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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.
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Project No. 8003

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Reviewed and
Approved by : 02/11/16

Bronia Grob
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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 Collection 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[a].
Location: T-1
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 2. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-2
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
1st Quarter Mean ± s.d.		0.030 ± 0.010	3rd Quarter Mean ± s.d.		0.033 ± 0.008
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
2nd Quarter Mean ± s.d.		0.020 ± 0.004	4th Quarter Mean ± s.d.		0.034 ± 0.013
			Cumulative Average		0.029

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 3. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-3
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
1st Quarter Mean ± s.d.		0.030 ± 0.010	3rd Quarter Mean ± s.d.		0.030 ± 0.009
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
2nd Quarter Mean ± s.d.		0.019 ± 0.004	4th Quarter Mean ± s.d.		0.032 ± 0.011
			Cumulative Average		0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 4. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: T-4

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 5. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-7
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
1st Quarter Mean ± s.d.		0.029 ± 0.009	3rd Quarter Mean ± s.d.		0.031 ± 0.010
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
2nd Quarter Mean ± s.d.		0.020 ± 0.005	4th Quarter Mean ± s.d.		0.031 ± 0.009
			Cumulative Average		0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 6. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: T-8

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
1st Quarter Mean ± s.d.		0.028 ± 0.009	3rd Quarter Mean ± s.d.		0.032 ± 0.008
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
2nd Quarter Mean ± s.d.		0.018 ± 0.004	4th Quarter Mean ± s.d.		0.033 ± 0.011
			Cumulative Average		0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 7. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: T-9 (C)

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
1st Quarter Mean ± s.d.		0.030 ± 0.009	3rd Quarter Mean ± s.d.		0.031 ± 0.009
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
2nd Quarter Mean ± s,d.		0.019 ± 0.004	4th Quarter Mean ± s.d.		0.033 ± 0.011
			Cumulative Average		0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 8. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-11 (C)
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 9. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-12 (C)
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 unless noted otherwise.

Table 10. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].
Location: T-27 (C)
Units: pCi/m^3
Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010			0.010
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
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
2nd Quarter Mean ± s.d.		0.020 ± 0.004	4th Quarter Mean ± s.d.		0.031 ± 0.009
			Cumulative Average		0.028

[a] Iodine-131 concentrations are < 0.07 pCi/m^3 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

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

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

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

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	0.025
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

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			
Location	Average	Minima	Maxima
T-9	0.023	0.021	0.028
T-11	0.023	0.016	0.027
T-12	0.024	0.021	0.026
T-27	0.023	0.016	0.025
Controls	0.023	0.016	0.028
T-1	0.025	0.018	0.028
T-2	0.026	0.022	0.032
T-3	0.023	0.018	0.026
T-4	0.022	0.018	0.025
T-7	0.025	0.019	0.033
T-8	0.024	0.020	0.026
Indicators	0.024	0.018	0.033

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

August			
Location	Average	Minima	Maxima
T-9	0.032	0.024	0.040
T-11	0.030	0.022	0.038
T-12	0.030	0.018	0.044
T-27	0.029	0.020	0.038
Controls	0.030	0.018	0.044
T-1	0.029	0.020	0.038
T-2	0.033	0.025	0.040
T-3	0.030	0.018	0.037
T-4	0.029	0.023	0.038
T-7	0.030	0.026	0.040
T-8	0.032	0.027	0.037
Indicators	0.031	0.018	0.040

November			
Location	Average	Minima	Maxima
T-9	0.034	0.028	0.045
T-11	0.049	0.041	0.065
T-12	0.035	0.027	0.043
T-27	0.033	0.030	0.039
Controls	0.038	0.027	0.065
T-1	0.035	0.028	0.044
T-2	0.034	0.026	0.046
T-3	0.035	0.026	0.044
T-4	0.034	0.026	0.042
T-7	0.033	0.029	0.042
T-8	0.035	0.027	0.043
Indicators	0.034	0.026	0.046

September			
Location	Average	Minima	Maxima
T-9	0.038	0.031	0.050
T-11	0.043	0.039	0.054
T-12	0.038	0.028	0.061
T-27	0.041	0.032	0.057
Controls	0.040	0.028	0.061
T-1	0.041	0.033	0.057
T-2	0.041	0.032	0.048
T-3	0.037	0.027	0.051
T-4	0.034	0.022	0.052
T-7	0.038	0.024	0.056
T-8	0.040	0.035	0.052
Indicators	0.039	0.022	0.057

December			
Location	Average	Minima	Maxima
T-9	0.038	0.026	0.055
T-11	0.054	0.036	0.078
T-12	0.038	0.024	0.055
T-27	0.037	0.027	0.048
Controls	0.042	0.024	0.078
T-1	0.038	0.027	0.053
T-2	0.041	0.028	0.062
T-3	0.038	0.027	0.056
T-4	0.040	0.029	0.056
T-7	0.036	0.025	0.049
T-8	0.038	0.021	0.058
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^3

Location	T-1			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP- 1803	TAP- 3793	TAP- 5980	TAP- 7344
Volume (m^3)	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^3)	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^3

Location	T-3			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP- 1805	3795	TAP- 5982	TAP- 7346
Volume (m^3)	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^3)	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^3

Location	T-7			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP- 1808	TAP- 3797	TAP- 5984	TAP- 7348
Volume (m^3)	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^3)	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^3

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^3)	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^3)	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^3

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^3)	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^3)	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

Indicator	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
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[a]	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

[a] ND = No Data, TLD missing in the field.

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

Indicator	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
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[a]
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

[a] ND = No Data, TLD missing in the field.

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

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Control				
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
QC				
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[a]	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
Shield				
T-87	6.2 ± 1.2	7.8 ± 0.9	6.4 ± 0.8	8.5 ± 1.0

[a] ND = No Data, TLD missing in the field.

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

Indicator	2015
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[a]
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

[a] 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[a]
T-224	47.7 ± 3.2
Mean ± s.d.	56.2 ± 12.2

[a] ND = No Data, TLD lost in the field.

Table 14. Area monitors (TLD), Annual.

Units: mR/365 days

Control	2015
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
QC	
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[a]
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
Shield	
T-87	24.9 ± 2.2

[a] 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 [a]
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

[a] 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[a]
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)		
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

[a] "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 Lab Code	1st Qtr. TSWT- 1433	2nd Qtr. TSWT- 3508	3rd Qtr. TSWT- 5505	4th Qtr. 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 Lab Code	1st Qtr. TSWT- 1434	2nd Qtr. TSWT- 3509	3rd Qtr. TSWT- 5506	4th Qtr. 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	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Lab Code	TSWT- 1435	TSWT- 3510	TSWT- 5507	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	
Date Collected	02-03-15	03-03-15	03-31-15	04-28-15	Req. LLD
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	
Date Collected	06-02-15	06-30-15	08-04-15	09-01-15	Req. LLD
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	
Date Collected	09-29-15	11-03-15	12-01-15	12-29-15	Req. LLD
Gross beta	2.8 ± 0.7	1.4 ± 0.6	1.6 ± 0.6	4.2 ± 1.1	4.0
H-3	405 ± 93 [a]	< 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

[a] 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	
Date Collected	02-03-15	03-03-15	03-31-15	04-28-15	Req. LLD
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	
Date Collected	06-02-15	06-30-15	08-04-15	09-01-15	Req. LLD
Gross beta	1.5 ± 0.6	2.2 ± 0.7	1.4 ± 0.6	21.2 ± 1.6 [a]	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	
Date Collected	09-29-15	11-03-15	12-01-15	12-29-15	Req. LLD
Gross beta	43.2 ± 3.1 [b]	39.5 ± 2.9	46.5 ± 3.4 [c]	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

[a] 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.
[b] Gross beta recounted with a result of 43.4±3.1 pCi/L. [c] 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	
Date Collected	02-03-15	03-03-15	03-31-15	04-28-15	Req. LLD
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	
Date Collected	06-02-15	06-30-15	08-04-15	09-01-15	Req. LLD
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	
Date Collected	09-29-15	11-03-15	12-01-15	12-29-15	Req. LLD
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	
Date Collected	02-03-15	03-03-15	03-31-15	04-28-15	Req. LLD
Gross beta	1.4 ± 0.6	1.5 ± 0.4	3.8 ± 0.8	4.3 ± 0.9	4.0
H-3	721 ± 134 [a]	< 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- 4360	TSWU- 4867	
Date Collected	06-02-15	06-30-15	08-04-15	09-01-15	Req. LLD
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	
Date Collected	09-29-15	11-03-15	12-01-15	12-29-15	Req. LLD
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

[a] 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	
Date Collected	02-03-15	03-03-15	03-31-15	04-28-15	Req. LLD
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	
Date Collected	06-02-15	06-30-15	08-04-15	09-01-15	Req. LLD
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	
Date Collected	09-29-15	11-03-15	12-01-15	12-29-15	Req. LLD
Gross beta	1.8 ± 0.6	45.9 ± 1.6 [a]	< 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

[a] 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/ 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

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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 it's 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 ± 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[a]

Analysis	Level	One standard deviation for single determination
Gamma Emitters	5 to 100 pCi/liter or kg > 100 pCi/liter or kg	5.0 pCi/liter 5% of known value
Strontium-89[b]	5 to 50 pCi/liter or kg > 50 pCi/liter or kg	5.0 pCi/liter 10% of known value
Strontium-90[b]	2 to 30 pCi/liter or kg > 30 pCi/liter or kg	5.0 pCi/liter 10% of known value
Potassium-40	≥ 0.1 g/liter or kg	5% of known value
Gross alpha	≤ 20 pCi/liter > 20 pCi/liter	5.0 pCi/liter 25% of known value
Gross beta	≤ 100 pCi/liter > 100 pCi/liter	5.0 pCi/liter 5% of known value
Tritium	≤ 4,000 pCi/liter > 4,000 pCi/liter	$\pm 1\sigma$ = $169.85 \times (\text{known})^{0.0933}$ 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, Iodine-129[b]	≤ 55 pCi/liter > 55 pCi/liter	6 pCi/liter 10% of known value
Uranium-238, Nickel-63[b] Technetium-99[b]	≤ 35 pCi/liter > 35 pCi/liter	6 pCi/liter 15% of known value
Iron-55[b]	50 to 100 pCi/liter > 100 pCi/liter	10 pCi/liter 10% of known value
Other Analyses [b]	---	20% of known value

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

[b] Laboratory limit.

TABLE A-1. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result [b]	ERA Result [c]	Control Limits	Acceptance
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 [d]	10/5/2015	Ra-228	7.80 ± 0.02	4.25	2.46 - 5.85	Fail
ERW-5540 [e]	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

[a] 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).

[b] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

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

[d] 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.

[e] The result of reanalysis (Compare to original result, footnoted "e" above).

TABLE A-2.1. Thermoluminescent Dosimetry, (TLD, $CaSO_4$: Dy Cards). [a]

				mR		
Lab Code	Irradiation Date	Description	Known Value	Lab Result	Control Limits	Acceptance
Environmental, Inc.						
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, $CaSO_4$: Dy Cards). [b]

Lab Code	Irradiation Date	Description	Delivered Dose (mrem)	Reported Dose (mrem)	Performance Quotient (P) [c]	Acceptance [d]
Environmental, Inc.						
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

[a] TLD's were irradiated at Environmental Inc. Midwest Laboratory. (Table A-2.1)

[b] 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)

[c] Performance Quotient (P) is calculated as ((reported dose - conventially true value) + conventially true value) where the conventially true value is the delivered dose.

[d] 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.

e 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 [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	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 [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	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

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

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

[c] Results are based on single determinations.

[d] 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[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
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[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
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

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

[b] I-131(G); Iodine-131 as analyzed by gamma spectroscopy.

[c] Activity reported is a net activity result.

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

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
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

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
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

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
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)[a] First Result	Second Result	Averaged Result	Acceptance
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

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
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.

[a] 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).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
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 [c]	Pass
MASO-975	2/1/2015	Co-57	0.5 ± 1.0	0.0	NA [c]	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 [d]	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 [c]	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 [c]	Pass
MAW-969	2/1/2015	Ni-63	2.9 ± 3.0	0.00	NA [c]	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 [e]	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 [c]	Pass
MAAP-978 [f]	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 [c]	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 [c]	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).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
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 [c]	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 [c]	Pass
MAVE-972	2/1/2015	Zn-65	0.09 ± 0.12	0.00	NA [c]	Pass
MAAP-978	2/1/2015	Pu-238	-0.003 ± 0.010	0.000	NA [c]	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 [c]	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 [c]	Pass
MAVE-972	2/1/2015	Zn-65	0.09 ± 0.12	0.00	NA [c]	Pass
MASO-4903	8/1/2015	Ni-63	556 ± 18	682	477 - 887	Pass
MASO-4903 [g]	8/1/2015	Sr-90	231 ± 7	425	298 - 553	Fail
MASO-4903 [g]	8/1/2015	Sr-90	352 ± 10	425	298 - 553	Pass
MASO-4903 [h]	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 [e]	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).

			Concentration [a]			
Lab Code [b]	Date	Analysis	Laboratory result	Known Activity	Control Limits [c]	Acceptance
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 [c]	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 [i]	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 [c]	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

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

[b] Laboratory codes as follows: MAW (water), MAAP (air filter), MASO (soil), MAVE (vegetation).

[c] 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.

[d] Lab result was 27.84. Data entry error resulted in a non-acceptable result.

[e] Provided in the series for "sensitivity evaluation". MAPEP does not provide control limits.

[f] Lab result was 1.58. Data entry error resulted in a non-acceptable result.

[g] The incomplete separation of calcium from strontium caused a failed low result. The result of reanalysis acceptable.

[h] 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.

[i] 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)[a].

Lab Code [b]	Date	Analysis	Concentration (pCi/L) [b] Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
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)[a].

Lab Code [b]	Concentration (pCi/L) [b]					
	Date	Analysis	Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
ERVE-1100 [e]	3/16/2015	Co-60	1,030 ± 29	1,540	1,060 - 2,150	Fail
ERVE-1100 [f]	3/16/2015	Co-60	1,684 ± 48	1,540	1,060 - 2,150	Pass
ERVE-1100 [e]	3/16/2015	Cs-134	1,615 ± 27	2,650	1,700 - 3,440	Fail
ERVE-1100 [f]	3/16/2015	Cs-134	2,554 ± 49	2,650	1,700 - 3,440	Pass
ERVE-1100 [e]	3/16/2015	Cs-137	1,248 ± 29	1,810	1,310 - 2,520	Fail
ERVE-1100 [f]	3/16/2015	Cs-137	2,078 ± 68	1,810	1,310 - 2,520	Pass
ERVE-1100 [e]	3/16/2015	K-40	22,037 ± 463	30,900	22,300 - 43,400	Fail
ERVE-1100 [f]	3/16/2015	K-40	34,895 ± 764	30,900	22,300 - 43,400	Pass
ERVE-1100 [e]	3/16/2015	Mn-54	<13.8	<300	0.0 - 300.0	Pass
ERVE-1100 [f]	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 [e]	3/16/2015	Zn-65	<94.6	1,090	786 - 1,530	Fail
ERVE-1100 [f]	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 [g]	3/16/2015	Pu-239/240	140.2 ± 7.8	184.0	143.0 - 232.0	Fail
ERW-3742 [h]	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

[a] 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).

[b] 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).

[c] Unless otherwise indicated, the laboratory result is given as the mean ± standard deviation for three determinations.

[d] 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.

[e] Technician error weighing sample caused submitted gamma results to be understated and outside the control limits.(low)

[f] The result of reanalysis with the correct sample volume (Compare to original result, footnoted "e" above).

[g] The results of reanalysis were outside the control limits (low).

[h] 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 4.66σ 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 $x_1, x_2 \ldots x_n$ 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 ± 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 ± 0.19
Cs-137/g K	< 3.88