.042 ± 0.005        |
| 05-26-15                       | 285                      | 0.022 ± 0.004        | 11-23-15                       | 250                      | 0.029 ± 0.004        |
| 06-02-15                       | 266                      | 0.016 ± 0.003        | 12-01-15                       | 332                      | 0.031 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 06-09-15                       | 285                      | 0.019 ± 0.003        | 12-08-15                       | 291                      | 0.040 ± 0.004        |
| 06-16-15                       | 283                      | 0.022 ± 0.004        | 12-15-15                       | 287                      | 0.049 ± 0.005        |
| 06-23-15                       | 285                      | 0.021 ± 0.004        | 12-22-15                       | 283                      | 0.025 ± 0.004        |
| 06-30-15                       | 288                      | 0.019 ± 0.003        | 12-29-15                       | 282                      | 0.029 ± 0.004        |
| <u>2nd Quarter Mean ± s.d.</u> |                          | <u>0.020 ± 0.005</u> | <u>4th Quarter Mean ± s.d.</u> |                          | <u>0.031 ± 0.009</u> |
| <u>Cumulative Average</u>      |                          |                      |                                |                          | <u>0.028</u>         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 6. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-8

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           | Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u>            |                          | <u>0.010</u>         |                                |                          |                      |
| 01-06-15                       | 290                      | 0.029 ± 0.004        | 07-07-15                       | 282                      | 0.025 ± 0.004        |
| 01-13-15                       | 349                      | 0.030 ± 0.003        | 07-14-15                       | 290                      | 0.020 ± 0.003        |
| 01-20-15                       | 283                      | 0.040 ± 0.004        | 07-21-15                       | 289                      | 0.026 ± 0.004        |
| 01-27-15                       | 297                      | 0.021 ± 0.003        | 07-28-15                       | 295                      | 0.024 ± 0.004        |
| 02-03-15                       | 283                      | 0.019 ± 0.003        |                                |                          |                      |
|                                |                          |                      | 08-04-15                       | 284                      | 0.030 ± 0.004        |
| 02-10-15                       | 283                      | 0.027 ± 0.004        | 08-11-15                       | 283                      | 0.027 ± 0.004        |
| 02-17-15                       | 283                      | 0.025 ± 0.004        | 08-18-15                       | 289                      | 0.037 ± 0.004        |
| 02-24-15                       | 284                      | 0.048 ± 0.005        | 08-25-15                       | 289                      | 0.028 ± 0.004        |
| 03-03-15                       | 289                      | 0.036 ± 0.004        | 09-01-15                       | 289                      | 0.037 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 03-10-15                       | 277                      | 0.028 ± 0.004        | 09-08-15                       | 289                      | 0.052 ± 0.005        |
| 03-17-15                       | 283                      | 0.017 ± 0.004        | 09-15-15                       | 290                      | 0.037 ± 0.004        |
| 03-24-15                       | 284                      | 0.022 ± 0.004        | 09-22-15                       | 289                      | 0.037 ± 0.004        |
| 03-31-15                       | 283                      | 0.020 ± 0.003        | 09-29-15                       | 290                      | 0.035 ± 0.004        |
| <u>1st Quarter Mean ± s.d.</u> |                          | <u>0.028 ± 0.009</u> | <u>3rd Quarter Mean ± s.d.</u> |                          | <u>0.032 ± 0.008</u> |
| 04-07-15                       | 289                      | 0.017 ± 0.003        | 10-06-15                       | 289                      | 0.016 ± 0.003        |
| 04-14-15                       | 295                      | 0.024 ± 0.004        | 10-13-15                       | 297                      | 0.037 ± 0.004        |
| 04-21-15                       | 284                      | 0.016 ± 0.003        | 10-20-15                       | 283                      | 0.024 ± 0.004        |
| 04-28-15                       | 288                      | 0.013 ± 0.003        | 10-27-15                       | 289                      | 0.036 ± 0.004        |
|                                |                          |                      | 11-03-15                       | 290                      | 0.028 ± 0.004        |
| 05-05-15                       | 289                      | 0.014 ± 0.003        |                                |                          |                      |
| 05-12-15                       | 294                      | 0.024 ± 0.004        | 11-10-15                       | 289                      | 0.033 ± 0.004        |
| 05-19-15                       | 284                      | 0.020 ± 0.003        | 11-17-15                       | 290                      | 0.043 ± 0.005        |
| 05-26-15                       | 298                      | 0.020 ± 0.003        | 11-23-15                       | 221                      | 0.027 ± 0.005        |
| 06-02-15                       | 276                      | 0.013 ± 0.003        | 12-01-15                       | 294                      | 0.038 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 06-09-15                       | 289                      | 0.021 ± 0.003        | 12-08-15                       | 269                      | 0.047 ± 0.005        |
| 06-16-15                       | 289                      | 0.019 ± 0.003        | 12-15-15                       | 290                      | 0.058 ± 0.005        |
| 06-23-15                       | 289                      | 0.020 ± 0.003        | 12-22-15                       | 290                      | 0.027 ± 0.004        |
| 06-30-15                       | 292                      | 0.019 ± 0.003        | 12-29-15                       | 289                      | 0.021 ± 0.004        |
| <u>2nd Quarter Mean ± s.d.</u> |                          | <u>0.018 ± 0.004</u> | <u>4th Quarter Mean ± s.d.</u> |                          | <u>0.033 ± 0.011</u> |
| <u>Cumulative Average</u>      |                          |                      |                                |                          | <u>0.028</u>         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 7. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-9 (C)

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           | Date Collected                 | Volume (m <sup>3</sup> ) | Gross Beta           |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u>            |                          | <u>0.010</u>         |                                |                          | <u>0.010</u>         |
| 01-06-15                       | 277                      | 0.035 ± 0.004        | 07-07-15                       | 289                      | 0.022 ± 0.003        |
| 01-13-15                       | 297                      | 0.033 ± 0.004        | 07-14-15                       | 302                      | 0.021 ± 0.003        |
| 01-20-15                       | 284                      | 0.038 ± 0.004        | 07-21-15                       | 283                      | 0.021 ± 0.003        |
| 01-27-15                       | 287                      | 0.023 ± 0.004        | 07-28-15                       | 284                      | 0.028 ± 0.004        |
| 02-03-15                       | 276                      | 0.022 ± 0.003        |                                |                          |                      |
|                                |                          |                      | 08-04-15                       | 289                      | 0.033 ± 0.004        |
| 02-10-15                       | 286                      | 0.032 ± 0.004        | 08-11-15                       | 290                      | 0.024 ± 0.004        |
| 02-17-15                       | 286                      | 0.030 ± 0.004        | 08-18-15                       | 289                      | 0.034 ± 0.004        |
| 02-24-15                       | 297                      | 0.051 ± 0.005        | 08-25-15                       | 289                      | 0.027 ± 0.004        |
| 03-03-15                       | 285                      | 0.039 ± 0.005        | 09-01-15                       | 289                      | 0.040 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 03-10-15                       | 277                      | 0.029 ± 0.004        | 09-08-15                       | 289                      | 0.050 ± 0.005        |
| 03-17-15                       | 296                      | 0.018 ± 0.004        | 09-15-15                       | 289                      | 0.032 ± 0.004        |
| 03-24-15                       | 285                      | 0.023 ± 0.004        | 09-22-15                       | 289                      | 0.040 ± 0.004        |
| 03-31-15                       | 279                      | 0.018 ± 0.003        | 09-29-15                       | 289                      | 0.031 ± 0.004        |
| <u>1st Quarter Mean ± s.d.</u> |                          | <u>0.030 ± 0.009</u> | <u>3rd Quarter Mean ± s.d.</u> |                          | <u>0.031 ± 0.009</u> |
| 04-07-15                       | 299                      | 0.019 ± 0.003        | 10-06-15                       | 289                      | 0.018 ± 0.003        |
| 04-14-15                       | 285                      | 0.021 ± 0.004        | 10-13-15                       | 289                      | 0.037 ± 0.004        |
| 04-21-15                       | 293                      | 0.017 ± 0.003        | 10-20-15                       | 289                      | 0.018 ± 0.003        |
| 04-28-15                       | 288                      | 0.016 ± 0.003        | 10-27-15                       | 289                      | 0.035 ± 0.004        |
|                                |                          |                      | 11-03-15                       | 289                      | 0.025 ± 0.004        |
| 05-05-15                       | 280                      | 0.015 ± 0.003        |                                |                          |                      |
| 05-12-15                       | 289                      | 0.026 ± 0.004        | 11-10-15                       | 299                      | 0.035 ± 0.004        |
| 05-19-15                       | 289                      | 0.019 ± 0.003        | 11-17-15                       | 279                      | 0.045 ± 0.005        |
| 05-26-15                       | 289                      | 0.026 ± 0.004        | 11-23-15                       | 257                      | 0.029 ± 0.004        |
| 06-02-15                       | 285                      | 0.015 ± 0.003        | 12-01-15                       | 328                      | 0.028 ± 0.004        |
|                                |                          |                      |                                |                          |                      |
| 06-09-15                       | 299                      | 0.021 ± 0.003        | 12-08-15                       | 278                      | 0.045 ± 0.005        |
| 06-16-15                       | 278                      | 0.018 ± 0.003        | 12-15-15                       | 287                      | 0.055 ± 0.005        |
| 06-23-15                       | 289                      | 0.022 ± 0.004        | 12-22-15                       | 287                      | 0.027 ± 0.004        |
| 06-30-15                       | 290                      | 0.017 ± 0.003        | 12-29-15                       | 287                      | 0.026 ± 0.004        |
| <u>2nd Quarter Mean ± s.d.</u> |                          | <u>0.019 ± 0.004</u> | <u>4th Quarter Mean ± s.d.</u> |                          | <u>0.033 ± 0.011</u> |
|                                |                          |                      | <u>Cumulative Average</u>      |                          | <u>0.028</u>         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 8. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-11 (C)

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    | Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u>     |                          | <u>0.010</u>  |                         |                          | <u>0.010</u>  |
| 01-06-15                | 357                      | 0.025 ± 0.003 | 07-07-15                | 291                      | 0.025 ± 0.004 |
| 01-13-15                | 356                      | 0.024 ± 0.003 | 07-14-15                | 292                      | 0.016 ± 0.003 |
| 01-20-15                | 356                      | 0.029 ± 0.003 | 07-21-15                | 291                      | 0.022 ± 0.003 |
| 01-27-15                | 357                      | 0.017 ± 0.003 | 07-28-15                | 291                      | 0.027 ± 0.004 |
| 02-03-15                | 357                      | 0.017 ± 0.003 |                         |                          |               |
|                         |                          |               | 08-04-15                | 291                      | 0.030 ± 0.004 |
| 02-10-15                | 356                      | 0.026 ± 0.003 | 08-11-15                | 290                      | 0.022 ± 0.004 |
| 02-17-15                | 356                      | 0.027 ± 0.003 | 08-18-15                | 291                      | 0.030 ± 0.004 |
| 02-24-15                | 356                      | 0.037 ± 0.004 | 08-25-15                | 291                      | 0.032 ± 0.004 |
| 03-03-15                | 357                      | 0.030 ± 0.004 | 09-01-15                | 292                      | 0.038 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 03-10-15                | 359                      | 0.021 ± 0.003 | 09-08-15                | 291                      | 0.054 ± 0.005 |
| 03-17-15                | 356                      | 0.014 ± 0.003 | 09-15-15                | 291                      | 0.039 ± 0.004 |
| 03-24-15                | 357                      | 0.019 ± 0.003 | 09-22-15                | 292                      | 0.040 ± 0.004 |
| 03-31-15                | 357                      | 0.018 ± 0.003 | 09-29-15                | 195                      | 0.040 ± 0.006 |
| 1st Quarter Mean ± s.d. |                          | 0.023 ± 0.007 | 3rd Quarter Mean ± s.d. |                          | 0.032 ± 0.010 |
|                         |                          |               |                         |                          |               |
| 04-07-15                | 356                      | 0.016 ± 0.003 | 10-06-15                | 195                      | 0.018 ± 0.004 |
| 04-14-15                | 357                      | 0.017 ± 0.003 | 10-13-15                | 195                      | 0.054 ± 0.006 |
| 04-21-15                | 357                      | 0.015 ± 0.003 | 10-20-15                | 195                      | 0.028 ± 0.005 |
| 04-28-15                | 356                      | 0.013 ± 0.003 | 10-27-15                | 195                      | 0.045 ± 0.006 |
|                         |                          |               | 11-03-15                | 195                      | 0.032 ± 0.005 |
| 05-05-15                | 356                      | 0.013 ± 0.002 |                         |                          |               |
| 05-12-15                | 348                      | 0.024 ± 0.003 | 11-10-15                | 195                      | 0.043 ± 0.006 |
| 05-19-15                | 291                      | 0.016 ± 0.003 | 11-17-15                | 195                      | 0.065 ± 0.007 |
| 05-26-15                | 291                      | 0.022 ± 0.004 | 11-23-15                | 167                      | 0.041 ± 0.006 |
| 06-02-15                | 292                      | 0.014 ± 0.003 | 12-01-15                | 222                      | 0.045 ± 0.005 |
|                         |                          |               |                         |                          |               |
| 06-09-15                | 291                      | 0.022 ± 0.003 | 12-08-15                | 195                      | 0.066 ± 0.007 |
| 06-16-15                | 291                      | 0.019 ± 0.003 | 12-15-15                | 195                      | 0.078 ± 0.007 |
| 06-23-15                | 291                      | 0.018 ± 0.003 | 12-22-15                | 195                      | 0.036 ± 0.006 |
| 06-30-15                | 292                      | 0.016 ± 0.003 | 12-29-15                | 195                      | 0.037 ± 0.006 |
| 2nd Quarter Mean ± s.d. |                          | 0.017 ± 0.004 | 4th Quarter Mean ± s.d. |                          | 0.045 ± 0.017 |
|                         |                          |               |                         |                          |               |
|                         |                          |               | Cumulative Average      |                          | 0.029         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 9. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-12 (C)

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    | Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u>     |                          | <u>0.010</u>  |                         |                          | <u>0.010</u>  |
| 01-06-15                | 288                      | 0.032 ± 0.004 | 07-07-15                | 282                      | 0.026 ± 0.004 |
| 01-13-15                | 284                      | 0.027 ± 0.004 | 07-14-15                | 296                      | 0.021 ± 0.003 |
| 01-20-15                | 286                      | 0.028 ± 0.004 | 07-21-15                | 291                      | 0.025 ± 0.004 |
| 01-27-15                | 291                      | 0.010 ± 0.003 | 07-28-15                | 293                      | 0.022 ± 0.003 |
| 02-03-15                | 289                      | 0.013 ± 0.003 |                         |                          |               |
|                         |                          |               | 08-04-15                | 295                      | 0.028 ± 0.004 |
| 02-10-15                | 288                      | 0.021 ± 0.003 | 08-11-15                | 293                      | 0.018 ± 0.003 |
| 02-17-15                | 289                      | 0.023 ± 0.003 | 08-18-15                | 294                      | 0.033 ± 0.004 |
| 02-24-15                | 290                      | 0.039 ± 0.004 | 08-25-15                | 294                      | 0.025 ± 0.004 |
| 03-03-15                | 290                      | 0.027 ± 0.004 | 09-01-15                | 290                      | 0.044 ± 0.005 |
|                         |                          |               |                         |                          |               |
| 03-10-15                | 289                      | 0.032 ± 0.004 | 09-08-15                | 294                      | 0.061 ± 0.005 |
| 03-17-15                | 286                      | 0.019 ± 0.004 | 09-15-15                | 295                      | 0.032 ± 0.004 |
| 03-24-15                | 279                      | 0.023 ± 0.004 | 09-22-15                | 291                      | 0.029 ± 0.004 |
| 03-31-15                | 283                      | 0.022 ± 0.004 | 09-29-15                | 292                      | 0.028 ± 0.004 |
| 1st Quarter Mean ± s.d. |                          | 0.024 ± 0.008 | 3rd Quarter Mean ± s.d. |                          | 0.030 ± 0.011 |
|                         |                          |               |                         |                          |               |
| 04-07-15                | 282                      | 0.020 ± 0.004 | 10-06-15                | 294                      | 0.018 ± 0.003 |
| 04-14-15                | 286                      | 0.021 ± 0.004 | 10-13-15                | 295                      | 0.038 ± 0.004 |
| 04-21-15                | 283                      | 0.019 ± 0.003 | 10-20-15                | 291                      | 0.023 ± 0.004 |
| 04-28-15                | 284                      | 0.014 ± 0.003 | 10-27-15                | 294                      | 0.033 ± 0.004 |
|                         |                          |               | 11-03-15                | 295                      | 0.030 ± 0.004 |
| 05-05-15                | 286                      | 0.014 ± 0.003 |                         |                          |               |
| 05-12-15                | 281                      | 0.022 ± 0.004 | 11-10-15                | 291                      | 0.036 ± 0.004 |
| 05-19-15                | 285                      | 0.017 ± 0.003 | 11-17-15                | 292                      | 0.043 ± 0.005 |
| 05-26-15                | 287                      | 0.023 ± 0.004 | 11-23-15                | 252                      | 0.027 ± 0.004 |
| 06-02-15                | 287                      | 0.017 ± 0.003 | 12-01-15                | 334                      | 0.034 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 06-09-15                | 281                      | 0.017 ± 0.003 | 12-08-15                | 294                      | 0.042 ± 0.005 |
| 06-16-15                | 287                      | 0.020 ± 0.003 | 12-15-15                | 294                      | 0.055 ± 0.005 |
| 06-23-15                | 281                      | 0.022 ± 0.004 | 12-22-15                | 286                      | 0.030 ± 0.004 |
| 06-30-15                | 286                      | 0.017 ± 0.003 | 12-29-15                | 282                      | 0.024 ± 0.004 |
| 2nd Quarter Mean ± s.d. |                          | 0.019 ± 0.003 | 4th Quarter Mean ± s.d. |                          | 0.033 ± 0.010 |
| Cumulative Average      |                          |               |                         |                          | 0.027         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 10. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.

Location: T-27 (C).

Units: pCi/m<sup>3</sup>

Collection: Continuous, weekly exchange.

| Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    | Date Collected          | Volume (m <sup>3</sup> ) | Gross Beta    |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u>     |                          | <u>0.010</u>  |                         |                          | <u>0.010</u>  |
| 01-06-15                | 289                      | 0.033 ± 0.004 | 07-07-15                | 287                      | 0.024 ± 0.004 |
| 01-13-15                | 288                      | 0.034 ± 0.004 | 07-14-15                | 291                      | 0.016 ± 0.003 |
| 01-20-15                | 283                      | 0.038 ± 0.004 | 07-21-15                | 283                      | 0.025 ± 0.004 |
| 01-27-15                | 289                      | 0.023 ± 0.004 | 07-28-15                | 296                      | 0.025 ± 0.004 |
| 02-03-15                | 287                      | 0.022 ± 0.003 |                         |                          |               |
|                         |                          |               | 08-04-15                | 231                      | 0.029 ± 0.004 |
| 02-10-15                | 286                      | 0.032 ± 0.004 | 08-11-15                | 226                      | 0.020 ± 0.004 |
| 02-17-15                | 286                      | 0.028 ± 0.004 | 08-18-15                | 283                      | 0.031 ± 0.004 |
| 02-24-15                | 287                      | 0.049 ± 0.005 | 08-25-15                | 285                      | 0.027 ± 0.004 |
| 03-03-15                | 285                      | 0.034 ± 0.004 | 09-01-15                | 283                      | 0.038 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 03-10-15                | 284                      | 0.025 ± 0.004 | 09-08-15                | 284                      | 0.057 ± 0.005 |
| 03-17-15                | 283                      | 0.014 ± 0.004 | 09-15-15                | 285                      | 0.032 ± 0.004 |
| 03-24-15                | 276                      | 0.020 ± 0.004 | 09-22-15                | 284                      | 0.038 ± 0.004 |
| 03-31-15                | 275                      | 0.018 ± 0.003 | 09-29-15                | 283                      | 0.036 ± 0.004 |
| <hr/>                   |                          |               | <hr/>                   |                          |               |
| 1st Quarter Mean ± s.d. |                          | 0.028 ± 0.009 | 3rd Quarter Mean ± s.d. |                          | 0.031 ± 0.010 |
| 04-07-15                | 288                      | 0.020 ± 0.003 | 10-06-15                | 284                      | 0.015 ± 0.003 |
| 04-14-15                | 291                      | 0.023 ± 0.004 | 10-13-15                | 286                      | 0.029 ± 0.004 |
| 04-21-15                | 288                      | 0.017 ± 0.003 | 10-20-15                | 282                      | 0.020 ± 0.003 |
| 04-28-15                | 289                      | 0.015 ± 0.003 | 10-27-15                | 285                      | 0.032 ± 0.004 |
|                         |                          |               | 11-03-15                | 283                      | 0.031 ± 0.004 |
| 05-05-15                | 290                      | 0.013 ± 0.003 |                         |                          |               |
| 05-12-15                | 289                      | 0.025 ± 0.004 | 11-10-15                | 284                      | 0.032 ± 0.004 |
| 05-19-15                | 289                      | 0.024 ± 0.004 | 11-17-15                | 279                      | 0.039 ± 0.005 |
| 05-26-15                | 290                      | 0.022 ± 0.004 | 11-23-15                | 249                      | 0.032 ± 0.004 |
| 06-02-15                | 285                      | 0.019 ± 0.003 | 12-01-15                | 324                      | 0.030 ± 0.004 |
|                         |                          |               |                         |                          |               |
| 06-09-15                | 287                      | 0.023 ± 0.004 | 12-08-15                | 285                      | 0.045 ± 0.005 |
| 06-16-15                | 290                      | 0.019 ± 0.003 | 12-15-15                | 284                      | 0.048 ± 0.005 |
| 06-23-15                | 289                      | 0.020 ± 0.003 | 12-22-15                | 286                      | 0.027 ± 0.004 |
| 06-30-15                | 287                      | 0.021 ± 0.003 | 12-29-15                | 286                      | 0.028 ± 0.004 |
| <hr/>                   |                          |               | <hr/>                   |                          |               |
| 2nd Quarter Mean ± s.d. |                          | 0.020 ± 0.004 | 4th Quarter Mean ± s.d. |                          | 0.031 ± 0.009 |
|                         |                          |               | Cumulative Average      |                          | 0.028         |

<sup>a</sup> Iodine-131 concentrations are < 0.07 pCi/m<sup>3</sup> unless noted otherwise.

Table 11-1. Airborne particulate data, gross beta analyses, monthly averages, minima and maxima.

| January    |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.030   | 0.022  | 0.038  |
| T-11       | 0.022   | 0.017  | 0.029  |
| T-12       | 0.022   | 0.010  | 0.032  |
| T-27       | 0.030   | 0.022  | 0.038  |
| Controls   | 0.026   | 0.010  | 0.038  |
| T-1        | 0.021   | 0.016  | 0.026  |
| T-2        | 0.029   | 0.020  | 0.036  |
| T-3        | 0.029   | 0.019  | 0.038  |
| T-4        | 0.028   | 0.020  | 0.036  |
| T-7        | 0.027   | 0.020  | 0.032  |
| T-8        | 0.028   | 0.019  | 0.040  |
| Indicators | 0.027   | 0.016  | 0.040  |

| April      |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.018   | 0.016  | 0.021  |
| T-11       | 0.015   | 0.013  | 0.017  |
| T-12       | 0.019   | 0.014  | 0.021  |
| T-27       | 0.019   | 0.015  | 0.023  |
| Controls   | 0.018   | 0.013  | 0.023  |
| T-1        | 0.020   | 0.014  | 0.023  |
| T-2        | 0.019   | 0.013  | 0.024  |
| T-3        | 0.018   | 0.013  | 0.021  |
| T-4        | 0.018   | 0.012  | 0.024  |
| T-7        | 0.021   | 0.013  | 0.029  |
| T-8        | 0.018   | 0.013  | 0.024  |
| Indicators | 0.019   | 0.012  | 0.029  |

| February   |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.038   | 0.030  | 0.051  |
| T-11       | 0.030   | 0.026  | 0.037  |
| T-12       | 0.028   | 0.021  | 0.039  |
| T-27       | 0.036   | 0.028  | 0.049  |
| Controls   | 0.033   | 0.021  | 0.051  |
| T-1        | 0.030   | 0.022  | 0.041  |
| T-2        | 0.039   | 0.030  | 0.053  |
| T-3        | 0.037   | 0.026  | 0.052  |
| T-4        | 0.036   | 0.031  | 0.047  |
| T-7        | 0.039   | 0.031  | 0.049  |
| T-8        | 0.034   | 0.025  | 0.048  |
| Indicators | 0.036   | 0.022  | 0.053  |

| May        |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.020   | 0.015  | 0.026  |
| T-11       | 0.018   | 0.013  | 0.024  |
| T-12       | 0.019   | 0.014  | 0.023  |
| T-27       | 0.021   | 0.013  | 0.025  |
| Controls   | 0.020   | 0.013  | 0.026  |
| T-1        | 0.022   | 0.018  | 0.027  |
| T-2        | 0.022   | 0.017  | 0.027  |
| T-3        | 0.020   | 0.013  | 0.026  |
| T-4        | 0.019   | 0.014  | 0.023  |
| T-7        | 0.019   | 0.014  | 0.026  |
| T-8        | 0.018   | 0.013  | 0.024  |
| Indicators | 0.020   | 0.013  | 0.027  |

| March      |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.022   | 0.018  | 0.029  |
| T-11       | 0.018   | 0.014  | 0.021  |
| T-12       | 0.024   | 0.019  | 0.032  |
| T-27       | 0.019   | 0.014  | 0.025  |
| Controls   | 0.021   | 0.014  | 0.032  |
| T-1        | 0.019   | 0.013  | 0.022  |
| T-2        | 0.024   | 0.018  | 0.030  |
| T-3        | 0.023   | 0.017  | 0.028  |
| T-4        | 0.021   | 0.015  | 0.024  |
| T-7        | 0.022   | 0.016  | 0.026  |
| T-8        | 0.022   | 0.017  | 0.028  |
| Indicators | 0.022   | 0.013  | 0.030  |

| June       |         |        |        |
|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima |
| T-9        | 0.020   | 0.017  | 0.022  |
| T-11       | 0.019   | 0.016  | 0.022  |
| T-12       | 0.019   | 0.017  | 0.022  |
| T-27       | 0.021   | 0.019  | 0.023  |
| Controls   | 0.020   | 0.016  | 0.023  |
| T-1        | 0.021   | 0.018  | 0.027  |
| T-2        | 0.019   | 0.017  | 0.022  |
| T-3        | 0.019   | 0.016  | 0.022  |
| T-4        | 0.018   | 0.014  | 0.021  |
| T-7        | 0.020   | 0.019  | 0.022  |
| T-8        | 0.020   | 0.019  | 0.021  |
| Indicators | 0.020   | 0.014  | 0.027  |

Note: Unless otherwise specified, samples collected on the first, second or third day of the month are grouped with data from the previous month.

Table 11-1. Airborne particulate data, gross beta analyses, monthly averages, minima and maxima.

| July       |         |        |        | October    |         |        |        |
|------------|---------|--------|--------|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima | Location   | Average | Minima | Maxima |
| T-9        | 0.023   | 0.021  | 0.028  | T-9        | 0.027   | 0.018  | 0.037  |
| T-11       | 0.023   | 0.016  | 0.027  | T-11       | 0.035   | 0.018  | 0.054  |
| T-12       | 0.024   | 0.021  | 0.026  | T-12       | 0.028   | 0.018  | 0.038  |
| T-27       | 0.023   | 0.016  | 0.025  | T-27       | 0.025   | 0.015  | 0.032  |
| Controls   | 0.023   | 0.016  | 0.028  | Controls   | 0.029   | 0.015  | 0.054  |
| T-1        | 0.025   | 0.018  | 0.028  | T-1        | 0.028   | 0.014  | 0.037  |
| T-2        | 0.026   | 0.022  | 0.032  | T-2        | 0.027   | 0.016  | 0.042  |
| T-3        | 0.023   | 0.018  | 0.026  | T-3        | 0.026   | 0.013  | 0.034  |
| T-4        | 0.022   | 0.018  | 0.025  | T-4        | 0.028   | 0.016  | 0.036  |
| T-7        | 0.025   | 0.019  | 0.033  | T-7        | 0.026   | 0.018  | 0.035  |
| T-8        | 0.024   | 0.020  | 0.026  | T-8        | 0.028   | 0.016  | 0.037  |
| Indicators | 0.024   | 0.018  | 0.033  | Indicators | 0.027   | 0.013  | 0.042  |

| August     |         |        |        | November   |         |        |        |
|------------|---------|--------|--------|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima | Location   | Average | Minima | Maxima |
| T-9        | 0.032   | 0.024  | 0.040  | T-9        | 0.034   | 0.028  | 0.045  |
| T-11       | 0.030   | 0.022  | 0.038  | T-11       | 0.049   | 0.041  | 0.065  |
| T-12       | 0.030   | 0.018  | 0.044  | T-12       | 0.035   | 0.027  | 0.043  |
| T-27       | 0.029   | 0.020  | 0.038  | T-27       | 0.033   | 0.030  | 0.039  |
| Controls   | 0.030   | 0.018  | 0.044  | Controls   | 0.038   | 0.027  | 0.065  |
| T-1        | 0.029   | 0.020  | 0.038  | T-1        | 0.035   | 0.028  | 0.044  |
| T-2        | 0.033   | 0.025  | 0.040  | T-2        | 0.034   | 0.026  | 0.046  |
| T-3        | 0.030   | 0.018  | 0.037  | T-3        | 0.035   | 0.026  | 0.044  |
| T-4        | 0.029   | 0.023  | 0.038  | T-4        | 0.034   | 0.026  | 0.042  |
| T-7        | 0.030   | 0.026  | 0.040  | T-7        | 0.033   | 0.029  | 0.042  |
| T-8        | 0.032   | 0.027  | 0.037  | T-8        | 0.035   | 0.027  | 0.043  |
| Indicators | 0.031   | 0.018  | 0.040  | Indicators | 0.034   | 0.026  | 0.046  |

| September  |         |        |        | December   |         |        |        |
|------------|---------|--------|--------|------------|---------|--------|--------|
| Location   | Average | Minima | Maxima | Location   | Average | Minima | Maxima |
| T-9        | 0.038   | 0.031  | 0.050  | T-9        | 0.038   | 0.026  | 0.055  |
| T-11       | 0.043   | 0.039  | 0.054  | T-11       | 0.054   | 0.036  | 0.078  |
| T-12       | 0.038   | 0.028  | 0.061  | T-12       | 0.038   | 0.024  | 0.055  |
| T-27       | 0.041   | 0.032  | 0.057  | T-27       | 0.037   | 0.027  | 0.048  |
| Controls   | 0.040   | 0.028  | 0.061  | Controls   | 0.042   | 0.024  | 0.078  |
| T-1        | 0.041   | 0.033  | 0.057  | T-1        | 0.038   | 0.027  | 0.053  |
| T-2        | 0.041   | 0.032  | 0.048  | T-2        | 0.041   | 0.028  | 0.062  |
| T-3        | 0.037   | 0.027  | 0.051  | T-3        | 0.038   | 0.027  | 0.056  |
| T-4        | 0.034   | 0.022  | 0.052  | T-4        | 0.040   | 0.029  | 0.056  |
| T-7        | 0.038   | 0.024  | 0.056  | T-7        | 0.036   | 0.025  | 0.049  |
| T-8        | 0.040   | 0.035  | 0.052  | T-8        | 0.038   | 0.021  | 0.058  |
| Indicators | 0.039   | 0.022  | 0.057  | Indicators | 0.039   | 0.021  | 0.062  |

Note: Unless otherwise specified, samples collected on the first, second or third day of the month are grouped with data from the previous month.

Table 12. Airborne particulates, analyses for strontium-89, strontium-90 and gamma-emitting isotopes.

Collection: Quarterly Composite

Units: pCi/m<sup>3</sup>

| Location                 |               | T-1           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1803     | TAP- 3793     | TAP- 5980     | TAP- 7344     |  |
| Volume (m <sup>3</sup> ) | 4507          | 3691          | 3684          | 3702          |  |
| Sr-89                    | < 0.0005      | < 0.0006      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0003      | < 0.0004      | < 0.0005      | -             |  |
| Be-7                     | 0.055 ± 0.012 | 0.090 ± 0.016 | 0.103 ± 0.017 | 0.069 ± 0.012 |  |
| K-40                     | < 0.020       | < 0.024       | < 0.023       | 0.022 ± 0.012 |  |
| Nb-95                    | < 0.0008      | < 0.0009      | < 0.0015      | < 0.0008      |  |
| Zr-95                    | < 0.0009      | < 0.0005      | < 0.0009      | < 0.0007      |  |
| Ru-103                   | < 0.0005      | < 0.0009      | < 0.0008      | < 0.0011      |  |
| Ru-106                   | < 0.0048      | < 0.0041      | < 0.0103      | < 0.0077      |  |
| Cs-134                   | < 0.0008      | < 0.0007      | < 0.0007      | < 0.0008      |  |
| Cs-137                   | < 0.0007      | < 0.0005      | < 0.0007      | < 0.0006      |  |
| Ce-141                   | < 0.0014      | < 0.0015      | < 0.0020      | < 0.0012      |  |
| Ce-144                   | < 0.0034      | < 0.0035      | < 0.0044      | < 0.0041      |  |

| Location                 |               | T-2           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1804     | TAP- 3794     | TAP- 5981     | TAP- 7345     |  |
| Volume (m <sup>3</sup> ) | 3665          | 3722          | 3744          | 3749          |  |
| Sr-89                    | < 0.0008      | < 0.0006      | < 0.0007      | -             |  |
| Sr-90                    | < 0.0004      | < 0.0004      | < 0.0005      | -             |  |
| Be-7                     | 0.063 ± 0.013 | 0.091 ± 0.013 | 0.087 ± 0.016 | 0.059 ± 0.012 |  |
| K-40                     | < 0.024       | < 0.022       | < 0.022       | < 0.013       |  |
| Nb-95                    | < 0.0011      | < 0.0010      | < 0.0013      | < 0.0008      |  |
| Zr-95                    | < 0.0010      | < 0.0012      | < 0.0019      | < 0.0011      |  |
| Ru-103                   | < 0.0004      | < 0.0009      | < 0.0013      | < 0.0008      |  |
| Ru-106                   | < 0.0059      | < 0.0047      | < 0.0074      | < 0.0052      |  |
| Cs-134                   | < 0.0008      | < 0.0008      | < 0.0012      | < 0.0007      |  |
| Cs-137                   | < 0.0009      | < 0.0007      | < 0.0008      | < 0.0004      |  |
| Ce-141                   | < 0.0017      | < 0.0012      | < 0.0016      | < 0.0014      |  |
| Ce-144                   | < 0.0054      | < 0.0042      | < 0.0032      | < 0.0026      |  |

Table 12. Airborne particulates, analyses for strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly Composite  
Units: pCi/m<sup>3</sup>

| Location                 |               | T-3           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1805     | 3795          | TAP- 5982     | TAP- 7346     |  |
| Volume (m <sup>3</sup> ) | 3756          | 3718          | 3712          | 3689          |  |
| Sr-89                    | < 0.0011      | < 0.0004      | < 0.0007      | -             |  |
| Sr-90                    | < 0.0007      | < 0.0003      | < 0.0005      | -             |  |
| Be-7                     | 0.069 ± 0.014 | 0.084 ± 0.014 | 0.093 ± 0.015 | 0.063 ± 0.015 |  |
| K-40                     | < 0.023       | < 0.014       | < 0.014       | < 0.020       |  |
| Nb-95                    | < 0.0011      | < 0.0009      | < 0.0009      | < 0.0012      |  |
| Zr-95                    | < 0.0016      | < 0.0010      | < 0.0016      | < 0.0016      |  |
| Ru-103                   | < 0.0006      | < 0.0007      | < 0.0010      | < 0.0012      |  |
| Ru-106                   | < 0.0075      | < 0.0054      | < 0.0032      | < 0.0044      |  |
| Cs-134                   | < 0.0008      | < 0.0008      | < 0.0009      | < 0.0010      |  |
| Cs-137                   | < 0.0008      | < 0.0006      | < 0.0007      | < 0.0008      |  |
| Ce-141                   | < 0.0016      | < 0.0012      | < 0.0014      | < 0.0017      |  |
| Ce-144                   | < 0.0053      | < 0.0027      | < 0.0035      | < 0.0048      |  |

| Location                 |               | T-4           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1807     | TAP- 3796     | TAP- 5983     | TAP- 7347     |  |
| Volume (m <sup>3</sup> ) | 3718          | 3650          | 3704          | 3731          |  |
| Sr-89                    | < 0.0005      | < 0.0005      | < 0.0005      | -             |  |
| Sr-90                    | < 0.0003      | < 0.0003      | < 0.0003      | -             |  |
| Be-7                     | 0.078 ± 0.014 | 0.084 ± 0.019 | 0.090 ± 0.016 | 0.064 ± 0.013 |  |
| K-40                     | < 0.024       | < 0.024       | < 0.020       | < 0.021       |  |
| Nb-95                    | < 0.0007      | < 0.0008      | < 0.0009      | < 0.0009      |  |
| Zr-95                    | < 0.0012      | < 0.0009      | < 0.0012      | < 0.0019      |  |
| Ru-103                   | < 0.0009      | < 0.0007      | < 0.0008      | < 0.0013      |  |
| Ru-106                   | < 0.0054      | < 0.0087      | < 0.0039      | < 0.0070      |  |
| Cs-134                   | < 0.0009      | < 0.0007      | < 0.0011      | < 0.0011      |  |
| Cs-137                   | < 0.0009      | < 0.0005      | < 0.0005      | < 0.0009      |  |
| Ce-141                   | < 0.0015      | < 0.0022      | < 0.0022      | < 0.0022      |  |
| Ce-144                   | < 0.0047      | < 0.0027      | < 0.0047      | < 0.0046      |  |

Table 12. Airborne particulates, analyses for strontium-89, strontium-90 and gamma-emitting isotopes.

Collection: Quarterly Composite

Units: pCi/m<sup>3</sup>

| Location                 |               | T-7           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1808     | TAP- 3797     | TAP- 5984     | TAP- 7348     |  |
| Volume (m <sup>3</sup> ) | 3756          | 3710          | 3709          | 3742          |  |
| Sr-89                    | < 0.0005      | < 0.0005      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0003      | < 0.0003      | < 0.0004      | -             |  |
| Be-7                     | 0.059 ± 0.013 | 0.074 ± 0.015 | 0.084 ± 0.016 | 0.063 ± 0.014 |  |
| K-40                     | < 0.023       | < 0.023       | < 0.023       | < 0.021       |  |
| Nb-95                    | < 0.0007      | < 0.0009      | < 0.0014      | < 0.0013      |  |
| Zr-95                    | < 0.0010      | < 0.0010      | < 0.0017      | < 0.0015      |  |
| Ru-103                   | < 0.0009      | < 0.0010      | < 0.0010      | < 0.0006      |  |
| Ru-106                   | < 0.0065      | < 0.0041      | < 0.0097      | < 0.0085      |  |
| Cs-134                   | < 0.0009      | < 0.0008      | < 0.0011      | < 0.0008      |  |
| Cs-137                   | < 0.0009      | < 0.0006      | < 0.0009      | < 0.0007      |  |
| Ce-141                   | < 0.0016      | < 0.0010      | < 0.0021      | < 0.0019      |  |
| Ce-144                   | < 0.0038      | < 0.0041      | < 0.0061      | < 0.0040      |  |

| Location                 |               | T-8           |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1809     | TAP- 3798     | TAP- 5985     | TAP- 7349     |  |
| Volume (m <sup>3</sup> ) | 3768          | 3756          | 3748          | 3680          |  |
| Sr-89                    | < 0.0007      | < 0.0005      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0004      | < 0.0004      | < 0.0004      | -             |  |
| Be-7                     | 0.060 ± 0.016 | 0.076 ± 0.016 | 0.099 ± 0.017 | 0.070 ± 0.012 |  |
| K-40                     | < 0.023       | < 0.024       | < 0.022       | < 0.014       |  |
| Nb-95                    | < 0.0010      | < 0.0008      | < 0.0012      | < 0.0015      |  |
| Zr-95                    | < 0.0009      | < 0.0009      | < 0.0026      | < 0.0014      |  |
| Ru-103                   | < 0.0006      | < 0.0011      | < 0.0011      | < 0.0007      |  |
| Ru-106                   | < 0.0062      | < 0.0051      | < 0.0059      | < 0.0050      |  |
| Cs-134                   | < 0.0010      | < 0.0007      | < 0.0014      | < 0.0007      |  |
| Cs-137                   | < 0.0007      | < 0.0008      | < 0.0014      | < 0.0008      |  |
| Ce-141                   | < 0.0014      | < 0.0011      | < 0.0023      | < 0.0010      |  |
| Ce-144                   | < 0.0054      | < 0.0032      | < 0.0064      | < 0.0033      |  |

Table 12. Airborne particulates, analyses for strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly Composite  
Units: pCi/m<sup>3</sup>

| Location                 |               | T-9 (C)       |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1810     | TAP- 3799     | TAP- 5986     | TAP- 7350     |  |
| Volume (m <sup>3</sup> ) | 3712          | 3753          | 3760          | 3747          |  |
| Sr-89                    | < 0.0007      | < 0.0006      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0004      | < 0.0004      | < 0.0005      | -             |  |
| Be-7                     | 0.078 ± 0.017 | 0.090 ± 0.014 | 0.071 ± 0.015 | 0.073 ± 0.016 |  |
| K-40                     | < 0.024       | < 0.022       | < 0.024       | < 0.021       |  |
| Nb-95                    | < 0.0007      | < 0.0013      | < 0.0009      | < 0.0011      |  |
| Zr-95                    | < 0.0010      | < 0.0013      | < 0.0022      | < 0.0017      |  |
| Ru-103                   | < 0.0004      | < 0.0011      | < 0.0010      | < 0.0012      |  |
| Ru-106                   | < 0.0045      | < 0.0055      | < 0.0092      | < 0.0078      |  |
| Cs-134                   | < 0.0008      | < 0.0009      | < 0.0010      | < 0.0009      |  |
| Cs-137                   | < 0.0009      | < 0.0008      | < 0.0012      | < 0.0009      |  |
| Ce-141                   | < 0.0011      | < 0.0017      | < 0.0024      | < 0.0021      |  |
| Ce-144                   | < 0.0024      | < 0.0044      | < 0.0059      | < 0.0045      |  |

| Location                 |               | T-11 (C)      |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1811     | TAP- 3800     | TAP- 5988     | TAP- 7351     |  |
| Volume (m <sup>3</sup> ) | 4637          | 4169          | 3689          | 2534          |  |
| Sr-89                    | < 0.0005      | < 0.0005      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0003      | < 0.0003      | < 0.0004      | -             |  |
| Be-7                     | 0.060 ± 0.012 | 0.077 ± 0.011 | 0.094 ± 0.015 | 0.099 ± 0.020 |  |
| K-40                     | < 0.020       | < 0.015       | < 0.015       | < 0.029       |  |
| Nb-95                    | < 0.0007      | < 0.0007      | < 0.0005      | < 0.0015      |  |
| Zr-95                    | < 0.0007      | < 0.0011      | < 0.0014      | < 0.0014      |  |
| Ru-103                   | < 0.0006      | < 0.0007      | < 0.0010      | < 0.0009      |  |
| Ru-106                   | < 0.0058      | < 0.0037      | < 0.0029      | < 0.0080      |  |
| Cs-134                   | < 0.0005      | < 0.0007      | < 0.0006      | < 0.0011      |  |
| Cs-137                   | < 0.0008      | < 0.0004      | < 0.0007      | < 0.0013      |  |
| Ce-141                   | < 0.0013      | < 0.0009      | < 0.0016      | < 0.0027      |  |
| Ce-144                   | < 0.0038      | < 0.0029      | < 0.0043      | < 0.0043      |  |

Table 12. Airborne particulates, analyses for strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly Composite  
Units: pCi/m<sup>3</sup>

| Location                 |               | T-12 (C)      |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1812     | TAP- 3801     | TAP- 5989     | TAP- 7353     |  |
| Volume (m <sup>3</sup> ) | 3732          | 3696          | 3800          | 3794          |  |
| Sr-89                    | < 0.0006      | < 0.0010      | < 0.0006      | -             |  |
| Sr-90                    | < 0.0003      | < 0.0007      | < 0.0004      | -             |  |
| Be-7                     | 0.060 ± 0.014 | 0.072 ± 0.016 | 0.087 ± 0.016 | 0.062 ± 0.015 |  |
| K-40                     | < 0.024       | < 0.024       | < 0.023       | < 0.023       |  |
| Nb-95                    | < 0.0007      | < 0.0013      | < 0.0013      | < 0.0011      |  |
| Zr-95                    | < 0.0011      | < 0.0019      | < 0.0016      | < 0.0015      |  |
| Ru-103                   | < 0.0005      | < 0.0009      | < 0.0006      | < 0.0009      |  |
| Ru-106                   | < 0.0045      | < 0.0074      | < 0.0062      | < 0.0068      |  |
| Cs-134                   | < 0.0009      | < 0.0011      | < 0.0010      | < 0.0010      |  |
| Cs-137                   | < 0.0010      | < 0.0010      | < 0.0008      | < 0.0005      |  |
| Ce-141                   | < 0.0016      | < 0.0019      | < 0.0021      | < 0.0023      |  |
| Ce-144                   | < 0.0049      | < 0.0047      | < 0.0045      | < 0.0053      |  |

| Location                 |               | T-27 (C)      |               |               |  |
|--------------------------|---------------|---------------|---------------|---------------|--|
| Quarter                  | 1st Quarter   | 2nd Quarter   | 3rd Quarter   | 4th Quarter   |  |
| Lab Code                 | TAP- 1813     | TAP- 3803     | TAP- 5990     | TAP- 7354     |  |
| Volume (m <sup>3</sup> ) | 3698          | 3752          | 3601          | 3697          |  |
| Sr-89                    | < 0.0006      | < 0.0005      | < 0.0009      | -             |  |
| Sr-90                    | < 0.0004      | < 0.0004      | < 0.0005      | -             |  |
| Be-7                     | 0.056 ± 0.015 | 0.082 ± 0.015 | 0.089 ± 0.018 | 0.074 ± 0.017 |  |
| K-40                     | < 0.024       | < 0.017       | < 0.024       | < 0.020       |  |
| Nb-95                    | < 0.0010      | < 0.0010      | < 0.0011      | < 0.0011      |  |
| Zr-95                    | < 0.0010      | < 0.0015      | < 0.0017      | < 0.0018      |  |
| Ru-103                   | < 0.0004      | < 0.0008      | < 0.0010      | < 0.0010      |  |
| Ru-106                   | < 0.0054      | < 0.0064      | < 0.0111      | < 0.0059      |  |
| Cs-134                   | < 0.0006      | < 0.0008      | < 0.0010      | < 0.0008      |  |
| Cs-137                   | < 0.0008      | < 0.0006      | < 0.0008      | < 0.0008      |  |
| Ce-141                   | < 0.0013      | < 0.0012      | < 0.0025      | < 0.0022      |  |
| Ce-144                   | < 0.0044      | < 0.0018      | < 0.0052      | < 0.0044      |  |

Table 13. Area monitors (TLD), Quarterly.  
Units: mR/91 days

| <u>Indicator</u> | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> |
|------------------|-----------------|-----------------|-----------------|-----------------|
| T-1              | 10.9 ± 0.8      | 13.2 ± 0.9      | 12.9 ± 0.9      | 15.9 ± 1.8      |
| T-2              | 9.6 ± 0.8       | 13.1 ± 1.0      | 12.9 ± 0.7      | 14.3 ± 1.0      |
| T-3              | 10.9 ± 1.3      | 11.0 ± 1.1      | 13.0 ± 1.0      | 12.3 ± 1.0      |
| T-4              | 12.8 ± 1.0      | 13.7 ± 1.0      | 13.5 ± 0.7      | 15.7 ± 1.1      |
| T-5              | 13.4 ± 1.0      | 12.4 ± 0.8      | 14.0 ± 0.7      | 14.2 ± 0.9      |
| T-6              | 7.8 ± 1.0       | 10.3 ± 0.6      | 9.9 ± 0.8       | 12.1 ± 1.0      |
| T-7              | 13.2 ± 0.9      | 18.3 ± 1.0      | 16.5 ± 0.9      | 19.3 ± 1.2      |
| T-8              | 21.1 ± 1.5      | 22.9 ± 1.8      | 25.9 ± 1.4      | 23.8 ± 2.0      |
| T-10             | 11.5 ± 0.6      | 13.9 ± 0.8      | 14.4 ± 0.6      | 14.9 ± 0.9      |
| T-38             | 11.5 ± 0.7      | 12.8 ± 1.5      | 12.9 ± 0.5      | 12.5 ± 1.6      |
| T-39             | 11.8 ± 1.4      | 13.3 ± 0.7      | 12.6 ± 1.3      | 13.6 ± 0.8      |
| T-40             | 13.2 ± 0.8      | 11.8 ± 1.1      | 16.4 ± 0.6      | 14.4 ± 1.2      |
| T-41             | 10.4 ± 0.9      | 9.4 ± 0.6       | 10.9 ± 0.8      | 11.8 ± 1.3      |
| T-42             | 10.7 ± 0.9      | 9.1 ± 0.8       | 11.8 ± 0.7      | 11.3 ± 1.1      |
| T-43             | 13.4 ± 1.0      | 14.4 ± 0.7      | 17.2 ± 1.1      | 15.6 ± 1.0      |
| T-44             | 17.3 ± 1.0      | 19.9 ± 1.8      | 19.9 ± 1.0      | 20.9 ± 2.0      |
| T-45             | 16.7 ± 0.8      | ND <sup>a</sup> | 17.2 ± 0.7      | 16.9 ± 1.4      |
| T-46             | 13.8 ± 1.2      | 12.2 ± 0.9      | 14.7 ± 1.4      | 13.2 ± 1.0      |
| T-47             | 9.2 ± 1.1       | 10.4 ± 1.2      | 9.2 ± 0.8       | 11.8 ± 1.3      |
| T-48             | 12.0 ± 0.7      | 9.5 ± 0.7       | 12.2 ± 0.4      | 11.4 ± 0.8      |
| T-49             | 9.7 ± 0.9       | 12.0 ± 1.1      | 10.3 ± 0.6      | 12.6 ± 1.2      |
| T-50             | 16.4 ± 0.8      | 17.6 ± 1.6      | 17.7 ± 0.7      | 17.1 ± 1.3      |
| T-51             | 15.5 ± 1.3      | 15.8 ± 0.9      | 17.4 ± 1.1      | 15.1 ± 1.9      |
| T-52             | 16.0 ± 1.4      | 21.6 ± 1.0      | 20.4 ± 1.7      | 21.9 ± 0.9      |
| T-53             | 15.4 ± 0.9      | 20.7 ± 1.2      | 19.1 ± 0.7      | 19.2 ± 2.6      |
| T-54             | 17.4 ± 1.4      | 18.0 ± 1.4      | 20.2 ± 1.0      | 18.5 ± 1.5      |
| T-55             | 11.8 ± 1.6      | 13.7 ± 1.2      | 14.3 ± 1.4      | 13.8 ± 1.3      |
| T-60             | 10.6 ± 1.6      | 11.8 ± 1.4      | 12.3 ± 1.5      | 15.7 ± 1.3      |
| T-62             | 9.5 ± 1.0       | 9.4 ± 0.8       | 11.1 ± 1.3      | 11.4 ± 1.0      |
| T-65             | 14.3 ± 1.4      | 16.4 ± 1.0      | 16.7 ± 1.1      | 15.5 ± 1.2      |
| T-66             | 15.3 ± 1.2      | 19.9 ± 1.7      | 17.9 ± 1.2      | 23.0 ± 1.4      |
| T-67             | 14.6 ± 1.2      | 18.4 ± 0.8      | 16.8 ± 0.7      | 21.0 ± 1.0      |
| T-68             | 13.8 ± 1.9      | 13.3 ± 0.8      | 15.9 ± 1.4      | 15.7 ± 0.9      |
| T-69             | 13.5 ± 1.1      | 16.3 ± 0.7      | 15.8 ± 0.8      | 18.6 ± 0.9      |
| T-71             | 15.9 ± 0.9      | 18.3 ± 0.8      | 16.6 ± 0.8      | 21.6 ± 0.9      |
| T-73             | 11.2 ± 1.4      | 15.3 ± 1.6      | 11.8 ± 1.1      | 16.3 ± 1.1      |
| T-74             | 12.4 ± 1.6      | 14.3 ± 1.2      | 14.4 ± 1.0      | 15.2 ± 1.6      |
| T-75             | 13.3 ± 1.3      | 12.3 ± 0.6      | 13.3 ± 1.2      | 12.7 ± 0.9      |
| T-76             | 11.9 ± 1.0      | 13.8 ± 1.0      | 10.4 ± 0.7      | 15.0 ± 1.4      |
| T-91             | 15.5 ± 1.1      | 16.7 ± 1.5      | 16.8 ± 0.8      | 18.2 ± 1.6      |
| T-92             | 12.9 ± 1.0      | 12.5 ± 0.7      | 13.3 ± 0.6      | 14.1 ± 0.9      |

<sup>a</sup> ND = No Data, TLD missing in the field.

Table 13. Area monitors (TLD), Quarterly.  
Units: mR/91 days

| <u>Indicator</u> | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> |
|------------------|-----------------|-----------------|-----------------|-----------------|
| T-93             | 11.5 ± 1.3      | 12.4 ± 0.7      | 12.6 ± 1.3      | 15.4 ± 0.9      |
| T-94             | 11.9 ± 1.2      | 16.8 ± 1.0      | 12.8 ± 1.3      | 18.5 ± 1.3      |
| T-112            | 10.7 ± 1.1      | 15.3 ± 1.4      | 11.9 ± 0.7      | 16.6 ± 1.0      |
| T-121            | 13.9 ± 1.4      | 19.5 ± 1.4      | 17.9 ± 1.3      | 21.9 ± 1.2      |
| T-122            | 13.2 ± 1.3      | 14.3 ± 0.7      | 14.9 ± 1.2      | 15.8 ± 0.9      |
| T-123            | 13.4 ± 1.2      | 19.2 ± 0.9      | 15.3 ± 0.8      | 21.3 ± 0.9      |
| T-125            | 13.6 ± 1.1      | 16.9 ± 0.7      | 17.1 ± 1.1      | 18.6 ± 1.0      |
| T-126            | 12.5 ± 1.2      | 11.9 ± 0.9      | 14.5 ± 1.0      | 15.1 ± 1.3      |
| T-127            | 14.0 ± 1.1      | 21.3 ± 2.1      | 17.8 ± 1.1      | 23.5 ± 1.7      |
| T-128            | 11.9 ± 1.7      | 22.2 ± 0.9      | 14.2 ± 1.5      | 24.1 ± 1.1      |
| T-142            | 9.9 ± 1.0       | 9.7 ± 0.8       | 10.5 ± 0.8      | 12.1 ± 1.0      |
| T-150            | 12.7 ± 1.3      | 17.6 ± 1.2      | 13.6 ± 1.0      | 19.3 ± 2.3      |
| T-151            | 16.4 ± 1.2      | 17.6 ± 1.0      | 16.8 ± 1.7      | 20.4 ± 1.1      |
| T-153            | 14.6 ± 1.2      | 19.9 ± 0.8      | 19.0 ± 1.2      | 22.4 ± 0.9      |
| T-154            | 14.5 ± 1.3      | 22.0 ± 1.4      | 20.7 ± 1.3      | 25.0 ± 1.4      |
| T-201            | 11.7 ± 0.9      | 11.9 ± 0.5      | 13.9 ± 0.9      | 13.6 ± 0.5      |
| T-202            | 12.2 ± 1.2      | 14.6 ± 0.7      | 14.4 ± 1.1      | 15.9 ± 0.7      |
| T-203            | 10.1 ± 1.0      | 14.0 ± 0.8      | 13.4 ± 0.9      | 14.8 ± 0.9      |
| T-204            | 9.3 ± 1.0       | 11.8 ± 1.0      | 13.4 ± 1.7      | 12.9 ± 1.0      |
| T-205            | 9.3 ± 1.4       | 9.5 ± 0.7       | 11.0 ± 1.0      | 10.6 ± 0.5      |
| T-206            | 9.5 ± 1.0       | 10.0 ± 0.4      | 10.9 ± 0.9      | 10.9 ± 0.6      |
| T-207            | 8.1 ± 1.1       | 9.9 ± 0.4       | 9.3 ± 1.0       | 10.7 ± 0.7      |
| T-208            | 9.2 ± 1.6       | 9.9 ± 0.6       | 11.5 ± 1.3      | 10.7 ± 0.7      |
| T-211            | 9.7 ± 1.2       | 10.0 ± 1.0      | 10.2 ± 0.8      | 9.9 ± 1.0       |
| T-212            | 7.7 ± 0.8       | 10.2 ± 1.3      | 8.3 ± 0.6       | 10.2 ± 1.0      |
| T-213            | 13.0 ± 1.0      | 15.9 ± 1.1      | 15.4 ± 0.6      | 16.6 ± 1.1      |
| T-214            | 12.0 ± 0.8      | 15.5 ± 0.9      | 14.7 ± 0.6      | 16.0 ± 1.0      |
| T-215            | 14.1 ± 0.9      | 19.1 ± 1.9      | 17.4 ± 0.8      | 18.6 ± 1.8      |
| T-216            | 14.0 ± 1.0      | 14.6 ± 1.2      | 16.3 ± 1.1      | 13.3 ± 1.1      |
| T-217            | 15.1 ± 1.5      | 18.8 ± 1.4      | 19.6 ± 1.2      | 18.7 ± 1.4      |
| T-218            | 15.4 ± 1.1      | 20.5 ± 1.2      | 18.2 ± 0.9      | 21.0 ± 1.3      |
| T-219            | 10.0 ± 1.2      | 16.9 ± 1.6      | 12.4 ± 1.4      | 17.1 ± 1.6      |
| T-220            | 15.9 ± 1.0      | 18.4 ± 1.5      | 19.2 ± 0.7      | 18.8 ± 1.4      |
| T-222            | 10.1 ± 0.9      | 11.8 ± 1.1      | 11.2 ± 0.7      | 11.9 ± 0.9      |
| T-223            | 11.5 ± 1.0      | 13.7 ± 1.0      | 12.9 ± 0.8      | ND <sup>a</sup> |
| T-224            | 9.7 ± 1.0       | 12.0 ± 1.0      | 11.2 ± 0.8      | 12.5 ± 1.1      |
| Mean ± s.d.      | 12.6 ± 2.6      | 14.8 ± 3.7      | 14.6 ± 3.3      | 16.1 ± 3.9      |

<sup>a</sup>ND = No Data, TLD missing in the field.

Table 13. Area monitors (TLD), Quarterly.  
Units: mR/91 days

|                | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> |
|----------------|-----------------|-----------------|-----------------|-----------------|
| <u>Control</u> |                 |                 |                 |                 |
| T-9            | 11.3 ± 0.8      | 15.0 ± 0.9      | 15.0 ± 0.9      | 15.8 ± 0.9      |
| T-11           | 11.7 ± 1.3      | 14.1 ± 0.9      | 13.6 ± 0.8      | 14.8 ± 1.0      |
| T-12           | 14.9 ± 0.8      | 19.6 ± 1.6      | 17.9 ± 0.7      | 20.8 ± 1.0      |
| T-24           | 18.6 ± 1.3      | 16.3 ± 0.7      | 22.3 ± 1.2      | 17.8 ± 0.8      |
| T-27           | 20.0 ± 1.5      | 21.2 ± 0.8      | 24.0 ± 1.5      | 21.7 ± 1.0      |
| Mean ± s.d.    | 15.3 ± 3.9      | 17.2 ± 3.0      | 18.6 ± 4.5      | 18.2 ± 3.0      |
| T-95           | 10.5 ± 1.4      | 16.2 ± 0.8      | 12.5 ± 1.1      | 17.9 ± 0.9      |
| T-100          | 16.4 ± 2.3      | 19.7 ± 1.2      | 16.2 ± 1.3      | 22.2 ± 1.5      |
| T-111          | 15.4 ± 1.8      | 21.9 ± 1.2      | 17.4 ± 1.6      | 20.1 ± 0.9      |
| T-124          | 15.8 ± 1.5      | 21.3 ± 1.1      | 18.5 ± 1.6      | 24.4 ± 1.0      |
| T-155          | 14.5 ± 1.2      | 16.6 ± 1.8      | 16.7 ± 1.0      | 18.9 ± 1.9      |
| T-221          | 15.4 ± 1.5      | 18.0 ± 1.2      | 18.8 ± 1.2      | 17.9 ± 1.3      |
| Mean ± s.d.    | 14.7 ± 2.1      | 19.0 ± 2.4      | 16.7 ± 2.3      | 20.2 ± 2.6      |
| <u>QC</u>      |                 |                 |                 |                 |
| T-80           | 8.3 ± 1.3       | 11.2 ± 0.6      | 8.8 ± 1.1       | 12.7 ± 0.8      |
| T-81           | 16.4 ± 1.0      | 20.9 ± 0.7      | 16.2 ± 0.7      | 23.2 ± 1.4      |
| T-82           | 7.5 ± 1.1       | 10.3 ± 0.8      | 8.0 ± 0.8       | 12.0 ± 1.1      |
| T-83           | 9.4 ± 1.1       | 9.5 ± 1.4       | 9.6 ± 0.9       | 11.5 ± 1.7      |
| T-84           | 12.2 ± 1.3      | 10.6 ± 0.6      | 12.6 ± 1.0      | 12.0 ± 1.0      |
| T-85           | 12.3 ± 1.6      | 15.2 ± 1.0      | 12.7 ± 1.3      | 17.3 ± 1.1      |
| T-86           | 18.0 ± 1.4      | ND <sup>a</sup> | 17.4 ± 0.9      | 17.1 ± 1.1      |
| T-88           | 11.9 ± 1.5      | 14.3 ± 0.8      | 12.8 ± 0.9      | 15.3 ± 1.0      |
| T-89           | 14.3 ± 1.7      | 18.3 ± 0.8      | 15.2 ± 1.3      | 20.8 ± 1.0      |
| T-113          | 10.1 ± 1.2      | 14.2 ± 1.2      | 12.3 ± 1.0      | 15.4 ± 1.5      |
| T-114          | 17.2 ± 1.3      | 18.4 ± 0.9      | 19.1 ± 0.9      | 18.9 ± 1.0      |
| T-115          | 14.9 ± 1.1      | 20.7 ± 1.0      | 19.0 ± 1.2      | 22.6 ± 1.2      |
| T-116          | 16.1 ± 1.9      | 19.3 ± 0.9      | 17.9 ± 1.0      | 20.4 ± 1.3      |
| T-117          | 9.5 ± 1.1       | 13.7 ± 1.2      | 12.8 ± 0.7      | 15.4 ± 1.6      |
| T-118          | 11.1 ± 1.1      | 15.9 ± 0.8      | 14.1 ± 0.7      | 19.0 ± 1.0      |
| T-119          | 11.6 ± 1.1      | 14.2 ± 0.8      | 13.1 ± 0.7      | 16.6 ± 1.0      |
| T-120          | 9.9 ± 1.0       | 11.0 ± 0.9      | 11.0 ± 0.9      | 12.4 ± 1.1      |
| T-200          | 10.1 ± 1.0      | 12.4 ± 1.1      | 12.6 ± 1.0      | 13.2 ± 1.1      |
| Mean ± s.d.    | 12.3 ± 3.2      | 14.7 ± 3.7      | 13.6 ± 3.3      | 16.4 ± 3.8      |
| <u>Shield</u>  |                 |                 |                 |                 |
| T-87           | 6.2 ± 1.2       | 7.8 ± 0.9       | 6.4 ± 0.8       | 8.5 ± 1.0       |

<sup>a</sup> ND = No Data, TLD missing in the field.

Table 14. Area monitors (TLD), Annual.  
Units: mR/365 days

| <u>Indicator</u> | <u>2015</u>     |
|------------------|-----------------|
| T-1              | 43.5 ± 1.2      |
| T-2              | 46.3 ± 1.7      |
| T-3              | 42.8 ± 1.9      |
| T-4              | 46.1 ± 1.7      |
| T-5              | 49.6 ± 1.7      |
| T-6              | 40.4 ± 1.2      |
| T-7              | 59.9 ± 4.9      |
| T-8              | 77.2 ± 1.8      |
| T-10             | 57.3 ± 4.4      |
| T-38             | 44.1 ± 1.7      |
| T-39             | 43.3 ± 1.7      |
| T-40             | 54.6 ± 1.6      |
| T-41             | 37.4 ± 1.0      |
| T-42             | 43.4 ± 2.0      |
| T-43             | 53.2 ± 1.8      |
| T-44             | 75.2 ± 3.5      |
| T-45             | ND <sup>a</sup> |
| T-46             | 49.3 ± 2.5      |
| T-47             | 34.9 ± 1.2      |
| T-48             | 46.3 ± 2.1      |
| T-49             | 42.6 ± 2.3      |
| T-50             | 62.2 ± 2.6      |
| T-51             | 59.6 ± 2.1      |
| T-52             | 73.9 ± 2.2      |
| T-53             | 65.7 ± 1.7      |
| T-54             | 61.8 ± 1.7      |
| T-55             | 53.4 ± 5.9      |
| T-60             | 44.4 ± 3.1      |
| T-62             | 39.1 ± 3.4      |
| T-65             | 58.4 ± 4.1      |
| T-66             | 67.1 ± 2.8      |
| T-67             | 70.3 ± 3.2      |
| T-68             | 55.8 ± 2.8      |
| T-69             | 61.6 ± 2.8      |
| T-71             | 62.3 ± 2.1      |
| T-73             | 49.6 ± 2.6      |
| T-74             | 52.3 ± 3.2      |
| T-75             | 45.7 ± 3.6      |
| T-76             | 46.1 ± 2.7      |
| T-91             | 71.0 ± 2.2      |
| T-92             | 51.3 ± 2.8      |

<sup>a</sup> ND = No Data, TLD lost in the field.

Table 14. Area monitors (TLD), Annual.  
Units: mR/365 days

| Indicator   | 2015            |
|-------------|-----------------|
| T-93        | 56.9 ± 2.7      |
| T-94        | 64.8 ± 2.5      |
| T-112       | 55.4 ± 3.4      |
| T-121       | 69.9 ± 4.0      |
| T-122       | 60.4 ± 4.4      |
| T-123       | 68.1 ± 3.5      |
| T-125       | 64.8 ± 2.4      |
| T-126       | 55.7 ± 2.9      |
| T-127       | 75.2 ± 3.4      |
| T-128       | 71.4 ± 5.8      |
| T-142       | 45.2 ± 2.5      |
| T-150       | 52.4 ± 4.9      |
| T-151       | 76.3 ± 2.6      |
| T-153       | 73.1 ± 2.9      |
| T-154       | 75.8 ± 2.5      |
| T-201       | 58.4 ± 2.8      |
| T-202       | 52.1 ± 2.8      |
| T-203       | 58.4 ± 2.5      |
| T-204       | 47.2 ± 3.1      |
| T-205       | 44.0 ± 2.8      |
| T-206       | 41.7 ± 2.6      |
| T-207       | 38.6 ± 2.5      |
| T-208       | 41.2 ± 2.5      |
| T-211       | 35.0 ± 2.7      |
| T-212       | 38.6 ± 2.6      |
| T-213       | 64.6 ± 3.0      |
| T-214       | 75.2 ± 3.6      |
| T-215       | 72.4 ± 3.7      |
| T-216       | 62.8 ± 3.8      |
| T-217       | 73.2 ± 2.5      |
| T-218       | 77.9 ± 2.6      |
| T-219       | 59.9 ± 2.9      |
| T-220       | 71.9 ± 3.0      |
| T-222       | 48.2 ± 4.5      |
| T-223       | ND <sup>a</sup> |
| T-224       | 47.7 ± 3.2      |
| Mean ± s.d. | 56.2 ± 12.2     |

<sup>a</sup> ND = No Data, TLD lost in the field.

Table 14. Area monitors (TLD), Annual.

Units: mR/365 days

| <u>Control</u> | <u>2015</u>     |
|----------------|-----------------|
| T-9            | 51.9 ± 1.6      |
| T-11           | 49.0 ± 1.7      |
| T-12           | 57.3 ± 1.6      |
| T-24           | 71.4 ± 2.9      |
| T-27           | 67.9 ± 1.7      |
| Mean ± s.d.    | 59.5 ± 9.8      |
| T-95           | 63.8 ± 3.8      |
| T-100          | 71.8 ± 2.4      |
| T-111          | 68.3 ± 4.3      |
| T-124          | 79.3 ± 5.0      |
| T-155          | 58.0 ± 3.1      |
| T-221          | 67.3 ± 2.5      |
| Mean ± s.d.    | 68.1 ± 7.2      |
| <u>QC</u>      |                 |
| T-80           | 39.2 ± 2.2      |
| T-81           | 66.8 ± 2.6      |
| T-82           | 42.6 ± 2.2      |
| T-83           | 39.9 ± 2.9      |
| T-84           | 45.5 ± 2.1      |
| T-85           | 50.4 ± 3.1      |
| T-86           | ND <sup>a</sup> |
| T-88           | 63.4 ± 3.2      |
| T-89           | 66.0 ± 5.9      |
| T-113          | 57.2 ± 2.7      |
| T-114          | 73.7 ± 3.1      |
| T-115          | 74.5 ± 3.6      |
| T-116          | 67.4 ± 2.7      |
| T-117          | 53.1 ± 2.1      |
| T-118          | 59.8 ± 2.9      |
| T-119          | 51.0 ± 3.2      |
| T-120          | 40.8 ± 2.3      |
| T-200          | 47.2 ± 3.4      |
| Mean ± s.d.    | 55.2 ± 11.9     |
| <u>Shield</u>  |                 |
| T-87           | 24.9 ± 2.2      |

<sup>a</sup> ND = No Data, TLD lost in the field.

Table 15. Milk, analyses for strontium-89, strontium-90, iodine-131, gamma emitting isotopes, calcium and stable potassium.  
Monthly collections, location T-24

Units: pCi/L

| Date Collected | 02-03-15    | 03-03-15    | 03-31-15    | 04-29-15               |
|----------------|-------------|-------------|-------------|------------------------|
| Lab Code       | TMI- 414    | TMI- 841    | TMI- 1320   | TMI- 1927              |
| I-131          | < 0.3       | < 0.4       | < 0.5       | < 0.2                  |
| Sr-89          | < 0.5       | < 0.5       | < 0.6       | < 0.6                  |
| Sr-90          | 0.6 ± 0.3   | < 0.5       | < 0.6       | < 0.5                  |
| K-40           | 1259 ± 161  | 1361 ± 107  | 1359 ± 98   | 1396 ± 116             |
| Cs-134         | < 6.2       | < 3.8       | < 2.6       | < 4.4                  |
| Cs-137         | < 6.7       | < 2.6       | < 3.7       | < 5.5                  |
| Ba-La-140      | < 7.1       | < 3.6       | < 4.3       | < 2.9                  |
| Ca (g/L)       | 1.18        | 0.95        | 1.01        | 0.97                   |
| Sr-90/g Ca     | 0.51        | < 0.53      | < 0.59      | < 0.52                 |
| K (g/L)        | 1.54 ± 0.20 | 1.66 ± 0.13 | 1.66 ± 0.12 | 1.70 ± 0.14            |
| Cs-137/g K     | < 4.35      | < 1.57      | < 2.23      | < 3.24                 |
| Date Collected | 06-03-15    | 07-07-15    | 08-05-15    | 09-01-15               |
| Lab Code       | TMI- 2761   | TMI- 3485   | TMI- 4299   | TMI- 4849              |
| I-131          | < 0.4       | < 0.2       | < 0.2       | < 0.3                  |
| Sr-89          | < 0.5       | < 0.5       | < 0.6       | < 0.6                  |
| Sr-90          | < 0.6       | < 0.6       | < 0.7       | < 0.7                  |
| K-40           | 1353 ± 118  | 1367 ± 121  | 1343 ± 114  | 1209 ± 78              |
| Cs-134         | < 4.5       | < 4.2       | < 4.0       | < 2.7                  |
| Cs-137         | < 4.5       | < 3.0       | < 3.0       | < 1.9                  |
| Ba-La-140      | < 2.9       | < 1.8       | < 4.6       | < 7.5                  |
| Ca (g/L)       | 0.98        | 1.03        | 0.95        | 0.87                   |
| Sr-90/g Ca     | < 0.61      | < 0.58      | < 0.74      | < 0.80                 |
| K (g/L)        | 1.65 ± 0.14 | 1.67 ± 0.15 | 1.64 ± 0.14 | 1.47 ± 0.10            |
| Cs-137/g K     | < 2.73      | < 1.80      | < 1.83      | < 1.29                 |
| Date Collected | 09-30-15    | 11-04-15    | 12-01-15    | 12-30-15               |
| Lab Code       | TMI- 5339   | TMI- 6324   | TMI- 6734   | TMI- 7178              |
| I-131          | < 0.2       | < 0.3       | < 0.3       | 1.0 ± 0.2 <sup>a</sup> |
| Sr-89          | < 0.6       | < 0.6       | < 0.6       | < 0.6                  |
| Sr-90          | < 0.6       | < 0.5       | < 0.5       | < 0.6                  |
| K-40           | 1364 ± 115  | 1391 ± 97   | 1403 ± 115  | 1594 ± 126             |
| Cs-134         | < 4.5       | < 3.5       | < 3.8       | < 4.7                  |
| Cs-137         | < 5.7       | < 4.4       | < 3.6       | < 4.7                  |
| Ba-La-140      | < 1.9       | < 3.2       | < 2.6       | < 2.9                  |
| Ca (g/L)       | 0.89        | 1.01        | 0.96        | 0.95                   |
| Sr-90/g Ca     | < 0.67      | < 0.50      | < 0.52      | < 0.63                 |
| K (g/L)        | 1.66 ± 0.14 | 1.70 ± 0.12 | 1.71 ± 0.14 | 1.94 ± 0.15            |
| Cs-137/g K     | < 3.43      | < 2.59      | < 2.11      | < 2.42                 |

<sup>a</sup> I-131 analysis repeated with a result of 0.8±0.2 pCi/L. Extra milk sample collected 01-14-16; results of analysis in Appendix C.

Table 16. Ground water samples, analyses for gross beta, tritium, strontium-89, strontium-90 and gamma-emitting isotopes.

Collection: Quarterly

Units: pCi/L

| Period         | 1st Qtr.  | 2nd Qtr.  | 3rd Qtr.  | 4th Qtr.  |          |
|----------------|-----------|-----------|-----------|-----------|----------|
| Location       | T-27C (C) |           |           |           |          |
| Lab Code       | ND        | TWW- 2800 | TWW- 4391 | TWW- 5599 | Req. LLD |
| Date Collected | -         | 06-02-15  | 07-22-15  | 10-07-15  |          |
| Gross beta     | -         | 2.4 ± 0.7 | 1.1 ± 0.6 | < 2.1     | 4.0      |
| H-3            | -         | < 330     | < 330     | < 330     | 330      |
| Sr-89          | -         | < 0.7     | < 0.7     | < 0.4     |          |
| Sr-90          | -         | < 0.5     | < 0.5     | < 0.4     |          |
| Mn-54          | -         | < 3.1     | < 1.7     | < 4.7     | 15       |
| Fe-59          | -         | < 4.9     | < 6.5     | < 10.0    | 30       |
| Co-58          | -         | < 3.3     | < 2.1     | < 3.6     | 15       |
| Co-60          | -         | < 4.1     | < 2.4     | < 5.0     | 15       |
| Zn-65          | -         | < 6.1     | < 4.8     | < 5.1     | 30       |
| Zr-Nb-95       | -         | < 2.8     | < 3.3     | < 3.4     | 15       |
| Cs-134         | -         | < 4.5     | < 3.3     | < 6.1     | 15       |
| Cs-137         | -         | < 4.1     | < 2.5     | < 4.2     | 18       |
| Ba-La-140      | -         | < 2.0     | < 9.4     | < 6.5     | 15       |
| Location       | T-225 (I) |           |           |           |          |
| Lab Code       | ND        | TWW- 2801 | TWW- 4393 | TWW- 5600 | Req. LLD |
| Date Collected | -         | 06-02-15  | 07-22-15  | 10-07-15  |          |
| Gross beta     | -         | 1.5 ± 0.6 | 2.7 ± 0.7 | 6.2 ± 1.4 | 4.0      |
| H-3            | -         | < 330     | < 330     | < 330     | 330      |
| Sr-89          | -         | < 0.9     | < 0.8     | < 0.4     |          |
| Sr-90          | -         | < 0.6     | < 0.5     | < 0.4     |          |
| Mn-54          | -         | < 2.8     | < 2.6     | < 3.9     | 15       |
| Fe-59          | -         | < 4.2     | < 3.3     | < 7.9     | 30       |
| Co-58          | -         | < 1.5     | < 1.9     | < 2.5     | 15       |
| Co-60          | -         | < 2.9     | < 2.1     | < 4.9     | 15       |
| Zn-65          | -         | < 5.6     | < 3.3     | < 7.2     | 30       |
| Zr-Nb-95       | -         | < 2.4     | < 2.1     | < 4.4     | 15       |
| Cs-134         | -         | < 3.6     | < 2.5     | < 5.4     | 15       |
| Cs-137         | -         | < 3.4     | < 1.7     | < 4.2     | 18       |
| Ba-La-140      | -         | < 3.0     | < 5.2     | < 4.3     | 15       |

ND = No Data, Sample not received.

Table 16. Ground water samples, analyses for gross beta, tritium, strontium-89, strontium-90 and gamma-emitting isotopes.

Collection: Quarterly

Units: pCi/L

| Period              | 1st Qtr. | 2nd Qtr.  | 3rd Qtr.  | 4th Qtr. |
|---------------------|----------|-----------|-----------|----------|
| Location T-226 (I)  |          |           |           |          |
| Lab Code            | ND       | TWW- 2802 | TWW- 4394 | Req. LLD |
| Date Collected      | -        | 06-03-15  | 07-22-15  |          |
| Gross beta          | -        | 2.1 ± 0.6 | 2.1 ± 0.6 | 4.0      |
| H-3                 | -        | < 330     | < 330     | 330      |
| Sr-89               | -        | < 0.7     | < 0.8     |          |
| Sr-90               | -        | < 0.5     | < 0.5     |          |
| Mn-54               | -        | < 2.7     | < 2.0     | 15       |
| Fe-59               | -        | < 3.2     | < 5.6     | 30       |
| Co-58               | -        | < 2.1     | < 2.1     | 15       |
| Co-60               | -        | < 2.1     | < 1.4     | 15       |
| Zn-65               | -        | < 2.4     | < 3.4     | 30       |
| Zr-Nb-95            | -        | < 2.2     | < 3.4     | 15       |
| Cs-134              | -        | < 2.9     | < 3.0     | 15       |
| Cs-137              | -        | < 2.5     | < 3.6     | 18       |
| Ba-La-140           | -        | < 4.1     | < 3.1     | 15       |
| Location T-141 (QC) |          |           |           |          |
| Lab Code            | ND       | TWW- 2803 | TWW- 4392 | Req. LLD |
| Date Collected      | -        | 06-02-15  | 07-22-15  |          |
| Gross beta          | -        | 1.1 ± 0.6 | 2.4 ± 0.6 | 4.0      |
| H-3                 | -        | < 330     | < 330     | 330      |
| Sr-89               | -        | < 0.7     | < 1.4     |          |
| Sr-90               | -        | < 0.5     | < 0.8     |          |
| Mn-54               | -        | < 3.4     | < 2.9     | 15       |
| Fe-59               | -        | < 8.4     | < 2.8     | 30       |
| Co-58               | -        | < 4.2     | < 3.0     | 15       |
| Co-60               | -        | < 3.0     | < 1.6     | 15       |
| Zn-65               | -        | < 7.4     | < 3.9     | 30       |
| Zr-Nb-95            | -        | < 3.6     | < 4.2     | 15       |
| Cs-134              | -        | < 5.5     | < 3.2     | 15       |
| Cs-137              | -        | < 4.1     | < 2.8     | 18       |
| Ba-La-140           | -        | < 4.7     | < 5.2     | 15       |

ND = No Data, Sample not received.

Table 19. Green leafy vegetables, analyses for strontium-89, strontium-90, iodine-131 and other gamma-emitting isotopes.

Collection: Monthly, in season

Units: pCi/g wet

| Location       |             | T-19 (I)    |             |             |
|----------------|-------------|-------------|-------------|-------------|
| Lab Code       | TVE- 3486   | TVE- 4312   | TVE- 4854   | TVE- 5598   |
| Date Collected | 07-08-15    | 07-30-15    | 09-02-15    | 10-07-15    |
| Sample Type    | Cabbage     | Cabbage     | Cabbage     | Cabbage     |
| Sr-89          | < 0.005     | < 0.003     | < 0.007     | < 0.003     |
| Sr-90          | < 0.002     | < 0.002     | < 0.003     | < 0.001     |
| I-131          | < 0.007     | < 0.011     | < 0.017     | < 0.013     |
| K-40           | 2.05 ± 0.15 | 2.60 ± 0.17 | 2.95 ± 0.21 | 2.85 ± 0.20 |
| Nb-95          | < 0.006     | < 0.005     | < 0.007     | < 0.004     |
| Zr-95          | < 0.006     | < 0.009     | < 0.012     | < 0.010     |
| Cs-134         | < 0.004     | < 0.005     | < 0.006     | < 0.006     |
| Cs-137         | < 0.006     | < 0.005     | < 0.005     | < 0.006     |
| Ce-141         | < 0.007     | < 0.007     | < 0.009     | < 0.011     |
| Ce-144         | < 0.033     | < 0.044     | < 0.031     | < 0.042     |

| Location       |             | T-19 (I) |  |  |
|----------------|-------------|----------|--|--|
| Lab Code       | TVE- 6330   |          |  |  |
| Date Collected | 11-04-15    |          |  |  |
| Sample Type    | Cabbage     |          |  |  |
| Sr-89          | < 0.002     |          |  |  |
| Sr-90          | < 0.001     |          |  |  |
| I-131          | < 0.013     |          |  |  |
| K-40           | 2.48 ± 0.19 |          |  |  |
| Nb-95          | < 0.007     |          |  |  |
| Zr-95          | < 0.009     |          |  |  |
| Cs-134         | < 0.006     |          |  |  |
| Cs-137         | < 0.004     |          |  |  |
| Ce-141         | < 0.013     |          |  |  |
| Ce-144         | < 0.034     |          |  |  |

| Location       |             | T-37 (C)    |             |  |
|----------------|-------------|-------------|-------------|--|
| Lab Code       | TVE- 3487   | TVE- 4313   | TVE- 4855   |  |
| Date Collected | 07-08-15    | 07-30-15    | 09-02-15    |  |
| Sample Type    | Cabbage     | Cabbage     | Cabbage     |  |
| Sr-89          | < 0.002     | < 0.002     | < 0.003     |  |
| Sr-90          | < 0.001     | < 0.002     | < 0.002     |  |
| I-131          | < 0.007     | < 0.014     | < 0.022     |  |
| K-40           | 1.51 ± 0.11 | 1.97 ± 0.14 | 2.10 ± 0.17 |  |
| Nb-95          | < 0.004     | < 0.005     | < 0.005     |  |
| Zr-95          | < 0.006     | < 0.008     | < 0.006     |  |
| Cs-134         | < 0.004     | < 0.004     | < 0.006     |  |
| Cs-137         | < 0.002     | < 0.004     | < 0.005     |  |
| Ce-141         | < 0.008     | < 0.011     | < 0.019     |  |
| Ce-144         | < 0.033     | < 0.042     | < 0.046     |  |

Table 20. Fruit, analyses for strontium-89, strontium-90, iodine-131 and other gamma-emitting isotopes.

Collection: Monthly, in season

Units: pCi/g wet

| Location       | T-8 (I)     | T-25 (I)    |
|----------------|-------------|-------------|
| Lab Code       | TVE- 5269   | TVE- 5270   |
| Date Collected | 09-23-15    | 09-23-15    |
| Sample Type    | Apples      | Apples      |
| Sr-89          | < 0.002     | < 0.004     |
| Sr-90          | < 0.001     | < 0.001     |
| I-131          | < 0.020     | < 0.020     |
| K-40           | 1.08 ± 0.13 | 1.05 ± 0.13 |
| Nb-95          | < 0.006     | < 0.003     |
| Zr-95          | < 0.012     | < 0.009     |
| Cs-134         | < 0.005     | < 0.005     |
| Cs-137         | < 0.004     | < 0.003     |
| Ce-141         | < 0.016     | < 0.013     |
| Ce-144         | < 0.052     | < 0.040     |

| Location       | T-209 (C)   |
|----------------|-------------|
| Lab Code       | TVE- 5271   |
| Date Collected | 09-23-15    |
| Sample Type    | Apples      |
| Sr-89          | < 0.003     |
| Sr-90          | < 0.001     |
| I-131          | < 0.017     |
| K-40           | 1.58 ± 0.15 |
| Nb-95          | < 0.004     |
| Zr-95          | < 0.010     |
| Cs-134         | < 0.006     |
| Cs-137         | < 0.005     |
| Ce-141         | < 0.015     |
| Ce-144         | < 0.040     |

Table 22. Soil samples, analyses for gamma-emitting isotopes.

Collection: Annual

Units: pCi/g dry

| Location       | T-1           | T-2           | T-3           | T-4         |
|----------------|---------------|---------------|---------------|-------------|
| Lab Code       | TSO- 1952     | TSO- 1954     | TSO- 1955     | TSO- 1956   |
| Date Collected | 04-22-15      | 04-22-15      | 04-22-15      | 04-22-15    |
| Be-7           | < 0.29        | < 0.19        | < 0.22        | < 0.06      |
| K-40           | 7.95 ± 0.64   | 5.69 ± 0.51   | 9.01 ± 0.61   | 4.14 ± 0.18 |
| Mn-54          | < 0.021       | < 0.014       | < 0.015       | < 0.007     |
| Nb-95          | < 0.029       | < 0.023       | < 0.031       | < 0.012     |
| Zr-95          | < 0.021       | < 0.037       | < 0.025       | < 0.015     |
| Ru-103         | < 0.011       | < 0.028       | < 0.024       | < 0.007     |
| Ru-106         | < 0.141       | < 0.137       | < 0.194       | < 0.051     |
| Cs-134         | < 0.016       | < 0.019       | < 0.019       | < 0.005     |
| Cs-137         | 0.089 ± 0.028 | 0.068 ± 0.023 | 0.034 ± 0.016 | < 0.007     |
| Ce-141         | < 0.045       | < 0.047       | < 0.045       | < 0.015     |
| Ce-144         | < 0.147       | < 0.129       | < 0.105       | < 0.047     |

| Location       | T-7          | T-8          |
|----------------|--------------|--------------|
| Lab Code       | TSO- 1957    | TSO- 1958    |
| Date Collected | 04-22-15     | 04-22-15     |
| Be-7           | < 0.19       | < 0.20       |
| K-40           | 12.66 ± 0.73 | 19.65 ± 0.93 |
| Mn-54          | < 0.021      | < 0.032      |
| Nb-95          | < 0.027      | < 0.034      |
| Zr-95          | < 0.021      | < 0.022      |
| Ru-103         | < 0.021      | < 0.019      |
| Ru-106         | < 0.084      | < 0.232      |
| Cs-134         | < 0.015      | < 0.025      |
| Cs-137         | < 0.016      | 0.30 ± 0.044 |
| Ce-141         | < 0.051      | < 0.076      |
| Ce-144         | < 0.122      | < 0.160      |

| Location       | T-9           | T-11          | T-12         | T-27         |
|----------------|---------------|---------------|--------------|--------------|
| Lab Code       | TSO- 1959     | TSO- 1960     | TSO- 1961    | TSO- 1962    |
| Date Collected | 04-22-15      | 04-22-15      | 04-22-15     | 04-22-15     |
| Be-7           | < 0.22        | < 0.21        | < 0.29       | < 0.24       |
| K-40           | 20.76 ± 0.87  | 18.24 ± 0.81  | 14.61 ± 0.77 | < 1.82       |
| Mn-54          | < 0.028       | < 0.026       | < 0.028      | < 0.028      |
| Nb-95          | < 0.039       | < 0.043       | < 0.029      | < 0.028      |
| Zr-95          | < 0.021       | < 0.032       | < 0.037      | < 0.025      |
| Ru-103         | < 0.026       | < 0.026       | < 0.013      | < 0.022      |
| Ru-106         | < 0.241       | < 0.143       | < 0.172      | < 0.241      |
| Cs-134         | < 0.024       | < 0.020       | < 0.022      | < 0.016      |
| Cs-137         | 0.060 ± 0.034 | 0.054 ± 0.022 | 0.10 ± 0.034 | 0.13 ± 0.034 |
| Ce-141         | < 0.066       | < 0.062       | < 0.063      | < 0.066      |
| Ce-144         | < 0.154       | < 0.145       | < 0.166      | < 0.141      |

Table 23. Treated surface water samples, analyses for gross beta.  
Collection: Monthly composites of weekly grab samples  
Units: pCi/L

| T-11 (C)   |                |            | T-12 (C)   |                |                 |
|------------|----------------|------------|------------|----------------|-----------------|
| Lab Code   | Date Collected | Gross Beta | Lab Code   | Date Collected | Gross Beta      |
| TSWT- 415  | 02-03-15       | 2.0 ± 0.8  | TSWT- 416  | 02-03-15       | 2.1 ± 0.7       |
| TSWT- 850  | 03-03-15       | 1.4 ± 0.4  | TSWT- 851  | 03-03-15       | 1.0 ± 0.4       |
| TSWT- 1358 | 03-31-15       | 2.3 ± 0.8  | TSWT- 1360 | 03-31-15       | 4.5 ± 0.9       |
| TSWT- 1928 | 04-28-15       | 3.5 ± 1.1  | TSWT- 1929 | 04-28-15       | 2.8 ± 1.0       |
| TSWT- 2862 | 06-02-15       | 1.2 ± 0.5  |            | 06-02-15       | ND <sup>a</sup> |
| TSWT- 3376 | 06-30-15       | 1.6 ± 0.6  | TSWT- 3377 | 06-30-15       | 1.6 ± 0.6       |
| TSWT- 4351 | 08-04-15       | 1.5 ± 0.6  | TSWT- 4352 | 08-04-15       | 2.4 ± 0.6       |
| TSWT- 4858 | 09-01-15       | < 0.5      | TSWT- 4859 | 09-01-15       | 0.8 ± 0.3       |
| TSWT- 5356 | 09-29-15       | 1.4 ± 0.5  | TSWT- 5358 | 09-29-15       | 1.4 ± 0.5       |
| TSWT- 6339 | 11-03-15       | 2.2 ± 1.0  | TSWT- 6340 | 11-03-15       | 1.6 ± 0.9       |
| TSWT- 6783 | 12-01-15       | < 0.8      | TSWT- 6784 | 12-01-15       | < 0.9           |
| TSWT- 7190 | 12-29-15       | 1.8 ± 0.9  | TSWT- 7191 | 12-29-15       | < 1.8           |

| T-22       |                |            | T-143 (QC) |                |            |
|------------|----------------|------------|------------|----------------|------------|
| Lab Code   | Date Collected | Gross Beta | Lab Code   | Date Collected | Gross Beta |
| TSWT- 417  | 02-03-15       | 1.6 ± 0.8  | TSWT- 418  | 02-03-15       | 1.9 ± 0.7  |
| TSWT- 852  | 03-03-15       | 0.8 ± 0.4  | TSWT- 853  | 03-03-15       | 1.2 ± 0.4  |
| TSWT- 1361 | 03-31-15       | 2.7 ± 0.7  | TSWT- 1362 | 03-31-15       | 4.5 ± 0.9  |
| TSWT- 1930 | 04-28-15       | 2.7 ± 1.0  | TSWT- 1931 | 04-28-15       | 3.1 ± 1.0  |
| TSWT- 2863 | 06-02-15       | 1.8 ± 0.6  | TSWT- 2864 | 06-02-15       | 1.2 ± 0.5  |
| TSWT- 3378 | 06-30-15       | 1.5 ± 0.6  | TSWT- 3379 | 06-30-15       | 2.6 ± 0.8  |
| TSWT- 4353 | 08-04-15       | 1.3 ± 0.6  | TSWT- 4354 | 08-04-15       | 1.6 ± 0.5  |
| TSWT- 4860 | 09-01-15       | 0.9 ± 0.3  | TSWT- 4861 | 09-01-15       | 0.9 ± 0.3  |
| TSWT- 5359 | 09-29-15       | 2.4 ± 0.6  | TSWT- 5360 | 09-29-15       | 1.1 ± 0.6  |
| TSWT- 6341 | 11-03-15       | 2.1 ± 1.0  | TSWT- 6342 | 11-03-15       | 1.8 ± 0.9  |
| TSWT- 6785 | 12-01-15       | < 0.8      | TSWT- 6786 | 12-01-15       | < 0.9      |
| TSWT- 7192 | 12-29-15       | < 1.6      | TSWT- 7193 | 12-29-15       | < 1.6      |

<sup>a</sup> "ND" = No data; see Table 2.0, Listing of Missed Samples.

Table 24. Treated surface water samples, analyses for tritium, strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly composites of weekly grab samples  
Units: pCi/L

| Location T-11 (C)  |                        |                        |                        |                        |          |
|--------------------|------------------------|------------------------|------------------------|------------------------|----------|
| Period<br>Lab Code | 1st Qtr.<br>TSWT- 1433 | 2nd Qtr.<br>TSWT- 3508 | 3rd Qtr.<br>TSWT- 5505 | 4th Qtr.<br>TSWT- 7234 | Req. LLD |
| H-3                | < 330                  | < 330                  | < 330                  | < 330                  | 330      |
| Sr-89              | < 0.7                  | < 0.6                  | < 0.6                  | < 0.7                  |          |
| Sr-90              | < 0.6                  | < 0.5                  | < 0.8                  | < 0.6                  |          |
| Mn-54              | < 3.7                  | < 2.3                  | < 3.8                  | < 2.2                  | 15       |
| Fe-59              | < 3.9                  | < 4.7                  | < 7.7                  | < 6.4                  | 30       |
| Co-58              | < 2.5                  | < 1.9                  | < 4.6                  | < 2.5                  | 15       |
| Co-60              | < 3.6                  | < 2.4                  | < 4.0                  | < 2.9                  | 15       |
| Zn-65              | < 3.1                  | < 5.2                  | < 8.9                  | < 5.0                  | 30       |
| Zr-Nb-95           | < 3.5                  | < 3.4                  | < 5.8                  | < 4.4                  | 15       |
| Cs-134             | < 3.4                  | < 3.2                  | < 5.0                  | < 2.6                  | 10       |
| Cs-137             | < 2.7                  | < 3.1                  | < 6.0                  | < 2.8                  | 18       |
| Ba-La-140          | < 2.9                  | < 4.0                  | < 9.4                  | < 5.3                  | 15       |

| Location T-12 (C)  |                        |                        |                        |                        |          |
|--------------------|------------------------|------------------------|------------------------|------------------------|----------|
| Period<br>Lab Code | 1st Qtr.<br>TSWT- 1434 | 2nd Qtr.<br>TSWT- 3509 | 3rd Qtr.<br>TSWT- 5506 | 4th Qtr.<br>TSWT- 7235 | Req. LLD |
| H-3                | < 330                  | < 330                  | < 330                  | < 330                  | 330      |
| Sr-89              | < 0.7                  | < 0.7                  | < 0.6                  | < 0.7                  |          |
| Sr-90              | < 0.6                  | < 0.5                  | < 0.5                  | < 0.6                  |          |
| Mn-54              | < 2.2                  | < 2.2                  | < 4.0                  | < 2.7                  | 15       |
| Fe-59              | < 3.1                  | < 3.8                  | < 6.0                  | < 7.2                  | 30       |
| Co-58              | < 2.9                  | < 1.6                  | < 1.9                  | < 2.9                  | 15       |
| Co-60              | < 1.1                  | < 2.6                  | < 2.3                  | < 2.1                  | 15       |
| Zn-65              | < 3.1                  | < 2.4                  | < 6.6                  | < 4.4                  | 30       |
| Zr-Nb-95           | < 4.1                  | < 2.8                  | < 3.5                  | < 3.9                  | 15       |
| Cs-134             | < 2.9                  | < 3.3                  | < 3.5                  | < 2.8                  | 10       |
| Cs-137             | < 3.5                  | < 3.1                  | < 2.4                  | < 3.0                  | 18       |
| Ba-La-140          | < 3.8                  | < 3.5                  | < 5.1                  | < 6.5                  | 15       |

Table 24. Treated surface water samples, analyses for tritium, strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly composites of weekly grab samples.  
Units: pCi/L

| Location           | T-22                   |                        |                        |                        |          |
|--------------------|------------------------|------------------------|------------------------|------------------------|----------|
| Period<br>Lab Code | 1st Qtr.<br>TSWT- 1435 | 2nd Qtr.<br>TSWT- 3510 | 3rd Qtr.<br>TSWT- 5507 | 4th Qtr.<br>TSWT- 7236 | Req. LLD |
| H-3                | < 330                  | < 330                  | < 330                  | < 330                  | 330      |
| Sr-89              | < 0.6                  | < 0.8                  | < 0.6                  | < 0.7                  |          |
| Sr-90              | < 0.5                  | < 0.6                  | < 0.6                  | < 0.6                  |          |
| Mn-54              | < 2.5                  | < 2.3                  | < 3.2                  | < 3.3                  | 15       |
| Fe-59              | < 3.3                  | < 4.2                  | < 5.8                  | < 7.2                  | 30       |
| Co-58              | < 2.0                  | < 1.5                  | < 2.6                  | < 2.7                  | 15       |
| Co-60              | < 1.5                  | < 1.3                  | < 2.1                  | < 1.7                  | 15       |
| Zn-65              | < 5.1                  | < 3.0                  | < 6.0                  | < 3.2                  | 30       |
| Zr-Nb-95           | < 3.6                  | < 3.6                  | < 3.8                  | < 3.8                  | 15       |
| Cs-134             | < 3.0                  | < 2.6                  | < 3.6                  | < 2.8                  | 10       |
| Cs-137             | < 2.8                  | < 2.7                  | < 1.9                  | < 3.3                  | 18       |
| Ba-La-140          | < 1.7                  | < 3.7                  | < 7.7                  | < 8.0                  | 15       |

Table 25. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Location: T-3

Collection: Monthly composites of weekly grab samples

Units: pCi/L

| Lab Code       | TSWU- 419 | TSWU- 854 | TSWU- 1363 | TSWU- 1938 | Req. LLD |
|----------------|-----------|-----------|------------|------------|----------|
| Date Collected | 02-03-15  | 03-03-15  | 03-31-15   | 04-28-15   |          |
| Gross beta     | 2.3 ± 0.7 | 3.0 ± 0.9 | 4.5 ± 0.9  | 3.5 ± 1.1  | 4.0      |
| H-3            | < 330     | < 330     | < 330      | < 330      | 330      |
| Mn-54          | < 2.6     | < 2.4     | < 2.1      | < 3.4      | 15       |
| Fe-59          | < 4.1     | < 3.0     | < 4.4      | < 4.4      | 30       |
| Co-58          | < 4.1     | < 1.5     | < 1.4      | < 2.3      | 15       |
| Co-60          | < 2.2     | < 1.7     | < 1.8      | < 2.9      | 15       |
| Zn-65          | < 2.3     | < 3.2     | < 3.9      | < 5.7      | 30       |
| Zr-Nb-95       | < 3.7     | < 3.2     | < 2.8      | < 2.2      | 15       |
| Cs-134         | < 3.0     | < 3.0     | < 2.6      | < 3.6      | 10       |
| Cs-137         | < 2.5     | < 2.3     | < 3.0      | < 4.6      | 18       |
| Ba-La-140      | < 3.9     | < 3.3     | < 3.7      | < 2.1      | 15       |

| Lab Code       | TSWU- 2792 | TSWU- 3380 | TSWU- 4355 | TSWU- 4862 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 06-02-15   | 06-30-15   | 08-04-15   | 09-01-15   |          |
| Gross beta     | 2.4 ± 0.7  | 4.4 ± 0.8  | 5.1 ± 0.9  | 1.6 ± 0.6  | 4.0      |
| H-3            | < 330      | < 330      | < 330      | < 330      | 330      |
| Mn-54          | < 2.5      | < 3.9      | < 2.4      | < 3.4      | 15       |
| Fe-59          | < 4.1      | < 2.9      | < 5.9      | < 3.8      | 30       |
| Co-58          | < 3.1      | < 3.7      | < 3.0      | < 3.1      | 15       |
| Co-60          | < 2.3      | < 1.6      | < 2.1      | < 1.9      | 15       |
| Zn-65          | < 3.6      | < 7.3      | < 5.3      | < 7.3      | 30       |
| Zr-Nb-95       | < 4.2      | < 2.0      | < 3.8      | < 5.5      | 15       |
| Cs-134         | < 3.7      | < 4.0      | < 3.5      | < 4.3      | 10       |
| Cs-137         | < 4.4      | < 4.0      | < 3.2      | < 3.5      | 18       |
| Ba-La-140      | < 2.1      | < 3.0      | < 5.0      | < 6.6      | 15       |

| Lab Code       | TSWU- 5361            | TSWU- 6343 | TSWU- 6787 | TSWU- 7194 | Req. LLD |
|----------------|-----------------------|------------|------------|------------|----------|
| Date Collected | 09-29-15              | 11-03-15   | 12-01-15   | 12-29-15   |          |
| Gross beta     | 2.8 ± 0.7             | 1.4 ± 0.6  | 1.6 ± 0.6  | 4.2 ± 1.1  | 4.0      |
| H-3            | 405 ± 93 <sup>a</sup> | < 330      | < 330      | < 330      | 330      |
| Mn-54          | < 3.0                 | < 1.4      | < 2.9      | < 3.8      | 15       |
| Fe-59          | < 3.4                 | < 3.4      | < 3.9      | < 6.3      | 30       |
| Co-58          | < 2.2                 | < 2.2      | < 3.2      | < 3.0      | 15       |
| Co-60          | < 3.1                 | < 2.0      | < 2.3      | < 2.1      | 15       |
| Zn-65          | < 5.9                 | < 5.2      | < 4.0      | < 4.3      | 30       |
| Zr-Nb-95       | < 3.6                 | < 4.4      | < 2.5      | < 4.2      | 15       |
| Cs-134         | < 4.1                 | < 3.6      | < 2.9      | < 3.9      | 10       |
| Cs-137         | < 2.6                 | < 2.1      | < 3.2      | < 2.9      | 18       |
| Ba-La-140      | < 1.7                 | < 7.3      | < 4.5      | < 1.7      | 15       |

<sup>a</sup> Tritium repeated with a result of 384±93 pCi/L.

Table 25. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Location: T-11 (C)

Collection: Monthly composites of weekly grab samples

Units: pCi/L

| Lab Code       | TSWU- 422 | TSWU- 857 | TSWU- 1365 | TSWU- 1940 | Req. LLD |
|----------------|-----------|-----------|------------|------------|----------|
| Date Collected | 02-03-15  | 03-03-15  | 03-31-15   | 04-28-15   |          |
| Gross beta     | 1.0 ± 0.5 | 1.1 ± 0.4 | 2.0 ± 0.8  | 3.6 ± 1.1  | 4.0      |
| H-3            | < 330     | < 330     | < 330      | < 330      | 330      |
| Mn-54          | < 2.8     | < 3.8     | < 2.0      | < 3.9      | 15       |
| Fe-59          | < 3.1     | < 10.0    | < 3.0      | < 7.4      | 30       |
| Co-58          | < 3.0     | < 4.8     | < 2.0      | < 4.5      | 15       |
| Co-60          | < 2.1     | < 2.2     | < 1.7      | < 2.9      | 15       |
| Zn-65          | < 1.4     | < 4.6     | < 1.8      | < 6.2      | 30       |
| Zr-Nb-95       | < 3.6     | < 3.6     | < 2.8      | < 2.1      | 15       |
| Cs-134         | < 3.2     | < 4.7     | < 2.7      | < 4.3      | 10       |
| Cs-137         | < 3.0     | < 5.2     | < 2.9      | < 2.1      | 18       |
| Ba-La-140      | < 6.5     | < 4.4     | < 1.8      | < 2.5      | 15       |

| Lab Code       | TSWU- 2794 | TSWU- 3382 | TSWU- 4357 | TSWU- 4864            | Req. LLD |
|----------------|------------|------------|------------|-----------------------|----------|
| Date Collected | 06-02-15   | 06-30-15   | 08-04-15   | 09-01-15 <sup>a</sup> |          |
| Gross beta     | 1.5 ± 0.6  | 2.2 ± 0.7  | 1.4 ± 0.6  | 21.2 ± 1.6            | 4.0      |
| H-3            | < 330      | < 330      | < 330      | < 330                 | 330      |
| Mn-54          | < 2.8      | < 3.0      | < 1.7      | < 3.5                 | 15       |
| Fe-59          | < 7.4      | < 2.2      | < 4.7      | < 3.5                 | 30       |
| Co-58          | < 3.2      | < 2.2      | < 3.5      | < 2.9                 | 15       |
| Co-60          | < 2.3      | < 2.2      | < 1.6      | < 2.0                 | 15       |
| Zn-65          | < 8.7      | < 2.3      | < 4.7      | < 3.3                 | 30       |
| Zr-Nb-95       | < 2.8      | < 3.8      | < 2.9      | < 4.9                 | 15       |
| Cs-134         | < 4.5      | < 3.4      | < 4.1      | < 4.0                 | 10       |
| Cs-137         | < 3.0      | < 2.4      | < 2.5      | < 3.3                 | 18       |
| Ba-La-140      | < 4.7      | < 2.2      | < 5.0      | < 3.4                 | 15       |

| Lab Code       | TSWU- 5363              | TSWU- 6346 | TSWU- 6789              | TSWU- 7196 | Req. LLD |
|----------------|-------------------------|------------|-------------------------|------------|----------|
| Date Collected | 09-29-15                | 11-03-15   | 12-01-15                | 12-29-15   |          |
| Gross beta     | 43.2 ± 3.1 <sup>b</sup> | 39.5 ± 2.9 | 46.5 ± 3.4 <sup>c</sup> | 53.0 ± 4.1 | 4.0      |
| H-3            | < 330                   | < 330      | < 330                   | < 330      | 330      |
| Mn-54          | < 4.4                   | < 2.9      | < 2.5                   | < 2.3      | 15       |
| Fe-59          | < 3.1                   | < 4.4      | < 5.6                   | < 4.0      | 30       |
| Co-58          | < 3.2                   | < 3.2      | < 2.4                   | < 2.0      | 15       |
| Co-60          | < 3.4                   | < 2.5      | < 2.3                   | < 2.0      | 15       |
| Zn-65          | < 5.1                   | < 4.1      | < 3.3                   | < 4.3      | 30       |
| Zr-Nb-95       | < 2.5                   | < 3.7      | < 3.0                   | < 2.3      | 15       |
| Cs-134         | < 4.0                   | < 3.5      | < 2.6                   | < 2.8      | 10       |
| Cs-137         | < 3.1                   | < 3.8      | < 2.2                   | < 2.4      | 18       |
| Ba-La-140      | < 2.5                   | < 5.9      | < 2.4                   | < 1.5      | 15       |

<sup>a</sup> Gross beta repeated with a result of 22.3±1.7 pCi/L. Potassium analysis by ICP done with a result of 24.2 mg/L.<sup>b</sup> Gross beta recounted with a result of 43.4±3.1 pCi/L. <sup>c</sup> Potassium analysis by ICP done with a result of 51.4 mg/L.

Table 25. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Location: T-12 (C)

Collection: Monthly composites of weekly grab samples

Units: pCi/L

| Lab Code       | TSWU- 423 | TSWU- 858 | TSWU- 1366 | TSWU- 1941 | Req. LLD |
|----------------|-----------|-----------|------------|------------|----------|
| Date Collected | 02-03-15  | 03-03-15  | 03-31-15   | 04-28-15   |          |
| Gross beta     | 1.4 ± 0.6 | 1.7 ± 0.5 | 3.6 ± 0.8  | 2.8 ± 0.8  | 4.0      |
| H-3            | < 330     | < 330     | < 330      | < 330      | 330      |
| Mn-54          | < 2.0     | < 1.7     | < 1.8      | < 5.8      | 15       |
| Fe-59          | < 6.6     | < 2.6     | < 4.6      | < 8.7      | 30       |
| Co-58          | < 2.2     | < 1.9     | < 1.3      | < 2.8      | 15       |
| Co-60          | < 1.8     | < 1.5     | < 2.5      | < 3.7      | 15       |
| Zn-65          | < 2.0     | < 3.8     | < 2.5      | < 3.0      | 30       |
| Zr-Nb-95       | < 2.9     | < 2.6     | < 2.1      | < 3.2      | 15       |
| Cs-134         | < 2.6     | < 2.5     | < 3.1      | < 5.8      | 10       |
| Cs-137         | < 3.5     | < 2.4     | < 2.2      | < 2.9      | 18       |
| Ba-La-140      | < 6.0     | < 2.4     | < 2.5      | < 6.4      | 15       |

| Lab Code       | TSWU- 2795 | TSWU- 3383 | TSWU- 4358 | TSWU- 4865 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 06-02-15   | 06-30-15   | 08-04-15   | 09-01-15   |          |
| Gross beta     | 0.8 ± 0.5  | 3.9 ± 0.9  | 2.8 ± 0.7  | 2.5 ± 0.6  | 4.0      |
| H-3            | < 330      | < 330      | < 330      | < 330      | 330      |
| Mn-54          | < 2.7      | < 2.4      | < 1.5      | < 3.8      | 15       |
| Fe-59          | < 6.6      | < 4.4      | < 4.4      | < 6.8      | 30       |
| Co-58          | < 2.2      | < 1.9      | < 2.2      | < 3.4      | 15       |
| Co-60          | < 3.0      | < 2.9      | < 1.2      | < 2.4      | 15       |
| Zn-65          | < 6.0      | < 4.0      | < 3.7      | < 3.8      | 30       |
| Zr-Nb-95       | < 3.3      | < 2.2      | < 3.1      | < 4.1      | 15       |
| Cs-134         | < 3.9      | < 2.6      | < 3.0      | < 4.2      | 10       |
| Cs-137         | < 4.1      | < 2.3      | < 2.3      | < 2.3      | 18       |
| Ba-La-140      | < 3.6      | < 2.2      | < 5.4      | < 5.6      | 15       |

| Lab Code       | TSWU- 5364 | TSWU- 6347 | TSWU- 6790 | TSWU- 7197 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 09-29-15   | 11-03-15   | 12-01-15   | 12-29-15   |          |
| Gross beta     | 1.7 ± 0.6  | 1.6 ± 0.6  | < 0.9      | 2.7 ± 0.9  | 4.0      |
| H-3            | < 330      | < 330      | < 330      | < 330      | 330      |
| Mn-54          | < 3.7      | < 3.6      | < 3.5      | < 3.5      | 15       |
| Fe-59          | < 3.6      | < 5.5      | < 4.7      | < 6.3      | 30       |
| Co-58          | < 3.3      | < 2.9      | < 2.2      | < 2.7      | 15       |
| Co-60          | < 4.7      | < 3.0      | < 3.1      | < 2.8      | 15       |
| Zn-65          | < 8.5      | < 6.4      | < 6.6      | < 6.5      | 30       |
| Zr-Nb-95       | < 5.8      | < 3.4      | < 3.2      | < 3.1      | 15       |
| Cs-134         | < 5.7      | < 3.9      | < 3.4      | < 3.7      | 10       |
| Cs-137         | < 3.9      | < 2.3      | < 2.6      | < 3.6      | 18       |
| Ba-La-140      | < 5.2      | < 9.1      | < 1.7      | < 4.8      | 15       |

Table 25. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Location: T-22

Collection: Monthly composites of weekly grab samples

Units: pCi/L

| Lab Code       | TSWU- 425              | TSWU- 860 | TSWU- 1368 | TSWU- 1943 | Req. LLD |
|----------------|------------------------|-----------|------------|------------|----------|
| Date Collected | 02-03-15               | 03-03-15  | 03-31-15   | 04-28-15   |          |
| Gross beta     | 1.4 ± 0.6              | 1.5 ± 0.4 | 3.8 ± 0.8  | 4.3 ± 0.9  | 4.0      |
| H-3            | 721 ± 134 <sup>a</sup> | < 330     | < 330      | < 330      | 330      |
| Mn-54          | < 2.5                  | < 3.1     | < 2.1      | < 2.4      | 15       |
| Fe-59          | < 3.8                  | < 2.8     | < 2.5      | < 10.8     | 30       |
| Co-58          | < 1.7                  | < 1.5     | < 2.4      | < 4.8      | 15       |
| Co-60          | < 1.4                  | < 1.7     | < 2.2      | < 4.7      | 15       |
| Zn-65          | < 2.6                  | < 3.2     | < 2.0      | < 8.1      | 30       |
| Zr-Nb-95       | < 4.0                  | < 2.6     | < 3.2      | < 5.1      | 15       |
| Cs-134         | < 2.5                  | < 2.7     | < 3.2      | < 4.5      | 10       |
| Cs-137         | < 2.7                  | < 3.6     | < 2.7      | < 3.6      | 18       |
| Ba-La-140      | < 2.5                  | < 1.3     | < 2.2      | < 5.7      | 15       |

| Lab Code       | TSWU- 2798 | TSWU- 3386 | TSWU- 4380 | TSWU- 4867 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 06-02-15   | 06-30-15   | 08-04-15   | 09-01-15   |          |
| Gross beta     | < 0.9      | 2.1 ± 0.6  | 1.6 ± 0.6  | 1.5 ± 0.6  | 4.0      |
| H-3            | < 330      | 536 ± 97   | < 330      | < 330      | 330      |
| Mn-54          | < 2.9      | < 2.0      | < 2.3      | < 3.3      | 15       |
| Fe-59          | < 8.9      | < 4.5      | < 5.0      | < 3.5      | 30       |
| Co-58          | < 3.9      | < 2.2      | < 1.9      | < 1.8      | 15       |
| Co-60          | < 3.1      | < 1.8      | < 1.8      | < 1.4      | 15       |
| Zn-65          | < 3.5      | < 2.8      | < 4.0      | < 4.1      | 30       |
| Zr-Nb-95       | < 4.9      | < 1.8      | < 2.5      | < 2.6      | 15       |
| Cs-134         | < 5.0      | < 3.5      | < 3.0      | < 2.8      | 10       |
| Cs-137         | < 2.1      | < 3.5      | < 1.5      | < 2.8      | 18       |
| Ba-La-140      | < 4.9      | < 1.6      | < 2.5      | < 5.5      | 15       |

| Lab Code       | TSWU- 5366 | TSWU- 6349 | TSWU- 6792 | TSWU- 7199 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 09-29-15   | 11-03-15   | 12-01-15   | 12-29-15   |          |
| Gross beta     | 1.5 ± 0.6  | 1.4 ± 0.6  | < 0.9      | 2.3 ± 0.9  | 4.0      |
| H-3            | < 330      | < 330      | 550 ± 97   | < 330      | 330      |
| Mn-54          | < 1.8      | < 2.4      | < 2.8      | < 2.7      | 15       |
| Fe-59          | < 2.9      | < 4.4      | < 4.1      | < 3.6      | 30       |
| Co-58          | < 2.2      | < 1.7      | < 2.8      | < 3.4      | 15       |
| Co-60          | < 2.6      | < 1.5      | < 2.0      | < 1.6      | 15       |
| Zn-65          | < 5.5      | < 7.4      | < 2.6      | < 5.2      | 30       |
| Zr-Nb-95       | < 2.7      | < 3.2      | < 2.4      | < 4.2      | 15       |
| Cs-134         | < 2.9      | < 3.5      | < 3.0      | < 3.4      | 10       |
| Cs-137         | < 1.6      | < 1.9      | < 2.9      | < 5.0      | 18       |
| Ba-La-140      | < 1.8      | < 8.5      | < 6.4      | < 7.1      | 15       |

<sup>a</sup> Tritium repeated with a result of 594±104 pCi/L.

Table 25. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.  
Location: T-145 (QC)  
Collection: Monthly composites of weekly grab samples  
Units: pCi/L

| Lab Code       | TSWU- 426 | TSWU- 861 | TSWU- 1369 | TSWU- 1944 | Req. LLD |
|----------------|-----------|-----------|------------|------------|----------|
| Date Collected | 02-03-15  | 03-03-15  | 03-31-15   | 04-28-15   |          |
| Gross beta     | 1.3 ± 0.6 | 1.4 ± 0.4 | 4.9 ± 0.9  | 3.2 ± 0.8  | 4.0      |
| H-3            | < 330     | < 330     | < 330      | < 330      | 330      |
| Mn-54          | < 2.1     | < 3.5     | < 2.6      | < 3.3      | 15       |
| Fe-59          | < 4.4     | < 6.4     | < 2.7      | < 3.6      | 30       |
| Co-58          | < 1.8     | < 3.6     | < 2.4      | < 3.0      | 15       |
| Co-60          | < 2.5     | < 2.5     | < 1.5      | < 2.1      | 15       |
| Zn-65          | < 3.8     | < 4.7     | < 2.9      | < 4.4      | 30       |
| Zr-Nb-95       | < 2.6     | < 3.0     | < 3.4      | < 3.2      | 15       |
| Cs-134         | < 2.3     | < 3.7     | < 3.2      | < 4.3      | 10       |
| Cs-137         | < 2.0     | < 3.6     | < 1.8      | < 3.5      | 18       |
| Ba-La-140      | < 3.7     | < 4.1     | < 4.4      | < 1.8      | 15       |

| Lab Code       | TSWU- 2799 | TSWU- 3387 | TSWU- 4361 | TSWU- 4868 | Req. LLD |
|----------------|------------|------------|------------|------------|----------|
| Date Collected | 06-02-15   | 06-30-15   | 08-04-15   | 09-01-15   |          |
| Gross beta     | 1.9 ± 1.0  | 2.6 ± 0.7  | 2.1 ± 0.6  | 1.0 ± 0.5  | 4.0      |
| H-3            | < 330      | < 330      | < 330      | < 330      | 330      |
| Mn-54          | < 2.0      | < 2.2      | < 2.7      | < 1.9      | 15       |
| Fe-59          | < 3.2      | < 1.1      | < 6.9      | < 4.1      | 30       |
| Co-58          | < 2.1      | < 2.8      | < 2.7      | < 1.4      | 15       |
| Co-60          | < 2.6      | < 1.6      | < 2.5      | < 1.9      | 15       |
| Zn-65          | < 3.6      | < 3.4      | < 5.3      | < 4.5      | 30       |
| Zr-Nb-95       | < 2.5      | < 1.7      | < 4.3      | < 3.5      | 15       |
| Cs-134         | < 3.6      | < 2.9      | < 3.7      | < 2.6      | 10       |
| Cs-137         | < 3.1      | < 2.0      | < 3.3      | < 3.4      | 18       |
| Ba-La-140      | < 2.2      | < 1.8      | < 4.7      | < 8.8      | 15       |

| Lab Code       | TSWU- 5367 | TSWU- 6350              | TSWU- 6793 | TSWU- 7200 | Req. LLD |
|----------------|------------|-------------------------|------------|------------|----------|
| Date Collected | 09-29-15   | 11-03-15                | 12-01-15   | 12-29-15   |          |
| Gross beta     | 1.8 ± 0.6  | 45.9 ± 1.6 <sup>a</sup> | < 1.6      | 3.4 ± 1.8  | 4.0      |
| H-3            | < 330      | < 330                   | 518 ± 96   | < 330      | 330      |
| Mn-54          | < 2.8      | < 2.9                   | < 2.0      | < 2.7      | 15       |
| Fe-59          | < 4.6      | < 6.1                   | < 4.1      | < 4.4      | 30       |
| Co-58          | < 2.2      | < 2.1                   | < 1.8      | < 2.4      | 15       |
| Co-60          | < 1.7      | < 1.6                   | < 2.1      | < 2.9      | 15       |
| Zn-65          | < 7.7      | < 3.5                   | < 2.3      | < 4.6      | 30       |
| Zr-Nb-95       | < 3.1      | < 3.5                   | < 3.6      | < 3.8      | 15       |
| Cs-134         | < 3.8      | < 3.0                   | < 3.1      | < 3.9      | 10       |
| Cs-137         | < 4.1      | < 3.1                   | < 2.9      | < 3.2      | 18       |
| Ba-La-140      | < 2.9      | < 4.7                   | < 1.9      | < 9.4      | 15       |

<sup>a</sup> Gross beta repeated with a result of 52.1±4.1 pCi/L. Potassium analysis by ICP done with a result of 45.0 mg/L.

Table 26. Untreated surface water samples, analyses for strontium-89 and strontium-90.  
Collection: Quarterly composites of weekly grab samples  
Units: pCi/L

| Location T-3 |            |            |            |            |
|--------------|------------|------------|------------|------------|
| Period       | 1st Qtr.   | 2nd Qtr.   | 3rd Qtr.   | 4th Qtr.   |
| Lab Code     | TSWU- 1580 | TSWU- 3515 | TSWU- 5508 | TSWU- 7271 |
| Sr-89        | < 0.6      | < 0.6      | < 0.5      | < 0.6      |
| Sr-90        | < 0.5      | < 0.5      | < 0.5      | < 0.5      |

| Location T-11 (C) |            |            |            |            |
|-------------------|------------|------------|------------|------------|
| Period            | 1st Qtr.   | 2nd Qtr.   | 3rd Qtr.   | 4th Qtr.   |
| Lab Code          | TSWU- 1581 | TSWU- 3516 | TSWU- 5509 | TSWU- 7272 |
| Sr-89             | < 0.6      | < 0.6      | < 0.5      | < 0.6      |
| Sr-90             | < 0.6      | < 0.5      | < 0.4      | < 0.5      |

| Location T-12 (C) |            |            |            |            |
|-------------------|------------|------------|------------|------------|
| Period            | 1st Qtr.   | 2nd Qtr.   | 3rd Qtr.   | 4th Qtr.   |
| Lab Code          | TSWU- 1582 | TSWU- 3517 | TSWU- 5510 | TSWU- 7273 |
| Sr-89             | < 0.6      | < 0.7      | < 0.6      | < 0.6      |
| Sr-90             | < 0.6      | < 0.5      | < 0.6      | < 0.5      |

| Location T-22 |            |            |            |            |
|---------------|------------|------------|------------|------------|
| Period        | 1st Qtr.   | 2nd Qtr.   | 3rd Qtr.   | 4th Qtr.   |
| Lab Code      | TSWU- 1583 | TSWU- 3518 | TSWU- 5511 | TSWU- 7274 |
| Sr-89         | < 0.6      | < 0.7      | < 0.6      | < 0.6      |
| Sr-90         | < 0.6      | < 0.5      | < 0.5      | < 0.5      |

Table 27. Fish samples, analyses for gross beta and gamma-emitting isotopes.  
Collection: Annually  
Units: pCi/g wet

| Location                                |             |             |                            |  |
|-----------------------------------------|-------------|-------------|----------------------------|--|
| T-33 (Lake Erie, 1.5 mi. NE of Station) |             |             |                            |  |
| Lab Code                                | TF- 3004    | TF- 3005    | TF- 3007                   |  |
| Date Collected                          | 04-12-15    | 05-15-15    | 06-08-15                   |  |
| Sample Type                             | Walleye     | Carp        | White Bass/<br>White Perch |  |
| Gross Beta                              | 3.75 ± 0.11 | 3.12 ± 0.09 | 3.77 ± 0.11                |  |
| K-40                                    | 3.45 ± 0.43 | 2.36 ± 0.43 | 2.48 ± 0.36                |  |
| Mn-54                                   | < 0.018     | < 0.026     | < 0.009                    |  |
| Fe-59                                   | < 0.142     | < 0.081     | < 0.040                    |  |
| Co-58                                   | < 0.019     | < 0.033     | < 0.012                    |  |
| Co-60                                   | < 0.011     | < 0.021     | < 0.011                    |  |
| Zn-65                                   | < 0.034     | < 0.048     | < 0.030                    |  |
| Cs-134                                  | < 0.017     | < 0.022     | < 0.017                    |  |
| Cs-137                                  | < 0.017     | < 0.024     | < 0.016                    |  |

| Location       |             |             |             |  |
|----------------|-------------|-------------|-------------|--|
| T-35           |             |             |             |  |
| Lab Code       | TF- 3008    | TF- 3009    | TF- 3010    |  |
| Date Collected | 03-30-15    | 04-29-15    | 05-19-15    |  |
| Sample Type    | Walleye     | Carp        | White Bass  |  |
| Gross Beta     | 4.23 ± 0.12 | 3.56 ± 0.11 | 3.71 ± 0.11 |  |
| K-40           | 3.86 ± 0.40 | 3.13 ± 0.34 | 2.43 ± 0.37 |  |
| Mn-54          | < 0.011     | < 0.017     | < 0.016     |  |
| Fe-59          | < 0.111     | < 0.061     | < 0.053     |  |
| Co-58          | < 0.029     | < 0.010     | < 0.012     |  |
| Co-60          | < 0.017     | < 0.012     | < 0.010     |  |
| Zn-65          | < 0.021     | < 0.024     | < 0.026     |  |
| Cs-134         | < 0.018     | < 0.015     | < 0.015     |  |
| Cs-137         | < 0.016     | < 0.016     | < 0.015     |  |

Table 28. Shoreline sediment samples, analyses for gamma-emitting isotopes.

Collection: Semiannually

Units: pCi/g dry

| Location       | T-3          | T-4          | T-4P          | T-27B        | T-132        |
|----------------|--------------|--------------|---------------|--------------|--------------|
| Lab Code       | TSS- 2787    | TSS- 2788    | TSS- 2789     | TSS- 2790    | TSS- 2791    |
| Date Collected | 05-20-15     | 05-20-15     | 05-20-15      | 05-20-15     | 05-20-15     |
| K-40           | 11.91 ± 0.57 | 11.65 ± 0.71 | 10.41 ± 0.72  | 10.98 ± 0.48 | 8.13 ± 0.48  |
| Mn-54          | < 0.018      | < 0.023      | < 0.014       | < 0.011      | < 0.011      |
| Co-58          | < 0.011      | < 0.021      | < 0.024       | < 0.014      | < 0.017      |
| Co-60          | < 0.013      | < 0.015      | < 0.021       | < 0.008      | < 0.008      |
| Cs-134         | < 0.010      | < 0.020      | < 0.022       | < 0.010      | < 0.009      |
| Cs-137         | < 0.013      | < 0.024      | < 0.021       | < 0.012      | < 0.011      |
| Lab Code       | TSS- 6702    | TSS- 6703    | TSS- 6704     | TSS- 6705    | TSS- 6706    |
| Date Collected | 11-24-15     | 11-24-15     | 11-24-15      | 11-24-15     | 11-24-15     |
| K-40           | 10.35 ± 0.48 | 12.46 ± 0.58 | 19.79 ± 0.97  | 10.48 ± 0.49 | 12.08 ± 0.56 |
| Mn-54          | < 0.014      | < 0.020      | < 0.032       | < 0.016      | < 0.016      |
| Co-58          | < 0.019      | < 0.018      | < 0.035       | < 0.016      | < 0.014      |
| Co-60          | < 0.011      | < 0.014      | < 0.014       | < 0.008      | < 0.012      |
| Cs-134         | < 0.008      | < 0.015      | < 0.026       | < 0.012      | < 0.013      |
| Cs-137         | < 0.010      | < 0.015      | 0.050 ± 0.024 | < 0.013      | < 0.013      |



700 Landwehr Road • Northbrook, IL 60062-2310  
phone (847) 564-0700 • fax (847) 564-4517

## APPENDIX A

### INTERLABORATORY COMPARISON PROGRAM RESULTS

**NOTE:** Environmental Inc., Midwest Laboratory participates in intercomparison studies administered by Environmental Resources Associates, and serves as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. Results are reported in Appendix A. TLD Intercomparison results, in-house spikes, blanks, duplicates and mixed analyte performance evaluation program results are also reported. Appendix A is updated four times a year; the complete Appendix is included in March, June, September and December monthly progress reports only.

January, 2015 through December, 2015

## Appendix A

### Interlaboratory Comparison Program Results

Environmental, Inc., Midwest Laboratory has participated in interlaboratory comparison (crosscheck) programs since the formulation of its quality control program in December 1971. These programs are operated by agencies which supply environmental type samples containing concentrations of radionuclides known to the issuing agency but not to participant laboratories. The purpose of such a program is to provide an independent check on a laboratory's analytical procedures and to alert it of any possible problems.

Participant laboratories measure the concentration of specified radionuclides and report them to the issuing agency. Several months later, the agency reports the known values to the participant laboratories and specifies control limits. Results consistently higher or lower than the known values or outside the control limits indicate a need to check the instruments or procedures used.

Results in Table A-1 were obtained through participation in the environmental sample crosscheck program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.

Table A-2 lists results for thermoluminescent dosimeters (TLDs), via internal laboratory testing and by irradiation and evaluation by the University of Wisconsin-Madison Radiation Calibration Laboratory at the University of Wisconsin Medical Radiation Research Center.

Table A-3 lists results of the analyses on in-house "spiked" samples for the past twelve months. All samples are prepared using NIST traceable sources. Data for previous years available upon request.

Table A-4 lists results of the analyses on in-house "blank" samples for the past twelve months. Data for previous years available upon request.

Table A-5 lists REMP specific analytical results from the in-house "duplicate" program for the past twelve months. Acceptance is based on the difference of the results being less than the sum of the errors. Complete analytical data for duplicate analyses is available upon request.

The results in Table A-6 were obtained through participation in the Mixed Analyte Performance Evaluation Program.

Results in Table A-7 were obtained through participation in the environmental sample crosscheck program administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurement Laboratory Quality Assessment Program (EML).

Attachment A lists the laboratory precision at the 1 sigma level for various analyses. The acceptance criteria in Table A-3 is set at  $\pm 2$  sigma.

Out-of-limit results are explained directly below the result.

# Attachment A

## ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

### LABORATORY PRECISION: ONE STANDARD DEVIATION VALUES FOR VARIOUS ANALYSES<sup>a</sup>

| Analysis                                                             | Level                                             | One standard deviation<br>for single determination                 |
|----------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------|
| Gamma Emitters                                                       | 5 to 100 pCi/liter or kg<br>> 100 pCi/liter or kg | 5.0 pCi/liter<br>5% of known value                                 |
| Strontium-89 <sup>b</sup>                                            | 5 to 50 pCi/liter or kg<br>> 50 pCi/liter or kg   | 5.0 pCi/liter<br>10% of known value                                |
| Strontium-90 <sup>b</sup>                                            | 2 to 30 pCi/liter or kg<br>> 30 pCi/liter or kg   | 5.0 pCi/liter<br>10% of known value                                |
| Potassium-40                                                         | ≥ 0.1 g/liter or kg                               | 5% of known value                                                  |
| Gross alpha                                                          | ≤ 20 pCi/liter<br>> 20 pCi/liter                  | 5.0 pCi/liter<br>25% of known value                                |
| Gross beta                                                           | ≤ 100 pCi/liter<br>> 100 pCi/liter                | 5.0 pCi/liter<br>5% of known value                                 |
| Tritium                                                              | ≤ 4,000 pCi/liter<br>> 4,000 pCi/liter            | ± 1σ =<br>169.85 x (known) <sup>0.0933</sup><br>10% of known value |
| Radium-226,-228                                                      | ≥ 0.1 pCi/liter                                   | 15% of known value                                                 |
| Plutonium                                                            | ≥ 0.1 pCi/liter, gram, or sample                  | 10% of known value                                                 |
| Iodine-131,<br>Iodine-129 <sup>b</sup>                               | ≤ 55 pCi/liter<br>> 55 pCi/liter                  | 6 pCi/liter<br>10% of known value                                  |
| Uranium-238,<br>Nickel-63 <sup>b</sup><br>Technetium-99 <sup>b</sup> | ≤ 35 pCi/liter<br>> 35 pCi/liter                  | 6 pCi/liter<br>15% of known value                                  |
| Iron-55 <sup>b</sup>                                                 | 50 to 100 pCi/liter<br>> 100 pCi/liter            | 10 pCi/liter<br>10% of known value                                 |
| Other Analyses <sup>b</sup>                                          | ---                                               | 20% of known value                                                 |

<sup>a</sup> From EPA publication, "Environmental Radioactivity Laboratory Intercomparison Studies Program, Fiscal Year, 1981-1982, EPA-600/4-81-004.

<sup>b</sup> Laboratory limit.

TABLE A-1. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)<sup>a</sup>.

| Lab Code              | Date      | Analysis  | Concentration (pCi/L)          |                         |                 | Acceptance |
|-----------------------|-----------|-----------|--------------------------------|-------------------------|-----------------|------------|
|                       |           |           | Laboratory Result <sup>b</sup> | ERA Result <sup>c</sup> | Control Limits  |            |
| ERW-1444              | 4/6/2015  | Sr-89     | 59.71 ± 5.44                   | 63.20                   | 51.10 - 71.20   | Pass       |
| ERW-1444              | 4/6/2015  | Sr-90     | 43.41 ± 2.43                   | 41.90                   | 30.80 - 48.10   | Pass       |
| ERW-1448              | 4/6/2015  | Ba-133    | 77.75 ± 4.69                   | 82.50                   | 69.30 - 90.80   | Pass       |
| ERW-1448              | 4/6/2015  | Cs-134    | 68.82 ± 3.08                   | 75.70                   | 61.80 - 83.30   | Pass       |
| ERW-1448              | 4/6/2015  | Cs-137    | 191.9 ± 5.9                    | 189.0                   | 170.0 - 210.0   | Pass       |
| ERW-1448              | 4/6/2015  | Co-60     | 85.05 ± 4.59                   | 84.50                   | 76.00 - 95.30   | Pass       |
| ERW-1448              | 4/6/2015  | Zn-65     | 196.0 ± 12.0                   | 203.0                   | 183.0 - 238.0   | Pass       |
| ERW-1450              | 4/6/2015  | Gr. Alpha | 34.05 ± 1.90                   | 42.60                   | 22.10 - 54.00   | Pass       |
| ERW-1450              | 4/6/2015  | G. Beta   | 26.93 ± 1.12                   | 32.90                   | 21.30 - 40.60   | Pass       |
| ERW-1453              | 4/6/2015  | I-131     | 22.47 ± 0.83                   | 23.80                   | 19.70 - 28.30   | Pass       |
| ERW-1456              | 4/6/2015  | Ra-226    | 8.20 ± 0.56                    | 8.43                    | 6.33 - 9.90     | Pass       |
| ERW-1456              | 4/6/2015  | Ra-228    | 5.00 ± 0.67                    | 4.39                    | 2.56 - 6.01     | Pass       |
| ERW-1456              | 4/6/2015  | Uranium   | 5.98 ± 0.31                    | 6.59                    | 4.99 - 7.83     | Pass       |
| ERW-1461              | 4/6/2015  | H-3       | 3,254 ± 180                    | 3280                    | 2,770 - 3,620   | Pass       |
|                       |           |           |                                |                         |                 |            |
| ERW-5528              | 10/5/2015 | Sr-89     | 34.76 ± 0.06                   | 35.70                   | 26.70 - 42.50   | Pass       |
| ERW-5528              | 10/5/2015 | Sr-90     | 29.23 ± 0.06                   | 31.10                   | 22.70 - 36.10   | Pass       |
| ERW-5531              | 10/5/2015 | Ba-133    | 30.91 ± 0.53                   | 32.50                   | 25.90 - 36.70   | Pass       |
| ERW-5531              | 10/5/2015 | Cs-134    | 57.40 ± 2.57                   | 62.30                   | 50.69 - 68.50   | Pass       |
| ERW-5531              | 10/5/2015 | Cs-137    | 163.1 ± 4.8                    | 157.0                   | 141.0 - 175.0   | Pass       |
| ERW-5531              | 10/5/2015 | Co-60     | 73.41 ± 1.72                   | 71.10                   | 64.00 - 80.70   | Pass       |
| ERW-5531              | 10/5/2015 | Zn-65     | 138.9 ± 5.7                    | 126.0                   | 113.0 - 149.0   | Pass       |
| ERW-5534              | 10/5/2015 | Gr. Alpha | 29.99 ± 0.08                   | 51.60                   | 26.90 - 64.70   | Pass       |
| ERW-5534              | 10/5/2015 | G. Beta   | 27.52 ± 0.04                   | 36.60                   | 24.10 - 44.20   | Pass       |
| ERW-5537              | 10/5/2015 | I-131     | 25.54 ± 0.60                   | 26.30                   | 21.90 - 31.00   | Pass       |
| ERW-5540              | 10/5/2015 | Ra-226    | 7.32 ± 0.37                    | 7.29                    | 5.49 - 8.63     | Pass       |
| ERW-5540 <sup>d</sup> | 10/5/2015 | Ra-228    | 7.80 ± 0.02                    | 4.25                    | 2.46 - 5.85     | Fail       |
| ERW-5540 <sup>e</sup> | 10/5/2015 | Ra-228    | 4.45 ± 0.96                    | 4.25                    | 2.46 - 5.85     | Pass       |
| ERW-5540              | 10/5/2015 | Uranium   | 53.30 ± 0.55                   | 56.20                   | 45.70 - 62.40   | Pass       |
| ERW-5543              | 10/5/2015 | H-3       | 21,260 ± 351                   | 21,300                  | 18,700 - 23,400 | Pass       |

<sup>a</sup> Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing in drinking water conducted by Environmental Resources Associates (ERA).

<sup>b</sup> Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

<sup>c</sup> Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA.

<sup>d</sup> Ra-228 spike was at a level close to the detection level. The high result was likely caused by interference from short-lived Rn-222 daughters.

<sup>e</sup> The result of reanalysis (Compare to original result, footnoted "e" above).

TABLE A-2.1. Thermoluminescent Dosimetry, (TLD, CaSO<sub>4</sub>: Dy Cards). <sup>a</sup>

| Lab Code                   | Irradiation Date | Description | Known Value | mR             |  | Control Limits | Acceptance |
|----------------------------|------------------|-------------|-------------|----------------|--|----------------|------------|
|                            |                  |             |             | Lab Result     |  |                |            |
| <u>Environmental, Inc.</u> |                  |             |             |                |  |                |            |
| 2015-1                     | 6/24/2015        | 30 cm.      | 98.81       | 103.67 ± 6.05  |  | 69.20 - 128.50 | Pass       |
| 2015-1                     | 6/24/2015        | 30 cm.      | 98.81       | 111.32 ± 15.97 |  | 69.20 - 128.50 | Pass       |
| 2015-1                     | 6/24/2015        | 60 cm.      | 24.70       | 27.23 ± 1.33   |  | 17.30 - 32.10  | Pass       |
| 2015-1                     | 6/24/2015        | 60 cm.      | 24.70       | 26.98 ± 4.98   |  | 17.30 - 32.10  | Pass       |
| 2015-1                     | 6/24/2015        | 120 cm.     | 6.18        | 6.71 ± 1.77    |  | 4.30 - 8.00    | Pass       |
| 2015-1                     | 6/24/2015        | 120 cm.     | 6.18        | 6.78 ± 0.38    |  | 4.30 - 8.00    | Pass       |
| 2015-1                     | 6/24/2015        | 120 cm.     | 6.18        | 6.43 ± 2.00    |  | 4.30 - 8.00    | Pass       |
| 2015-1                     | 6/24/2015        | 150 cm.     | 3.95        | 4.13 ± 0.72    |  | 2.80 - 5.10    | Pass       |
| 2015-1                     | 6/24/2015        | 150 cm.     | 3.95        | 4.12 ± 1.36    |  | 2.80 - 5.10    | Pass       |
| 2015-1                     | 6/24/2015        | 150 cm.     | 3.95        | 4.50 ± 1.51    |  | 2.80 - 5.10    | Pass       |
| 2015-1                     | 6/24/2015        | 180 cm.     | 2.74        | 3.27 ± 0.28    |  | 1.90 - 3.60    | Pass       |
| 2015-1                     | 6/24/2015        | 180 cm.     | 2.74        | 3.05 ± 1.11    |  | 1.90 - 3.60    | Pass       |
| 2015-1                     | 6/24/2015        | 180 cm.     | 2.74        | 3.14 ± 0.18    |  | 1.90 - 3.60    | Pass       |

TABLE A-2.2 Thermoluminescent Dosimetry, (TLD, CaSO<sub>4</sub>: Dy Cards). <sup>b</sup>

| Lab Code                        | Irradiation<br>Date | Description | mrem              |                  | Performance <sup>c</sup><br>Quotient (P) | Acceptance <sup>d</sup> |
|---------------------------------|---------------------|-------------|-------------------|------------------|------------------------------------------|-------------------------|
|                                 |                     |             | Delivered<br>Dose | Reported<br>Dose |                                          |                         |
| <u>Environmental, Inc.</u>      |                     |             |                   |                  |                                          |                         |
| 2015-2                          | 12/15/2015          | Spike 1     | 138.0             | 118.5 ± 2.1      | -0.14                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 2     | 138.0             | 120.0 ± 1.6      | -0.13                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 3     | 138.0             | 121.9 ± 1.9      | -0.12                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 4     | 138.0             | 124.5 ± 3.3      | -0.10                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 5     | 138.0             | 126.5 ± 3.2      | -0.08                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 6     | 138.0             | 140.0 ± 4.2      | 0.01                                     | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 7     | 138.0             | 128.2 ± 1.2      | -0.07                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 8     | 138.0             | 128.0 ± 4.0      | -0.07                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 9     | 138.0             | 124.9 ± 5.1      | -0.09                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 10    | 138.0             | 122.9 ± 3.0      | -0.11                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 11    | 138.0             | 123.3 ± 3.0      | -0.11                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 12    | 138.0             | 119.0 ± 3.4      | -0.14                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 13    | 138.0             | 123.0 ± 2.7      | -0.11                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 14    | 138.0             | 125.4 ± 2.0      | -0.09                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 15    | 138.0             | 122.0 ± 3.1      | -0.12                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 16    | 138.0             | 120.8 ± 2.0      | -0.12                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 17    | 138.0             | 118.8 ± 1.1      | -0.14                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 18    | 138.0             | 117.0 ± 2.3      | -0.15                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 19    | 138.0             | 120.8 ± 2.6      | -0.12                                    | Pass                    |
| 2015-2                          | 12/15/2015          | Spike 20    | 138.0             | 122.6 ± 3.0      | -0.11                                    | Pass                    |
| Mean (Spike 1-20)               |                     |             |                   | 123.4            | 0.11                                     | Pass                    |
| Standard Deviation (Spike 1-20) |                     |             |                   | 5.0              | 0.04                                     | Pass                    |

<sup>a</sup> TLD's were irradiated at Environmental Inc. Midwest Laboratory. (Table A-2.1)

<sup>b</sup> TLD's were irradiated by the University of Wisconsin-Madison Radiation Calibration Laboratory following ANSI N13.37 protocol from a known air kerma rate. TLD's were read and the results were submitted by Environmental Inc. to the University of Wisconsin-Madison Radiation Calibration Laboratory for comparison to the delivered dose. (Table A-2.2)

<sup>c</sup> Performance Quotient (P) is calculated as ((reported dose - conventionally true value) + conventionally true value) where the conventionally true value is the delivered dose.

<sup>d</sup> Acceptance is achieved when neither the absolute value of mean of the P values, nor the standard deviation of the P values exceed 0.15.

<sup>e</sup> Tables A2.1 and A2.2 assume 1 roentgen = 1 rem (per NRC -Health Physics Positions Based on 10 CFR Part 20 - Question 96 - Page Last Reviewed/Updated Thursday, October 01, 2015).

TABLE A-3. In-House "Spiked" Samples

| Lab Code <sup>b</sup> | Date      | Analysis  | Concentration (pCi/L) <sup>a</sup>         |                   |                                |            |
|-----------------------|-----------|-----------|--------------------------------------------|-------------------|--------------------------------|------------|
|                       |           |           | Laboratory results<br>2s, n=1 <sup>c</sup> | Known<br>Activity | Control<br>Limits <sup>d</sup> | Acceptance |
| W-020315              | 2/3/2015  | Ra-226    | 16.19 ± 0.42                               | 16.70             | 13.36 - 20.04                  | Pass       |
| W-021215              | 2/12/2015 | Gr. Alpha | 18.38 ± 0.39                               | 20.10             | 16.08 - 24.12                  | Pass       |
| W-021215              | 2/12/2015 | Gr. Beta  | 27.98 ± 0.32                               | 30.90             | 24.72 - 37.08                  | Pass       |
| SPW-687               | 2/27/2015 | Ni-63     | 239.6 ± 3.5                                | 202.4             | 161.9 - 242.9                  | Pass       |
| SPAP-689              | 3/2/2015  | Gr. Beta  | 42.37 ± 3.50                               | 43.61             | 34.89 - 52.33                  | Pass       |
| SPAP-691              | 3/2/2015  | Cs-134    | 1.77 ± 0.61                                | 1.90              | 1.52 - 2.28                    | Pass       |
| SPAP-691              | 3/2/2015  | Cs-137    | 83.02 ± 2.60                               | 97.20             | 77.76 - 116.64                 | Pass       |
| SPW-693               | 3/2/2015  | Cs-134    | 44.30 ± 2.53                               | 53.40             | 42.72 - 64.08                  | Pass       |
| SPW-693               | 3/2/2015  | Cs-137    | 74.82 ± 3.50                               | 73.80             | 59.04 - 88.56                  | Pass       |
| SPW-693               | 3/2/2015  | Sr-89     | 87.45 ± 3.62                               | 87.48             | 69.98 - 104.98                 | Pass       |
| SPW-693               | 3/25/2015 | Sr-90     | 37.22 ± 1.55                               | 38.10             | 30.48 - 45.72                  | Pass       |
|                       |           |           |                                            |                   |                                |            |
| SPMI-697              | 3/2/2015  | Cs-134    | 96.67 ± 7.74                               | 107.00            | 85.60 - 128.40                 | Pass       |
| SPMI-697              | 3/2/2015  | Cs-137    | 78.51 ± 7.02                               | 73.84             | 59.07 - 88.61                  | Pass       |
| SPMI-697              | 3/2/2015  | Sr-89     | 72.98 ± 4.86                               | 87.48             | 69.98 - 104.98                 | Pass       |
| SPMI-697              | 3/2/2015  | Sr-90     | 39.17 ± 1.51                               | 38.10             | 30.48 - 45.72                  | Pass       |
| SPW-699               | 3/2/2015  | H-3       | 59,592 ± 703                               | 58,445            | 46,756 - 70,134                | Pass       |
| W-031115              | 3/11/2015 | Ra-226    | 13.73 ± 0.35                               | 16.70             | 13.36 - 20.04                  | Pass       |
| W-030215              | 3/2/2015  | Ra-228    | 32.79 ± 2.31                               | 31.44             | 25.15 - 37.73                  | Pass       |
| SPF-1040              | 3/16/2015 | Cs-134    | 787.5 ± 9.2                                | 840.0             | 672.0 - 1,008.0                | Pass       |
| SPF-1040              | 3/16/2015 | Cs-137    | 2,599 ± 24                                 | 2,360             | 1,888 - 2,832                  | Pass       |
| SPW-1036              | 3/25/2015 | Fe-55     | 1,792 ± 63                                 | 1961              | 1,569 - 2,353                  | Pass       |
|                       |           |           |                                            |                   |                                |            |
| SPW-1374              | 4/6/2015  | U-238     | 46.03 ± 2.25                               | 41.70             | 25.02 - 58.38                  | Pass       |
| W-040815              | 4/8/2015  | Gr. Alpha | 20.18 ± 0.42                               | 20.10             | 16.08 - 24.12                  | Pass       |
| W-040815              | 4/8/2015  | Gr. Beta  | 29.70 ± 0.33                               | 30.90             | 24.72 - 37.08                  | Pass       |
| SPW-1038              | 4/13/2015 | C-14      | 3,497 ± 9                                  | 4,734             | 2,840 - 6,628                  | Pass       |
| W-2165                | 4/20/2015 | H-3       | 5550 ± 226                                 | 5,780             | 3,468 - 8,092                  | Pass       |
| W-2165                | 4/20/2015 | Sr-89     | 90.70 ± 8.20                               | 108.70            | 65.22 - 152.18                 | Pass       |
| W-2165                | 4/20/2015 | Sr-90     | 76.80 ± 2.00                               | 75.90             | 45.54 - 106.26                 | Pass       |
| W-2165                | 4/20/2015 | Cs-134    | 62.40 ± 6.40                               | 57.30             | 34.38 - 80.22                  | Pass       |
| W-2165                | 4/20/2015 | Cs-137    | 91.30 ± 7.70                               | 84.00             | 50.40 - 117.60                 | Pass       |
| W-2392                | 4/13/2015 | H-3       | 5032 ± 214                                 | 5780              | 3468 - 8092                    | Pass       |
| W-2392                | 4/13/2015 | Ni-63     | 222.4 ± 3.8                                | 202.0             | 121.2 - 282.8                  | Pass       |
| W-2392                | 4/13/2015 | Cs-134    | 53.26 ± 5.01                               | 57.30             | 34.38 - 80.22                  | Pass       |
| W-2392                | 4/13/2015 | Cs-137    | 91.90 ± 7.76                               | 84.20             | 50.52 - 117.88                 | Pass       |
| W-042415              | 4/24/2015 | Ra-226    | 12.52 ± 0.39                               | 16.70             | 10.02 - 23.38                  | Pass       |
| W-050715              | 5/7/2015  | Gr. Alpha | 19.05 ± 0.41                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-050715              | 5/7/2015  | Gr. Beta  | 27.30 ± 0.32                               | 30.90             | 18.54 - 43.26                  | Pass       |
| W-061215              | 6/12/2015 | Gr. Alpha | 20.72 ± 0.44                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-061215              | 6/12/2015 | Gr. Beta  | 28.51 ± 0.33                               | 30.90             | 18.54 - 43.26                  | Pass       |
| U-2982                | 6/9/2015  | Gr. Beta  | 500.1 ± 5.1                                | 604.0             | 362.4 - 845.6                  | Pass       |
| U-3200                | 6/9/2015  | H-3       | 2229 ± 424                                 | 2346              | 1408 - 3284                    | Pass       |
|                       |           |           |                                            |                   |                                |            |
| W-70915               | 7/9/2015  | Gr. Alpha | 18.76 ± 0.40                               | 20.10             | 12.1 - 28.1                    | Pass       |
| W-70915               | 7/9/2015  | Gr. Beta  | 29.71 ± 0.33                               | 30.90             | 18.5 - 43.3                    | Pass       |
| SPAP-3859             | 7/21/2015 | Gr. Beta  | 41.59 ± 0.12                               | 43.61             | 26.17 - 61.05                  | Pass       |
| SPAP-3861             | 7/21/2015 | Cs-134    | 1.69 ± 0.60                                | 1.69              | 1.0 - 2.4                      | Pass       |

TABLE A-3. In-House "Spiked" Samples

| Lab Code <sup>b</sup> | Date       | Analysis  | Concentration (pCi/L) <sup>a</sup>         |                   |                                |            |
|-----------------------|------------|-----------|--------------------------------------------|-------------------|--------------------------------|------------|
|                       |            |           | Laboratory results<br>2s, n=1 <sup>c</sup> | Known<br>Activity | Control<br>Limits <sup>d</sup> | Acceptance |
| SPAP-3861             | 7/21/2015  | Cs-137    | 93.71 ± 2.64                               | 96.45             | 57.87 - 135.03                 | Pass       |
| SPMI-3863             | 7/21/2015  | Cs-134    | 38.21 ± 5.12                               | 47.02             | 28.21 - 65.83                  | Pass       |
| SPMI-3863             | 7/21/2015  | Cs-137    | 78.65 ± 7.94                               | 73.18             | 43.91 - 102.45                 | Pass       |
| SPMI-3863             | 7/21/2015  | Sr-90     | 41.05 ± 1.62                               | 37.78             | 22.67 - 52.89                  | Pass       |
| SPW-3871              | 7/21/2015  | Cs-134    | 45.59 ± 6.39                               | 47.02             | 28.21 - 65.83                  | Pass       |
| SPW-3871              | 7/21/2015  | Cs-137    | 78.73 ± 7.03                               | 73.18             | 43.91 - 102.45                 | Pass       |
| SPW-3871              | 7/21/2015  | Sr-90     | 38.36 ± 1.58                               | 37.78             | 22.67 - 52.89                  | Pass       |
| SPW-3873              | 7/21/2015  | H-3       | 60,034 ± 671                               | 57,199            | 34,319 - 80,079                | Pass       |
| SPW-3875              | 7/21/2015  | Ni-63     | 451.3 ± 3.3                                | 403.7             | 242.2 - 565.2                  | Pass       |
| SPW-3877              | 7/21/2015  | Tc-99     | 483.0 ± 8.3                                | 539.1             | 323.5 - 754.7                  | Pass       |
| SPMI-3879             | 7/21/2015  | C-14      | 4,921 ± 19                                 | 4,736             | 2,842 - 6,630                  | Pass       |
| SPSO-4037             | 7/21/2015  | Ni-63     | 42,458 ± 309                               | 40,370            | 24,222 - 56,518                | Pass       |
| SPW-072515            | 7/17/2015  | Ra-228    | 35.48 ± 3                                  | 31.44             | 18.86 - 44.02                  | Pass       |
| SPF-4104              | 7/29/2015  | Cs-134    | 661.5 ± 115.9                              | 740.0             | 444.0 - 1036.0                 | Pass       |
| SPF-4104              | 7/29/2015  | Cs-137    | 2,469 ± 59                                 | 2,340             | 1,404 - 3,276                  | Pass       |
|                       |            |           |                                            |                   |                                |            |
| SPW-81015             | 8/10/2015  | Gr. Alpha | 21.59 ± 0.46                               | 20.10             | 12.06 - 28.14                  | Pass       |
| SPW-81015             | 8/10/2015  | Gr. Beta  | 27.58 ± 0.32                               | 30.90             | 18.54 - 43.26                  | Pass       |
| SPW-81315             | 8/13/2015  | Ra-226    | 15.05 ± 0.36                               | 16.70             | 10.02 - 23.38                  | Pass       |
|                       |            |           |                                            |                   |                                |            |
| SPW-90615             | 9/6/2015   | Gr. Alpha | 18.32 ± 0.40                               | 20.10             | 12.06 - 28.14                  | Pass       |
| SPW-90615             | 9/6/2015   | Gr. Beta  | 29.43 ± 0.33                               | 30.90             | 18.54 - 43.26                  | Pass       |
| W-091415              | 9/14/2016  | Gr. Alpha | 19.35 ± 0.51                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-091415              | 9/14/2016  | Gr. Beta  | 31.53 ± 0.35                               | 30.90             | 18.54 - 43.26                  | Pass       |
|                       |            |           |                                            |                   |                                |            |
| W-100815              | 10/8/2015  | Ra-228    | 12.27 ± 0.33                               | 16.70             | 10.02 - 23.38                  | Pass       |
| W-100615              | 10/6/2016  | Gr. Alpha | 20.62 ± 0.43                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-100615              | 10/6/2016  | Gr. Beta  | 29.35 ± 0.33                               | 30.90             | 18.54 - 43.26                  | Pass       |
| W-5277                | 10/16/2015 | H-3       | 5,224 ± 218                                | 5,466             | 3,280 - 7,652                  | Pass       |
| W-5277                | 10/16/2015 | Cs-134    | 99.40 ± 6.64                               | 99.20             | 59.52 - 138.88                 | Pass       |
| W-5277                | 10/16/2015 | Cs-137    | 89.60 ± 6.64                               | 83.20             | 49.92 - 116.48                 | Pass       |
|                       |            |           |                                            |                   |                                |            |
| W-110415              | 11/4/2015  | Ra-226    | 12.27 ± 0.33                               | 16.70             | 10.02 - 23.38                  | Pass       |
| W-111115              | 11/11/2015 | Ra-228    | 31.78 ± 2.48                               | 31.44             | 18.86 - 44.02                  | Pass       |
| W-6086,6087           | 11/18/2015 | H-3       | 10,882 ± 309                               | 11,231            | 6,738 - 15,723                 | Pass       |
| W-6086,6087           | 11/18/2015 | Cs-134    | 92.98 ± 7.29                               | 96.25             | 57.75 - 134.75                 | Pass       |
| W-6086,6087           | 11/18/2015 | Cs-137    | 76.65 ± 7.81                               | 82.94             | 49.76 - 116.12                 | Pass       |
| W-112515              | 11/25/2015 | Gr. Alpha | 20.91 ± 0.52                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-112515              | 11/25/2015 | Gr. Beta  | 31.59 ± 0.35                               | 30.90             | 18.54 - 43.26                  | Pass       |
|                       |            |           |                                            |                   |                                |            |
| W-120715              | 12/7/2015  | Fe-55     | 2,431 ± 97                                 | 2,319             | 1,391 - 3,247                  | Pass       |
| W-120815              | 12/8/2015  | Gr. Alpha | 20.72 ± 0.43                               | 20.10             | 12.06 - 28.14                  | Pass       |
| W-120815              | 12/8/2015  | Gr. Beta  | 29.50 ± 0.33                               | 30.90             | 18.54 - 43.26                  | Pass       |
| W-121515              | 12/15/2015 | Ra-226    | 14.77 ± 0.42                               | 16.70             | 10.02 - 23.38                  | Pass       |

<sup>a</sup> Liquid sample results are reported in pCi/Liter, air filters( pCi/m3), charcoal (pCi/charcoal canister), and solid samples (pCi/kg).

<sup>b</sup> Laboratory codes : W (Water), MI (milk), AP (air filter), SO (soil), VE (vegetation), CH (charcoal canister), F (fish), U (urine).

<sup>c</sup> Results are based on single determinations.

<sup>d</sup> Control limits are established from the precision values listed in Attachment A of this report, adjusted to ± 2s.

NOTE: For fish, Jello is used for the spike matrix. For vegetation, cabbage is used for the spike matrix.

TABLE A-4. In-House "Blank" Samples

| Lab Code  | Sample Type     | Date      | Analysis <sup>b</sup> | Concentration (pCi/L) <sup>a</sup> |                       |                              |
|-----------|-----------------|-----------|-----------------------|------------------------------------|-----------------------|------------------------------|
|           |                 |           |                       | Laboratory results (4.66σ)         |                       | Acceptance Criteria (4.66 σ) |
|           |                 |           |                       | LLD                                | Activity <sup>c</sup> |                              |
| W-020315  | Water           | 2/3/2015  | Ra-226                | 0.03                               | 0.03 ± 0.02           | 1                            |
| W-021215  | Water           | 2/12/2015 | Gr. Alpha             | 0.47                               | -0.37 ± 0.30          | 2                            |
| W-021215  | Water           | 2/12/2015 | Gr. Beta              | 0.76                               | -0.62 ± 0.51          | 4                            |
| SPW-686   | Water           | 2/27/2015 | Ni-63                 | 2.36                               | -0.74 ± 1.42          | 20                           |
| SPAP-688  | Air Particulate | 3/2/2015  | Gr. Beta              | 0.003                              | -0.001 ± 0.002        | 0.01                         |
| SPAP-690  | Air Particulate | 3/2/2015  | Cs-134                | 0.006                              | 0.428 ± 0.927         | 0.05                         |
| SPAP-690  | Air Particulate | 3/2/2015  | Cs-137                | 0.006                              | -0.785 ± 1.146        | 0.05                         |
| W-030215  | Water           | 3/2/2015  | Ra-228                | 0.76                               | 0.22 ± 0.38           | 2                            |
| SPW-692   | Water           | 3/2/2015  | Cs-134                | 6.70                               | -1.57 ± 3.55          | 10                           |
| SPW-692   | Water           | 3/2/2015  | Cs-137                | 6.18                               | -0.15 ± 3.20          | 10                           |
| SPW-692   | Water           | 3/2/2015  | Sr-89                 | 0.61                               | -0.51 ± 0.51          | 5                            |
| SPW-692   | Water           | 3/2/2015  | Sr-90                 | 0.60                               | 0.38 ± 0.33           | 1                            |
| SPMI-696  | Milk            | 3/2/2015  | Cs-134                | 3.75                               | -0.25 ± 2.24          | 10                           |
| SPMI-696  | Milk            | 3/2/2015  | Cs-137                | 4.36                               | -0.25 ± 2.24          | 10                           |
| SPMI-696  | Milk            | 3/2/2015  | Sr-89                 | 0.80                               | -0.40 ± 0.84          | 5                            |
| SPMI-696  | Milk            | 3/2/2015  | Sr-90                 | 0.49                               | 0.98 ± 0.32           | 1                            |
| SPW-698   | Water           | 3/2/2015  | H-3                   | 144.0                              | 28.6 ± 88.9           | 200                          |
| SPW-1035  | Water           | 3/16/2015 | Fe-55                 | 599.7                              | 72.6 ± 368.1          | 1000                         |
| SPW-1037  | Water           | 3/16/2015 | C-14                  | 8.94                               | 2.16 ± 5.47           | 200                          |
| SPF-1039  | Fish            | 3/16/2015 | Cs-134                | 13.54                              | -1.00 ± 6.80          | 100                          |
| SPF-1039  | Fish            | 3/16/2015 | Cs-137                | 9.80                               | 4.87 ± 7.00           | 100                          |
| W-040615  | Water           | 4/6/2015  | Ra-226                | 0.04                               | 0.01 ± 0.03           | 2                            |
| W-1373    | Water           | 4/6/2015  | U-238                 | 0.08                               | 0.01 ± 0.01           | 1                            |
| W-1375    | Water           | 4/6/2015  | Pu-238                | 0.03                               | 0.00 ± 0.01           | 1                            |
| W-050715  | Water           | 5/7/2015  | Gr. Alpha             | 0.38                               | -0.10 ± 0.25          | 2                            |
| W-050715  | Water           | 5/7/2015  | Gr. Beta              | 0.74                               | -0.14 ± 0.51          | 4                            |
| W-061215  | Water           | 6/12/2015 | Gr. Alpha             | 0.42                               | -0.10 ± 0.29          | 2                            |
| W-061215  | Water           | 6/12/2015 | Gr. Beta              | 0.75                               | -0.04 ± 0.53          | 4                            |
| SPW-3858  | Water           | 7/21/2015 | Gr. Beta              | 0.003                              | 0.004 ± 0.002         | 2                            |
| SPAP-3860 | Air Particulate | 7/21/2015 | Cs-134                | 0.011                              | 0.010 ± 0.005         | 0.05                         |
| SPAP-3860 | Air Particulate | 7/21/2015 | Cs-137                | 0.009                              | 0.000 ± 0.005         | 0.05                         |
| SPMI-3862 | Milk            | 7/21/2015 | Cs-134                | 3.13                               | 1.56 ± 1.74           | 10                           |
| SPMI-3862 | Milk            | 7/21/2015 | Cs-137                | 3.20                               | 1.69 ± 1.89           | 10                           |
| SPMI-3862 | Milk            | 7/21/2015 | Sr-89                 | 2.17                               | -1.30 ± 2.05          | 5                            |
| SPMI-3862 | Milk            | 7/21/2015 | Sr-90                 | 0.90                               | 0.74 ± 0.50           | 1                            |
| SPW-3870  | Water           | 7/21/2015 | Cs-134                | 3.01                               | 0.71 ± 1.66           | 10                           |
| SPW-3870  | Water           | 7/21/2015 | Cs-137                | 3.94                               | 0.81 ± 1.86           | 10                           |
| SPW-3870  | Water           | 7/21/2015 | Sr-89                 | 2.28                               | -0.42 ± 1.80          | 5                            |
| SPW-3870  | Water           | 7/21/2015 | Sr-90                 | 0.84                               | 0.25 ± 0.42           | 1                            |

TABLE A-4. In-House "Blank" Samples

| Lab Code  | Sample Type | Date       | Analysis <sup>b</sup> | Concentration (pCi/L) <sup>a</sup> |                       | Acceptance Criteria (4.66 σ) |
|-----------|-------------|------------|-----------------------|------------------------------------|-----------------------|------------------------------|
|           |             |            |                       | Laboratory results (4.66σ)         |                       |                              |
|           |             |            |                       | LLD                                | Activity <sup>c</sup> |                              |
| SPW-3872  | Water       | 7/21/2015  | H-3                   | 142.6                              | 82.7 ± 79.4           | 200                          |
| SPW-3874  | Water       | 7/21/2015  | Ni-63                 | 2.98                               | 0.77 ± 1.82           | 20                           |
| SPW-3876  | Water       | 7/21/2015  | Tc-99                 | 5.49                               | -3.81 ± 3.26          | 10                           |
| SPW-3878  | Water       | 7/21/2015  | C-14                  | 17.06                              | 8.52 ± 10.54          | 200                          |
| SPSO-4036 | Soil        | 7/21/2015  | Ni-63                 | 135.7                              | 51.3 ± 83.0           | 1000                         |
| SPF-4103  | Fish        | 7/29/2015  | Cs-134                | 14.17                              | -37.70 ± 9.67         | 100                          |
| SPF-4103  | Fish        | 7/29/2015  | Cs-137                | 12.39                              | 1.13 ± 8.06           | 100                          |
| W-081015  | Water       | 8/10/2015  | Gr. Alpha             | 0.48                               | -0.10 ± 0.33          | 2                            |
| W-081015  | Water       | 8/10/2015  | Gr. Beta              | 0.78                               | -0.18 ± 0.54          | 4                            |
| W-081815  | Water       | 8/18/2015  | Ra-226                | 0.03                               | 0.03 ± 0.02           | 2                            |
| W-090615  | Water       | 9/6/2015   | Gr. Alpha             | 0.40                               | 0.00 ± 0.28           | 2                            |
| W-090615  | Water       | 9/6/2015   | Gr. Beta              | 0.77                               | 0.22 ± 0.54           | 4                            |
| W-091415  | Water       | 9/14/2015  | Gr. Alpha             | 0.41                               | 0.10 ± 0.30           | 2                            |
| W-091415  | Water       | 9/14/2015  | Gr. Beta              | 0.77                               | 0.04 ± 0.54           | 4                            |
| W-100615  | Water       | 10/6/2015  | Gr. Alpha             | 0.41                               | -0.15 ± 0.27          | 2                            |
| W-100615  | Water       | 10/6/2015  | Gr. Beta              | 0.75                               | -0.12 ± 0.52          | 4                            |
| W-112515  | Water       | 11/25/2015 | Gr. Alpha             | 0.42                               | 0.05 ± 0.30           | 2                            |
| W-112515  | Water       | 11/25/2015 | Gr. Beta              | 0.78                               | -0.31 ± 0.54          | 4                            |
| W-120815  | Water       | 12/8/2015  | Gr. Alpha             | 0.42                               | -0.08 ± 0.29          | 2                            |
| W-120815  | Water       | 12/8/2015  | Gr. Beta              | 0.76                               | 0.17 ± 0.54           | 4                            |
| W-121515  | Water       | 12/15/2015 | Ra-226                | 0.01                               | 0.01 ± 0.01           | 2                            |

<sup>a</sup> Liquid sample results are reported in pCi/Liter, air filters( pCi/m<sup>3</sup>), charcoal (pCi/charcoal canister), and solid samples (pCi/kg).

<sup>b</sup> I-131(G); Iodine-131 as analyzed by gamma spectroscopy.

<sup>c</sup> Activity reported is a net activity result.

TABLE A-5. In-House "Duplicate" Samples

| Lab Code       | Date      | Analysis  | Concentration (pCi/L) <sup>a</sup> |               | Averaged<br>Result | Acceptance |
|----------------|-----------|-----------|------------------------------------|---------------|--------------------|------------|
|                |           |           | First Result                       | Second Result |                    |            |
| CF-62,63       | 1/7/2015  | Gr. Beta  | 5.72 ± 0.12                        | 5.78 ± 0.12   | 5.75 ± 0.42        | Pass       |
| CF-62,63       | 1/7/2015  | Be-7      | 0.915 ± 0.135                      | 0.919 ± 0.102 | 0.917 ± 0.15       | Pass       |
| CF-62,63       | 1/7/2015  | K-40      | 3.97 ± 0.28                        | 3.88 ± 0.23   | 3.92 ± 0.33        | Pass       |
| CF-62,63       | 1/7/2015  | Sr-90     | 0.017 ± 0.006                      | 0.011 ± 0.006 | 0.014 ± 0.004      | Pass       |
| SG-83,84       | 1/12/2015 | K-40      | 10.11 ± 1.42                       | 9.69 ± 1.20   | 9.90 ± 1.16        | Pass       |
| SG-83,84       | 1/12/2015 | Tl-208    | 0.57 ± 0.07                        | 0.56 ± 0.06   | 0.57 ± 0.05        | Pass       |
| SG-83,84       | 1/12/2015 | Pb-212    | 1.73 ± 0.10                        | 1.58 ± 0.09   | 1.65 ± 0.13        | Pass       |
| SG-83,84       | 1/12/2015 | Pb-214    | 13.33 ± 0.33                       | 13.88 ± 0.28  | 13.61 ± 0.22       | Pass       |
| SG-83,84       | 1/12/2015 | Bi-214    | 13.48 ± 0.39                       | 13.45 ± 0.29  | 13.47 ± 0.24       | Pass       |
| SG-83,84       | 1/12/2015 | Ra-226    | 25.68 ± 2.19                       | 26.22 ± 1.53  | 25.95 ± 1.34       | Pass       |
| SG-83,84       | 1/12/2015 | Ac-228    | 13.33 ± 0.59                       | 12.86 ± 0.43  | 13.09 ± 0.36       | Pass       |
| AP-011215A/B   | 1/12/2015 | Gr. Beta  | 0.025 ± 0.004                      | 0.023 ± 0.004 | 0.024 ± 0.003      | Pass       |
| WW-315,316     | 1/27/2015 | H-3       | 1,961 ± 178                        | 1,868 ± 174   | 1,915 ± 124        | Pass       |
| DW-60010,60011 | 1/28/2015 | Ra-226    | 1.25 ± 0.14                        | 1.40 ± 0.15   | 1.33 ± 0.10        | Pass       |
| DW-60010,60011 | 1/28/2015 | Ra-228    | 2.00 ± 0.66                        | 1.39 ± 0.60   | 1.70 ± 0.45        | Pass       |
| SG-336,337     | 1/30/2015 | Bi-214    | 6.63 ± 0.20                        | 6.45 ± 0.45   | 6.54 ± 0.21        | Pass       |
| SG-336,337     | 1/30/2015 | Pb-214    | 6.45 ± 0.19                        | 6.45 ± 0.37   | 6.45 ± 0.21        | Pass       |
| SG-336,337     | 1/30/2015 | Ac-228    | 4.43 ± 0.24                        | 4.20 ± 0.58   | 4.32 ± 0.31        | Pass       |
|                |           |           |                                    |               |                    |            |
| AP-020415A/B   | 2/4/2015  | Gr. Beta  | 0.021 ± 0.004                      | 0.019 ± 0.035 | 0.035 ± 0.020      | Pass       |
| AP-021115A/B   | 2/11/2015 | Gr. Beta  | 0.034 ± 0.004                      | 0.040 ± 0.047 | 0.037 ± 0.003      | Pass       |
| DW-60023,60024 | 2/26/2015 | Ra-226    | 1.52 ± 0.15                        | 1.51 ± 0.15   | 1.52 ± 0.11        | Pass       |
| DW-60023,60024 | 2/26/2015 | Ra-228    | 0.97 ± 0.48                        | 1.66 ± 0.58   | 1.32 ± 0.38        | Pass       |
| S-799,800      | 2/26/2015 | K-40      | 11.96 ± 0.98                       | 11.49 ± 0.82  | 11.72 ± 0.64       | Pass       |
| S-799,800      | 2/26/2015 | Tl-208    | 0.36 ± 0.04                        | 0.31 ± 0.04   | 0.34 ± 0.03        | Pass       |
| S-799,800      | 2/26/2015 | Pb-212    | 0.92 ± 0.06                        | 0.91 ± 0.06   | 0.91 ± 0.05        | Pass       |
| S-799,800      | 2/26/2015 | Bi-212    | 1.26 ± 0.45                        | 1.50 ± 0.40   | 1.38 ± 0.30        | Pass       |
| S-799,800      | 2/26/2015 | Ac-228    | 1.35 ± 0.22                        | 1.23 ± 0.17   | 1.29 ± 0.14        | Pass       |
| SG-834,835     | 2/2/2015  | Gr. Alpha | 113.3 ± 6.3                        | 117.2 ± 2.8   | 115.2 ± 3.4        | Pass       |
| SG-834,835     | 2/2/2015  | Gr. Beta  | 82.27 ± 2.79                       | 84.33 ± 2.74  | 83.30 ± 1.96       | Pass       |
|                |           |           |                                    |               |                    |            |
| DW-60031,60032 | 3/4/2015  | Gr. Alpha | 185.4 ± 7.4                        | 177.0 ± 7.2   | 181.2 ± 5.2        | Pass       |
| DW-60036,60037 | 3/4/2015  | Ra-226    | 6.89 ± 0.34                        | 6.88 ± 0.32   | 6.89 ± 0.23        | Pass       |
| DW-60036,60037 | 3/4/2015  | Ra-228    | 4.43 ± 0.73                        | 4.41 ± 0.72   | 4.42 ± 0.51        | Pass       |
| DW-60048,60049 | 3/4/2015  | Ra-226    | 0.84 ± 0.10                        | 0.94 ± 0.11   | 0.89 ± 0.07        | Pass       |
| DW-60048,60049 | 3/4/2015  | Ra-228    | 0.68 ± 0.41                        | 1.42 ± 0.58   | 1.05 ± 0.36        | Pass       |
| AP-1169,1170   | 3/19/2015 | Be-7      | 0.20 ± 0.02                        | 0.24 ± 0.10   | 0.22 ± 0.07        | Pass       |
|                |           |           |                                    |               |                    |            |
| DW-60069,60070 | 4/8/2015  | Gr. Alpha | 3.58 ± 0.88                        | 3.92 ± 0.88   | 3.75 ± 0.62        | Pass       |
| AP-040915      | 4/9/2015  | Gr. Beta  | 0.027 ± 0.005                      | 0.023 ± 0.005 | 0.025 ± 0.003      | Pass       |
| WW-2394,2395   | 4/13/2015 | H-3       | 1,628 ± 139                        | 1,695 ± 141   | 1,662 ± 99         | Pass       |
| SG-1847,1848   | 4/20/2015 | K-40      | 3.24 ± 1.18                        | 1.99 ± 0.76   | 2.62 ± 0.70        | Pass       |
| SG-1847,1848   | 4/20/2015 | Pb-214    | 5.80 ± 0.22                        | 6.23 ± 0.76   | 6.02 ± 0.40        | Pass       |
| SG-1847,1848   | 4/20/2015 | Ac-228    | 5.26 ± 0.51                        | 5.00 ± 0.42   | 5.13 ± 0.33        | Pass       |
| XWW-2267,2268  | 4/23/2015 | H-3       | 6,584 ± 244                        | 6,164 ± 237   | 6,374 ± 170        | Pass       |
| XWW-2078,2079  | 4/27/2015 | H-3       | 359.0 ± 89.6                       | 418.7 ± 92.3  | 388.9 ± 64.3       | Pass       |

TABLE A-5. In-House "Duplicate" Samples

| Lab Code       | Date      | Analysis  | Concentration (pCi/L) <sup>a</sup> |               | Averaged<br>Result | Acceptance |
|----------------|-----------|-----------|------------------------------------|---------------|--------------------|------------|
|                |           |           | First Result                       | Second Result |                    |            |
| XWW-2162,2163  | 4/28/2015 | H-3       | 4,408 ± 201                        | 4,242 ± 198   | 4,325 ± 141        | Pass       |
| SG-1868,1869   | 4/28/2015 | Gr. Alpha | 47.57 ± 3.63                       | 43.61 ± 3.58  | 45.59 ± 2.55       | Pass       |
| SG-1868,1869   | 4/28/2015 | Gr. Beta  | 50.90 ± 1.94                       | 51.90 ± 2.02  | 51.40 ± 1.40       | Pass       |
| SG-1868,1869   | 4/28/2015 | Pb-214    | 13.80 ± 0.52                       | 13.54 ± 0.62  | 13.67 ± 0.40       | Pass       |
| SG-1868,1869   | 4/28/2015 | Ra-228    | 20.10 ± 0.92                       | 22.10 ± 1.29  | 21.10 ± 0.79       | Pass       |
| AP-042915      | 4/29/2015 | Gr. Beta  | 0.014 ± 0.003                      | 0.014 ± 0.003 | 0.014 ± 0.002      | Pass       |
| DW-60076,60077 | 5/4/2015  | Ra-228    | 2.89 ± 0.61                        | 2.45 ± 0.57   | 2.67 ± 0.42        | Pass       |
| AP-050515      | 5/5/2015  | Gr. Beta  | 0.026 ± 0.004                      | 0.025 ± 0.004 | 0.026 ± 0.003      | Pass       |
| AP-051115      | 5/11/2015 | Gr. Beta  | 0.006 ± 0.005                      | 0.010 ± 0.005 | 0.008 ± 0.004      | Pass       |
| DW-60087,60088 | 5/14/2015 | Ra-226    | 1.58 ± 0.17                        | 1.52 ± 0.17   | 1.55 ± 0.12        | Pass       |
| DW-60087,60088 | 5/14/2015 | Ra-228    | 0.94 ± 0.50                        | 0.94 ± 0.50   | 0.94 ± 0.35        | Pass       |
| SG-2436,2437   | 5/15/2015 | Pb-214    | 22.90 ± 2.31                       | 24.10 ± 2.43  | 23.50 ± 1.68       | Pass       |
| SG-2436,2437   | 5/15/2015 | Ra-228    | 47.95 ± 0.61                       | 47.80 ± 0.71  | 47.88 ± 0.47       | Pass       |
| SG-2436,2437   | 5/15/2015 | Gr. Alpha | 267.8 ± 7.9                        | 254.6 ± 7.6   | 261.2 ± 5.5        | Pass       |
| SG-2458,2459   | 5/19/2015 | Pb-214    | 75.00 ± 1.66                       | 77.70 ± 1.75  | 76.35 ± 1.21       | Pass       |
| SG-2458,2459   | 5/19/2015 | Ra-228    | 41.10 ± 0.92                       | 40.80 ± 0.83  | 40.95 ± 0.62       | Pass       |
| DW-60095,60096 | 5/26/2015 | Gr. Alpha | 1.34 ± 0.69                        | 0.91 ± 0.62   | 1.13 ± 0.46        | Pass       |
| AP-052715      | 5/27/2015 | Gr. Beta  | 0.010 ± 0.003                      | 0.010 ± 0.003 | 0.010 ± 0.002      | Pass       |
| S-2627,2628    | 5/29/2015 | Pb-214    | 0.85 ± 0.07                        | 0.85 ± 0.07   | 0.85 ± 0.05        | Pass       |
| S-2627,2628    | 5/29/2015 | Ac-228    | 0.85 ± 0.14                        | 1.08 ± 0.12   | 0.97 ± 0.09        | Pass       |
| S-2627,2628    | 5/29/2015 | Cs-137    | 0.07 ± 0.02                        | 0.07 ± 0.02   | 0.07 ± 0.01        | Pass       |
| S-2605,2606    | 6/1/2015  | Ac-228    | 0.42 ± 0.06                        | 0.38 ± 0.07   | 0.40 ± 0.05        | Pass       |
| S-2605,2606    | 6/1/2015  | Ra-226    | 0.44 ± 0.03                        | 0.49 ± 0.03   | 0.47 ± 0.02        | Pass       |
| S-2605,2606    | 6/1/2015  | K-40      | 10.89 ± 0.51                       | 11.40 ± 0.48  | 11.15 ± 0.35       | Pass       |
| S-2605,2606    | 6/1/2015  | Cs-137    | 0.05 ± 0.01                        | 0.05 ± 0.01   | 0.05 ± 0.01        | Pass       |
| S-2858,2859    | 6/2/2015  | Cs-137    | 34.30 ± 16.05                      | 40.66 ± 17.79 | 37.48 ± 11.98      | Pass       |
| S-2858,2859    | 6/2/2015  | Be-7      | 1501 ± 264                         | 1171 ± 214    | 1336 ± 170         | Pass       |
| S-2858,2859    | 6/2/2015  | K-40      | 22,122 ± 658                       | 20,987 ± 600  | 21,555 ± 445       | Pass       |
| AP-060315      | 6/3/2015  | Gr. Beta  | 0.022 ± 0.004                      | 0.021 ± 0.004 | 0.022 ± 0.003      | Pass       |
| DW-30107,30108 | 6/8/2015  | Gr. Alpha | 1.34 ± 0.82                        | 1.47 ± 0.85   | 1.41 ± 0.59        | Pass       |
| SG-2900,2901   | 6/9/2015  | Ac-228    | 10.22 ± 1.36                       | 8.32 ± 1.07   | 9.27 ± 0.87        | Pass       |
| SG-2900,2901   | 6/9/2015  | Pb-214    | 7.55 ± 0.43                        | 7.27 ± 0.41   | 7.41 ± 0.30        | Pass       |
| AP-061515      | 6/15/2015 | Gr. Beta  | 0.022 ± 0.004                      | 0.021 ± 0.004 | 0.022 ± 0.003      | Pass       |
| XWW-3173,3174  | 6/18/2015 | H-3       | 841.9 ± 123.6                      | 799.3 ± 122.4 | 820.6 ± 87.0       | Pass       |
| AP-062215      | 6/22/2015 | Gr. Beta  | 0.023 ± 0.004                      | 0.018 ± 0.004 | 0.020 ± 0.003      | Pass       |
| S-3216,3217    | 6/24/2015 | K-40      | 10.38 ± 0.51                       | 10.51 ± 0.53  | 10.45 ± 0.37       | Pass       |
| S-3216,3217    | 6/24/2015 | Be-7      | 3.65 ± 0.24                        | 3.38 ± 0.27   | 3.52 ± 0.18        | Pass       |
| VE-3300,3301   | 6/24/2015 | Be-7      | 0.78 ± 0.15                        | 0.83 ± 0.23   | 0.81 ± 0.14        | Pass       |
| VE-3300,3301   | 6/24/2015 | K-40      | 29.12 ± 0.62                       | 29.36 ± 0.64  | 29.24 ± 0.45       | Pass       |
| AP-062915      | 6/29/2015 | Gr. Beta  | 0.023 ± 0.005                      | 0.023 ± 0.005 | 0.023 ± 0.003      | Pass       |
| WW-3632,3633   | 6/30/2015 | H-3       | 5,169 ± 225                        | 5,058 ± 223   | 5,114 ± 158        | Pass       |

TABLE A-5. In-House "Duplicate" Samples

| Lab Code        | Date      | Analysis  | Concentration (pCi/L) <sup>a</sup> |               | Averaged<br>Result | Acceptance |
|-----------------|-----------|-----------|------------------------------------|---------------|--------------------|------------|
|                 |           |           | First Result                       | Second Result |                    |            |
| AP-3822, 3823   | 7/1/2015  | Be-7      | 0.075 ± 0.011                      | 0.068 ± 0.012 | 0.072 ± 0.008      | Pass       |
| AP-3969, 3970   | 7/1/2015  | Be-7      | 0.063 ± 0.008                      | 0.064 ± 0.010 | 0.063 ± 0.006      | Pass       |
| WW-3632, 3633   | 7/6/2015  | H-3       | 5,169 ± 225                        | 5,058 ± 223   | 5,114 ± 159        | Pass       |
| W-4368, 4369    | 7/6/2015  | Gr. Alpha | 26.70 ± 4.00                       | 24.10 ± 3.90  | 25.40 ± 2.79       | Pass       |
| W-4368, 4369    | 7/6/2015  | Gr. Beta  | 34.62 ± 2.10                       | 33.30 ± 2.02  | 33.96 ± 1.46       | Pass       |
| DW-60138, 60139 | 7/7/2015  | Ra-226    | 0.07 ± 0.04                        | 0.11 ± 0.05   | 0.09 ± 0.03        | Pass       |
| DW-60138, 60139 | 7/7/2015  | Ra-228    | 1.04 ± 0.41                        | 1.15 ± 0.47   | 1.10 ± 0.31        | Pass       |
| WW-4158, 4159   | 7/9/2015  | H-3       | 138.8 ± 82.4                       | 174.0 ± 84.1  | 156.4 ± 58.9       | Pass       |
| MI-2902, 2903   | 7/10/2015 | K-40      | 1271 ± 118                         | 1308 ± 115    | 1289 ± 82          | Pass       |
| SG-3533, 3534   | 7/10/2015 | Gr. Alpha | 238.0 ± 8.2                        | 249.5 ± 8.5   | 243.8 ± 5.9        | Pass       |
| DW-60150, 60151 | 7/10/2015 | Ra-226    | 1.53 ± 0.16                        | 1.49 ± 0.12   | 1.51 ± 0.10        | Pass       |
| DW-60150, 60151 | 7/10/2015 | Ra-228    | 2.68 ± 0.68                        | 1.89 ± 0.62   | 2.29 ± 0.46        | Pass       |
| VE-3716, 3717   | 7/14/2015 | K-40      | 3.85 ± 0.33                        | 3.71 ± 0.31   | 3.78 ± 0.23        | Pass       |
| MI-3759, 3760   | 7/15/2015 | K-40      | 1819 ± 127                         | 1764 ± 140    | 1791 ± 94          | Pass       |
| MI-3759, 3760   | 7/15/2015 | Sr-90     | 1.00 ± 0.36                        | 0.61 ± 0.32   | 0.80 ± 0.24        | Pass       |
| AP-072115       | 7/21/2015 | Gr. Beta  | 0.022 ± 0.004                      | 0.027 ± 0.004 | 0.024 ± 0.003      | Pass       |
| VE-4053, 4054   | 7/21/2015 | Be-7      | 0.52 ± 0.15                        | 0.49 ± 0.11   | 0.50 ± 0.09        | Pass       |
| VE-4053, 4054   | 7/21/2015 | K-40      | 8.00 ± 0.42                        | 7.61 ± 0.31   | 7.81 ± 0.26        | Pass       |
| AP-4200, 4201   | 7/29/2015 | Be-7      | 1.06 ± 0.12                        | 0.96 ± 0.11   | 1.01 ± 0.08        | Pass       |
| AP-4200, 4201   | 7/29/2015 | K-40      | 5.03 ± 0.24                        | 4.96 ± 0.23   | 4.99 ± 0.16        | Pass       |
| W-4137, 4138    | 7/31/2015 | Ra-226    | 0.58 ± 0.13                        | 0.45 ± 0.14   | 0.52 ± 0.10        | Pass       |
|                 |           |           |                                    |               |                    |            |
| XWW-4431, 4432  | 8/5/2015  | H-3       | 4,773 ± 213                        | 4,915 ± 216   | 4,844 ± 152        | Pass       |
| SG-4305, 4306   | 8/6/2015  | Ra-228    | 10.34 ± 0.58                       | 11.46 ± 0.62  | 10.90 ± 0.42       | Pass       |
| AP-081015       | 8/10/2015 | Gr. Beta  | 0.038 ± 0.005                      | 0.039 ± 0.005 | 0.039 ± 0.004      | Pass       |
| AP-081115       | 8/11/2015 | Gr. Beta  | 0.024 ± 0.004                      | 0.020 ± 0.004 | 0.022 ± 0.003      | Pass       |
| VE-4452, 4453   | 8/11/2015 | K-40      | 3.77 ± 0.29                        | 3.78 ± 0.26   | 3.77 ± 0.20        | Pass       |
| AP-081715       | 8/17/2015 | Gr. Beta  | 0.030 ± 0.005                      | 0.030 ± 0.005 | 0.030 ± 0.003      | Pass       |
| DW-60195, 60196 | 8/17/2015 | Ra-226    | 0.39 ± 0.10                        | 0.37 ± 0.10   | 0.38 ± 0.07        | Pass       |
| DW-60195, 60196 | 8/17/2015 | Ra-228    | 1.43 ± 0.51                        | 1.97 ± 0.61   | 1.70 ± 0.40        | Pass       |
| DW-60198, 60199 | 8/17/2015 | Gr. Alpha | 2.93 ± 0.94                        | 2.11 ± 0.96   | 2.52 ± 0.67        | Pass       |
| VE-4578, 4579   | 8/18/2015 | K-40      | 4.14 ± 0.25                        | 4.32 ± 0.24   | 4.23 ± 0.17        | Pass       |
| SW-4662, 4663   | 8/25/2015 | H-3       | 351.3 ± 89.8                       | 415.6 ± 92.8  | 383.4 ± 64.6       | Pass       |
| DW-60212, 60213 | 8/25/2015 | Ra-226    | 0.09 ± 0.07                        | 0.10 ± 0.08   | 0.10 ± 0.05        | Pass       |
| LW-4788, 4789   | 8/27/2015 | Gr. Beta  | 0.97 ± 0.51                        | 1.68 ± 0.59   | 1.32 ± 0.39        | Pass       |
| AP-083115       | 8/31/2015 | Gr. Beta  | 0.032 ± 0.005                      | 0.031 ± 0.005 | 0.031 ± 0.003      | Pass       |
|                 |           |           |                                    |               |                    |            |
| AP-4875, 4876   | 9/3/2015  | Be-7      | 0.294 ± 0.125                      | 0.202 ± 0.109 | 0.248 ± 0.083      | Pass       |
| VE-5083, 5084   | 9/14/2015 | Be-7      | 0.47 ± 0.23                        | 0.56 ± 0.19   | 0.52 ± 0.15        | Pass       |
| VE-5083, 5084   | 9/14/2015 | K-40      | 6.20 ± 0.51                        | 6.36 ± 0.50   | 6.28 ± 0.36        | Pass       |
| VE-5167, 5168   | 9/16/2015 | Be-7      | 0.40 ± 0.11                        | 0.41 ± 0.10   | 0.41 ± 0.07        | Pass       |
| VE-5167, 5168   | 9/16/2015 | K-40      | 3.56 ± 0.27                        | 3.91 ± 0.24   | 3.74 ± 0.18        | Pass       |
| BS-5188, 5189   | 9/16/2015 | K-40      | 9.69 ± 0.51                        | 10.51 ± 0.52  | 10.10 ± 0.36       | Pass       |
| F-5419, 5420    | 9/17/2015 | K-40      | 3.48 ± 0.47                        | 3.49 ± 0.56   | 3.49 ± 0.36        | Pass       |
| DW-60238, 60239 | 9/18/2015 | Ra-226    | 1.93 ± 0.23                        | 2.31 ± 0.26   | 2.12 ± 0.17        | Pass       |
| DW-60238, 60239 | 9/18/2015 | Ra-228    | 4.44 ± 0.78                        | 5.61 ± 0.84   | 5.03 ± 0.57        | Pass       |
| AP-092215A/B    | 9/22/2015 | Gr. Beta  | 0.021 ± 0.004                      | 0.025 ± 0.004 | 0.023 ± 0.00       | Pass       |
| WW-5398, 5399   | 9/22/2015 | H-3       | 1,857 ± 145                        | 1,846 ± 144   | 1,852 ± 102        | Pass       |
| AP-6007, 6008   | 9/28/2015 | Be-7      | 0.08 ± 0.01                        | 0.08 ± 0.01   | 0.08 ± 0.01        | Pass       |

TABLE A-5. In-House "Duplicate" Samples

| Lab Code        | Date       | Analysis  | Concentration (pCi/L) <sup>a</sup> |               | Averaged<br>Result | Acceptance |
|-----------------|------------|-----------|------------------------------------|---------------|--------------------|------------|
|                 |            |           | First Result                       | Second Result |                    |            |
| XW-7490, 7491   | 9/29/2015  | Ni-63     | 2,332 ± 233                        | 2,108 ± 211   | 2,220 ± 157        | Pass       |
| WW-5377, 5378   | 9/30/2015  | H-3       | 220.0 ± 84.6                       | 197.0 ± 83.5  | 208.5 ± 59.4       | Pass       |
| AP-6028, 6029   | 9/30/2015  | Be-7      | 0.073 ± 0.009                      | 0.083 ± 0.012 | 0.078 ± 0.007      | Pass       |
| G-5461,2        | 10/1/2015  | Be-7      | 2.02 ± 0.32                        | 1.98 ± 0.25   | 2.00 ± 0.20        | Pass       |
| G-5461,2        | 10/1/2015  | K-40      | 8.77 ± 0.66                        | 9.31 ± 0.59   | 9.04 ± 0.44        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Ac-228    | 0.76 ± 0.12                        | 0.74 ± 0.30   | 0.75 ± 0.16        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Bi-214    | 0.53 ± 0.04                        | 0.52 ± 0.04   | 0.52 ± 0.03        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Cs-137    | 0.12 ± 0.03                        | 0.12 ± 0.03   | 0.12 ± 0.02        | Pass       |
| SO-5482, 5483   | 10/1/2015  | K-40      | 2.17 ± 0.73                        | 2.10 ± 0.72   | 2.13 ± 0.51        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Pb-214    | 0.57 ± 0.04                        | 0.55 ± 0.04   | 0.56 ± 0.03        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Ra-226    | 1.45 ± 0.27                        | 1.46 ± 0.30   | 1.45 ± 0.20        | Pass       |
| SO-5482, 5483   | 10/1/2015  | Tl-208    | 0.24 ± 0.03                        | 0.25 ± 0.03   | 0.24 ± 0.02        | Pass       |
| WW-5524, 5525   | 10/5/2015  | H-3       | 1,192 ± 123                        | 1,318 ± 127   | 1,255 ± 89         | Pass       |
| AP-5881, 5882   | 10/5/2015  | Be-7      | 0.078 ± 0.008                      | 0.085 ± 0.011 | 0.082 ± 0.007      | Pass       |
| AP-5881, 5882   | 10/5/2015  | K-40      | 0.009 ± 0.004                      | 0.010 ± 0.006 | 0.010 ± 0.004      | Pass       |
| SG-6400,1       | 10/5/2015  | Gr. Alpha | 19.09 ± 3.14                       | 19.45 ± 3.25  | 19.27 ± 2.26       | Pass       |
| SG-6400,1       | 10/5/2015  | Gr. Beta  | 31.36 ± 2.08                       | 29.80 ± 2.13  | 30.58 ± 1.49       | Pass       |
| VE-5923, 5924   | 10/12/2015 | K-40      | 4.29 ± 0.29                        | 4.13 ± 0.33   | 4.21 ± 0.22        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Ac-228    | 0.20 ± 0.06                        | 0.24 ± 0.06   | 0.22 ± 0.04        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Cs-137    | 0.03 ± 0.02                        | 0.02 ± 0.01   | 0.03 ± 0.01        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Gr. Beta  | 8.10 ± 0.87                        | 8.08 ± 0.96   | 8.09 ± 0.65        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Pb-212    | 0.19 ± 0.03                        | 0.17 ± 0.02   | 0.18 ± 0.02        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Ra-226    | 0.47 ± 0.24                        | 0.45 ± 0.19   | 0.46 ± 0.15        | Pass       |
| SS-5818, 5819   | 10/14/2015 | Tl-208    | 0.06 ± 0.02                        | 0.06 ± 0.02   | 0.06 ± 0.01        | Pass       |
| DW-60251, 60252 | 10/15/2015 | Ra-226    | 0.56 ± 0.12                        | 0.50 ± 0.08   | 0.53 ± 0.07        | Pass       |
| DW-60251, 60252 | 10/15/2015 | Ra-228    | 0.79 ± 0.48                        | 1.16 ± 0.59   | 0.98 ± 0.38        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Ac-228    | 1.08 ± 0.15                        | 1.14 ± 0.15   | 1.11 ± 0.10        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Bi-214    | 0.89 ± 0.08                        | 0.82 ± 0.06   | 0.85 ± 0.05        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Cs-137    | 0.06 ± 0.02                        | 0.08 ± 0.03   | 0.07 ± 0.02        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Pb-212    | 1.06 ± 0.06                        | 0.99 ± 0.05   | 1.03 ± 0.04        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Pb-214    | 1.00 ± 0.09                        | 0.89 ± 0.06   | 0.95 ± 0.05        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Ra-226    | 2.13 ± 0.43                        | 2.16 ± 0.37   | 2.14 ± 0.28        | Pass       |
| SO-5944, 5945   | 10/21/2015 | Tl-208    | 0.36 ± 0.04                        | 0.34 ± 0.04   | 0.35 ± 0.03        | Pass       |
| S-6175, 6176    | 10/23/2015 | K-40      | 16.86 ± 1.92                       | 14.28 ± 1.66  | 15.57 ± 1.27       | Pass       |
| XWW-6196, 6197  | 10/26/2015 | H-3       | 2,856 ± 170                        | 2,815 ± 169   | 2,836 ± 120        | Pass       |
| SO-6259, 6260   | 10/28/2015 | Ac-228    | 0.60 ± 0.10                        | 0.53 ± 0.08   | 0.57 ± 0.07        | Pass       |
| SO-6259, 6260   | 10/28/2015 | Bi-214    | 0.40 ± 0.06                        | 0.50 ± 0.05   | 0.45 ± 0.04        | Pass       |
| SO-6259, 6260   | 10/28/2015 | Cs-137    | 0.17 ± 0.03                        | 0.19 ± 0.03   | 0.18 ± 0.02        | Pass       |
| SO-6259, 6260   | 10/28/2015 | Gr. Beta  | 21.6 ± 1.1                         | 23.36 ± 1.21  | 22.48 ± 0.82       | Pass       |
| SO-6259, 6260   | 10/28/2015 | Pb-212    | 0.53 ± 0.04                        | 0.49 ± 0.04   | 0.51 ± 0.03        | Pass       |
| SO-6259, 6260   | 10/28/2015 | Tl-208    | 0.16 ± 0.03                        | 0.19 ± 0.04   | 0.18 ± 0.02        | Pass       |

TABLE A-5. In-House "Duplicate" Samples

| Lab Code      | Date       | Analysis | Concentration (pCi/L) <sup>a</sup> |               | Averaged Result | Acceptance |
|---------------|------------|----------|------------------------------------|---------------|-----------------|------------|
|               |            |          | First Result                       | Second Result |                 |            |
| LW-6280, 6281 | 10/29/2015 | Gr. Beta | 2.03 ± 0.91                        | 1.97 ± 0.97   | 2.00 ± 0.67     | Pass       |
| MI-6484, 6485 | 11/11/2015 | K-40     | 1,384 ± 82                         | 1,432 ± 89    | 1,408 ± 60      | Pass       |
| SO-6841, 6842 | 11/24/2015 | Cs-137   | 0.18 ± 0.03                        | 0.16 ± 0.03   | 0.17 ± 0.02     | Pass       |
| SO-6841, 6842 | 11/24/2015 | K-40     | 13.62 ± 0.76                       | 13.67 ± 0.69  | 13.64 ± 0.51    | Pass       |
| WW-6978, 6979 | 11/30/2015 | H-3      | 569.0 ± 97.7                       | 480.3 ± 93.9  | 524.7 ± 67.8    | Pass       |
| SW-6936, 6937 | 12/10/2015 | H-3      | 151.9 ± 80.0                       | 176.2 ± 81.2  | 164.0 ± 57.0    | Pass       |
| SW-7017, 7018 | 12/10/2015 | H-3      | 584.3 ± 98.7                       | 451.6 ± 93.9  | 518.0 ± 68.1    | Pass       |
| LW-7020, 7021 | 12/10/2015 | H-3      | 236.9 ± 84.2                       | 285.6 ± 86.5  | 261.2 ± 60.3    | Pass       |
| AP-7351, 7352 | 12/29/2015 | Be-7     | 0.099 ± 0.020                      | 0.084 ± 0.018 | 0.091 ± 0.014   | Pass       |
| AP-7414, 7415 | 12/30/2015 | Be-7     | 0.049 ± 0.013                      | 0.048 ± 0.011 | 0.048 ± 0.008   | Pass       |

Note: Duplicate analyses are performed on every twentieth sample received in-house. Results are not listed for those analyses with activities that measure below the LLD.

<sup>a</sup> Results are reported in units of pCi/L, except for air filters (pCi/Filter or pCi/m3), food products, vegetation, soil, sediment (pCi/g).

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

| Lab Code <sup>b</sup> | Date     | Analysis   | Laboratory result | Concentration <sup>a</sup> |                             | Acceptance |
|-----------------------|----------|------------|-------------------|----------------------------|-----------------------------|------------|
|                       |          |            |                   | Known Activity             | Control Limits <sup>c</sup> |            |
| MASO-975              | 2/1/2015 | Ni-63      | 341 ± 18          | 448                        | 314 - 582                   | Pass       |
| MASO-975              | 2/1/2015 | Sr-90      | 523 ± 12          | 653                        | 457 - 849                   | Pass       |
| MASO-975              | 2/1/2015 | Tc-99      | 614 ± 12          | 867                        | 607 - 1,127                 | Pass       |
| MASO-975              | 2/1/2015 | Cs-134     | 533 ± 6           | 678                        | 475 - 881                   | Pass       |
| MASO-975              | 2/1/2015 | Cs-137     | 0.8 ± 2.5         | 0.0                        | NA <sup>c</sup>             | Pass       |
| MASO-975              | 2/1/2015 | Co-57      | 0.5 ± 1.0         | 0.0                        | NA <sup>c</sup>             | Pass       |
| MASO-975              | 2/1/2015 | Co-60      | 741 ± 8           | 817                        | 572 - 1,062                 | Pass       |
| MASO-975              | 2/1/2015 | Mn-54      | 1,153 ± 9         | 1,198                      | 839 - 1,557                 | Pass       |
| MASO-975              | 2/1/2015 | Zn-65      | 892 ± 18          | 1064                       | 745 - 1,383                 | Pass       |
| MAW-969               | 2/1/2015 | Am-241     | 0.650 ± 0.078     | 0.654                      | 0.458 - 0.850               | Pass       |
| MAW-969               | 2/1/2015 | Cs-134     | 21.1 ± 0.3        | 23.5                       | 16.5 - 30.6                 | Pass       |
| MAW-969               | 2/1/2015 | Cs-137     | 19.6 ± 0.3        | 19.1                       | 13.4 - 24.8                 | Pass       |
| MAW-969 <sup>d</sup>  | 2/1/2015 | Co-57      | 10.2 ± 0.4        | 29.9                       | 20.9 - 38.9                 | Fail       |
| MAW-969               | 2/1/2015 | Co-60      | 0.02 ± 0.05       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAW-969               | 2/1/2015 | H-3        | 569 ± 13          | 563                        | 394 - 732                   | Pass       |
| MAW-969               | 2/1/2015 | Fe-55      | 6.00 ± 6.60       | 6.88                       | 4.82 - 8.94                 | Pass       |
| MAW-969               | 2/1/2015 | Mn-54      | 0.02 ± 0.07       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAW-969               | 2/1/2015 | Ni-63      | 2.9 ± 3.0         | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAW-969               | 2/1/2015 | Zn-65      | 16.5 ± 0.9        | 18.3                       | 12.8 - 23.8                 | Pass       |
| MAW-969               | 2/1/2015 | Tc-99      | 3.40 ± 0.60       | 3.18                       | 2.23 - 4.13                 | Pass       |
| MAW-969               | 2/1/2015 | Pu-238     | 0.02 ± 0.03       | 0.01                       | NA <sup>e</sup>             | Pass       |
| MAW-969               | 2/1/2015 | Pu-239/240 | 0.81 ± 0.10       | 0.83                       | 0.58 - 1.08                 | Pass       |
| MAW-969               | 2/1/2015 | U-233/234  | 0.150 ± 0.040     | 0.148                      | 0.104 - 0.192               | Pass       |
| MAW-969               | 2/1/2015 | U-238      | 0.84 ± 0.09       | 0.97                       | 0.68 - 1.26                 | Pass       |
| MAW-969               | 2/1/2015 | Sr-90      | 9.40 ± 1.30       | 9.48                       | 6.64 - 12.32                | Pass       |
| MAW-950               | 2/1/2015 | Gr. Alpha  | 0.66 ± 0.05       | 1.07                       | 0.32 - 1.81                 | Pass       |
| MAW-950               | 2/1/2015 | Gr. Beta   | 2.72 ± 0.06       | 2.79                       | 1.40 - 4.19                 | Pass       |
| MAW-947               | 2/1/2015 | I-129      | 1.26 ± 0.12       | 1.49                       | 1.04 - 1.94                 | Pass       |
| MAAP-978              | 2/1/2015 | Am-241     | 0.069 ± 0.200     | 0.068                      | 0.048 - 0.089               | Pass       |
| MAAP-978              | 2/1/2015 | Cs-134     | 1.00 ± 0.04       | 1.15                       | 0.81 - 1.50                 | Pass       |
| MAAP-978              | 2/1/2015 | Cs-137     | 0.004 ± 0.023     | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAAP-978 <sup>f</sup> | 2/1/2015 | Co-57      | 0.04 ± 0.04       | 1.51                       | 1.06 - 1.96                 | Fail       |
| MAAP-978              | 2/1/2015 | Co-60      | 0.01 ± 0.02       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAAP-978              | 2/1/2015 | Mn-54      | 1.11 ± 0.08       | 1.02                       | 0.71 - 1.33                 | Pass       |
| MAAP-978              | 2/1/2015 | Zn-65      | 0.83 ± 0.10       | 0.83                       | 0.58 - 1.08                 | Pass       |
| MAAP-978              | 2/1/2015 | Pu-238     | -0.003 ± 0.010    | 0.000                      | NA <sup>c</sup>             | Pass       |
| MAAP-978              | 2/1/2015 | Pu-239/240 | 0.090 ± 0.022     | 0.085                      | 0.06 - 0.11                 | Pass       |
| MAAP-978              | 2/1/2015 | U-233/234  | 0.020 ± 0.010     | 0.016                      | 0.011 - 0.020               | Pass       |
| MAAP-978              | 2/1/2015 | U-238      | 0.073 ± 0.018     | 0.099                      | 0.069 - 0.129               | Pass       |

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

| Lab Code <sup>b</sup>  | Date     | Analysis   | Laboratory result | Concentration <sup>a</sup> |                             | Acceptance |
|------------------------|----------|------------|-------------------|----------------------------|-----------------------------|------------|
|                        |          |            |                   | Known Activity             | Control Limits <sup>c</sup> |            |
| MAAP-981               | 2/1/2015 | Sr-89      | 38.1 ± 1.0        | 47.5                       | 33.3 - 61.8                 | Pass       |
| MAAP-981               | 2/1/2015 | Sr-90      | 1.22 ± 0.13       | 1.06                       | 0.74 - 1.38                 | Pass       |
| MAAP-984               | 2/1/2015 | Gr. Alpha  | 0.59 ± 0.06       | 1.77                       | 0.53 - 3.01                 | Pass       |
| MAAP-984               | 2/1/2015 | Gr. Beta   | 0.95 ± 0.07       | 0.75                       | 0.38 - 1.13                 | Pass       |
| MAVE-972               | 2/1/2015 | Cs-134     | 6.98 ± 0.13       | 7.32                       | 5.12 - 9.52                 | Pass       |
| MAVE-972               | 2/1/2015 | Cs-137     | 9.73 ± 0.21       | 9.18                       | 6.43 - 11.93                | Pass       |
| MAVE-972               | 2/1/2015 | Co-57      | 0.01 ± 0.04       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAVE-972               | 2/1/2015 | Co-60      | 3.89 ± 0.20       | 5.55                       | 3.89 - 7.22                 | Pass       |
| MAVE-972               | 2/1/2015 | Mn-54      | 0.04 ± 0.07       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAVE-972               | 2/1/2015 | Zn-65      | 0.09 ± 0.12       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAAP-978               | 2/1/2015 | Pu-238     | -0.003 ± 0.010    | 0.000                      | NA <sup>c</sup>             | Pass       |
| MAAP-978               | 2/1/2015 | Pu-239/240 | 0.090 ± 0.022     | 0.085                      | 0.059 - 0.110               | Pass       |
| MAAP-978               | 2/1/2015 | U-233/234  | 0.020 ± 0.010     | 0.016                      | 0.011 - 0.020               | Pass       |
| MAAP-978               | 2/1/2015 | U-238      | 0.073 ± 0.018     | 0.099                      | 0.069 - 0.129               | Pass       |
| MAAP-981               | 2/1/2015 | Sr-89      | 38.1 ± 1.0        | 47.5                       | 33.3 - 61.8                 | Pass       |
| MAAP-981               | 2/1/2015 | Sr-90      | 1.22 ± 0.13       | 1.06                       | 0.74 - 1.38                 | Pass       |
| MAAP-984               | 2/1/2015 | Gr. Alpha  | 0.59 ± 0.06       | 1.77                       | 0.53 - 3.01                 | Pass       |
| MAAP-984               | 2/1/2015 | Gr. Beta   | 0.95 ± 0.07       | 0.75                       | 0.38 - 1.13                 | Pass       |
| MAVE-972               | 2/1/2015 | Cs-134     | 6.98 ± 0.13       | 7.32                       | 5.12 - 9.52                 | Pass       |
| MAVE-972               | 2/1/2015 | Cs-137     | 9.73 ± 0.21       | 9.18                       | 6.43 - 11.93                | Pass       |
| MAVE-972               | 2/1/2015 | Co-57      | 0.01 ± 0.04       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAVE-972               | 2/1/2015 | Co-60      | 3.89 ± 0.20       | 5.55                       | 3.89 - 7.22                 | Pass       |
| MAVE-972               | 2/1/2015 | Mn-54      | 0.04 ± 0.07       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MAVE-972               | 2/1/2015 | Zn-65      | 0.09 ± 0.12       | 0.00                       | NA <sup>c</sup>             | Pass       |
| MASO-4903              | 8/1/2015 | Ni-63      | 556 ± 18          | 682                        | 477 - 887                   | Pass       |
| MASO-4903 <sup>g</sup> | 8/1/2015 | Sr-90      | 231 ± 7           | 425                        | 298 - 553                   | Fail       |
| MASO-4903 <sup>g</sup> | 8/1/2015 | Sr-90      | 352 ± 10          | 425                        | 298 - 553                   | Pass       |
| MASO-4903 <sup>h</sup> | 8/1/2015 | Tc-99      | 411 ± 11          | 631                        | 442 - 820                   | Fail       |
| MASO-4903              | 8/1/2015 | Cs-134     | 833 ± 10          | 1,010                      | 707 - 1,313                 | Pass       |
| MASO-4903              | 8/1/2015 | Cs-137     | 808 ± 11          | 809.00                     | 566 - 1,052                 | Pass       |
| MASO-4903              | 8/1/2015 | Co-57      | 1,052 ± 10        | 1,180                      | 826 - 1,534                 | Pass       |
| MASO-4903              | 8/1/2015 | Co-60      | 2 ± 2             | 1.3                        | NA <sup>c</sup>             | Pass       |
| MASO-4903              | 8/1/2015 | Mn-54      | 1,331 ± 13        | 1,340                      | 938 - 1,742                 | Pass       |
| MASO-4903              | 8/1/2015 | Zn-65      | 686 ± 15          | 662                        | 463 - 861                   | Pass       |

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP).

| Lab Code <sup>b</sup> | Date     | Analysis  | Laboratory result | Concentration <sup>a</sup> |                             | Acceptance |
|-----------------------|----------|-----------|-------------------|----------------------------|-----------------------------|------------|
|                       |          |           |                   | Known Activity             | Control Limits <sup>c</sup> |            |
| MAW-5007              | 8/1/2015 | Cs-134    | 16.7 ± 0.4        | 23.1                       | 16.2 - 30.0                 | Pass       |
| MAW-5007              | 8/1/2015 | Cs-137    | -0.4 ± 0.1        | 0.0                        | NA <sup>e</sup>             | Pass       |
| MAW-5007              | 8/1/2015 | Co-57     | 21.8 ± 0.4        | 20.8                       | 14.6 - 27.0                 | Pass       |
| MAW-5007              | 8/1/2015 | Co-60     | 17.3 ± 0.3        | 17.1                       | 12.0 - 22.2                 | Pass       |
| MAW-5007              | 8/1/2015 | H-3       | 227.5 ± 8.9       | 216.0                      | 151.0 - 281.0               | Pass       |
| MAW-5007 <sup>i</sup> | 8/1/2015 | Fe-55     | 4.2 ± 14.1        | 13.1                       | 9.2 - 17.0                  | Fail       |
| MAW-5007              | 8/1/2015 | Mn-54     | 16.6 ± 0.5        | 15.6                       | 10.9 - 20.3                 | Pass       |
| MAW-5007              | 8/1/2015 | Ni-63     | 9.1 ± 2.6         | 8.6                        | 6.0 - 11.1                  | Pass       |
| MAW-5007              | 8/1/2015 | Zn-65     | 15.5 ± 0.9        | 13.9                       | 9.7 - 18.1                  | Pass       |
| MAW-5007              | 8/1/2015 | Tc-99     | 6.80 ± 0.60       | 7.19                       | 5.03 - 9.35                 | Pass       |
| MAW-5007              | 8/1/2015 | Sr-90     | 4.80 ± 0.50       | 4.80                       | 3.36 - 6.24                 | Pass       |
| MAW-5007              | 8/1/2015 | Gr. Alpha | 0.41 ± 0.04       | 0.43                       | 0.13 - 0.73                 | Pass       |
| MAW-5007              | 8/1/2015 | Gr. Beta  | 3.45 ± 0.07       | 3.52                       | 1.76 - 5.28                 | Pass       |
| MAW-5007              | 8/1/2015 | I-129     | 1.42 ± 0.13       | 1.49                       | 1.04 - 1.94                 | Pass       |
| MAAP-4911             | 8/1/2015 | Sr-89     | 3.55 ± 0.67       | 3.98                       | 2.79 - 5.17                 | Pass       |
| MAAP-4911             | 8/1/2015 | Sr-90     | 0.94 ± 0.16       | 1.05                       | 0.74 - 1.37                 | Pass       |
| MAAP-4907             | 8/1/2015 | Gr. Alpha | 0.30 ± 0.04       | 0.90                       | 0.27 - 1.53                 | Pass       |
| MAAP-4907             | 8/1/2015 | Gr. Beta  | 1.85 ± 0.09       | 1.56                       | 0.78 - 2.34                 | Pass       |
| MAVE-4901             | 8/1/2015 | Cs-134    | 5.56 ± 0.16       | 5.80                       | 4.06 - 7.54                 | Pass       |
| MAVE-4901             | 8/1/2015 | Cs-137    | -0.02 ± 0.06      | 0.00                       | NA <sup>e</sup>             | Pass       |
| MAVE-4901             | 8/1/2015 | Co-57     | 7.74 ± 0.18       | 6.62                       | 4.63 - 8.61                 | Pass       |
| MAVE-4901             | 8/1/2015 | Co-60     | 4.84 ± 0.15       | 4.56                       | 3.19 - 5.93                 | Pass       |
| MAVE-4901             | 8/1/2015 | Mn-54     | 8.25 ± 0.25       | 7.68                       | 5.38 - 9.98                 | Pass       |
| MAVE-4901             | 8/1/2015 | Zn-65     | 5.78 ± 0.29       | 5.46                       | 3.82 - 7.10                 | Pass       |

<sup>a</sup> Results are reported in units of Bq/kg (soil), Bq/L (water) or Bq/total sample (filters, vegetation).

<sup>b</sup> Laboratory codes as follows: MAW (water), MAAP (air filter), MASO (soil), MAVE (vegetation).

<sup>c</sup> MAPEP results are presented as the known values and expected laboratory precision (1 sigma, 1 determination) and control limits as defined by the MAPEP. A known value of "zero" indicates an analysis was included in the testing series as a "false positive". MAPEP does not provide control limits.

<sup>d</sup> Lab result was 27.84. Data entry error resulted in a non-acceptable result.

<sup>e</sup> Provided in the series for "sensitivity evaluation". MAPEP does not provide control limits.

<sup>f</sup> Lab result was 1.58. Data entry error resulted in a non-acceptable result.

<sup>g</sup> The incomplete separation of calcium from strontium caused a failed low result. The result of reanalysis acceptable.

<sup>h</sup> The complex sample matrix is interfering with yield calculations causing a failed low result. An investigation is in process to determine a more reliable yield determination.

<sup>i</sup> The known activity was below the routine laboratory detection limits for the available aliquot fraction.

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)<sup>a</sup>.

| Lab Code <sup>b</sup> | Date      | Analysis   | Concentration (pCi/L) <sup>b</sup> |                         | Control Limits  | Acceptance |
|-----------------------|-----------|------------|------------------------------------|-------------------------|-----------------|------------|
|                       |           |            | Laboratory Result <sup>c</sup>     | ERA Result <sup>d</sup> |                 |            |
| ERAP-1091             | 3/16/2015 | Am-241     | 46.8 ± 2.2                         | 49.8                    | 30.7 - 67.4     | Pass       |
| ERAP-1091             | 3/16/2015 | Co-60      | 85.1 ± 2.9                         | 79.1                    | 61.2 - 98.8     | Pass       |
| ERAP-1091             | 3/16/2015 | Cs-134     | 825.6 ± 34.7                       | 909.0                   | 578.0 - 1,130.0 | Pass       |
| ERAP-1091             | 3/16/2015 | Cs-137     | 1,312 ± 12                         | 1,170                   | 879 - 1,540     | Pass       |
| ERAP-1091             | 3/16/2015 | Fe-55      | 760.6 ± 48.2                       | 836.0                   | 259.0 - 1630.0  | Pass       |
| ERAP-1091             | 3/16/2015 | Mn-54      | <2.7                               | <50                     | 0.0 - 50.0      | Pass       |
| ERAP-1091             | 3/16/2015 | Pu-238     | 51.0 ± 3.9                         | 52.1                    | 35.7 - 68.5     | Pass       |
| ERAP-1091             | 3/16/2015 | Pu-239/240 | 38.3 ± 1.3                         | 40.3                    | 29.20 - 52.70   | Pass       |
| ERAP-1091             | 3/16/2015 | Sr-90      | 95.3 ± 11.4                        | 96.6                    | 47.2 - 145.0    | Pass       |
| ERAP-1091             | 3/16/2015 | U-233/234  | 29.0 ± 1.2                         | 34.3                    | 21.3 - 51.7     | Pass       |
| ERAP-1091             | 3/16/2015 | U-238      | 31.0 ± 1.1                         | 34.0                    | 22.0 - 47.0     | Pass       |
| ERAP-1091             | 3/16/2015 | Zn-65      | 1099.3 ± 146.5                     | 986.0                   | 706.0 - 1360.0  | Pass       |
| ERAP-1094             | 3/16/2015 | Gr. Alpha  | 73.7 ± 0.7                         | 62.2                    | 20.8 - 96.6     | Pass       |
| ERAP-1094             | 3/16/2015 | Gr. Beta   | 69.6 ± 0.8                         | 58.4                    | 36.9 - 85.1     | Pass       |
| ERSO-1098             | 3/16/2015 | Am-241     | 1571.8 ± 209.6                     | 1,500                   | 878 - 1,950     | Pass       |
| ERSO-1098             | 3/16/2015 | Ac-228     | 1198.8 ± 140.4                     | 1,250                   | 802 - 1,730     | Pass       |
| ERSO-1098             | 3/16/2015 | Bi-212     | 1420.1 ± 455.7                     | 1,780                   | 474 - 2,620     | Pass       |
| ERSO-1098             | 3/16/2015 | Bi-214     | 3466.9 ± 86.9                      | 4,430                   | 2,670 - 6,380   | Pass       |
| ERSO-1098             | 3/16/2015 | Co-60      | 1779.8 ± 41.0                      | 1,880                   | 1,270 - 2,590   | Pass       |
| ERSO-1098             | 3/16/2015 | Cs-134     | 5204.6 ± 64.5                      | 6,390                   | 4,180 - 7,680   | Pass       |
| ERSO-1098             | 3/16/2015 | Cs-137     | 1417.1 ± 41.9                      | 1,490                   | 1,140 - 1,920   | Pass       |
| ERSO-1098             | 3/16/2015 | K-40       | 10,597 ± 380                       | 10,700                  | 7,810 - 14,400  | Pass       |
| ERSO-1098             | 3/16/2015 | Mn-54      | <62.2                              | < 1000                  | 0.0 - 1,000     | Pass       |
| ERSO-1098             | 3/16/2015 | Pb-212     | 1,032 ± 41                         | 1,230                   | 806 - 1,710     | Pass       |
| ERSO-1098             | 3/16/2015 | Pb-214     | 3,629 ± 93                         | 4,530                   | 2,640 - 6,760   | Pass       |
| ERSO-1098             | 3/16/2015 | Pu-238     | 942.9 ± 128.8                      | 998.0                   | 600.0 - 1,380.0 | Pass       |
| ERSO-1098             | 3/16/2015 | Pu-239/240 | 1,185 ± 140                        | 1,210                   | 791 - 1,670     | Pass       |
| ERSO-1098             | 3/16/2015 | Sr-90      | 1,724 ± 125                        | 1,940                   | 740 - 3,060     | Pass       |
| ERSO-1098             | 3/16/2015 | Th-234     | 3,666 ± 948                        | 3,890                   | 1,230 - 7,320   | Pass       |
| ERSO-1098             | 3/16/2015 | U-233/234  | 3,474 ± 226                        | 3,920                   | 2,400 - 5,020   | Pass       |
| ERSO-1098             | 3/16/2015 | U-238      | 3,620 ± 232                        | 3,890                   | 2,410 - 4,930   | Pass       |
| ERSO-1098             | 3/16/2015 | Zn-65      | 7,362 ± 145                        | 7,130                   | 5,680 - 9,470   | Pass       |
| ERW-1095              | 3/16/2015 | Gr. Alpha  | 93.4 ± 11.5                        | 119.0                   | 42.2 - 184.0    | Pass       |
| ERW-1095              | 3/16/2015 | Gr. Beta   | 145.2 ± 4.8                        | 158.0                   | 90.5 - 234.0    | Pass       |
| ERW-1110              | 3/16/2015 | H-3        | 10,573 ± 78                        | 10,300                  | 6,900 - 14,700  | Pass       |
| ERVE-1100             | 3/16/2015 | Am-241     | 4,537 ± 266                        | 4,340                   | 2,650 - 5,770   | Pass       |
| ERVE-1100             | 3/16/2015 | Cm-244     | 1,338 ± 146                        | 1,360                   | 666 - 2,120     | Pass       |

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)<sup>a</sup>.

| Lab Code <sup>b</sup>  | Date      | Analysis   | Concentration (pCi/L) <sup>b</sup> |                         | Control Limits  | Acceptance |
|------------------------|-----------|------------|------------------------------------|-------------------------|-----------------|------------|
|                        |           |            | Laboratory Result <sup>c</sup>     | ERA Result <sup>d</sup> |                 |            |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | Co-60      | 1,030 ± 29                         | 1,540                   | 1,060 - 2,150   | Fail       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | Co-60      | 1,684 ± 48                         | 1,540                   | 1,060 - 2,150   | Pass       |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | Cs-134     | 1,615 ± 27                         | 2,650                   | 1,700 - 3,440   | Fail       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | Cs-134     | 2,554 ± 49                         | 2,650                   | 1,700 - 3,440   | Pass       |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | Cs-137     | 1,248 ± 29                         | 1,810                   | 1,310 - 2,520   | Fail       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | Cs-137     | 2,078 ± 68                         | 1,810                   | 1,310 - 2,520   | Pass       |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | K-40       | 22,037 ± 463                       | 30,900                  | 22,300 - 43,400 | Fail       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | K-40       | 34,895 ± 764                       | 30,900                  | 22,300 - 43,400 | Pass       |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | Mn-54      | <13.8                              | <300                    | 0.0 - 300.0     | Pass       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | Mn-54      | <24.4                              | <300                    | 0.0 - 300.0     | Pass       |
| ERVE-1100              | 3/16/2015 | Pu-238     | 3,232 ± 232                        | 3,680                   | 2,190 - 5,040   | Pass       |
| ERVE-1100              | 3/16/2015 | Pu-239/240 | 3,606 ± 240                        | 4,180                   | 2,570 - 5,760   | Pass       |
| ERVE-1100              | 3/16/2015 | Sr-90      | 6,023 ± 326                        | 6,590                   | 3,760 - 8,740   | Pass       |
| ERVE-1100              | 3/16/2015 | U-233/234  | 2,653 ± 153                        | 3,150                   | 2,070 - 4,050   | Pass       |
| ERVE-1100              | 3/16/2015 | U-238      | 2,717 ± 163                        | 3,130                   | 2,090 - 3,980   | Pass       |
| ERVE-1100 <sup>e</sup> | 3/16/2015 | Zn-65      | <94.6                              | 1,090                   | 786 - 1,530     | Fail       |
| ERVE-1100 <sup>f</sup> | 3/16/2015 | Zn-65      | 1,306 ± 75                         | 1,090                   | 786 - 1,530     | Pass       |
| ERW-1103               | 3/16/2015 | Am-241     | 47.1 ± 4.0                         | 46.0                    | 31.0 - 61.7     | Pass       |
| ERW-1103               | 3/16/2015 | Co-60      | 1,217 ± 17                         | 1,250                   | 1,090 - 1,460   | Pass       |
| ERW-1103               | 3/16/2015 | Cs-134     | 1,121 ± 18                         | 1,260                   | 925 - 1,450     | Pass       |
| ERW-1103               | 3/16/2015 | Cs-137     | 1,332 ± 31                         | 1,360                   | 1,150 - 1,630   | Pass       |
| ERW-1103               | 3/16/2015 | Mn-54      | <3.7                               | <100                    | 0.00 - 100.00   | Pass       |
| ERW-1103               | 3/16/2015 | Pu-238     | 54.5 ± 1.6                         | 72.4                    | 53.6 - 90.1     | Pass       |
| ERW-1103 <sup>g</sup>  | 3/16/2015 | Pu-239/240 | 140.2 ± 7.8                        | 184.0                   | 143.0 - 232.0   | Fail       |
| ERW-3742 <sup>h</sup>  | 9/27/2012 | Pu-239/240 | 89.3 ± 4.9                         | 97.7                    | 66.6 - 108.0    | Pass       |
| ERW-1103               | 3/16/2015 | U-233/234  | 56.5 ± 6.4                         | 61.8                    | 46.4 - 79.7     | Pass       |
| ERW-1103               | 3/16/2015 | U-238      | 58.4 ± 5.8                         | 61.3                    | 46.7 - 75.2     | Pass       |
| ERW-1103               | 3/16/2015 | Zn-65      | 1,191 ± 136                        | 1,180                   | 984 - 1,490     | Pass       |
| ERW-1103               | 3/16/2015 | Fe-55      | 1,149 ± 144                        | 1,070                   | 638 - 1,450     | Pass       |
| ERW-1103               | 3/16/2015 | Sr-90      | 860.0 ± 37.0                       | 912.0                   | 594.0 - 1,210.0 | Pass       |

<sup>a</sup> Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the crosscheck program for proficiency testing administered by Environmental Resources Associates, serving as a replacement for studies conducted previously by the Environmental Measurements Laboratory Quality Assessment Program (EML).

<sup>b</sup> Laboratory codes as follows: ERW (water), ERAP (air filter), ERSO (soil), ERVE (vegetation). Results are reported in units of pCi/L, except for air filters (pCi/Filter), vegetation and soil (pCi/kg).

<sup>c</sup> Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

<sup>d</sup> Results are presented as the known values, expected laboratory precision (1 sigma, 1 determination) and control limits as provided by ERA. A known value of "zero" indicates an analysis was included in the testing series as a "false positive". Control limits are not provided.

<sup>e</sup> Technician error weighing sample caused submitted gamma results to be understated and outside the control limits.(low)

<sup>f</sup> The result of reanalysis with the correct sample volume (Compare to original result, footnoted "e" above).

<sup>g</sup> The results of reanalysis were outside the control limits (low).

<sup>h</sup> Sample ERW-3742 was ordered from ERA to determine why ERW-1103 results for Pu-239 were outside the acceptable range. The results for ERW-3742 were acceptable. No reason for the unacceptable results for ERW-3742 was determined.

**APPENDIX B**

**DATA REPORTING CONVENTIONS**

## APPENDIX B. DATA REPORTING CONVENTIONS

---

### Data Reporting Conventions

1.0. All activities, except gross alpha and gross beta, are decay corrected to collection time or the end of the collection period.

### 2.0. Single Measurements

Each single measurement is reported as follows:  $x \pm s$   
where:  $x$  = value of the measurement;  
 $s = 2\sigma$  counting uncertainty (corresponding to the 95% confidence level).

In cases where the activity is less than the lower limit of detection  $L$ , it is reported as:  $< L$ ,  
where  $L$  = the lower limit of detection based on  $4.66\sigma$  uncertainty for a background sample.

### 3.0. Duplicate analyses

If duplicate analyses are reported, the convention is as follows. :

- 3.1 Individual results: For two analysis results;  $x_1 \pm s_1$  and  $x_2 \pm s_2$   
Reported result:  $x \pm s$ ; where  $x = (1/2)(x_1 + x_2)$  and  $s = (1/2)\sqrt{s_1^2 + s_2^2}$
- 3.2 Individual results:  $< L_1, < L_2$  Reported result:  $< L$ , where  $L$  = lower of  $L_1$  and  $L_2$
- 3.3 Individual results:  $x \pm s, < L$  Reported result:  $x \pm s$  if  $x \geq L$ ;  $< L$  otherwise.

### 4.0. Computation of Averages and Standard Deviations

4.1 Averages and standard deviations listed in the tables are computed from all of the individual measurements over the period averaged; for example, an annual standard deviation would not be the average of quarterly standard deviations. The average  $\bar{x}$  and standard deviation "s" of a set of  $n$  numbers  $x_1, x_2 \dots x_n$  are defined as follows:

$$\bar{x} = \frac{1}{n} \sum x \qquad s = \sqrt{\frac{\sum (x - \bar{x})^2}{n-1}}$$

4.2 Values below the highest lower limit of detection are not included in the average.

4.3 If all values in the averaging group are less than the highest LLD, the highest LLD is reported.

4.4 If all but one of the values are less than the highest LLD, the single value  $x$  and associated two sigma error is reported.

4.5 In rounding off, the following rules are followed:

- 4.5.1. If the number following those to be retained is less than 5, the number is dropped, and the retained numbers are kept unchanged. As an example, 11.443 is rounded off to 11.44.
- 4.5.2. If the number following those to be retained is equal to or greater than 5, the number is dropped and the last retained number is raised by 1. As an example, 11.445 is rounded off to 11.45.

APPENDIX C

SUPPLEMENTAL ANALYSES

C-1. Supplemental Analyses:

Units: pCi/L

---

| Location       | T-24            |
|----------------|-----------------|
| Date Collected | 01-14-16        |
| Lab Code       | TMI- 201        |
| I-131          | < 0.4           |
| Sr-89          | < 0.6           |
| Sr-90          | < 0.5           |
| K-40           | 1142 $\pm$ 158  |
| Cs-134         | < 6.3           |
| Cs-137         | < 5.4           |
| Ba-La-140      | < 3.8           |
| Ca (g/L)       | 1.00            |
| Sr-90/g Ca     | < 0.50          |
| K (g/L)        | 1.39 $\pm$ 0.19 |
| Cs-137/g K     | < 3.88          |