



Environmental, Inc.  
Midwest Laboratory  
an Allegheny Technologies Co.

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

FINAL REPORT  
TO  
FIRSTENERGY CORPORATION  
AKRON, OHIO

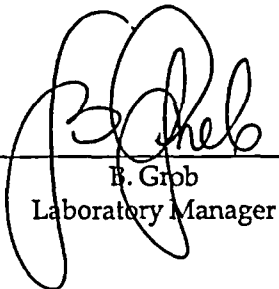
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (REMP)  
FOR  
DAVIS-BESSE NUCLEAR POWER STATION  
OAK HARBOR, OHIO

PREPARED AND SUBMITTED  
BY  
ENVIRONMENTAL, INC., MIDWEST LABORATORY

Project Number: 8003

Reporting Period: January-December, 2004

Reviewed and  
Approved by \_\_\_\_\_



B. Grob  
Laboratory Manager

Date 02-15-2005

Distribution: Percival, A., Davis-Besse (2 copies and Original Raw Data)

TOLEDO

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## TOLEDO

### 1.0 INTRODUCTION

The following constitutes the final 2004 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.

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2.0 LISTING OF MISSED SAMPLES

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Sample Type	Location	Expected Collection Date	Reason
AP/AI	T-03	01-27-04	Sample not accessible due to drifting snow.
AP/AI	T-02	11-30-04	No sample; no flow to sample head.

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3.0 DATA TABULATIONS



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Table 1. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.  
 Location: T-1  
 Units: pCi/m<sup>3</sup>  
 Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta	
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>	
01-06-04	282	0.027 ± 0.003	07-06-04	281	0.021 ± 0.004	
01-13-04	282	0.027 ± 0.004	07-13-04	277	0.019 ± 0.003	
01-20-04	282	0.024 ± 0.004	07-20-04	277	0.023 ± 0.004	
01-27-04	282	0.018 ± 0.003	07-27-04	281	0.016 ± 0.003	
02-03-04	277	0.034 ± 0.004	08-03-04	277	0.033 ± 0.004	
02-10-04	282	0.041 ± 0.004	08-10-04	277	0.027 ± 0.004	
02-17-04	282	0.030 ± 0.004	08-17-04	276	0.015 ± 0.003	
02-24-04	282	0.026 ± 0.004	08-24-04	266	0.019 ± 0.004	
03-02-04	272	0.025 ± 0.004	08-31-04	276	0.019 ± 0.004	
03-09-04	278	0.023 ± 0.004	09-07-04	312	0.021 ± 0.003	
03-16-04	277	0.015 ± 0.003	09-14-04	313	0.017 ± 0.003	
03-23-04	277	0.018 ± 0.003	09-21-04	314	0.026 ± 0.003	
03-30-04	277	0.017 ± 0.003	09-28-04	313	0.033 ± 0.004	
1st Quarter Mean ± s.d.		<u>0.025 ± 0.007</u>	3rd Quarter Mean ± s.d.		<u>0.022 ± 0.006</u>	
04-06-04	275	0.013 ± 0.003	10-05-04	313	0.018 ± 0.003	
04-13-04	277	0.017 ± 0.003	10-12-04	313	0.025 ± 0.004	
04-20-04	277	0.021 ± 0.003	10-19-04	313	0.020 ± 0.003	
04-27-04	278	0.017 ± 0.003	10-26-04	314	0.013 ± 0.003	
			11-02-04	313	0.025 ± 0.004	
05-04-04	277	0.016 ± 0.003				
05-11-04	278	0.021 ± 0.004	11-09-04	313	0.019 ± 0.003	
05-18-04	277	0.019 ± 0.004	11-16-04	313	0.027 ± 0.004	
05-25-04	276	0.017 ± 0.003	11-23-04	313	0.030 ± 0.004	
06-01-04	272	0.014 ± 0.003	11-30-04	313	0.019 ± 0.003	
06-08-04	282	0.021 ± 0.003	12-07-04	313	0.031 ± 0.003	
06-15-04	277	0.017 ± 0.004	12-14-04	314	0.020 ± 0.003	
06-22-04	277	0.014 ± 0.003	12-21-04	312	0.024 ± 0.003	
06-29-04	262	0.019 ± 0.004	12-28-04	313	0.028 ± 0.004	
2nd Quarter Mean ± s.d.		<u>0.017 ± 0.003</u>	4th Quarter Mean ± s.d.		<u>0.023 ± 0.005</u>	
					Cumulative Average	0.022
					Previous Annual Average	0.023

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

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

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	280	0.028 ± 0.003	07-06-04	296	0.020 ± 0.003
01-13-04	281	0.030 ± 0.004	07-13-04	289	0.015 ± 0.003
01-20-04	280	0.015 ± 0.003	07-20-04	292	0.020 ± 0.004
01-27-04	265	0.019 ± 0.003	07-27-04	292	0.016 ± 0.003
02-03-04	270	0.034 ± 0.004	08-03-04	297	0.031 ± 0.004
02-10-04	269	0.041 ± 0.004	08-10-04	297	0.025 ± 0.004
02-17-04	285	0.032 ± 0.004	08-17-04	297	0.015 ± 0.003
02-24-04	285	0.028 ± 0.004	08-24-04	297	0.026 ± 0.004
03-02-04	280	0.030 ± 0.004	08-31-04	297	0.014 ± 0.003
03-09-04	286	0.026 ± 0.004	09-07-04	296	0.028 ± 0.003
03-16-04	280	0.019 ± 0.003	09-14-04	296	0.022 ± 0.003
03-23-04	280	0.020 ± 0.003	09-21-04	298	0.022 ± 0.003
03-30-04	280	0.019 ± 0.003	09-28-04	297	0.035 ± 0.004
1st Quarter Mean ± s.d.		0.026 ± 0.007	3rd Quarter Mean ± s.d.		0.022 ± 0.007
04-06-04	278	0.014 ± 0.003	10-05-04	297	0.020 ± 0.003
04-13-04	281	0.019 ± 0.003	10-12-04	297	0.028 ± 0.004
04-20-04	277	0.023 ± 0.004	10-19-04	296	0.021 ± 0.003
04-27-04	280	0.014 ± 0.003	10-26-04	297	0.015 ± 0.003
			11-02-04	296	0.025 ± 0.004
05-04-04	280	0.018 ± 0.004			
05-11-04	281	0.020 ± 0.004	11-09-04	297	0.018 ± 0.003
05-18-04	276	0.018 ± 0.004	11-16-04	297	0.028 ± 0.004
05-25-04	280	0.016 ± 0.003	11-23-04	286	0.032 ± 0.004
06-01-04	280	0.015 ± 0.003	11-30-04	ND <sup>b</sup>	- - <sup>b</sup>
06-08-04	281	0.022 ± 0.003	12-07-04	275	0.029 ± 0.004
06-15-04	280	0.015 ± 0.003	12-14-04	293	0.016 ± 0.003
06-22-04	297	0.015 ± 0.003	12-21-04	291	0.025 ± 0.003
06-29-04	292	0.018 ± 0.003	12-28-04	291	0.028 ± 0.004
2nd Quarter Mean ± s.d.		0.017 ± 0.003	4th Quarter Mean ± s.d.		0.024 ± 0.006
Cumulative Average					0.022
Previous Annual Average					0.022

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

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

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

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	304	0.028 ± 0.003	07-06-04	285	0.017 ± 0.003
01-13-04	300	0.028 ± 0.004	07-13-04	286	0.015 ± 0.003
01-20-04	299	0.016 ± 0.003	07-20-04	285	0.021 ± 0.004
01-27-04	ND <sup>b</sup>	-	07-27-04	288	0.020 ± 0.003
02-03-04	599 <sup>c</sup>	0.025 ± 0.002	08-03-04	286	0.026 ± 0.004
02-10-04	306	0.033 ± 0.004	08-10-04	286	0.026 ± 0.004
02-17-04	292	0.030 ± 0.004	08-17-04	286	0.014 ± 0.003
02-24-04	299	0.023 ± 0.004	08-24-04	285	0.028 ± 0.004
03-02-04	287	0.026 ± 0.004	08-31-04	286	0.019 ± 0.004
03-09-04	280	0.025 ± 0.004	09-07-04	285	0.028 ± 0.004
03-16-04	287	0.020 ± 0.003	09-14-04	285	0.022 ± 0.003
03-23-04	287	0.020 ± 0.003	09-21-04	287	0.023 ± 0.003
03-30-04	287	0.017 ± 0.003	09-28-04	286	0.032 ± 0.004
<u>1st Quarter Mean ± s.d.</u>		<u>0.024 ± 0.005</u>	<u>3rd Quarter Mean ± s.d.</u>		<u>0.022 ± 0.005</u>
04-06-04	285	0.014 ± 0.003	10-05-04	286	0.019 ± 0.003
04-13-04	282	0.014 ± 0.003	10-12-04	271	0.029 ± 0.004
04-20-04	293	0.023 ± 0.003	10-19-04	271	0.022 ± 0.004
04-27-04	286	0.017 ± 0.003	10-26-04	272	0.018 ± 0.003
			11-02-04	271	0.030 ± 0.004
05-04-04	287	0.015 ± 0.003			
05-11-04	287	0.018 ± 0.004	11-09-04	274	0.022 ± 0.004
05-18-04	286	0.014 ± 0.003	11-16-04	271	0.028 ± 0.004
05-25-04	290	0.015 ± 0.003	11-23-04	271	0.031 ± 0.004
06-01-04	285	0.014 ± 0.003	11-30-04	272	0.024 ± 0.004
06-08-04	286	0.020 ± 0.003	12-07-04	271	0.036 ± 0.004
06-15-04	286	0.015 ± 0.003	12-14-04	272	0.020 ± 0.004
06-22-04	286	0.015 ± 0.003	12-21-04	270	0.027 ± 0.004
06-29-04	290	0.016 ± 0.003	12-28-04	271	0.031 ± 0.004
<u>2nd Quarter Mean ± s.d.</u>		<u>0.016 ± 0.003</u>	<u>4th Quarter Mean ± s.d.</u>		<u>0.026 ± 0.005</u>
<u>Cumulative Average</u>					<u>0.022</u>
<u>Previous Annual Average</u>					<u>0.022</u>

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

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

<sup>c</sup> Two-week collection.

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

Location: T-4

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	265	0.028 ± 0.004	07-06-04	269	0.016 ± 0.003
01-13-04	265	0.031 ± 0.004	07-13-04	270	0.016 ± 0.003
01-20-04	265	0.019 ± 0.004	07-20-04	269	0.022 ± 0.004
01-27-04	271	0.020 ± 0.003	07-27-04	143	0.013 ± 0.005 <sup>b</sup>
02-03-04	265	0.037 ± 0.004	08-03-04	286	0.024 ± 0.004
02-10-04	269	0.048 ± 0.004	08-10-04	294	0.023 ± 0.004
02-17-04	263	0.032 ± 0.004	08-17-04	294	0.011 ± 0.003
02-24-04	269	0.031 ± 0.004	08-24-04	293	0.024 ± 0.004
03-02-04	268	0.028 ± 0.004	08-31-04	294	0.015 ± 0.003
03-09-04	270	0.028 ± 0.004	09-07-04	293	0.026 ± 0.003
03-16-04	269	0.018 ± 0.003	09-14-04	293	0.022 ± 0.003
03-23-04	269	0.020 ± 0.003	09-21-04	292	0.026 ± 0.003
03-30-04	269	0.020 ± 0.003	09-28-04	293	0.033 ± 0.004
1st Quarter Mean ± s.d.		0.028 ± 0.009	3rd Quarter Mean ± s.d.		0.021 ± 0.006
04-06-04	267	0.017 ± 0.003	10-05-04	293	0.019 ± 0.003
04-13-04	269	0.016 ± 0.003	10-12-04	298	0.027 ± 0.004
04-20-04	270	0.023 ± 0.004	10-19-04	293	0.020 ± 0.003
04-27-04	269	0.014 ± 0.003	10-26-04	294	0.014 ± 0.003
			11-02-04	293	0.023 ± 0.004
05-04-04	269	0.019 ± 0.004			
05-11-04	270	0.018 ± 0.004	11-09-04	303	0.018 ± 0.003
05-18-04	269	0.019 ± 0.004	11-16-04	296	0.022 ± 0.003
05-25-04	269	0.018 ± 0.003	11-23-04	294	0.035 ± 0.004
06-01-04	265	0.013 ± 0.003	11-30-04	294	0.022 ± 0.003
06-08-04	270	0.022 ± 0.003	12-07-04	300	0.036 ± 0.004
06-15-04	269	0.019 ± 0.004	12-14-04	295	0.019 ± 0.004
06-22-04	269	0.015 ± 0.003	12-21-04	293	0.031 ± 0.004
06-29-04	270	0.018 ± 0.003	12-28-04	304	0.034 ± 0.004
2nd Quarter Mean ± s.d.		0.018 ± 0.003	4th Quarter Mean ± s.d.		0.025 ± 0.007
Cumulative Average					0.023
Previous Annual Average					0.024

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

<sup>b</sup> Volume low due to power failure.

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

Location: T-7

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	263	0.031 ± 0.004	07-06-04	285	0.018 ± 0.003
01-13-04	265	0.030 ± 0.004	07-13-04	286	0.017 ± 0.003
01-20-04	267	0.016 ± 0.004	07-20-04	286	0.023 ± 0.004
01-27-04	272	0.016 ± 0.003	07-27-04	289	0.019 ± 0.003
02-03-04	267	0.032 ± 0.004	08-03-04	282	0.029 ± 0.004
02-10-04	255	0.039 ± 0.004	08-10-04	286	0.027 ± 0.004
02-17-04	271	0.029 ± 0.004	08-17-04	286	0.016 ± 0.003
02-24-04	267	0.028 ± 0.004	08-24-04	290	0.027 ± 0.004
03-02-04	268	0.028 ± 0.004	08-31-04	277	0.019 ± 0.004
03-09-04	271	0.025 ± 0.004	09-07-04	277	0.028 ± 0.004
03-16-04	286	0.020 ± 0.004	09-14-04	277	0.024 ± 0.003
03-23-04	282	0.024 ± 0.003	09-21-04	277	0.025 ± 0.003
03-30-04	286	0.019 ± 0.003	09-28-04	280	0.035 ± 0.004
1st Quarter Mean ± s.d.		0.026 ± 0.007	3rd Quarter Mean ± s.d.		0.024 ± 0.006
04-06-04	284	0.012 ± 0.003	10-05-04	274	0.020 ± 0.003
04-13-04	286	0.017 ± 0.003	10-12-04	279	0.029 ± 0.004
04-20-04	289	0.020 ± 0.003	10-19-04	277	0.021 ± 0.004
04-27-04	282	0.015 ± 0.003	10-26-04	277	0.014 ± 0.003
			11-02-04	277	0.023 ± 0.004
05-04-04	285	0.020 ± 0.004			
05-11-04	289	0.018 ± 0.004	11-09-04	279	0.020 ± 0.004
05-18-04	283	0.019 ± 0.004	11-16-04	277	0.031 ± 0.004
05-25-04	286	0.016 ± 0.003	11-23-04	277	0.035 ± 0.004
06-01-04	286	0.013 ± 0.003	11-30-04	82	0.018 ± 0.009 <sup>b</sup>
06-08-04	286	0.022 ± 0.003	12-07-04	277	0.031 ± 0.004
06-15-04	286	0.018 ± 0.004	12-14-04	290	0.018 ± 0.004
06-22-04	286	0.016 ± 0.003	12-21-04	285	0.028 ± 0.004
06-29-04	286	0.018 ± 0.003	12-28-04	287	0.029 ± 0.004
2nd Quarter Mean ± s.d.		0.017 ± 0.003	4th Quarter Mean ± s.d.		0.024 ± 0.007
Cumulative Average					0.023
Previous Annual Average					0.024

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

<sup>b</sup> Low volume; pump found not running.

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

Location: T-8

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	272	0.031 ± 0.004	07-06-04	278	0.021 ± 0.004
01-13-04	270	0.038 ± 0.005	07-13-04	277	0.018 ± 0.003
01-20-04	268	0.018 ± 0.004	07-20-04	283	0.025 ± 0.004
01-27-04	276	0.020 ± 0.003	07-27-04	281	0.019 ± 0.003
02-03-04	269	0.032 ± 0.004	08-03-04	277	0.026 ± 0.004
02-10-04	267	0.043 ± 0.004	08-10-04	277	0.030 ± 0.004
02-17-04	278	0.031 ± 0.004	08-17-04	287	0.017 ± 0.003
02-24-04	274	0.027 ± 0.004	08-24-04	240	0.028 ± 0.004 <sup>b</sup>
03-02-04	267	0.031 ± 0.004	08-31-04	280	0.015 ± 0.004
03-09-04	284	0.027 ± 0.004	09-07-04	277	0.032 ± 0.004
03-16-04	279	0.017 ± 0.003	09-14-04	285	0.028 ± 0.004
03-23-04	276	0.022 ± 0.003	09-21-04	279	0.024 ± 0.003
03-30-04	279	0.018 ± 0.003	09-28-04	277	0.040 ± 0.004
1st Quarter Mean ± s.d.		0.027 ± 0.008	3rd Quarter Mean ± s.d.		0.025 ± 0.007
04-06-04	281	0.017 ± 0.003	10-05-04	276	0.022 ± 0.003
04-13-04	278	0.016 ± 0.003	10-12-04	282	0.034 ± 0.004
04-20-04	279	0.020 ± 0.003	10-19-04	273	0.024 ± 0.004
04-27-04	273	0.014 ± 0.003	10-26-04	281	0.019 ± 0.003
05-04-04	271	0.022 ± 0.004	11-02-04	274	0.031 ± 0.004
05-11-04	278	0.024 ± 0.004	11-09-04	285	0.022 ± 0.004
05-18-04	280	0.023 ± 0.004	11-16-04	287	0.041 ± 0.004
05-25-04	276	0.017 ± 0.003	11-23-04	276	0.032 ± 0.004
06-01-04	278	0.013 ± 0.003	11-30-04	279	0.022 ± 0.003
06-08-04	279	0.024 ± 0.003	12-07-04	272	0.034 ± 0.004
06-15-04	279	0.016 ± 0.003	12-14-04	278	0.019 ± 0.004
06-22-04	278	0.014 ± 0.003	12-21-04	277	0.028 ± 0.004
06-29-04	283	0.017 ± 0.003	12-28-04	276	0.028 ± 0.004
2nd Quarter Mean ± s.d.		0.018 ± 0.004	4th Quarter Mean ± s.d.		0.027 ± 0.007
Cumulative Average					0.024
Previous Annual Average					0.024

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

<sup>b</sup> Pipe broken; taken in for repair.

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Table 7. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131<sup>a</sup>.  
 Location: T-9 (C)  
 Units: pCi/m<sup>3</sup>  
 Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	316	0.025 ± 0.003	07-06-04	280	0.018 ± 0.003
01-13-04	317	0.030 ± 0.004	07-13-04	280	0.016 ± 0.003
01-20-04	315	0.015 ± 0.003	07-20-04	281	0.022 ± 0.004
01-27-04	315	0.016 ± 0.003	07-27-04	285	0.017 ± 0.003
02-03-04	316	0.029 ± 0.003	08-03-04	280	0.029 ± 0.004
02-10-04	314	0.032 ± 0.003	08-10-04	280	0.025 ± 0.004
02-17-04	316	0.028 ± 0.004	08-17-04	282	0.014 ± 0.003
02-24-04	316	0.022 ± 0.003	08-24-04	276	0.023 ± 0.004
03-02-04	311	0.024 ± 0.003	08-31-04	285	0.015 ± 0.004
03-09-04	297	0.025 ± 0.003	09-07-04	280	0.027 ± 0.004
03-16-04	269	0.017 ± 0.004	09-14-04	278	0.023 ± 0.003
03-23-04	283	0.022 ± 0.003	09-21-04	284	0.024 ± 0.003
03-30-04	281	0.017 ± 0.003	09-28-04	280	0.037 ± 0.004
<u>1st Quarter Mean ± s.d.</u>		<u>0.023 ± 0.006</u>	<u>3rd Quarter Mean ± s.d.</u>		<u>0.022 ± 0.006</u>
04-06-04	283	0.016 ± 0.003	10-05-04	279	0.019 ± 0.003
04-13-04	281	0.019 ± 0.003	10-12-04	279	0.040 ± 0.005
04-20-04	287	0.023 ± 0.003	10-19-04	281	0.024 ± 0.004
04-27-04	275	0.018 ± 0.003	10-26-04	280	0.011 ± 0.003
			11-02-04	281	0.027 ± 0.004
05-04-04	279	0.017 ± 0.003			
05-11-04	282	0.026 ± 0.004	11-09-04	286	0.019 ± 0.004
05-18-04	282	0.021 ± 0.004	11-16-04	280	0.030 ± 0.004
05-25-04	279	0.015 ± 0.003	11-23-04	281	0.026 ± 0.004
06-01-04	280	0.013 ± 0.003	11-30-04	282	0.019 ± 0.003
06-08-04	281	0.021 ± 0.003	12-07-04	273	0.028 ± 0.004
06-15-04	281	0.015 ± 0.003	12-14-04	281	0.018 ± 0.004
06-22-04	280	0.019 ± 0.003	12-21-04	272	0.025 ± 0.003
06-29-04	281	0.016 ± 0.003	12-28-04	271	0.030 ± 0.004
<u>2nd Quarter Mean ± s.d.</u>		<u>0.018 ± 0.004</u>	<u>4th Quarter Mean ± s.d.</u>		<u>0.024 ± 0.007</u>
<u>Cumulative Average</u>					<u>0.022</u>
<u>Previous Annual Average</u>					<u>0.024</u>

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

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

Location: T-11 (C)

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	277	0.029 ± 0.004	07-06-04	293	0.019 ± 0.003
01-13-04	278	0.031 ± 0.004	07-13-04	292	0.016 ± 0.003
01-20-04	273	0.019 ± 0.004	07-20-04	292	0.020 ± 0.003
01-27-04	278	0.020 ± 0.003	07-27-04	293	0.020 ± 0.003
02-03-04	314	0.033 ± 0.003	08-03-04	292	0.028 ± 0.004
02-10-04	320	0.032 ± 0.003	08-10-04	293	0.023 ± 0.004
02-17-04	320	0.027 ± 0.004	08-17-04	292	0.013 ± 0.003
02-24-04	320	0.021 ± 0.003	08-24-04	292	0.025 ± 0.004
03-02-04	319	0.024 ± 0.003	08-31-04	269	0.017 ± 0.004
03-09-04	320	0.021 ± 0.003	09-07-04	274	0.029 ± 0.004
03-16-04	319	0.017 ± 0.003	09-14-04	274	0.024 ± 0.003
03-23-04	320	0.015 ± 0.003	09-21-04	273	0.025 ± 0.003
03-30-04	321	0.015 ± 0.003	09-28-04	274	0.033 ± 0.004
1st Quarter Mean ± s.d.		0.023 ± 0.006	3rd Quarter Mean ± s.d.		0.022 ± 0.006
04-06-04	318	0.012 ± 0.003	10-05-04	274	0.022 ± 0.003
04-13-04	320	0.014 ± 0.003	10-12-04	274	0.026 ± 0.004
04-20-04	320	0.018 ± 0.003	10-19-04	274	0.027 ± 0.004
04-27-04	320	0.012 ± 0.003	10-26-04	274	0.016 ± 0.003
			11-02-04	274	0.026 ± 0.004
05-04-04	319	0.015 ± 0.003	11-09-04	278	0.023 ± 0.004
05-11-04	320	0.016 ± 0.003	11-16-04	274	0.026 ± 0.004
05-18-04	314	0.016 ± 0.003	11-23-04	274	0.033 ± 0.004
05-25-04	320	0.013 ± 0.003	11-30-04	274	0.021 ± 0.003
06-01-04	320	0.014 ± 0.003			
06-08-04	320	0.017 ± 0.003	12-07-04	269	0.034 ± 0.004
06-15-04	292	0.013 ± 0.003	12-14-04	274	0.017 ± 0.004
06-22-04	293	0.017 ± 0.003	12-21-04	336	0.020 ± 0.003
06-29-04	292	0.015 ± 0.003	12-28-04	336	0.023 ± 0.003
2nd Quarter Mean ± s.d.		0.015 ± 0.002	4th Quarter Mean ± s.d.		0.024 ± 0.006
Cumulative Average					0.021
Previous Annual Average					0.024

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



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

Location: T-12 (C)

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	286	0.030 ± 0.003	07-06-04	276	0.020 ± 0.004
01-13-04	288	0.030 ± 0.004	07-13-04	279	0.017 ± 0.003
01-20-04	287	0.016 ± 0.003	07-20-04	280	0.021 ± 0.004
01-27-04	287	0.018 ± 0.003	07-27-04	338	0.017 ± 0.003
02-03-04	283	0.026 ± 0.003	08-03-04	336	0.027 ± 0.004
02-10-04	279	0.038 ± 0.004	08-10-04	336	0.017 ± 0.003
02-17-04	281	0.029 ± 0.004	08-17-04	338	0.011 ± 0.002
02-24-04	280	0.022 ± 0.004	08-24-04	339	0.020 ± 0.003
03-02-04	279	0.025 ± 0.004	08-31-04	335	0.015 ± 0.003
03-09-04	279	0.030 ± 0.004	09-07-04	335	0.025 ± 0.003
03-16-04	280	0.023 ± 0.004	09-14-04	337	0.018 ± 0.003
03-23-04	279	0.018 ± 0.003	09-21-04	339	0.019 ± 0.003
03-30-04	281	0.016 ± 0.003	09-28-04	337	0.027 ± 0.003
<u>1st Quarter Mean ± s.d.</u>		<u>0.025 ± 0.007</u>	<u>3rd Quarter Mean ± s.d.</u>		<u>0.020 ± 0.005</u>
04-06-04	279	0.017 ± 0.003	10-05-04	341	0.015 ± 0.003
04-13-04	280	0.017 ± 0.003	10-12-04	336	0.025 ± 0.003
04-20-04	282	0.022 ± 0.003	10-19-04	332	0.018 ± 0.003
04-27-04	279	0.017 ± 0.003	10-26-04	333	0.012 ± 0.002
			11-02-04	337	0.020 ± 0.003
05-04-04	280	0.019 ± 0.004			
05-11-04	281	0.025 ± 0.004	11-09-04	338	0.016 ± 0.003
05-18-04	282	0.018 ± 0.004	11-16-04	334	0.021 ± 0.003
05-25-04	278	0.016 ± 0.003	11-23-04	336	0.030 ± 0.003
06-01-04	280	0.016 ± 0.003	11-30-04	339	0.020 ± 0.003
06-08-04	282	0.022 ± 0.003	12-07-04	335	0.031 ± 0.003
06-15-04	280	0.016 ± 0.003	12-14-04	278	0.020 ± 0.004
06-22-04	280	0.019 ± 0.003	12-21-04	276	0.025 ± 0.003
06-29-04	281	0.017 ± 0.003	12-28-04	276	0.030 ± 0.004
<u>2nd Quarter Mean ± s.d.</u>		<u>0.019 ± 0.003</u>	<u>4th Quarter Mean ± s.d.</u>		<u>0.022 ± 0.006</u>
<u>Cumulative Average</u>					<u>0.021</u>
<u>Previous Annual Average</u>					<u>0.022</u>

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

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

Location: T-27 (C)

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

Collection: Continuous, weekly exchange.

Date Collected	Volume (m <sup>3</sup> )	Gross Beta	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
<u>Required LLD</u>		<u>0.010</u>			<u>0.010</u>
01-06-04	299	0.026 ± 0.003	07-06-04	271	0.022 ± 0.004
01-13-04	305	0.027 ± 0.004	07-13-04	270	0.021 ± 0.003
01-20-04	304	0.015 ± 0.003	07-20-04	271	0.023 ± 0.004
01-27-04	299	0.018 ± 0.003	07-27-04	279	0.017 ± 0.003
02-03-04	300	0.033 ± 0.004	08-03-04	270	0.026 ± 0.004
02-10-04	298	0.039 ± 0.004	08-10-04	271	0.027 ± 0.004
02-17-04	305	0.031 ± 0.004	08-17-04	272	0.014 ± 0.003
02-24-04	299	0.026 ± 0.004	08-24-04	273	0.028 ± 0.004
03-02-04	302	0.025 ± 0.004	08-31-04	269	0.018 ± 0.004
03-09-04	298	0.025 ± 0.003	09-07-04	270	0.034 ± 0.004
03-16-04	299	0.020 ± 0.003	09-14-04	270	0.026 ± 0.004
03-23-04	298	0.017 ± 0.003	09-21-04	277	0.031 ± 0.004
03-30-04	299	0.016 ± 0.003	09-28-04	275	0.064 ± 0.005
1st Quarter Mean ± s.d.		<u>0.024 ± 0.007</u>	3rd Quarter Mean ± s.d.		<u>0.027 ± 0.012</u>
04-06-04	297	0.014 ± 0.003	10-05-04	275	0.034 ± 0.004
04-13-04	299	0.016 ± 0.003	10-12-04	281	0.031 ± 0.004
04-20-04	300	0.021 ± 0.003	10-19-04	276	0.026 ± 0.004
04-27-04	275	0.015 ± 0.003	10-26-04	275	0.014 ± 0.003
05-04-04	271	0.018 ± 0.004	11-02-04	271	0.027 ± 0.004
05-11-04	272	0.028 ± 0.004	11-09-04	279	0.017 ± 0.004
05-18-04	273	0.016 ± 0.004	11-16-04	276	0.027 ± 0.004
05-25-04	278	0.016 ± 0.003	11-23-04	275	0.033 ± 0.004
06-01-04	271	0.015 ± 0.003	11-30-04	276	0.021 ± 0.003
06-08-04	272	0.023 ± 0.003	12-07-04	275	0.033 ± 0.004
06-15-04	271	0.019 ± 0.004	12-14-04	277	0.020 ± 0.004
06-22-04	233	0.021 ± 0.004	12-21-04	275	0.028 ± 0.004
06-29-04	272	0.019 ± 0.003	12-28-04	274	0.029 ± 0.004
2nd Quarter Mean ± s.d.		<u>0.019 ± 0.004</u>	4th Quarter Mean ± s.d.		<u>0.026 ± 0.006</u>
Cumulative Average					0.024
Previous Annual Average					0.024

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

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

January			
Location	Average	Minima	Maxima
T-9	0.023	0.015	0.03
T-11	0.026	0.019	0.033
T-12	0.024	0.016	0.030
T-27	0.024	0.015	0.033
Controls	0.024	0.015	0.033
T-1	0.026	0.018	0.027
T-2	0.023	0.015	0.030
T-3	0.024	0.016	0.028
T-4	0.027	0.019	0.037
T-7	0.025	0.016	0.032
T-8	0.028	0.018	0.038
Indicators	0.026	0.015	0.038

April			
Location	Average	Minima	Maxima
T-9	0.019	0.016	0.023
T-11	0.014	0.012	0.018
T-12	0.018	0.017	0.022
T-27	0.017	0.014	0.021
Controls	0.017	0.012	0.023
T-1	0.017	0.013	0.021
T-2	0.018	0.014	0.023
T-3	0.017	0.014	0.023
T-4	0.018	0.014	0.023
T-7	0.016	0.012	0.020
T-8	0.017	0.014	0.020
Indicators	0.017	0.012	0.023

February			
Location	Average	Minima	Maxima
T-9	0.027	0.022	0.032
T-11	0.026	0.021	0.032
T-12	0.029	0.022	0.038
T-27	0.030	0.025	0.039
Controls	0.028	0.021	0.039
T-1	0.031	0.025	0.041
T-2	0.033	0.028	0.041
T-3	0.028	0.023	0.033
T-4	0.035	0.028	0.048
T-7	0.031	0.028	0.039
T-8	0.033	0.027	0.043
Indicators	0.032	0.023	0.048

May			
Location	Average	Minima	Maxima
T-9	0.018	0.013	0.026
T-11	0.015	0.013	0.016
T-12	0.019	0.016	0.025
T-27	0.019	0.015	0.028
Controls	0.018	0.013	0.028
T-1	0.018	0.014	0.021
T-2	0.017	0.015	0.020
T-3	0.015	0.014	0.018
T-4	0.017	0.013	0.019
T-7	0.017	0.013	0.020
T-8	0.020	0.013	0.024
Indicators	0.017	0.013	0.024

March			
Location	Average	Minima	Maxima
T-9	0.020	0.017	0.025
T-11	0.017	0.015	0.021
T-12	0.022	0.016	0.030
T-27	0.020	0.016	0.025
Controls	0.020	0.015	0.030
T-1	0.018	0.015	0.023
T-2	0.021	0.019	0.026
T-3	0.021	0.017	0.025
T-4	0.022	0.018	0.028
T-7	0.022	0.019	0.025
T-8	0.021	0.017	0.027
Indicators	0.021	0.015	0.028

June			
Location	Average	Minima	Maxima
T-9	0.018	0.015	0.021
T-11	0.016	0.013	0.017
T-12	0.019	0.016	0.022
T-27	0.021	0.019	0.023
Controls	0.018	0.013	0.023
T-1	0.018	0.014	0.021
T-2	0.018	0.015	0.022
T-3	0.017	0.015	0.020
T-4	0.019	0.015	0.022
T-7	0.019	0.016	0.022
T-8	0.018	0.014	0.024
Indicators	0.018	0.014	0.024

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

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

July				October			
Location	Average	Minima	Maxima	Location	Average	Minima	Maxima
T-9	0.020	0.016	0.029	T-9	0.024	0.011	0.040
T-11	0.021	0.016	0.028	T-11	0.023	0.016	0.027
T-12	0.020	0.017	0.027	T-12	0.018	0.012	0.025
T-27	0.022	0.017	0.026	T-27	0.026	0.014	0.034
Controls	0.021	0.016	0.029	Controls	0.023	0.011	0.040
T-1	0.022	0.016	0.033	T-1	0.021	0.013	0.025
T-2	0.020	0.015	0.031	T-2	0.022	0.015	0.028
T-3	0.020	0.015	0.026	T-3	0.024	0.018	0.030
T-4	0.018	0.013	0.024	T-4	0.021	0.014	0.027
T-7	0.021	0.017	0.029	T-7	0.021	0.014	0.029
T-8	0.022	0.018	0.026	T-8	0.026	0.019	0.034
Indicators	0.021	0.013	0.033	Indicators	0.022	0.013	0.034

August				November			
Location	Average	Minima	Maxima	Location	Average	Minima	Maxima
T-9	0.019	0.014	0.025	T-9	0.024	0.019	0.030
T-11	0.020	0.013	0.025	T-11	0.026	0.021	0.033
T-12	0.016	0.011	0.020	T-12	0.022	0.016	0.030
T-27	0.022	0.014	0.028	T-27	0.025	0.017	0.033
Controls	0.019	0.011	0.028	Controls	0.024	0.016	0.033
T-1	0.020	0.015	0.027	T-1	0.024	0.019	0.030
T-2	0.020	0.014	0.026	T-2	0.026	0.018	0.032
T-3	0.022	0.014	0.028	T-3	0.026	0.022	0.031
T-4	0.018	0.011	0.024	T-4	0.024	0.018	0.035
T-7	0.022	0.016	0.027	T-7	0.026	0.018	0.035
T-8	0.023	0.015	0.030	T-8	0.029	0.022	0.041
Indicators	0.021	0.011	0.030	Indicators	0.026	0.018	0.041

September				December			
Location	Average	Minima	Maxima	Location	Average	Minima	Maxima
T-9	0.028	0.023	0.037	T-9	0.025	0.018	0.030
T-11	0.028	0.024	0.033	T-11	0.024	0.017	0.034
T-12	0.022	0.018	0.027	T-12	0.027	0.020	0.031
T-27	0.039	0.026	0.064	T-27	0.028	0.020	0.033
Controls	0.029	0.018	0.064	Controls	0.026	0.017	0.034
T-1	0.024	0.017	0.033	T-1	0.026	0.020	0.031
T-2	0.027	0.022	0.035	T-2	0.025	0.016	0.029
T-3	0.026	0.022	0.032	T-3	0.029	0.020	0.036
T-4	0.027	0.022	0.033	T-4	0.030	0.019	0.036
T-7	0.028	0.024	0.035	T-7	0.027	0.018	0.031
T-8	0.031	0.024	0.040	T-8	0.027	0.019	0.034
Indicators	0.027	0.017	0.040	Indicators	0.027	0.016	0.036

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

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

T-1				
Location				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP-1615	TAP-3618	TAP-6058	TAP-7735
Volume (m <sup>3</sup> )	3632	3585	3740	4070
Sr-89	< 0.0005	< 0.0005	< 0.0007	< 0.0004
Sr-90	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Be-7	0.055 ± 0.012	0.066 ± 0.015	0.075 ± 0.019	0.055 ± 0.015
K-40	< 0.023	< 0.023	< 0.026	< 0.023
Nb-95	< 0.0007	< 0.0009	< 0.0014	< 0.0006
Zr-95	< 0.0010	< 0.0017	< 0.0013	< 0.0009
Ru-103	< 0.0007	< 0.0006	< 0.0009	< 0.0011
Ru-106	< 0.0042	< 0.0050	< 0.0054	< 0.0062
Cs-134	< 0.0006	< 0.0009	< 0.0008	< 0.0007
Cs-137	< 0.0007	< 0.0007	< 0.0007	< 0.0006
Ce-141	< 0.0010	< 0.0018	< 0.0014	< 0.0016
Ce-144	< 0.0048	< 0.0056	< 0.0047	< 0.0051

T-2				
Location				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP-1616	TAP-3619	TAP-6059	TAP-7736
Volume (m <sup>3</sup> )	3621	3663	3841	3513
Sr-89	< 0.0006	< 0.0007	< 0.0008	< 0.0006
Sr-90	< 0.0004	< 0.0005	< 0.0004	< 0.0006
Be-7	0.060 ± 0.013	0.078 ± 0.014	0.075 ± 0.015	0.065 ± 0.016
K-40	< 0.023	< 0.022	< 0.022	< 0.027
Nb-95	< 0.0005	< 0.0010	< 0.0008	< 0.0006
Zr-95	< 0.0007	< 0.0012	< 0.0011	< 0.0006
Ru-103	< 0.0008	< 0.0006	< 0.0005	< 0.0005
Ru-106	< 0.0058	< 0.0051	< 0.0086	< 0.0048
Cs-134	< 0.0007	< 0.0008	< 0.0008	< 0.0009
Cs-137	< 0.0007	< 0.0007	< 0.0006	< 0.0005
Ce-141	< 0.0012	< 0.0012	< 0.0019	< 0.0017
Ce-144	< 0.0051	< 0.0052	< 0.0046	< 0.0055

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

T-3				
Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Quarter	TAP-1617	TAP-3620	TAP-6060	TAP-7737
Lab Code	3228	3729	3716	3543
Volume (m <sup>3</sup> )				
Sr-89	< 0.0005	< 0.0005	< 0.0006	< 0.0006
Sr-90	< 0.0004	< 0.0004	< 0.0004	< 0.0006
Be-7	0.085 ± 0.016	0.076 ± 0.020	0.076 ± 0.016	0.064 ± 0.017
K-40	< 0.026	< 0.022	< 0.023	< 0.027
Nb-95	< 0.0009	< 0.0011	< 0.0009	< 0.0006
Zr-95	< 0.0013	< 0.0010	< 0.0009	< 0.0006
Ru-103	< 0.0007	< 0.0010	< 0.0006	< 0.0005
Ru-106	< 0.0050	< 0.0075	< 0.0040	< 0.0069
Cs-134	< 0.0009	< 0.0008	< 0.0009	< 0.0008
Cs-137	< 0.0009	< 0.0006	< 0.0007	< 0.0008
Ce-141	< 0.0016	< 0.0015	< 0.0013	< 0.0008
Ce-144	< 0.0037	< 0.0047	< 0.0034	< 0.0033

T-4				
Location	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Quarter	TAP-1618	TAP-3621	TAP-6061	TAP-7738
Lab Code	3477	3495	3583	3850
Volume (m <sup>3</sup> )				
Sr-89	< 0.0005	< 0.0005	< 0.0006	< 0.0005
Sr-90	< 0.0004	< 0.0004	< 0.0004	< 0.0004
Be-7	0.055 ± 0.016	0.071 ± 0.012	0.070 ± 0.017	0.055 ± 0.015
K-40	< 0.024	< 0.024	< 0.026	< 0.025
Nb-95	< 0.0009	< 0.0010	< 0.0010	< 0.0010
Zr-95	< 0.0010	< 0.0028	< 0.0010	< 0.0007
Ru-103	< 0.0011	< 0.0005	< 0.0007	< 0.0007
Ru-106	< 0.0078	< 0.0092	< 0.0045	< 0.0033
Cs-134	< 0.0008	< 0.0010	< 0.0008	< 0.0009
Cs-137	< 0.0008	< 0.0005	< 0.0008	< 0.0008
Ce-141	< 0.0013	< 0.0019	< 0.0016	< 0.0018
Ce-144	< 0.0062	< 0.0029	< 0.0041	< 0.0038

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

T-7				
Location				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP-1619	TAP-3622	TAP-6062	TAP-7739
Volume (m <sup>3</sup> )	3520	3714	3678	3438
Sr-89	< 0.0005	< 0.0005	< 0.0006	< 0.0005
Sr-90	< 0.0004	< 0.0004	< 0.0003	< 0.0006
Be-7	0.053 ± 0.013	0.070 ± 0.016	0.076 ± 0.022	0.057 ± 0.014
K-40	< 0.029	< 0.022	< 0.023	< 0.028
Nb-95	< 0.0005	< 0.0010	< 0.0009	< 0.0007
Zr-95	< 0.0008	< 0.0013	< 0.0020	< 0.0009
Ru-103	< 0.0008	< 0.0009	< 0.0009	< 0.0007
Ru-106	< 0.0058	< 0.0055	< 0.0059	< 0.0061
Cs-134	< 0.0007	< 0.0007	< 0.0007	< 0.0008
Cs-137	< 0.0007	< 0.0005	< 0.0005	< 0.0010
Ce-141	< 0.0013	< 0.0017	< 0.0009	< 0.0009
Ce-144	< 0.0045	< 0.0047	< 0.0037	< 0.0061

T-8				
Location				
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Lab Code	TAP-1620	TAP-3623	TAP-6063	TAP-7740
Volume (m <sup>3</sup> )	3559	3613	3598	3616
Sr-89	< 0.0005	< 0.0006	< 0.0008	< 0.0006
Sr-90	< 0.0004	< 0.0005	< 0.0005	< 0.0005
Be-7	0.064 ± 0.014	0.079 ± 0.014	0.078 ± 0.018	0.068 ± 0.018
K-40	< 0.029	< 0.023	< 0.024	< 0.026
Nb-95	< 0.0008	< 0.0009	< 0.0009	< 0.0007
Zr-95	< 0.0017	< 0.0014	< 0.0014	< 0.0006
Ru-103	< 0.0007	< 0.0008	< 0.0014	< 0.0006
Ru-106	< 0.0074	< 0.0075	< 0.0042	< 0.0052
Cs-134	< 0.0007	< 0.0005	< 0.0008	< 0.0009
Cs-137	< 0.0007	< 0.0007	< 0.0006	< 0.0007
Ce-141	< 0.0018	< 0.0014	< 0.0009	< 0.0021
Ce-144	< 0.0045	< 0.0025	< 0.0047	< 0.0028

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

Location		T-9 (C)			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
Lab Code	TAP-1621	TAP-3624	TAP-6064	TAP-7741,2	
Volume (m <sup>3</sup> )	3966	3651	3651	3626	
Sr-89	< 0.0005	< 0.0006	< 0.0008	< 0.0012	
Sr-90	< 0.0004	< 0.0004	< 0.0004	< 0.0011	
Be-7	0.051 ± 0.015	0.073 ± 0.018	0.061 ± 0.014	0.055 ± 0.012	
K-40	< 0.021	< 0.023	< 0.023	< 0.026	
Nb-95	< 0.0006	< 0.0008	< 0.0013	< 0.0007	
Zr-95	< 0.0010	< 0.0017	< 0.0011	< 0.0009	
Ru-103	< 0.0007	< 0.0007	< 0.0008	< 0.0006	
Ru-106	< 0.0061	< 0.0075	< 0.0051	< 0.0037	
Cs-134	< 0.0006	< 0.0007	< 0.0011	< 0.0007	
Cs-137	< 0.0006	< 0.0010	< 0.0006	< 0.0005	
Ce-141	< 0.0012	< 0.0007	< 0.0022	< 0.0010	
Ce-144	< 0.0049	< 0.0044	< 0.0047	< 0.0044	

Location		T-11 (C)			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
Lab Code	TAP-1622	TAP-3625	TAP-6065	TAP-7743	
Volume (m <sup>3</sup> )	3979	4068	3703	3685	
Sr-89	< 0.0006	< 0.0005	< 0.0007	< 0.0005	
Sr-90	< 0.0003	< 0.0004	< 0.0004	< 0.0005	
Be-7	0.046 ± 0.011	0.069 ± 0.011	0.073 ± 0.017	0.067 ± 0.015	
K-40	< 0.021	< 0.020	< 0.024	< 0.026	
Nb-95	< 0.0006	< 0.0006	< 0.0010	< 0.0006	
Zr-95	< 0.0012	< 0.0013	< 0.0013	< 0.0011	
Ru-103	< 0.0005	< 0.0006	< 0.0004	< 0.0007	
Ru-106	< 0.0051	< 0.0062	< 0.0049	< 0.0021	
Cs-134	< 0.0007	< 0.0009	< 0.0010	< 0.0008	
Cs-137	< 0.0007	< 0.0007	< 0.0007	< 0.0005	
Ce-141	< 0.0014	< 0.0017	< 0.0013	< 0.0016	
Ce-144	< 0.0049	< 0.0030	< 0.0034	< 0.0056	



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

Location		T-12 (C)			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
Lab Code	TAP-1623	TAP-3626	TAP-6066	TAP-7744	
Volume (m <sup>3</sup> )	3669	3644	4205	4191	
Sr-89	< 0.0005	< 0.0007	< 0.0006	< 0.0005	
Sr-90	< 0.0004	< 0.0005	< 0.0003	< 0.0004	
Be-7	0.054 ± 0.016	0.072 ± 0.014	0.063 ± 0.013	0.056 ± 0.012	
K-40	< 0.023	< 0.023	< 0.020	< 0.023	
Nb-95	< 0.0006	< 0.0010	< 0.0010	< 0.0008	
Zr-95	< 0.0011	< 0.0012	< 0.0014	< 0.0012	
Ru-103	< 0.0010	< 0.0010	< 0.0004	< 0.0012	
Ru-106	< 0.0053	< 0.0052	< 0.0040	< 0.0037	
Cs-134	< 0.0007	< 0.0008	< 0.0006	< 0.0007	
Cs-137	< 0.0006	< 0.0006	< 0.0004	< 0.0006	
Ce-141	< 0.0017	< 0.0014	< 0.0011	< 0.0013	
Ce-144	< 0.0052	< 0.0041	< 0.0049	< 0.0031	

Location		T-27 (C)			
Quarter	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
Lab Code	TAP-1624	TAP-3627	TAP-6067	TAP-7745	
Volume (m <sup>3</sup> )	3905	3584	3538	3585	
Sr-89	< 0.0005	< 0.0006	< 0.0007	< 0.0005	
Sr-90	< 0.0004	< 0.0004	< 0.0004	< 0.0005	
Be-7	0.050 ± 0.016	0.080 ± 0.014	0.087 ± 0.018	0.065 ± 0.016	
K-40	< 0.022	< 0.023	< 0.025	< 0.026	
Nb-95	< 0.0007	< 0.0009	< 0.0010	< 0.0015	
Zr-95	< 0.0012	< 0.0014	< 0.0010	< 0.0019	
Ru-103	< 0.0006	< 0.0005	< 0.0005	< 0.0006	
Ru-106	< 0.0044	< 0.0088	< 0.0063	< 0.0037	
Cs-134	< 0.0006	< 0.0005	< 0.0010	< 0.0010	
Cs-137	< 0.0009	< 0.0005	< 0.0007	< 0.0006	
Ce-141	< 0.0008	< 0.0017	< 0.0019	< 0.0012	
Ce-144	< 0.0044	< 0.0047	< 0.0055	< 0.0045	

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

<u>Indicator</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
T-1	11.4 ± 1.0	10.6 ± 0.5	11.6 ± 0.7	11.1 ± 0.6
T-2	13.4 ± 1.0	12.1 ± 0.4	14.2 ± 1.0	12.8 ± 0.6
T-3	13.7 ± 1.2	12.2 ± 0.6	13.8 ± 0.7	12.8 ± 0.7
T-4	12.5 ± 1.0	11.0 ± 0.3	12.9 ± 0.4	11.7 ± 0.4
T-5	14.7 ± 1.1	13.1 ± 0.3	14.9 ± 0.6	13.9 ± 0.5
T-6	12.7 ± 1.2	11.1 ± 0.3	13.1 ± 0.7	11.8 ± 0.6
T-7	18.2 ± 1.0	17.1 ± 0.4	19.0 ± 0.4	17.0 ± 0.6
T-8	22.2 ± 1.7	19.6 ± 0.4	23.1 ± 1.2	20.1 ± 0.5
T-10	15.3 ± 1.1	14.2 ± 0.4	16.4 ± 0.7	14.7 ± 0.6
T-38	11.4 ± 0.9	11.8 ± 0.8	11.8 ± 0.3	12.1 ± 1.0
T-39	12.9 ± 1.1	12.0 ± 0.4	12.9 ± 0.7	12.1 ± 0.5
T-40	15.4 ± 1.1	14.1 ± 0.4	16.1 ± 0.4	14.5 ± 0.6
T-41	14.2 ± 1.0	12.9 ± 0.4	15.8 ± 0.4	13.6 ± 0.6
T-42	13.0 ± 1.1	11.6 ± 0.5	13.4 ± 1.1	12.0 ± 0.7
T-43	16.9 ± 1.2	15.6 ± 0.5	17.8 ± 0.8	15.2 ± 0.5
T-44	18.2 ± 1.4	17.1 ± 0.6	20.3 ± 0.9	17.6 ± 0.7
T-45	20.4 ± 1.2	19.6 ± 0.6	23.1 ± 0.4	19.7 ± 0.8
T-46	13.6 ± 1.3	12.3 ± 1.3	14.2 ± 0.9	12.1 ± 0.9
T-47	11.1 ± 1.2	8.1 ± 0.4	11.5 ± 0.7	8.2 ± 0.5
T-48	12.7 ± 0.9	10.9 ± 0.4	13.4 ± 0.4	11.0 ± 0.5
T-49	13.1 ± 1.0	11.1 ± 0.4	14.0 ± 0.6	10.8 ± 0.5
T-50	15.8 ± 1.6	18.9 ± 1.1	ND <sup>a</sup>	14.7 ± 1.1
T-51	15.6 ± 1.8	16.9 ± 1.3	17.8 ± 1.3	15.6 ± 1.2
T-52	16.6 ± 1.3	17.3 ± 0.6	20.1 ± 1.1	16.1 ± 0.6
T-53	15.1 ± 0.9	16.8 ± 0.7	17.9 ± 0.5	15.9 ± 0.6
T-54	16.5 ± 1.0	18.3 ± 1.1	19.5 ± 0.6	16.7 ± 1.1
T-55	13.4 ± 1.5	15.0 ± 0.4	15.6 ± 0.9	14.4 ± 0.6
T-60	9.4 ± 0.6	11.6 ± 1.3	12.0 ± 0.7	11.6 ± 1.4
T-62	10.3 ± 0.7	11.9 ± 0.6	11.5 ± 0.4	11.3 ± 0.6
T-65	15.9 ± 0.6	17.6 ± 0.6	17.9 ± 0.8	16.1 ± 0.7
T-66	14.7 ± 0.5	17.7 ± 1.0	17.8 ± 0.4	16.6 ± 1.0
T-67	18.3 ± 0.7	19.4 ± 0.7	21.2 ± 0.6	17.9 ± 0.7
T-68	16.7 ± 0.6	18.6 ± 0.7	20.6 ± 0.5	17.2 ± 0.9
T-69	15.4 ± 0.5	18.1 ± 0.4	18.3 ± 0.7	16.8 ± 0.5
T-71	11.2 ± 0.5	16.8 ± 0.8	16.1 ± 0.3	15.3 ± 0.9
T-73	14.2 ± 1.2	16.6 ± 1.0	16.5 ± 1.0	13.8 ± 0.9
T-74	15.5 ± 0.6	19.0 ± 1.1	16.8 ± 0.5	15.4 ± 1.0
T-75	13.9 ± 0.5	16.6 ± 0.4	16.8 ± 0.4	14.3 ± 0.5
T-76	10.5 ± 0.5	13.0 ± 0.7	12.3 ± 0.4	11.4 ± 0.5
T-91	16.3 ± 0.9	19.1 ± 0.8	19.9 ± 0.9	16.7 ± 1.0
T-92	12.8 ± 0.5	15.8 ± 0.4	14.8 ± 0.4	13.8 ± 0.5

<sup>a</sup> "ND" = No data; TLD missing.

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

<u>Indicator</u>	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
T-93	13.7 ± 0.6	16.1 ± 0.6	15.8 ± 0.5	14.0 ± 0.6
T-94	14.9 ± 0.7	17.5 ± 0.8	18.7 ± 0.9	15.6 ± 1.0
T-112	12.1 ± 0.5	15.2 ± 0.6	15.4 ± 0.5	13.5 ± 0.8
T-121	14.7 ± 1.1	20.0 ± 0.9	20.6 ± 1.2	17.1 ± 0.8
T-122	13.6 ± 1.3	15.9 ± 0.5	16.3 ± 1.2	13.9 ± 0.7
T-123	17.3 ± 1.0	19.7 ± 0.5	19.0 ± 0.7	16.3 ± 0.7
T-125	14.8 ± 1.2	17.4 ± 0.4	18.0 ± 1.1	15.7 ± 0.5
T-126	14.6 ± 0.5	15.9 ± 0.8	17.5 ± 0.5	14.9 ± 0.9
T-127	17.1 ± 0.6	20.1 ± 0.8	21.3 ± 0.7	17.5 ± 0.8
T-128	17.5 ± 1.5	19.4 ± 0.5	21.1 ± 1.5	17.5 ± 0.6
T-142	11.6 ± 0.5	11.5 ± 0.5	13.1 ± 0.9	11.5 ± 0.5
T-150	12.9 ± 0.9	13.1 ± 0.6	13.2 ± 0.9	12.3 ± 0.7
T-151	15.6 ± 1.0	17.3 ± 0.8	18.4 ± 0.8	15.9 ± 0.7
T-153	15.1 ± 0.5	14.8 ± 0.4	19.3 ± 0.5	13.5 ± 1.0
T-154	12.8 ± 0.8	14.2 ± 0.7	15.1 ± 0.8	12.8 ± 0.8
T-201	13.2 ± 0.8	13.7 ± 0.6	14.3 ± 0.7	13.6 ± 0.5
T-202	13.3 ± 1.2	14.3 ± 0.8	14.3 ± 0.9	13.9 ± 0.8
T-203	12.6 ± 0.9	14.5 ± 1.2	14.6 ± 0.9	14.1 ± 1.0
T-204	11.3 ± 0.9	12.7 ± 0.7	12.7 ± 0.7	12.2 ± 0.8
T-205	10.6 ± 0.9	11.8 ± 0.6	11.8 ± 0.7	11.4 ± 0.6
T-206	8.9 ± 0.9	10.6 ± 0.7	10.0 ± 0.6	10.5 ± 0.6
T-207	8.3 ± 0.9	8.8 ± 0.6	9.8 ± 0.7	8.8 ± 0.5
T-208	9.2 ± 1.5	10.6 ± 0.5	10.6 ± 1.3	10.5 ± 0.5
T-211	10.1 ± 0.5	7.9 ± 1.3	10.9 ± 0.3	9.2 ± 0.4
T-212	9.5 ± 0.4	9.5 ± 1.4	10.3 ± 0.3	10.8 ± 0.6
T-213	14.9 ± 0.5	15.0 ± 1.3	18.3 ± 0.6	15.6 ± 0.4
T-214	14.7 ± 0.5	15.3 ± 1.4	18.1 ± 0.6	15.5 ± 0.6
T-215	17.1 ± 0.8	14.7 ± 1.3	19.0 ± 0.8	15.4 ± 0.6
T-216	15.7 ± 0.7	14.5 ± 1.6	17.9 ± 0.7	15.4 ± 1.0
T-217	16.2 ± 0.7	16.9 ± 1.7	20.8 ± 0.7	17.2 ± 1.4
T-218	16.5 ± 0.8	17.6 ± 1.5	21.5 ± 0.9	17.6 ± 0.7
T-219	14.1 ± 0.8	15.1 ± 1.7	17.0 ± 0.8	15.4 ± 1.1
T-220	15.8 ± 0.9	17.0 ± 1.9	19.6 ± 0.8	17.0 ± 1.6
T-222	10.4 ± 0.6	10.3 ± 1.4	11.5 ± 0.5	10.3 ± 0.4
T-223	10.3 ± 0.4	12.8 ± 1.3	12.2 ± 0.5	13.3 ± 0.5
T-224	14.2 ± 0.5	14.0 ± 1.3	17.7 ± 0.4	13.7 ± 0.6
Mean ± s.d.	14.0 ± 2.7	14.8 ± 3.1	16.1 ± 3.4	14.2 ± 2.5

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

	<u>1st Qtr.</u>	<u>2nd Qtr.</u>	<u>3rd Qtr.</u>	<u>4th Qtr.</u>
<u>Control</u>				
T-9	13.2 ± 1.0	12.4 ± 0.5	13.7 ± 0.6	12.9 ± 0.6
T-11	13.0 ± 0.9	11.7 ± 0.7	13.2 ± 0.5	11.9 ± 0.5
T-12	18.2 ± 1.1	18.9 ± 0.8	19.3 ± 0.6	18.1 ± 0.8
T-24	17.4 ± 1.2	17.6 ± 0.3	17.9 ± 0.8	17.0 ± 0.4
T-27	16.9 ± 1.1	18.7 ± 0.6	19.7 ± 0.9	17.8 ± 0.6
Mean ± s.d.	15.7 ± 2.5	15.9 ± 3.5	16.8 ± 3.1	15.5 ± 2.9
T-95	13.6 ± 0.8	17.7 ± 0.6	18.4 ± 0.8	15.3 ± 0.5
T-100	12.2 ± 1.1	16.3 ± 0.7	17.0 ± 1.2	14.3 ± 0.7
T-111	12.3 ± 1.2	18.6 ± 0.7	17.3 ± 1.3	16.1 ± 0.6
T-124	14.8 ± 1.0	14.9 ± 1.2	16.9 ± 0.9	13.3 ± 1.2
T-155	11.5 ± 0.7	13.0 ± 0.6	13.9 ± 1.2	11.6 ± 0.7
T-221	12.7 ± 0.6	14.4 ± 1.6	15.4 ± 0.9	15.1 ± 1.1
Mean ± s.d.	12.9 ± 1.2	15.8 ± 2.1	16.5 ± 1.6	14.3 ± 1.6
<u>QC</u>				
T-80	8.1 ± 0.5	10.5 ± 0.4	10.0 ± 0.4	10.0 ± 0.4
T-81	13.2 ± 0.8	15.3 ± 0.7	15.4 ± 0.6	14.2 ± 0.6
T-82	8.7 ± 0.5	10.1 ± 0.6	10.0 ± 0.3	9.6 ± 0.6
T-83	9.9 ± 0.6	11.9 ± 0.8	11.8 ± 0.5	11.4 ± 0.8
T-84	9.6 ± 0.7	10.9 ± 0.4	11.3 ± 0.6	10.3 ± 0.4
T-85	13.3 ± 0.8	15.3 ± 1.0	14.5 ± 0.6	12.9 ± 0.9
T-86	17.5 ± 0.9	20.5 ± 1.0	21.4 ± 0.9	18.9 ± 1.0
T-88	14.4 ± 1.1	21.4 ± 0.9	ND <sup>a</sup>	16.0 ± 0.8
T-89	13.6 ± 0.5	19.1 ± 0.9	17.4 ± 0.6	16.9 ± 0.8
T-113	12.3 ± 0.5	15.9 ± 0.5	15.7 ± 0.6	14.1 ± 0.6
T-114	10.9 ± 0.6	14.0 ± 0.6	14.7 ± 0.5	12.0 ± 0.6
T-115	11.0 ± 0.6	15.6 ± 0.5	ND <sup>a</sup>	13.2 ± 0.5
T-116	10.6 ± 0.5	15.6 ± 0.8	15.3 ± 0.5	14.0 ± 0.6
T-117	10.6 ± 1.2	14.0 ± 1.3	14.6 ± 1.2	12.2 ± 1.1
T-118	12.0 ± 0.5	16.4 ± 0.6	17.8 ± 0.6	14.4 ± 0.6
T-119	11.6 ± 0.7	13.4 ± 0.5	14.5 ± 0.7	11.8 ± 0.5
T-120	11.7 ± 0.7	12.7 ± 0.5	13.8 ± 0.5	11.6 ± 0.6
T-200	12.0 ± 0.9	12.8 ± 0.8	13.2 ± 0.7	13.2 ± 0.9
Mean ± s.d.	11.7 ± 2.2	14.7 ± 3.2	14.5 ± 2.9	13.2 ± 2.4
<u>Shield</u>				
T-87	6.6 ± 0.6	8.2 ± 0.6	7.2 ± 0.5	7.6 ± 0.7

<sup>a</sup> "ND" = No data; TLD missing.

TOLEDO

Table 14. Area monitors (TLD), Annual.

Units: mR/365 days

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<u>Indicator</u>	<u>2004</u>
T-1	41.0 ± 1.8
T-2	44.6 ± 1.5
T-3	48.2 ± 3.0
T-4	45.3 ± 1.5
T-5	52.5 ± 1.8
T-6	44.4 ± 1.6
T-7	71.6 ± 2.3
T-8	92.7 ± 7.2
T-10	59.9 ± 1.5
T-38	49.2 ± 1.5
T-39	50.5 ± 1.6
T-40	63.3 ± 2.7
T-41	56.8 ± 1.8
T-42	51.8 ± 1.6
T-43	65.3 ± 2.1
T-44	78.8 ± 1.5
T-45	79.2 ± 2.0
T-46	49.9 ± 1.9
T-47	46.5 ± 1.7
T-48	58.2 ± 1.5
T-49	60.4 ± 2.2
T-50	ND <sup>a</sup>
T-51	73.5 ± 3.7
T-52	74.2 ± 2.4
T-53	68.5 ± 3.2
T-54	79.0 ± 2.4
T-55	63.9 ± 2.4
T-60	47.8 ± 2.5
T-62	44.1 ± 1.4
T-65	77.8 ± 5.2
T-66	68.1 ± 1.3
T-67	82.0 ± 2.1
T-68	76.1 ± 0.4
T-69	73.6 ± 1.5
T-71	61.1 ± 1.6
T-73	62.8 ± 2.0
T-74	69.7 ± 2.0
T-75	65.5 ± 1.4
T-76	48.9 ± 1.6
T-91	76.3 ± 6.3
T-92	58.5 ± 1.1

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<sup>a</sup> "ND" = No data; TLD missing in field.

TOLEDO

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

<u>Indicator</u>	<u>2004</u>
T-93	58.0 ± 1.2
T-94	70.8 ± 1.1
T-112	60.9 ± 5.0
T-121	77.0 ± 3.4
T-122	60.5 ± 2.2
T-123	77.6 ± 3.1
T-125	72.6 ± 2.9
T-126	43.3 ± 2.9
T-127	82.9 ± 2.8
T-128	78.3 ± 1.3
T-142	45.9 ± 1.1
T-150	56.7 ± 2.0
T-151	74.6 ± 4.2
T-153	71.6 ± 3.2
T-154	ND <sup>a</sup>
T-201	49.8 ± 3.9
T-202	52.6 ± 3.6
T-203	53.5 ± 4.5
T-204	49.0 ± 4.3
T-205	48.0 ± 3.6
T-206	39.4 ± 4.0
T-207	34.8 ± 3.8
T-208	42.7 ± 3.9
T-211	41.9 ± 3.1
T-212	39.4 ± 1.1
T-213	68.1 ± 3.7
T-214	64.6 ± 1.9
T-215	72.0 ± 2.6
T-216	67.7 ± 2.4
T-217	-73.5 ± 2.0
T-218	-73.5 ± 1.9
T-219	-62.4 ± 2.9
T-220	-75.2 ± 3.0
T-222	-51.5 ± 1.3
T-223	-47.9 ± 1.9
T-224	-75.4 ± 2.4
Mean ± s.d.	61.3 ± 13.4

<sup>a</sup> "ND" = No data; TLD missing in field.

TOLEDO

Table 14. Area monitors (TLD), Annual.

Units: mR/365 days

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<u>Control</u>	<u>2004</u>
T-9	50.6 ± 2.0
T-11	52.9 ± 4.2
T-12	76.7 ± 1.5
T-24	77.0 ± 2.0
T-27	79.5 ± 1.8
Mean ± s.d.	67.3 ± 14.3
T-95	72.5 ± 1.3
T-100	64.8 ± 1.8
T-111	71.8 ± 2.7
T-124	56.3 ± 1.5
T-155	58.4 ± 2.4
T-221	63.9 ± 2.4
Mean ± s.d.	64.6 ± 6.7
<u>QC</u>	
T-80	44.8 ± 2.3
T-81	63.0 ± 1.6
T-82	42.6 ± 1.9
T-83	48.4 ± 2.9
T-84	45.8 ± 2.6
T-85	59.7 ± 1.0
T-86	86.3 ± 2.7
T-88	ND <sup>a</sup>
T-89	68.3 ± 1.7
T-113	63.4 ± 1.0
T-114	56.3 ± 1.3
T-115	63.5 ± 3.5
T-116	65.3 ± 1.9
T-117	51.8 ± 1.1
T-118	69.1 ± 1.8
T-119	56.4 ± 2.6
T-120	53.0 ± 1.8
T-200	48.1 ± 4.8
Mean ± s.d.	58.0 ± 11.2
<u>Shield</u>	
T-87	28.0 ± 1.3

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<sup>a</sup>"ND" = No data; TLD missing in field.

TOLEDO

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	01-28-04	02-25-04	03-31-04	04-28-04
Lab Code	TMI-407	TMI-770	TMI-1276	TMI-1925
I-131	< 0.4	< 0.4	< 0.3	< 0.2
Sr-89	< 0.5	< 0.5	< 0.5	< 0.5
Sr-90	0.9 ± 0.3	< 0.7	0.7 ± 0.3	1.1 ± 0.4
K-40	1314 ± 172	1439 ± 206	1383 ± 111	1268 ± 181
Cs-134	< 3.7	< 8.2	< 3.6	< 5.1
Cs-137	< 4.2	< 3.5	< 3.6	< 4.4
Ba-La-140	< 4.3	< 5.4	< 1.7	< 5.2
Ca (g/L)	0.91	0.97	0.91	1.01
Sr-90/g Ca	0.99	< 0.72	0.77	1.09
K (g/L)	1.52 ± 0.20	1.66 ± 0.24	1.60 ± 0.13	1.47 ± 0.21
Cs-137/g K	< 2.76	< 2.10	< 2.25	< 3.00
Date Collected	05-26-04	06-16-04	07-28-04	09-01-04
Lab Code	TMI-2530	TMI-3003	TMI-4163,4	TMI-4863
I-131	< 0.2	< 0.4	< 0.3	< 0.4
Sr-89	< 0.5	< 0.6	< 0.5	< 0.7
Sr-90	1.1 ± 0.4	0.7 ± 0.3	0.9 ± 0.2	1.1 ± 0.4
K-40	1327 ± 191	1135 ± 167	1377 ± 130	1320 ± 188
Cs-134	< 5.2	< 7.9	< 5.6	< 4.2
Cs-137	< 6.3	< 7.2	< 4.5	< 6.8
Ba-La-140	< 7.5	< 3.8	< 7.8	< 4.4
Ca (g/L)	0.90	0.88	0.90	1.01
Sr-90/g Ca	1.22	0.80	1.00	1.09
K (g/L)	1.53 ± 0.22	1.31 ± 0.19	1.59 ± 0.15	1.53 ± 0.22
Cs-137/g K	< 4.11	< 5.49	< 2.83	< 4.46
Date Collected	09-29-04	10-27-04	12-01-04	12-27-04
Lab Code	TMI-5473	TMI-6381	TMI-7061	TMI-7496
I-131	< 0.3	< 0.3	< 0.3	< 0.4
Sr-89	< 0.6	< 0.5	< 0.6	< 0.8
Sr-90	1.4 ± 0.4	0.8 ± 0.3	2.5 ± 0.5	0.7 ± 0.4
K-40	1434 ± 181	1266 ± 173	1384 ± 172	1455 ± 116
Cs-134	< 9.8	< 7.4	< 7.4	< 4.3
Cs-137	< 5.4	< 9.9	< 5.1	< 3.2
Ba-La-140	< 11.7	< 6.8	< 4.7	< 3.3
Ca (g/L)	1.05	0.99	1.05	1.02
Sr-90/g Ca	1.33	0.81	2.38	0.69
K (g/L)	1.66 ± 0.21	1.46 ± 0.20	1.60 ± 0.20	1.68 ± 0.13
Cs-137/g K	< 3.26	< 6.76	< 3.19	< 1.90



TOLEDO

Table 16. Ground water samples, analyses for gross beta, tritium, strontium-89, strontium-90 and gamma-emitting isotopes.  
Collection: Quarterly  
Units: pCi/L

Period	01-15-04	04-05-04	06-29-04	08-04-04	10-01-04	
Location	T-27 (C)					
Lab Code	TWW-276	TWW-1485	TWW-3507	TWW-4411	TWW-5625	Req. LLD
Gross beta	< 3.6	< 4.0	5.7 ± 2.0	< 3.3	< 3.6	4.0
H-3	< 330	< 330	< 330	< 330	< 330	330
Sr-89	< 0.7	< 0.5	< 0.6	< 0.7	< 0.8	
Sr-90	< 0.8	0.7 ± 0.3	< 0.5	< 0.6	< 0.7	
Mn-54	< 1.9	< 6.0	< 2.6	< 3.8	< 4.1	15
Fe-59	< 6.3	< 12.0	< 3.0	< 9.8	< 8.4	30
Co-58	< 2.0	< 5.7	< 3.4	< 4.0	< 2.6	15
Co-60	< 1.0	< 6.3	< 2.9	< 5.3	< 4.1	15
Zn-65	< 2.6	< 5.6	< 3.4	< 7.8	< 5.5	30
Zr-Nb-95	< 4.3	< 3.1	< 2.6	< 6.4	< 3.7	15
Cs-134	< 3.6	< 4.2	< 3.6	< 3.8	< 3.9	15
Cs-137	< 2.5	< 4.8	< 3.2	< 5.1	< 3.7	18
Ba-La-140	< 4.7	< 3.8	< 5.9	< 4.9	< 10.0	15

Location	T-225 (I)					
Lab Code	TWW-278	TWW-1487 <sup>a,b</sup>	TWW-3509 <sup>b</sup>	TWW-4412	TWW-5627	Req. LLD
Gross beta	3.5 ± 1.7	10.0 ± 3.9	3.3 ± 1.7	4.0 ± 1.8	2.4 ± 1.3	4.0
H-3	< 330	< 330	< 330	< 330	< 330	330
Sr-89	< 0.9	< 0.7	< 0.7	< 0.7	< 0.7	
Sr-90	0.8 ± 0.4	< 0.5	< 0.6	< 0.6	< 0.6	
Mn-54	< 5.2	< 5.0	< 5.4	< 3.9	< 3.5	15
Fe-59	< 11.9	< 11.2	< 6.7	< 9.0	< 10.2	30
Co-58	< 5.8	< 4.7	< 4.0	< 3.6	< 3.8	15
Co-60	< 3.9	< 5.6	< 5.5	< 5.7	< 3.2	15
Zn-65	< 5.3	< 8.6	< 6.4	< 3.8	< 7.6	30
Zr-Nb-95	< 7.0	< 6.5	< 8.6	< 4.3	< 4.2	15
Cs-134	< 3.9	< 4.5	< 3.3	< 4.8	< 5.5	15
Cs-137	< 4.6	< 4.7	< 4.2	< 3.2	< 3.5	18
Ba-La-140	< 8.9	< 5.9	< 7.7	< 6.1	< 10.1	15

<sup>a</sup> Gross beta repeated with a result of 9.2±5.1 pCi/L. <sup>b</sup> Sample taken from alternate location, T-226.

TOLEDO

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

Collection: Quarterly

Units: pCi/L

Period	01-15-04	04-05-04	06-29-04	10-01-04	
Location	T-141 (QC)				
Lab Code	TWW-277	TWW-1486 <sup>a</sup>	TWW-3508	TWW-5626	Req. LLD
Gross beta	< 3.3	10.4 ± 3.1	2.9 ± 2.0	< 3.1	4.0
H-3	< 330	< 330	< 330	< 330	330
Sr-89	< 0.9	< 0.5	< 0.6	< 0.8	
Sr-90	< 0.7	0.6 ± 0.3	< 0.7	< 0.6	
Mn-54	< 3.3	< 1.6	< 5.5	< 6.3	15
Fe-59	< 5.0	< 5.7	< 9.3	< 10.0	30
Co-58	< 3.2	< 2.6	< 5.2	< 3.4	15
Co-60	< 3.0	< 2.4	< 6.6	< 5.1	15
Zn-65	< 3.8	< 4.1	< 7.0	< 10.2	30
Zr-Nb-95	< 4.1	< 6.6	< 5.6	< 9.3	15
Cs-134	< 2.9	< 2.3	< 5.2	< 5.5	15
Cs-137	< 3.8	< 5.8	< 6.5	< 5.8	18
Ba-La-140	< 6.1	< 8.0	< 5.3	< 13.7	15

<sup>a</sup> Gross beta repeated with a result of 10.0±5.5 pCi/L.

TOLEDO

Table 17. Domestic meat, analyses for gamma-emitting isotopes.

Collection: Annually

Units: pCi/g wet

Location	T-34 (C)	T-197 (I)
Lab Code	TME-4403	TME-4404
Date Collected	8/3/2004	7/28/2004
Sample Type	Chicken	Chicken
Be-7	< 0.09	< 0.07
K-40	2.61 ± 0.33	3.04 ± 0.34
Nb-95	< 0.019	< 0.014
Zr-95	< 0.026	< 0.035
Ru-103	< 0.020	< 0.012
Ru-106	< 0.089	< 0.059
Cs-134	< 0.015	< 0.007
Cs-137	< 0.014	< 0.009
Ce-141	< 0.055	< 0.028
Ce-144	< 0.086	< 0.078

TOLEDO

Table 18. Wild meat, analyses for gamma-emitting isotopes.  
 Collection: Annually  
 Units: pCi/g wet

Location	T-31(I)	T-31(I)	T-31(I)	T-210 (C)
Lab Code	TWL-7492	TWL-7493	TWL-7494	TWL-7495
Date Collected	11/11/2004	11/15/2004	11/18/2004	12/7/2004
Sample Type	Muskrat	Muskrat	Muskrat	Muskrat
Be-7	< 0.43	< 0.46	< 0.34	< 0.17
K-40	2.55 ± 0.47	2.38 ± 0.47	1.88 ± 0.30	2.62 ± 0.33
Nb-95	< 0.073	< 0.058	< 0.047	< 0.027
Zr-95	< 0.078	< 0.059	< 0.059	< 0.015
Ru-103	< 0.072	< 0.055	< 0.043	< 0.025
Ru-106	< 0.134	< 0.120	< 0.109	< 0.104
Cs-134	< 0.022	< 0.030	< 0.010	< 0.012
Cs-137	< 0.022	< 0.019	< 0.013	< 0.011
Ce-141	< 0.095	< 0.126	< 0.111	< 0.066
Ce-144	< 0.109	< 0.126	< 0.077	< 0.103

TOLEDO

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-17 (I)		
Lab Code	TVE-4407	TVE-4864	TVE-5475	
Date Collected	8/5/2004	9/1/2004	9/27/2004	
Sample Type	Cabbage	Cabbage	Cabbage	
Sr-89	< 0.002	< 0.002	< 0.003	
Sr-90	< 0.001	0.003 ± 0.001	< 0.002	
I-131	< 0.012	< 0.022	< 0.022	
K-40	1.88 ± 0.29	1.83 ± 0.33	1.99 ± 0.44	
Nb-95	< 0.007	< 0.014	< 0.016	
Zr-95	< 0.031	< 0.011	< 0.028	
Cs-134	< 0.011	< 0.006	< 0.016	
Cs-137	< 0.012	< 0.011	< 0.016	
Ce-141	< 0.031	< 0.015	< 0.023	
Ce-144	< 0.096	< 0.099	< 0.060	

Location		T-19 (I)		
Lab Code	TVE-4408,9	TVE-4865	TVE-5476	
Date Collected	8/5/2004	9/1/2004	9/27/2004	
Sample Type	Cabbage	Cabbage	Cabbage	
Sr-89	< 0.002	< 0.003	< 0.004	
Sr-90	< 0.001	< 0.002	< 0.001	
I-131	< 0.019	< 0.028	< 0.021	
K-40	2.08 ± 0.25	2.20 ± 0.39	2.13 ± 0.39	
Nb-95	< 0.007	< 0.016	< 0.013	
Zr-95	< 0.024	< 0.024	< 0.025	
Cs-134	< 0.011	< 0.015	< 0.015	
Cs-137	< 0.014	< 0.011	< 0.016	
Ce-141	< 0.027	< 0.031	< 0.027	
Ce-144	< 0.098	< 0.101	< 0.107	

Location		T-37 (C)		
Lab Code	TVE-4410	TVE-4866	TVE-5478	
Date Collected	8/3/2004	8/31/2004	9/27/2004	
Sample Type	Cabbage	Cabbage	Cabbage	
Sr-89	< 0.003	< 0.004	< 0.002	
Sr-90	0.002 ± 0.001	0.004 ± 0.002	< 0.001	
I-131	< 0.015	< 0.010	< 0.020	
K-40	1.81 ± 0.27	1.34 ± 0.20	1.76 ± 0.30	
Nb-95	< 0.006	< 0.007	< 0.006	
Zr-95	< 0.010	< 0.008	< 0.031	
Cs-134	< 0.011	< 0.008	< 0.012	
Cs-137	< 0.011	< 0.008	< 0.016	
Ce-141	< 0.014	< 0.013	< 0.014	
Ce-144	< 0.044	< 0.057	< 0.094	

TOLEDO

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-5474	TVE-5477
Date Collected	9/22/2004	9/22/2004
Sample Type	Apples	Apples
Sr-89	< 0.002	< 0.007
Sr-90	0.005 ± 0.001	< 0.002
I-131	< 0.030	< 0.033
K-40	1.04 ± 0.25	1.19 ± 0.29
Nb-95	< 0.013	< 0.023
Zr-95	< 0.020	< 0.022
Cs-134	< 0.011	< 0.014
Cs-137	< 0.012	< 0.013
Ce-141	< 0.028	< 0.035
Ce-144	< 0.089	< 0.121

Location	T-209 (C)
Lab Code	TVE-5479
Date Collected	9/21/2004
Sample Type	Apples
Sr-89	< 0.001
Sr-90	< 0.001
I-131	< 0.032
K-40	1.24 ± 0.31
Nb-95	< 0.020
Zr-95	< 0.037
Cs-134	< 0.016
Cs-137	< 0.013
Ce-141	< 0.018
Ce-144	< 0.063

TOLEDO

Table 21. Animal - wildlife feed, analyses for gamma-emitting isotopes.  
Collection: Monthly, in season  
Units: pCi/g wet

Indicators			
Location	T-197	T-31	T-198
Lab Code	TCF-4406	TCF-5480	TCF-5482
Date Collected	7/27/2000	9/22/2000	9/22/2000
Sample Type	Chicken Feed	Cattails	Cattails
Be-7	< 0.18	< 0.20	< 0.25
K-40	6.91 ± 0.56	2.83 ± 0.30	2.08 ± 0.32
Nb-95	< 0.027	< 0.020	< 0.021
Zr-95	< 0.046	< 0.023	< 0.028
Ru-103	< 0.016	< 0.019	< 0.013
Ru-106	< 0.129	< 0.132	< 0.127
Cs-134	< 0.017	< 0.014	< 0.010
Cs-137	< 0.015	< 0.015	< 0.015
Ce-141	< 0.040	< 0.049	< 0.032
Ce-144	< 0.069	< 0.123	< 0.105

Control		
Location	T-34	T-32
Lab Code	TCF-4405	TCF-5481
Date Collected	8/2/2000	9/22/2000
Sample Type	Chicken Feed	Cattails
Be-7	< 0.088	< 0.21
K-40	2.93 ± 0.38	1.79 ± 0.31
Nb-95	< 0.015	< 0.019
Zr-95	< 0.023	< 0.020
Ru-103	< 0.014	< 0.026
Ru-106	< 0.104	< 0.137
Cs-134	< 0.012	< 0.012
Cs-137	< 0.012	< 0.014
Ce-141	< 0.020	< 0.051
Ce-144	< 0.064	< 0.130

TOLEDO

Table 22. Soil samples, analyses for gamma-emitting isotopes.  
Collection: Semiannually  
Units: pCi/g dry

Location	T-1	T-2	T-3	T-4
Lab Code	TSO-3074	TSO-3075	TSO-3076	TSO-3077
Date Collected	5/26/2004	5/26/2004	5/26/2004	5/26/2004
Be-7	< 0.55	1.62 ± 0.36	< 0.56	1.05 ± 0.38
K-40	9.77 ± 0.91	7.17 ± 0.58	9.09 ± 0.76	5.28 ± 0.52
Mn-54	< 0.038	< 0.018	< 0.023	< 0.024
Nb-95	< 0.111	< 0.030	< 0.077	< 0.047
Zr-95	< 0.072	< 0.037	< 0.063	< 0.028
Ru-103	< 0.072	< 0.027	< 0.043	< 0.025
Ru-106	< 0.35	< 0.14	< 0.18	< 0.11
Cs-134	< 0.037	< 0.019	< 0.039	< 0.017
Cs-137	0.16 ± 0.034	0.08 ± 0.025	< 0.031	< 0.016
Ce-141	< 0.124	< 0.106	< 0.142	< 0.109
Ce-144	< 0.152	< 0.105	< 0.209	< 0.064

Location	T-7	T-8
Lab Code	TSO-3078	TSO-3079
Date Collected	5/26/2004	5/26/2004
Be-7	< 0.38	< 0.69
K-40	5.90 ± 0.60	20.17 ± 1.20
Mn-54	< 0.018	< 0.042
Nb-95	< 0.083	< 0.167
Zr-95	< 0.075	< 0.066
Ru-103	< 0.034	< 0.081
Ru-106	< 0.17	< 0.19
Cs-134	< 0.027	< 0.062
Cs-137	< 0.026	0.11 ± 0.049
Ce-141	< 0.096	< 0.134
Ce-144	< 0.139	< 0.228

Location	T-9	T-11	T-12	T-27
Lab Code	TSO-3080	TSO-3081	TSO-3082	TSO-3083
Date Collected	5/26/2004	5/26/2004	5/26/2004	5/26/2004
Be-7	< 0.72	< 0.26	2.74 ± 0.58	< 0.36
K-40	20.65 ± 1.35	11.05 ± 0.66	11.47 ± 0.73	19.73 ± 0.84
Mn-54	< 0.039	< 0.016	< 0.029	< 0.028
Nb-95	< 0.125	< 0.041	< 0.088	< 0.085
Zr-95	< 0.058	< 0.039	< 0.074	< 0.069
Ru-103	< 0.083	< 0.018	< 0.047	< 0.057
Ru-106	< 0.39	< 0.08	< 0.22	< 0.20
Cs-134	< 0.054	< 0.026	< 0.033	< 0.033
Cs-137	0.13 ± 0.053	0.083 ± 0.023	0.10 ± 0.030	0.15 ± 0.023
Ce-141	< 0.192	< 0.061	< 0.120	< 0.118
Ce-144	< 0.239	< 0.136	< 0.168	< 0.156



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Table 22. Soil samples, analyses for gamma-emitting isotopes.  
 Collection: Seminnually  
 Units: pCi/g dry

Location	T-1	T-2	T-3	T-4
Lab Code	TSO-5572	TSO-5573	TSO-5574	TSO-5575
Date Collected	9/23/2004	9/23/2004	9/23/2004	9/23/2004
Be-7	< 0.26	0.98 ± 0.31	< 0.28	0.57 ± 0.24
K-40	8.06 ± 0.60	6.03 ± 0.58	7.67 ± 0.64	7.42 ± 0.66
Mn-54	< 0.011	< 0.012	< 0.020	< 0.032
Nb-95	< 0.024	< 0.037	< 0.033	< 0.024
Zr-95	< 0.024	< 0.038	< 0.051	< 0.042
Ru-103	< 0.030	< 0.032	< 0.030	< 0.029
Ru-106	< 0.20	< 0.18	< 0.14	< 0.18
Cs-134	< 0.025	< 0.027	< 0.032	< 0.029
Cs-137	0.040 ± 0.022	0.073 ± 0.031	< 0.023	< 0.025
Ce-141	< 0.040	< 0.061	< 0.058	< 0.066
Ce-144	< 0.10	< 0.14	< 0.12	< 0.13

Location	T-7	T-8
Lab Code	TSO-5576	TSO-5577
Date Collected	9/21/2004	9/21/2004
Be-7	0.32 ± 0.19	< 0.38
K-40	7.42 ± 0.54	22.10 ± 0.99
Mn-54	< 0.017	< 0.031
Nb-95	< 0.034	< 0.031
Zr-95	< 0.037	< 0.081
Ru-103	< 0.026	< 0.049
Ru-106	< 0.10	< 0.13
Cs-134	< 0.023	< 0.044
Cs-137	0.038 ± 0.018	0.16 ± 0.055
Ce-141	< 0.047	< 0.083
Ce-144	< 0.10	< 0.22

Location	T-9	T-11	T-12	T-27
Lab Code	TSO-5578	TSO-5579	TSO-5580	TSO-5581
Date Collected	9/21/2004	9/21/2004	9/21/2004	9/21/2004
Be-7	0.62 ± 0.33	< 0.18	0.42 ± 0.23	< 0.27
K-40	22.61 ± 1.06	11.50 ± 0.57	9.38 ± 0.49	21.22 ± 0.71
Mn-54	< 0.030	< 0.017	< 0.019	< 0.019
Nb-95	< 0.055	< 0.023	< 0.042	< 0.044
Zr-95	< 0.068	< 0.038	< 0.027	< 0.025
Ru-103	< 0.034	< 0.022	< 0.017	< 0.031
Ru-106	< 0.21	< 0.072	< 0.17	< 0.13
Cs-134	< 0.044	< 0.019	< 0.030	< 0.030
Cs-137	0.21 ± 0.067	0.10 ± 0.020	0.15 ± 0.027	0.15 ± 0.021
Ce-141	< 0.081	< 0.036	< 0.058	< 0.066
Ce-144	< 0.17	< 0.090	< 0.12	< 0.15

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

Location		T-11 (C)			Mean± s.d.
Lab Code	TSWT-420	TSWT-771	TSWT-1295	1st Quarter	
Date Collected	01-27-04	02-24-04	03-30-04		
Gross beta	2.8 ± 0.6	2.6 ± 0.6	3.0 ± 0.6	2.8 ± 0.2	
Lab Code	TSWT-1932	TSWT-2538	TSWT-3484	2nd Quarter	
Date Collected	04-27-04	05-25-04	06-29-04		
Gross beta	2.9 ± 0.6	2.2 ± 0.5	1.8 ± 0.5	2.3 ± 0.6	
Lab Code	TSWT-4290	TSWT-4891	TSWT-5486	3rd Quarter	
Date Collected	07-27-04	08-31-04	09-28-04		
Gross beta	2.4 ± 0.5	2.4 ± 0.5	2.1 ± 0.5	2.3 ± 0.2	
Lab Code	TSWT-6384	TSWT-7132	TSWT-7497	4th Quarter	
Date Collected	10-26-04	11-30-04	12-28-04		
Gross beta	1.3 ± 0.6	1.8 ± 0.5	3.4 ± 0.7	2.2 ± 1.1	
Location		T-12 (C)			Mean± s.d.
Lab Code	TSWT-421	TSWT-772	TSWT-1296	1st Quarter	
Date Collected	01-27-04	02-24-04	03-30-04		
Gross beta	2.1 ± 0.5	1.6 ± 0.5	2.4 ± 0.5	2.0 ± 0.4	
Lab Code	TSWT-1933,4	TSWT-2539	TSWT-3485	2nd Quarter	
Date Collected	04-27-04	05-25-04	06-29-04		
Gross beta	2.5 ± 0.4	1.5 ± 0.5	3.0 ± 0.6	2.3 ± 0.8	
Lab Code	TSWT-4291	TSWT-4892	TSWT-5487	3rd Quarter	
Date Collected	07-27-04	08-31-04	09-28-04		
Gross beta	2.5 ± 0.5	1.8 ± 0.5	1.3 ± 0.6	1.9 ± 0.6	
Lab Code	TSWT-6385	TSWT-7133	TSWT-7498	4th Quarter	
Date Collected	10-26-04	11-30-04	12-28-04		
Gross beta	1.6 ± 0.5	1.5 ± 0.5	2.4 ± 0.5	1.8 ± 0.5	

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

Location		T-22			Mean± s.d.
Lab Code	TSWT-422	TSWT-773	TSWT-1297	1st Quarter	
Date Collected	01-27-04	02-24-04	03-30-04		
Gross beta	3.4 ± 0.6	2.3 ± 0.5	2.9 ± 0.6	2.9 ± 0.6	
Lab Code	TSWT-1935	TSWT-2540	TSWT-3486	2nd Quarter	
Date Collected	04-27-04	05-25-04	06-29-04		
Gross beta	3.3 ± 0.6	2.4 ± 0.5	2.2 ± 0.5	2.6 ± 0.6	
Lab Code	TSWT-4292	TSWT-4893	TSWT-5488	3rd Quarter	
Date Collected	07-27-04	08-31-04	09-28-04		
Gross beta	3.9 ± 0.6	3.0 ± 0.6	2.4 ± 0.6	3.1 ± 0.8	
Lab Code	TSWT-6386	TSWT-7134	TSWT-7499	4th Quarter	
Date Collected	10-26-04	11-30-04	12-28-04		
Gross beta	1.0 ± 0.5	1.8 ± 0.5	3.0 ± 0.6	1.9 ± 1.0	
Location		T-50			Mean± s.d.
Lab Code	TSWT-423,4	TSWT-774	TSWT-1298	1st Quarter	
Date Collected	01-27-04	02-24-04	03-30-04		
Gross beta	2.4 ± 0.4	2.1 ± 0.5	2.6 ± 0.5	2.4 ± 0.3	
Lab Code	TSWT-1936	TSWT-2541	TSWT-3487	2nd Quarter	
Date Collected	04-27-04	05-25-04	06-29-04		
Gross beta	2.6 ± 0.5	2.2 ± 0.6	2.1 ± 0.5	2.3 ± 0.3	
Lab Code	TSWT-4293	TSWT-4894	TSWT-5489	3rd Quarter	
Date Collected	07-27-04	08-31-04	09-28-04		
Gross beta	2.3 ± 0.6	2.7 ± 0.6	2.6 ± 0.6	2.5 ± 0.2	
Lab Code	TSWT-6387	TSWT-7135	TSWT-7500	4th Quarter	
Date Collected	10-26-04	11-30-04	12-28-04		
Gross beta	1.8 ± 0.5	1.8 ± 0.5	3.0 ± 0.6	2.2 ± 0.7	

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

Location		T-143 (QC)			Mean± s.d.
Lab Code	TSWT-425	TSWT-775	TSWT-1299, 300	1st Quarter	
Date Collected	01-27-04	02-24-04	03-30-04		
Gross beta	2.6 ± 0.5	2.2 ± 0.5	2.6 ± 0.5	2.5 ± 0.2	
Lab Code	TSWT-1937	TSWT-2542	TSWT-3488	2nd Quarter	
Date Collected	04-27-04	05-25-04	06-29-04		
Gross beta	3.8 ± 0.6	1.7 ± 0.5	2.4 ± 0.5	2.6 ± 1.1	
Lab Code	TSWT-4294	TSWT-4895	TSWT-5490	3rd Quarter	
Date Collected	07-27-04	08-31-04	09-28-04		
Gross beta	3.1 ± 0.6	2.4 ± 0.5	1.7 ± 0.5	2.4 ± 0.7	
Lab Code	TSWT-6388	TSWT-7136	TSWT-7501	4th Quarter	
Date Collected	10-26-04	11-30-04	12-28-04		
Gross beta	1.9 ± 0.5	2.0 ± 0.5	2.6 ± 0.6	2.2 ± 0.4	

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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	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.		
Lab Code	TSWT-1394	TSWT-3531	TSWT-5635	TSWT-7598	<u>Reg. LLD</u>	
H-3	< 330	< 330	< 330	< 330	330	
Sr-89	< 0.6	< 0.6	< 0.8	< 0.7		
Sr-90	< 0.6	< 0.6	0.8 ± 0.4	< 0.7		
Mn-54	< 3.4	< 2.3	< 1.2	< 4.3	15	
Fe-59	< 3.7	< 6.9	< 4.7	< 5.0	30	
Co-58	< 2.8	< 2.5	< 2.1	< 4.2	15	
Co-60	< 2.8	< 3.0	< 1.6	< 4.5	15	
Zn-65	< 2.3	< 5.4	< 2.5	< 4.3	30	
Zr-Nb-95	< 1.5	< 3.9	< 1.9	< 2.7	15	
Cs-134	< 4.1	< 2.4	< 1.4	< 6.7	15	
Cs-137	< 2.9	< 2.3	< 1.5	< 4.8	18	
Ba-La-140	< 2.1	< 11.1	< 4.6	< 7.6	15	

Location		T-12 (C)				
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.		
Lab Code	TSWT-1395	TSWT-3532	TSWT-5636	TSWT-7599	<u>Reg. LLD</u>	
H-3	< 330	< 330	< 330	< 330	330	
Sr-89	< 0.7	< 0.7	< 0.6	< 0.8		
Sr-90	< 0.5	< 0.6	< 0.6	< 0.7		
Mn-54	< 4.2	< 1.7	< 1.9	< 3.7	15	
Fe-59	< 7.0	< 2.1	< 4.5	< 14.2	30	
Co-58	< 4.8	< 1.8	< 2.1	< 4.1	15	
Co-60	< 7.4	< 1.6	< 1.2	< 5.1	15	
Zn-65	< 3.5	< 3.7	< 2.3	< 6.4	30	
Zr-Nb-95	< 3.2	< 2.5	< 3.1	< 5.7	15	
Cs-134	< 6.0	< 1.7	< 1.5	< 4.3	15	
Cs-137	< 4.9	< 1.4	< 1.7	< 3.8	18	
Ba-La-140	< 7.3	< 9.8	< 10.0	< 11.7	15	

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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

T-22					
Location	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Req. LLD
Period Lab Code	TSWT-1396	TSWT-3533	TSWT-5637	TSWT-7600	
H-3	< 330	< 330	< 330	< 330	330
Sr-89	< 0.5	< 0.7	< 0.5	< 0.7	
Sr-90	< 0.5	< 0.6	< 0.6	< 0.7	
Mn-54	< 6.8	< 1.5	< 1.3	< 1.8	15
Fe-59	< 7.0	< 3.3	< 3.3	< 4.5	30
Co-58	< 4.8	< 1.9	< 1.3	< 2.4	15
Co-60	< 7.5	< 1.3	< 1.3	< 2.0	15
Zn-65	< 6.5	< 3.1	< 2.4	< 3.8	30
Zr-Nb-95	< 4.6	< 1.7	< 1.6	< 5.7	15
Cs-134	< 4.0	< 1.1	< 1.6	< 3.4	15
Cs-137	< 5.1	< 1.6	< 1.4	< 4.7	18
Ba-La-140	< 6.3	< 7.1	< 10.0	< 4.2	15

T-50					
Location	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Req. LLD
Period Lab Code	TSWT-1397, 8	TSWT-3534	TSWT-5638	TSWT-7601	
H-3	< 330	< 330	< 330	< 330	330
Sr-89	< 0.5	< 0.5	< 0.6	< 1.0	
Sr-90	< 0.5	0.5 ± 0.3	< 0.6	< 0.7	
Mn-54	< 2.2	< 1.5	< 2.6	< 4.2	15
Fe-59	< 4.5	< 4.6	< 5.8	< 6.7	30
Co-58	< 3.3	< 1.8	< 2.5	< 4.4	15
Co-60	< 2.7	< 1.3	< 1.8	< 5.1	15
Zn-65	< 5.0	< 2.8	< 4.5	< 3.3	30
Zr-Nb-95	< 2.3	< 1.3	< 1.9	< 5.6	15
Cs-134	< 2.9	< 1.3	< 1.7	< 3.2	15
Cs-137	< 3.8	< 1.1	< 2.1	< 3.9	18
Ba-La-140	< 3.8	< 9.0	< 11.7	< 11.1	15

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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-464 <sup>a</sup>	TSWU-776 <sup>b</sup>	TSWU-1315	TSWU-1938	Req. LLD
Date Collected	1/13/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	7.0 ± 0.8	4.3 ± 0.6	6.8 ± 0.9	3.4 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 1.8	< 2.3	< 2.9	< 3.2	15
Fe-59	< 3.6	< 6.0	< 5.5	< 5.2	30
Co-58	< 2.1	< 3.0	< 1.6	< 2.7	15
Co-60	< 2.1	< 4.2	< 2.9	< 3.7	15
Zn-65	< 3.9	< 6.3	< 2.7	< 4.4	30
Zr-Nb-95	< 3.2	< 3.5	< 4.2	< 1.0	15
Cs-134	< 1.9	< 3.7	< 3.2	< 3.3	15
Cs-137	< 2.0	< 3.0	< 4.1	< 3.0	18
Ba-La-140	< 5.4	< 3.3	< 4.1	< 1.5	15
Lab Code	TSWU-2543	TSWU-3499	TSWU-4295	TSWU-4933	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	3.2 ± 0.6	4.1 ± 0.6	4.2 ± 0.6	3.6 ± 0.7	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 1.9	< 5.3	< 2.1	< 6.5	15
Fe-59	< 4.1	< 6.9	< 3.7	< 5.9	30
Co-58	< 2.5	< 2.9	< 1.8	< 3.1	15
Co-60	< 3.2	< 4.8	< 2.3	< 6.8	15
Zn-65	< 2.8	< 8.7	< 3.8	< 10.7	30
Zr-Nb-95	< 2.8	< 5.9	< 3.6	< 3.7	15
Cs-134	< 2.3	< 4.0	< 3.5	< 6.2	15
Cs-137	< 4.5	< 5.9	< 2.9	< 4.3	18
Ba-La-140	< 2.9	< 6.0	< 7.4	< 4.6	15
Lab Code	TSWU-5491	TSWU-6392	TSWU-7156	TSWU-7507,8	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/14/2004	
Gross beta	3.9 ± 0.6	2.5 ± 0.5	2.2 ± 0.6	4.9 ± 0.5	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.7	< 4.0	< 4.6	< 2.6	15
Fe-59	< 9.5	< 9.9	< 6.2	< 8.3	30
Co-58	< 2.5	< 1.7	< 5.6	< 2.3	15
Co-60	< 2.3	< 2.4	< 5.4	< 3.9	15
Zn-65	< 3.8	< 4.1	< 4.6	< 6.8	30
Zr-Nb-95	< 3.1	< 1.8	< 5.7	< 5.0	15
Cs-134	< 4.4	< 4.2	< 7.0	< 3.3	15
Cs-137	< 2.5	< 3.3	< 3.9	< 2.6	18
Ba-La-140	< 7.6	< 6.8	< 12.3	< 12.1	15

<sup>a</sup> Results reflect 2 collections for month; water frozen on 01-20-04 and 01-27-04.

<sup>b</sup> Results reflect 3 collections for month; water frozen on 02-17-04.

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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-466	TSWU-778,9	TSWU-1317	TSWU-1940	Req. LLD
Date Collected	1/27/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	3.4 ± 0.6	2.5 ± 0.4	3.4 ± 0.6	3.1 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.6	< 2.4	< 3.5	< 2.8	15
Fe-59	< 8.0	< 3.5	< 10.3	< 3.8	30
Co-58	< 3.2	< 3.4	< 5.7	< 2.5	15
Co-60	< 2.1	< 1.7	< 5.5	< 2.6	15
Zn-65	< 7.9	< 3.0	< 3.9	< 3.0	30
Zr-Nb-95	< 3.0	< 4.4	< 3.6	< 2.9	15
Cs-134	< 2.9	< 2.4	< 5.5	< 3.9	15
Cs-137	< 4.2	< 3.4	< 3.1	< 4.3	18
Ba-La-140	< 4.4	< 5.6	< 3.3	< 2.4	15
Lab Code	TSWU-2545	TSWU-3501	TSWU-4297	TSWU-4935	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	1.9 ± 0.5	2.8 ± 0.6	3.0 ± 0.6	2.4 ± 0.5	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.3	< 4.1	< 3.4	< 4.6	15
Fe-59	< 5.8	< 9.0	< 10.0	< 10.4	30
Co-58	< 2.5	< 3.7	< 5.5	< 2.3	15
Co-60	< 2.4	< 6.6	< 5.3	< 6.0	15
Zn-65	< 4.7	< 6.0	< 7.2	< 7.7	30
Zr-Nb-95	< 3.5	< 2.9	< 4.4	< 7.7	15
Cs-134	< 3.1	< 4.3	< 6.6	< 6.5	15
Cs-137	< 4.6	< 2.4	< 5.8	< 2.6	18
Ba-La-140	< 5.5	< 6.8	< 7.5	< 7.7	15
Lab Code	TSWU-5493	TSWU-6394	TSWU-7158	TSWU-7510	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/28/2004	
Gross beta	2.2 ± 0.5	1.8 ± 0.6	2.3 ± 0.5	3.2 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.5	< 1.5	< 3.1	< 3.1	15
Fe-59	< 9.2	< 6.4	< 10.0	< 5.0	30
Co-58	< 3.9	< 1.5	< 2.5	< 2.3	15
Co-60	< 3.1	< 2.5	< 1.9	< 2.2	15
Zn-65	< 7.6	< 4.4	< 5.1	< 4.2	30
Zr-Nb-95	< 7.0	< 1.2	< 2.4	< 3.9	15
Cs-134	< 4.2	< 2.5	< 4.1	< 4.0	15
Cs-137	< 4.9	< 3.6	< 3.1	< 2.6	18
Ba-La-140	< 8.6	< 5.1	< 4.7	< 2.2	15



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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-467	TSWU-780	TSWU-1318	TSWU-1941	Req. LLD
Date Collected	1/27/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	3.2 ± 0.6	2.6 ± 0.5	2.7 ± 0.6	2.1 ± 0.5	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.1	< 1.5	< 2.3	< 2.6	15
Fe-59	< 3.8	< 4.5	< 5.1	< 3.8	30
Co-58	< 2.7	< 1.9	< 2.0	< 2.1	15
Co-60	< 2.1	< 2.6	< 2.4	< 3.3	15
Zn-65	< 5.7	< 1.8	< 1.7	< 2.7	30
Zr-Nb-95	< 5.1	< 3.5	< 3.5	< 3.6	15
Cs-134	< 2.7	< 2.7	< 3.0	< 2.8	15
Cs-137	< 3.0	< 1.8	< 3.4	< 2.5	18
Ba-La-140	< 4.4	< 3.2	< 3.5	< 2.4	15
Lab Code	TSWU-2546	TSWU-3502	TSWU-4298	TSWU-4936	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	1.9 ± 0.6	3.0 ± 0.6	3.4 ± 0.6	2.9 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 1.8	< 3.2	< 2.4	< 3.3	15
Fe-59	< 4.3	< 7.1	< 4.5	< 12.4	30
Co-58	< 1.8	< 3.4	< 2.0	< 5.1	15
Co-60	< 2.9	< 1.9	< 2.5	< 6.0	15
Zn-65	< 3.9	< 2.6	< 3.0	< 5.7	30
Zr-Nb-95	< 4.7	< 3.6	< 3.5	< 6.5	15
Cs-134	< 5.1	< 2.6	< 2.0	< 5.1	15
Cs-137	< 2.5	< 2.9	< 2.0	< 5.5	18
Ba-La-140	< 3.7	< 2.6	< 7.0	< 5.0	15
Lab Code	TSWU-5494	TSWU-6395	TSWU-7159	TSWU-7511	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/28/2004	
Gross beta	3.0 ± 0.5	2.5 ± 0.5	2.2 ± 0.5	2.7 ± 0.5	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.9	< 3.3	< 2.3	< 1.8	15
Fe-59	< 9.9	< 5.5	< 5.2	< 3.7	30
Co-58	< 4.3	< 2.0	< 1.8	< 2.3	15
Co-60	< 2.6	< 1.5	< 1.6	< 1.5	15
Zn-65	< 12.0	< 5.6	< 3.3	< 2.5	30
Zr-Nb-95	< 5.0	< 3.3	< 5.7	< 4.3	15
Cs-134	< 5.4	< 3.3	< 2.9	< 2.1	15
Cs-137	< 3.5	< 4.1	< 3.3	< 3.3	18
Ba-La-140	< 6.0	< 2.5	< 4.4	< 2.6	15

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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-4469,70	TSWU-782	TSWU-1320	TSWU-1943	Req. LLD
Date Collected	1/27/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	3.0 ± 0.4	2.8 ± 0.7	3.2 ± 0.6	2.8 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 1.9	< 3.3	< 3.8	< 1.9	15
Fe-59	< 4.4	< 10.5	< 3.8	< 5.3	30
Co-58	< 2.6	< 6.0	< 2.3	< 1.3	15
Co-60	< 1.7	< 6.0	< 2.3	< 2.8	15
Zn-65	< 2.6	< 8.2	< 5.1	< 4.0	30
Zr-Nb-95	< 3.0	< 6.4	< 3.2	< 2.9	15
Cs-134	< 2.1	< 5.5	< 2.9	< 2.6	15
Cs-137	< 2.2	< 4.5	< 4.9	< 2.4	18
Ba-La-140	< 2.5	< 3.1	< 6.3	< 1.4	15
Lab Code	TSWU-2548	TSWU-3504	TSWU-4300	TSWU-4938	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	2.3 ± 0.5	2.7 ± 0.5	3.6 ± 0.7	2.9 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 5.3	< 3.2	< 2.5	< 2.8	15
Fe-59	< 7.8	< 3.9	< 7.4	< 5.0	30
Co-58	< 3.0	< 2.6	< 3.6	< 4.2	15
Co-60	< 4.6	< 1.7	< 1.7	< 5.7	15
Zn-65	< 9.9	< 2.5	< 3.0	< 7.2	30
Zr-Nb-95	< 3.7	< 2.2	< 4.2	< 4.3	15
Cs-134	< 5.2	< 3.0	< 3.7	< 3.3	15
Cs-137	< 3.8	< 2.9	< 2.9	< 5.0	18
Ba-La-140	< 7.6	< 7.0	< 4.5	< 3.8	15
Lab Code	TSWU-5497	TSWU-6397	TSWU-7162	TSWU-7513	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/28/2004	
Gross beta	2.5 ± 0.5	1.3 ± 0.5	2.8 ± 0.6	3.8 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 5.5	< 1.3	< 4.2	< 2.2	15
Fe-59	< 8.5	< 5.1	< 13.0	< 3.9	30
Co-58	< 7.0	< 3.0	< 4.5	< 1.8	15
Co-60	< 3.1	< 2.7	< 5.3	< 2.0	15
Zn-65	< 7.6	< 3.1	< 5.8	< 2.2	30
Zr-Nb-95	< 7.1	< 1.5	< 7.5	< 2.5	15
Cs-134	< 3.7	< 3.7	< 5.5	< 3.3	15
Cs-137	< 5.8	< 2.9	< 3.2	< 2.1	18
Ba-La-140	< 10.9	< 4.4	< 9.5	< 5.7	15

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

Location: T-50

Collection: Monthly composites of weekly grab samples

Units: pCi/L

Lab Code	TSWU-471	TSWU-783	TSWU-1321	TSWU-1948	Req. LLD
Date Collected	1/27/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	3.4 ± 0.6	2.6 ± 0.6	2.6 ± 0.6	3.5 ± 0.7	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.0	< 2.5	< 2.6	< 2.4	15
Fe-59	< 6.7	< 8.7	< 5.3	< 8.2	30
Co-58	< 2.4	< 2.9	< 2.8	< 3.7	15
Co-60	< 1.0	< 2.1	< 2.3	< 5.2	15
Zn-65	< 3.7	< 5.2	< 4.5	< 13.2	30
Zr-Nb-95	< 4.5	< 6.0	< 5.9	< 5.0	15
Cs-134	< 4.0	< 3.4	< 5.4	< 7.5	15
Cs-137	< 2.3	< 5.5	< 4.6	< 4.4	18
Ba-La-140	< 5.1	< 6.1	< 6.4	< 3.6	15
Lab Code	TSWU-2549	TSWU-3505	TSWU-4301	TSWU-4939	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	2.2 ± 0.5	2.7 ± 0.6	3.2 ± 0.6	2.6 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.0	< 2.3	< 2.4	< 5.3	15
Fe-59	< 11.4	< 2.5	< 4.7	< 8.9	30
Co-58	< 5.2	< 2.0	< 3.8	< 2.6	15
Co-60	< 6.3	< 3.1	< 1.9	< 7.1	15
Zn-65	< 9.4	< 1.9	< 3.9	< 9.0	30
Zr-Nb-95	< 7.4	< 3.0	< 4.9	< 5.5	15
Cs-134	< 5.1	< 3.1	< 2.4	< 6.3	15
Cs-137	< 3.4	< 3.8	< 3.9	< 4.4	18
Ba-La-140	< 3.6	< 5.9	< 7.3	< 5.0	15
Lab Code	TSWU-5498	TSWU-6398	TSWU-7163	TSWU-7514	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/28/2004	
Gross beta	2.0 ± 0.6	1.9 ± 0.5	2.5 ± 0.5	3.5 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 4.8	< 2.7	< 5.3	< 3.0	15
Fe-59	< 9.0	< 5.4	< 7.2	< 4.8	30
Co-58	< 3.7	< 2.8	< 6.1	< 3.6	15
Co-60	< 4.0	< 1.9	< 6.4	< 4.3	15
Zn-65	< 8.2	< 4.1	< 6.2	< 4.9	30
Zr-Nb-95	< 6.7	< 3.3	< 3.8	< 5.0	15
Cs-134	< 6.3	< 1.5	< 2.0	< 3.4	15
Cs-137	< 5.3	< 3.2	< 3.4	< 5.4	18
Ba-La-140	< 8.2	< 4.1	< 11.3	< 10.1	15

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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-472	TSWU-784	TSWU-1322	TSWU-1948	Req. LLD
Date Collected	1/27/2004	2/24/2004	3/30/2004	4/27/2004	
Gross beta	2.6 ± 0.6	3.0 ± 0.6	3.6 ± 0.6	3.5 ± 0.7	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.0	< 2.6	< 2.3	< 2.4	15
Fe-59	< 7.2	< 4.1	< 3.0	< 8.2	30
Co-58	< 2.0	< 2.8	< 3.4	< 3.7	15
Co-60	< 1.8	< 2.8	< 3.1	< 5.2	15
Zn-65	< 6.2	< 3.5	< 6.5	< 13.2	30
Zr-Nb-95	< 4.0	< 1.9	< 1.8	< 5.0	15
Cs-134	< 3.3	< 2.4	< 2.6	< 7.5	15
Cs-137	< 3.9	< 4.0	< 3.2	< 4.4	18
Ba-La-140	< 4.8	< 3.4	< 3.0	< 3.6	15
Lab Code	TSWU-2553	TSWU-3506	TSWU-4302	TSWU-4940	Req. LLD
Date Collected	5/25/2004	6/29/2004	7/27/2004	8/31/2004	
Gross beta	2.0 ± 0.5	2.7 ± 0.5	2.9 ± 0.6	3.7 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.8	< 2.8	< 3.2	< 4.4	15
Fe-59	< 7.9	< 6.5	< 8.4	< 8.5	30
Co-58	< 4.6	< 1.9	< 3.0	< 3.1	15
Co-60	< 6.1	< 2.9	< 2.5	< 5.4	15
Zn-65	< 8.9	< 5.1	< 5.3	< 5.4	30
Zr-Nb-95	< 4.4	< 2.4	< 3.1	< 1.8	15
Cs-134	< 5.2	< 2.2	< 2.4	< 4.5	15
Cs-137	< 4.8	< 3.3	< 3.6	< 4.7	18
Ba-La-140	< 4.3	< 6.0	< 7.7	< 4.9	15
Lab Code	TSWU-5499	TSWU-6399	TSWU-7164	TSWU-7515	Req. LLD
Date Collected	9/28/2004	10/26/2004	11/30/2004	12/28/2004	
Gross beta	1.9 ± 0.5	2.2 ± 0.5	2.8 ± 0.5	3.0 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.1	< 1.9	< 2.8	< 2.7	15
Fe-59	< 7.1	< 5.0	< 4.3	< 2.8	30
Co-58	< 5.7	< 3.1	< 5.9	< 1.5	15
Co-60	< 4.0	< 2.7	< 2.2	< 1.8	15
Zn-65	< 7.0	< 5.7	< 4.4	< 1.6	30
Zr-Nb-95	< 5.9	< 3.9	< 7.0	< 4.3	15
Cs-134	< 3.7	< 3.5	< 2.9	< 3.9	15
Cs-137	< 5.3	< 2.2	< 5.1	< 3.5	18
Ba-La-140	< 5.9	< 4.1	< 8.4	< 4.1	15

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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-1423	TSWU-3757	TSWU-6140	TSWU-7616
Sr-89	< 0.6	< 0.6	< 0.8	< 0.6
Sr-90	< 0.5	0.6 ± 0.3	< 0.6	0.6 ± 0.4

Location T-11 (C)				
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	TSWU-1413	TSWU-3758	TSWU-6141	TSWU-7617
Sr-89	< 0.5	< 0.7	< 0.9	< 0.6
Sr-90	< 0.6	1.0 ± 0.4	< 0.6	< 0.7

Location T-12 (C)				
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	TSWU-1414	TSWU-3759	TSWU-6142	TSWU-7618
Sr-89	< 0.6	< 0.6	< 0.7	< 0.7
Sr-90	< 0.6	0.8 ± 0.4	< 0.6	< 0.7

Location T-22				
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	TSWU-1415	TSWU-3760	TSWU-6143	TSWU-7619
Sr-89	< 0.5	< 0.5	< 0.7	< 0.7
Sr-90	< 0.6	0.9 ± 0.3	< 0.6	< 0.6

Location T-50				
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
Lab Code	TSWU-1416	TSWU-3761	TSWU-6144	TSWU-7620
Sr-89	< 0.4	< 0.5	< 0.7	< 0.6
Sr-90	< 0.6	0.6 ± 0.3	< 0.6	< 0.6

TOLEDO

Table 27. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Collection: Monthly collection

Units: pCi/L

Location: T-132 (I)

Lab Code	TSWU-1945	TSWU-2550	TSWU-3089	TSWU-4303	Req. LLD
Date Collected	4/30/2004	5/19/2004	6/9/2004	7/14/2004	
Gross beta	2.3 ± 0.5	2.5 ± 0.6	1.5 ± 0.7	2.8 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.0	< 3.8	< 3.2	< 3.8	15
Fe-59	< 5.5	< 11.2	< 5.9	< 8.8	30
Co-58	< 2.4	< 4.7	< 4.1	< 2.2	15
Co-60	< 3.5	< 5.5	< 2.0	< 4.2	15
Zn-65	< 7.0	< 10.6	< 6.8	< 4.8	30
Zr-Nb-95	< 4.8	< 6.9	< 4.7	< 3.2	15
Cs-134	< 4.0	< 5.7	< 2.7	< 4.1	15
Cs-137	< 3.3	< 6.7	< 3.6	< 3.2	18
Ba-La-140	< 11.9	< 6.9	< 7.1	< 6.3	15

Lab Code	TSWU-4941	TSWU-5538	Req. LLD
Date Collected	8/18/2004	9/9/2004	
Gross beta	2.8 ± 0.6	3.2 ± 0.6	4.0
H-3	< 330	< 330	330
Mn-54	< 2.5	< 4.5	15
Fe-59	< 5.1	< 7.1	30
Co-58	< 2.1	< 2.2	15
Co-60	< 1.8	< 3.1	15
Zn-65	< 3.9	< 5.7	30
Zr-Nb-95	< 1.8	< 5.1	15
Cs-134	< 2.6	< 2.4	15
Cs-137	< 3.1	< 1.9	18
Ba-La-140	< 9.1	< 6.4	15

TOLEDO

Table 27. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Collection: Monthly collection

Units: pCi/L

Location: T-134 (U)

Lab Code	TSWU-1946	TSWU-2551	TSWU-3090	TSWU-4304	Req. LLD
Date Collected	4/27/2004	5/19/2004	6/9/2004	7/14/2004	
Gross beta	2.3 ± 0.5	2.7 ± 1.0	2.0 ± 0.6	3.4 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 1.8	< 2.3	< 2.2	< 3.5	15
Fe-59	< 6.2	< 2.4	< 4.8	< 5.9	30
Co-58	< 3.2	< 2.7	< 2.1	< 2.9	15
Co-60	< 3.3	< 2.7	< 2.1	< 3.6	15
Zn-65	< 2.9	< 3.6	< 2.6	< 5.8	30
Zr-Nb-95	< 2.7	< 3.8	< 2.9	< 4.3	15
Cs-134	< 2.6	< 3.0	< 2.3	< 3.5	15
Cs-137	< 2.1	< 3.1	< 3.1	< 2.7	18
Ba-La-140	< 7.2	< 5.4	< 6.5	< 7.5	15

Lab Code	TSWU-4942	TSWU-5539	Req. LLD
Date Collected	8/18/2004	9/8/2004	
Gross beta	2.7 ± 0.5	3.6 ± 0.6	4.0
H-3	< 330	< 330	330
Mn-54	< 2.5	< 1.1	15
Fe-59	< 8.6	< 5.3	30
Co-58	< 3.1	< 3.0	15
Co-60	< 2.1	< 2.3	15
Zn-65	< 5.8	< 2.8	30
Zr-Nb-95	< 5.9	< 2.4	15
Cs-134	< 2.3	< 2.0	15
Cs-137	< 3.6	< 2.3	18
Ba-La-140	< 9.4	< 10.0	15

TOLEDO

Table 27. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Collection: Monthly collection

Units: pCi/L

Location: T-137 (C)

Lab Code	TSWU-1947	TSWU-2552	TSWU-3091	TSWU-4305	Req. LLD
Date Collected	4/27/2004	5/19/2004	6/9/2004	7/14/2004	
Gross beta	2.5 ± 0.6	2.4 ± 0.5	2.1 ± 0.6	4.0 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.0	< 3.2	< 3.8	< 2.9	15
Fe-59	< 3.9	< 6.6	< 7.8	< 5.8	30
Co-58	< 2.1	< 2.1	< 1.6	< 3.3	15
Co-60	< 2.2	< 2.1	< 5.1	< 4.0	15
Zn-65	< 2.4	< 3.5	< 3.8	< 3.4	30
Zr-Nb-95	< 1.8	< 4.6	< 4.1	< 3.5	15
Cs-134	< 2.8	< 3.6	< 4.8	< 3.8	15
Cs-137	< 2.5	< 3.5	< 4.6	< 2.5	18
Ba-La-140	< 2.1	< 3.8	< 5.5	< 8.5	15

Lab Code	TSWU-4943	TSWU-5540	Req. LLD
Date Collected	8/18/2004	9/8/2004	
Gross beta	2.7 ± 0.6	4.0 ± 0.7	4.0
H-3	< 330	< 330	330
Mn-54	< 2.2	< 2.2	15
Fe-59	< 7.3	< 4.4	30
Co-58	< 2.0	< 2.7	15
Co-60	< 2.4	< 1.8	15
Zn-65	< 3.4	< 2.1	30
Zr-Nb-95	< 2.7	< 4.1	15
Cs-134	< 3.4	< 1.6	15
Cs-137	< 2.9	< 2.0	18
Ba-La-140	< 5.5	< 12.9	15



TOLEDO

Table 27. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Collection: Monthly collection

Units: pCi/L

Location: T-158 (C)

Lab Code	TSWU-1949	TSWU-2554	TSWU-3092,3	TSWU-4306	Req. LLD
Date Collected	4/27/2004	5/19/2004	6/9/2004	7/14/2004	
Gross beta	3.8 ± 0.7	2.4 ± 0.6	2.3 ± 0.5	3.8 ± 0.6	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 3.7	< 4.0	< 1.8	< 2.1	15
Fe-59	< 4.2	< 10.3	< 5.1	< 4.1	30
Co-58	< 4.7	< 6.3	< 1.9	< 2.0	15
Co-60	< 4.0	< 6.1	< 2.9	< 2.2	15
Zn-65	< 3.7	< 8.9	< 3.4	< 3.5	30
Zr-Nb-95	< 3.8	< 5.3	< 3.0	< 3.4	15
Cs-134	< 3.9	< 7.5	< 2.0	< 1.8	15
Cs-137	< 2.8	< 3.0	< 3.0	< 2.3	18
Ba-La-140	< 8.0	< 6.8	< 5.4	< 5.9	15

Lab Code	TSWU-4944	TSWU-5541	Req. LLD
Date Collected	8/18/2004	9/8/2004	
Gross beta	2.9 ± 0.6	2.7 ± 0.6	4.0
H-3	< 330	< 330	330
Mn-54	< 3.2	< 3.0	15
Fe-59	< 6.3	< 8.3	30
Co-58	< 2.4	< 2.9	15
Co-60	< 2.9	< 2.6	15
Zn-65	< 1.8	< 2.1	30
Zr-Nb-95	< 2.0	< 4.6	15
Cs-134	< 3.7	< 3.4	15
Cs-137	< 2.4	< 1.9	18
Ba-La-140	< 10.4	< 8.9	15

TOLEDO

Table 27. Untreated surface water, analyses for gross beta, tritium and gamma emitting isotopes.

Collection: Monthly collection

Units: pCi/L

Location: T-162 (C)

Lab Code	TSWU-1950	TSWU-2555	TSWU-3094	TSWU-4307,8	Req. LLD
Date Collected	4/27/2004	5/19/2004	6/9/2004	7/14/2004	
Gross beta	4.4 ± 0.7	3.4 ± 0.6	2.2 ± 0.6	3.6 ± 0.4	4.0
H-3	< 330	< 330	< 330	< 330	330
Mn-54	< 2.1	< 1.9	< 2.2	< 2.4	15
Fe-59	< 7.0	< 5.1	< 11.1	< 7.9	30
Co-58	< 4.3	< 2.7	< 3.3	< 1.6	15
Co-60	< 4.4	< 4.1	< 1.8	< 2.9	15
Zn-65	< 5.1	< 4.1	< 2.1	< 3.2	30
Zr-Nb-95	< 5.3	< 2.4	< 2.1	< 4.0	15
Cs-134	< 3.2	< 3.2	< 2.5	< 3.1	15
Cs-137	< 3.6	< 1.9	< 4.5	< 2.5	18
Ba-La-140	< 1.9	< 2.7	< 3.8	< 5.3	15

Lab Code	TSWU-4945	TSWU-5542	Req. LLD
Date Collected	8/18/2004	9/9/2004	
Gross beta	2.0 ± 0.6	4.0 ± 0.6	4.0
H-3	< 330	1185 ± 127 <sup>a</sup>	330
Mn-54	< 2.4	< 3.0	15
Fe-59	< 6.2	< 8.3	30
Co-58	< 2.1	< 2.9	15
Co-60	< 2.7	< 2.6	15
Zn-65	< 2.7	< 2.1	30
Zr-Nb-95	< 5.3	< 4.6	15
Cs-134	< 3.1	< 3.4	15
Cs-137	< 2.1	< 1.9	18
Ba-La-140	< 8.4	< 8.9	15

<sup>a</sup> Tritium repeated with a result of 1009±133 pCi/L.

TOLEDO

Table 28. Fish samples, analyses for gross beta and gamma-emitting isotopes.  
 Collection: Semiannually  
 Units: pCi/g wet

Location		T-33 (Lake Erie, 1.5 mi. NE of Station)		
Lab Code	TF-3039	TF-3040	TF-3316	
Date Collected	4/29/2004	5/13/2004	6/18/2004	
Sample Type	Carp	White Bass	Walleye	
Gross beta	3.59 ± 0.16	3.27 ± 0.13	2.28 ± 0.09	
K-40	2.74 ± 0.19	2.57 ± 0.28	2.50 ± 0.45	
Mn-54	< 0.006	< 0.017	< 0.014	
Fe-59	< 0.046	< 0.068	< 0.050	
Co-58	< 0.013	< 0.021	< 0.020	
Co-60	< 0.006	< 0.006	< 0.011	
Zn-65	< 0.009	< 0.035	< 0.031	
Cs-134	< 0.004	< 0.009	< 0.020	
Cs-137	< 0.007	< 0.013	< 0.015	

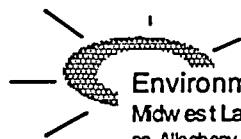
  

Location		T-35		
Lab Code	TF-3041	TF-3042	TF-3317	TF-3318
Date Collected	5/12/2004	5/12/2004	6/9/2004	6/18/2004
Sample Type	Carp	White Bass	Walleye	Walleye
Gross beta	3.17 ± 0.09	2.32 ± 0.11	0.58 ± 0.02	2.53 ± 0.10
K-40	2.65 ± 0.33	1.89 ± 0.29	1.40 ± 0.39	2.46 ± 0.54
Mn-54	< 0.018	< 0.011	< 0.026	< 0.023
Fe-59	< 0.063	< 0.061	< 0.060	< 0.066
Co-58	< 0.025	< 0.026	< 0.027	< 0.021
Co-60	< 0.012	< 0.005	< 0.022	< 0.021
Zn-65	< 0.035	< 0.015	< 0.053	< 0.030
Cs-134	< 0.010	< 0.013	< 0.036	< 0.017
Cs-137	< 0.009	< 0.016	< 0.029	< 0.018

TOLEDO

Table 29. 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-3084	TSS-3085	TSS-3086	TSS-3087	TSS-3088
Date Collected	6/9/2004	6/9/2004	6/9/2004	6/9/2004	6/9/2004
K-40	10.24 ± 0.54	13.42 ± 0.69	18.58 ± 0.98	11.06 ± 0.59	11.76 ± 0.57
Mn-54	< 0.013	< 0.019	< 0.027	< 0.010	< 0.016
Co-58	< 0.014	< 0.021	< 0.033	< 0.016	< 0.017
Co-60	< 0.005	< 0.010	< 0.026	< 0.011	< 0.007
Cs-134	< 0.013	< 0.028	< 0.025	< 0.014	< 0.013
Cs-137	< 0.010	0.030 ± 0.016	< 0.023	< 0.012	< 0.011
Lab Code	TSS-7502	TSS-7503	TSS-7504	TSS-7505	TSS-7506
Date Collected	12/6/2004	12/9/2004	12/9/2004	12/6/2004	12/6/2004
K-40	12.74 ± 0.63	13.47 ± 0.83	18.78 ± 1.15	12.57 ± 0.69	9.59 ± 0.63
Mn-54	< 0.020	< 0.018	< 0.038	< 0.021	< 0.022
Co-58	< 0.025	< 0.045	< 0.054	< 0.026	< 0.033
Co-60	< 0.014	< 0.016	< 0.042	< 0.019	< 0.020
Cs-134	< 0.021	< 0.037	< 0.054	< 0.026	< 0.030
Cs-137	< 0.015	0.040 ± 0.023	< 0.041	< 0.014	< 0.022



**Environmental, Inc.**  
Midwest Laboratory  
an Allegheny Technologies Co.

700 Landwehr Road • Northbrook, IL 60062-2  
(847) 584-0700 fax (847) 584-4317

## 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 through December, 2004

## Appendix A

### Interlaboratory Comparison Program Results

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

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

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

The results in Table A-2 list results for thermoluminescent dosimeters (TLDs), via International Intercomparison of Environmental Dosimeters, when available, and internal laboratory testing.

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 list results of 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. Data for previous years available upon request.

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

The results in Table A-7 were obtained through participation in the Environmental Measurement Laboratory Quality Assessment Program.

Attachment A lists acceptance criteria for "spiked" samples.

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

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

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

Analysis	Level	One standard deviation 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 <sup>b</sup>	5 to 50 pCi/liter or kg > 50 pCi/liter or kg	5.0 pCi/liter 10% of known value
Strontium-90 <sup>b</sup>	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	± 1σ = (pCi/liter) = 169.85 x (known) <sup>0.0933</sup> 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 <sup>b</sup>	≤55 pCi/liter > 55 pCi/liter	6.0 pCi/liter 10% of known value
Uranium-238, Nickel-63 <sup>b</sup> Technetium-99 <sup>b</sup>	≤35 pCi/liter > 35 pCi/liter	6.0 pCi/liter 15% of known value
Iron-55 <sup>b</sup>	50 to 100 pCi/liter > 100 pCi/liter	10 pCi/liter 10% of known value
Others <sup>b</sup>	---	20% of known value

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

<sup>b</sup> Laboratory limit.

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

Lab Code	Date	Analysis	Concentration (pCi/L)		
			Laboratory Result <sup>b</sup>	ERA Result <sup>c</sup>	Control Limits
STW-1005	02/17/04	Sr-89	36.5 ± 6.5	44.9 ± 4.5	36.2 - 53.6
STW-1005	02/17/04	Sr-90	13.4 ± 0.8	11.6 ± 1.2	2.9 - 20.3
STW-1006	02/17/04	Ba-133	60.9 ± 2.8	63.2 ± 6.3	52.3 - 74.1
STW-1006	02/17/04	Co-60	95.2 ± 1.5	96.4 ± 9.6	87.7 - 105.0
STW-1006	02/17/04	Cs-134	71.2 ± 5.4	75.8 ± 7.6	67.1 - 84.5
STW-1006	02/17/04	Cs-137	157.0 ± 6.5	155.0 ± 15.5	142.0 - 168.0
STW-1006	02/17/04	Zn-65	103.0 ± 1.1	102.0 ± 10.2	84.4 - 120.0
STW-1007	02/17/04	Gr. Alpha	15.6 ± 1.2	16.6 ± 1.7	7.9 - 25.3
STW-1007	02/17/04	Gr. Beta	46.3 ± 4.4	41.5 ± 4.2	32.8 - 50.2
STW-1008	02/17/04	Ra-226	8.7 ± 0.2	9.3 ± 0.0	6.9 - 11.7
STW-1008	02/17/04	Ra-228	16.6 ± 0.4	18.2 ± 1.8	10.3 - 26.1
STW-1008	02/17/04	Uranium	34.2 ± 0.8	33.0 ± 3.3	27.8 - 38.2
STW-1015	05/18/04	Sr-89	39.7 ± 3.3	45.9 ± 5.0	37.2 - 54.6
STW-1015	05/18/04	Sr-90	12.4 ± 0.9	11.6 ± 5.0	2.9 - 20.3
STW-1016	05/18/04	Ba-133	96.9 ± 2.4	101.0 ± 10.1	83.5 - 118.0
STW-1016	05/18/04	Co-60	39.9 ± 0.5	41.6 ± 5.0	32.9 - 50.3
STW-1016	05/18/04	Cs-134	48.8 ± 0.8	50.5 ± 5.0	41.8 - 59.2
STW-1016	05/18/04	Cs-137	82.6 ± 2.3	82.5 ± 5.0	73.8 - 91.2
STW-1016	05/18/04	Zn-65	77.5 ± 1.5	75.2 ± 7.5	62.2 - 88.2
STW-1017	05/18/04	Gr. Alpha	32.4 ± 2.1	38.8 ± 9.7	22.0 - 55.6
STW-1017	05/18/04	Gr. Beta	63.4 ± 3.5	59.6 ± 10.0	42.3 - 76.9
STW-1018	05/18/04	I-131	25.2 ± 0.4	25.1 ± 3.0	19.9 - 30.3
STW-1019	05/18/04	Ra-226	16.0 ± 1.1	17.3 ± 2.6	12.8 - 21.8
STW-1019	05/18/04	Ra-228	12.6 ± 0.9	10.3 ± 2.6	5.8 - 14.8
STW-1019	05/18/04	Uranium	13.0 ± 0.0	12.7 ± 3.0	7.5 - 17.9
STW-1020	05/18/04	H-3	32043 ± 166	30900 ± 3090	25600 - 36200
STW-1028	08/17/04	Sr-89	16.1 ± 1.9	20.0 ± 2.0	11.3 - 28.7
STW-1028	08/17/04	Sr-90	13.4 ± 0.1	13.6 ± 1.4	4.9 - 22.3
STW-1029	08/17/04	Ba-133	30.2 ± 3.9	32.1 ± 3.2	23.4 - 40.8
STW-1029	08/17/04	Co-60	24.9 ± 1.9	24.0 ± 2.4	15.3 - 32.7
STW-1029	08/17/04	Cs-134	21.4 ± 3.4	21.6 ± 2.2	12.9 - 30.3
STW-1029	08/17/04	Cs-137	205.6 ± 4.3	193.0 ± 19.3	176.0 - 210.0
STW-1029	08/17/04	Zn-65	145.5 ± 3.0	143.0 ± 14.3	118.0 - 168.0
STW-1030	08/17/04	Gr. Alpha	47.7 ± 9.1	57.0 ± 5.7	32.3 - 81.7
STW-1030	08/17/04	Gr. Beta	28.1 ± 2.5	20.0 ± 2.0	11.3 - 28.7
STW-1030	08/17/04	Gr. Beta	28.1 ± 2.5	20.0 ± 2.0	11.3 - 28.7
STW-1031	08/17/04	Ra-226	6.9 ± 0.5	6.3 ± 0.6	4.6 - 7.9
STW-1031	08/17/04	Ra-228	13.1 ± 1.4	14.7 ± 1.5	8.3 - 21.1
STW-1031	08/17/04	Uranium	6.0 ± 0.1	6.2 ± 0.6	1.0 - 11.4



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

Lab Code	Date	Analysis	Concentration (pCi/L)		
			Laboratory Result <sup>b</sup>	ERA Result <sup>c</sup>	Control Limits
STW-1037	11/15/04	Sr-89	42.2 ± 3.5	45.7 ± 5.0	37.0 - 51.5
STW-1037	11/15/04	Sr-90	37.3 ± 1.3	36.6 ± 5.0	27.9 - 45.3
STW-1038	11/15/04	Ba-133	75.5 ± 0.8	78.4 ± 7.8	64.8 - 92.0
STW-1038	11/15/04	Co-60	12.2 ± 0.7	11.7 ± 5.0	3.0 - 20.4
STW-1038	11/15/04	Cs-134	43.6 ± 0.5	42.9 ± 5.0	34.2 - 51.6
STW-1038	11/15/04	Cs-137	59.5 ± 2.9	60.1 ± 5.0	51.4 - 68.8
STW-1038	11/15/04	Zn-65	50.7 ± 3.2	50.9 ± 5.1	42.1 - 59.7
STW-1039	11/15/04	Gr. Alpha	23.9 ± 2.2	31.7 ± 7.9	18.0 - 45.4
STW-1039	11/15/04	Gr. Beta	35.8 ± 1.3	36.3 ± 5.0	27.6 - 45.0
STW-1040	11/15/04	I-131	22.4 ± 1.9	22.0 ± 5.0	16.9 - 27.3
STW-1041	11/15/04	Ra-226	9.8 ± 0.4	9.2 ± 1.4	6.8 - 11.6
STW-1041	11/15/04	Ra-228	8.6 ± 0.3	7.1 ± 1.8	7.0 - 10.2
STW-1041	11/15/04	Uranium	11.1 ± 0.3	11.4 ± 3.0	6.2 - 16.6
STW-1042	11/15/04	H-3	21218.0 ± 285.0	20700.0 ± 2070.0	17100.0 - 24300.0

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

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

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

TABLE A-2. Crosscheck program results; Thermoluminescent Dosimetry, (TLDs).

Lab Code	TLD Type	Date	Description	Known Value	mR	
					Lab Result ± 2 sigma	Control Limits
<u>Environmental, Inc.</u>						
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 120	4.69	4.74 ± 0.54	3.28 - 6.10
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 150	3.00	3.02 ± 0.20	2.10 - 3.90
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 180	2.08	1.89 ± 0.45	1.46 - 2.70
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 180	2.08	2.11 ± 0.22	1.46 - 2.70
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 30	75.00	84.40 ± 4.87	52.50 - 97.50
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 60	18.75	19.11 ± 1.86	13.13 - 24.38
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 60	18.75	22.82 ± 5.41	13.13 - 24.38
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 90	8.33	9.05 ± 1.17	5.83 - 10.83
2003-1	CaSO4: Dy Cards	8/8/2003	Reader 1, 90	8.33	7.60 ± 1.08	5.83 - 10.83
<u>Environmental, Inc.</u>						
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 30	61.96	73.50 ± 2.58	43.37 - 80.55
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 60	15.49	19.70 ± 0.51	10.84 - 20.14
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 60	15.49	16.93 ± 1.37	10.84 - 20.14
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 90	6.88	8.06 ± 0.60	4.82 - 8.94
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 90	6.88	6.64 ± 0.58	4.82 - 8.94
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 120	3.87	4.39 ± 0.17	2.71 - 5.03
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 150	2.48	2.34 ± 0.18	1.74 - 3.22
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 150	2.48	2.51 ± 0.16	1.74 - 3.22
2003-2	CaSO4: Dy Cards	1/12/2004	Reader 1, 180	1.72	2.01 ± 0.13	1.20 - 2.24
<u>Environmental, Inc.</u>						
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 30 cm	55.23	61.07 ± 4.38	38.66 - 71.80
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 30 cm	55.23	62.82 ± 1.75	38.66 - 71.80
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 60 cm	13.81	14.10 ± 0.56	9.67 - 17.95
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 60 cm	13.81	14.03 ± 0.48	9.67 - 17.95
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 90 cm	6.14	5.97 ± 0.21	4.30 - 7.98
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 90 cm	6.14	6.26 ± 0.14	4.30 - 7.98
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 120 cm	3.45	4.40 ± 0.63	2.42 - 4.49
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 150 cm	2.21	2.34 ± 0.12	1.55 - 2.87
2004-1	CaSO4: Dy Cards	7/12/2004	Reader 1, 180 cm	1.53	1.65 ± 0.02	1.07 - 1.99

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

Lab Code	Sample Type	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		
				Laboratory results 2s, n=1 <sup>b</sup>	Known Activity	Control Limits <sup>c</sup>
SPVE-707	Vegetation	2/20/2004	I-131(G)	5.68 ± 0.15	4.93	2.96 - 6.90
SPCH-711	Charcoal	2/20/2004	I-131(G)	6.35 ± 0.11	6.94	0.00 - 16.94
SPW-721	water	2/20/2004	Ni-63	161.00 ± 13.20	169.00	101.40 - 236.60
SPAP-733	Air Filter	2/25/2004	Gr. Beta	1.39 ± 0.02	1.48	0.00 - 11.48
SPW-735	water	2/25/2004	Cs-134	41.59 ± 7.02	39.10	29.10 - 49.10
SPW-735	water	2/25/2004	Cs-137	64.11 ± 7.39	64.56	54.56 - 74.56
SPW-735	water	2/25/2004	I-131	36.55 ± 0.48	40.08	28.08 - 52.08
SPW-735	water	2/25/2004	I-131	41.97 ± 8.93	40.08	28.08 - 52.08
SPMI-737	Milk	2/25/2004	Cs-134	37.40 ± 5.40	39.10	29.10 - 49.10
SPMI-737	Milk	2/25/2004	Cs-137	69.13 ± 9.58	64.56	54.56 - 74.56
SPMI-737	Milk	2/25/2004	I-131	45.03 ± 0.53	40.08	28.08 - 52.08
SPMI-737	Milk	2/25/2004	I-131	44.43 ± 9.22	40.08	28.08 - 52.08
SPW-1109	water	3/18/2004	Fe-55	39.98 ± 1.72	39.98	23.99 - 55.97
SPW-1496	water	4/7/2004	H-3	80006.60 ± 776.00	83896.00	67116.80 - 100675.20
SPMI-1683	Milk	4/16/2004	Sr-90	42.80 ± 1.81	43.43	34.74 - 52.12
SPW-1683	water	4/16/2004	I-131	54.47 ± 0.73	66.60	53.28 - 79.92
SPW-1683	water	4/16/2004	I-131(G)	65.82 ± 8.86	66.60	56.60 - 76.60
SPMI-1685	Milk	4/16/2004	Cs-134	33.60 ± 4.24	37.29	27.29 - 47.29
SPMI-1685	Milk	4/16/2004	Cs-137	61.77 ± 7.59	64.36	54.36 - 74.36
SPMI-1685	Milk	4/16/2004	I-131	65.85 ± 0.79	66.60	53.28 - 79.92
SPMI-1685	Milk	4/16/2004	I-131(G)	75.56 ± 11.86	66.60	56.60 - 76.60
SPMI-1685	Milk	4/16/2004	Sr-90	42.56 ± 1.66	43.43	34.74 - 52.12
SPW-1686	water	4/16/2004	Cs-134	39.31 ± 4.35	37.29	27.29 - 47.29
SPW-1686	water	4/16/2004	Cs-137	67.73 ± 7.92	64.36	54.36 - 74.36
SPVE-1862	Vegetation	4/26/2004	I-131(G)	1.32 ± 0.03	1.12	0.67 - 1.57
SPCH-1886	Charcoal	4/26/2004	I-131(G)	2.90 ± 0.07	2.80	1.68 - 3.92
SPAP-1888	Air Filter	4/27/2004	Gr. Beta	1.35 ± 0.02	1.48	0.00 - 11.48
SPF-1917	Fish	4/29/2004	Cs-134	1.44 ± 0.04	1.47	0.88 - 2.06
SPF-1917	Fish	4/29/2004	Cs-137	1.33 ± 0.06	1.29	0.77 - 1.81
SPW-3151	water	6/24/2004	Fe-55	33.85 ± 1.61	37.32	22.39 - 52.25
SPW-4232	water	8/4/2004	H-3	80225.00 ± 785.00	82380.00	65904.00 - 98856.00
SPAP-4234	Air Filter	8/4/2004	Gr. Beta	1.63 ± 0.02	1.46	0.00 - 11.46
SPW-5712	water	10/6/2004	Cs-134	61.04 ± 2.51	63.61	53.61 - 73.61
SPW-5712	water	10/6/2004	Cs-137	62.01 ± 2.76	63.66	53.66 - 73.66
SPW-5712	water	10/6/2004	Sr-90	48.40 ± 2.00	42.94	34.35 - 51.53
SPMI-5714	Milk	10/6/2004	Sr-90	41.61 ± 1.57	42.94	34.35 - 51.53

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

Lab Code	Sample Type	Date	Analysis	Concentration (pCi/L)		
				Laboratory results 2s, n=1 <sup>b</sup>	Known Activity	Control Limits <sup>c</sup>
SPMI-7418	Milk	12/22/2004	Cs-134	59.09 ± 2.59	59.25	49.25 - 69.25
SPMI-7418	Milk	12/22/2004	Cs-137	65.45 ± 5.61	63.35	53.35 - 73.35
SPW-7420	water	12/22/2004	Cs-134	58.42 ± 1.99	59.25	49.25 - 69.25
SPW-7420	water	12/22/2004	Cs-137	64.26 ± 4.18	63.35	53.35 - 73.35
SPW-7420	water	12/22/2004	Sr-89	105.26 ± 4.21	103.47	82.78 - 124.16
SPW-7420	water	12/22/2004	Sr-90	48.24 ± 1.70	42.72	34.18 - 51.26
SPAP-7437	Air Filter	12/22/2004	Gr. Beta	1.65 ± 0.02	1.45	0.00 - 11.45
SPF-7524	Fish	12/29/2004	Cs-134	1.11 ± 0.03	1.27	0.76 - 1.78
SPF-7524	Fish	12/29/2004	Cs-137	1.21 ± 0.05	1.19	0.71 - 1.67
SPW-7526	water	12/29/2004	H-3	78615.70 ± 773.70	80543.00	64434.40 - 96651.60
SPW-7532	water	12/29/2004	Fe-55	30894.00 ± 1484.00	32752.00	26201.60 - 39302.40
SPW-7540	water	12/29/2004	Tc-99	30.28 ± 1.11	32.98	20.98 - 44.98

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

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

<sup>c</sup> Control limits are based on Attachment A, Page A2 of this report.

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	Concentration (pCi/L) <sup>a</sup>		
				Laboratory results (4.66σ)		Acceptance Criteria (4.66 σ)
				LLD	Activity <sup>b</sup>	
SPCH-712	Charcoal	2/20/2004	I-131(G)	2.24		9.6
SPW-722	Water	2/20/2004	Ni-63	2.64	-0.78 ± 1.58	20
SPAP-734	Air Filter	2/25/2004	Gr. Beta	0.96	-1.02 ± 0.42	3.2
SPW-736	Water	2/25/2004	Cs-134	2.47		10
SPW-736	Water	2/25/2004	Cs-137	1.91		10
SPW-736	Water	2/25/2004	I-131	0.15	-0.031 ± 0.10	0.5
SPW-736	Water	2/25/2004	I-131(G)	3.24		20
SPMI-738	Milk	2/25/2004	Cs-134	2.54		10
SPMI-738	Milk	2/25/2004	Cs-137	5.34		10
SPMI-738	Milk	2/25/2004	I-131	0.16	-0.071 ± 0.10	0.5
SPMI-738	Milk	2/25/2004	I-131(G)	5.36		20
SPW-1110	Water	3/18/2004	Fe-55	772.70	168.4 ± 480.90	1000
SPW-1497	Water	4/7/2004	H-3	152.30	81.4 ± 79.40	200
SPW-1684	Water	4/16/2004	Cs-134	2.43		10
SPW-1684	Water	4/16/2004	Cs-137	2.53		10
SPW-1684	Water	4/16/2004	I-131	0.50	0.21 ± 0.26	0.5
SPW-1684	Water	4/16/2004	I-131(G)	4.49		20
SPW-1684	Water	4/16/2004	Sr-89	0.64	0.19 ± 0.52	5
SPW-1684	Water	4/16/2004	Sr-90	0.64	0.13 ± 0.31	1
SPMI-1686	Milk	4/16/2004	Cs-134	5.00		10
SPMI-1686	Milk	4/16/2004	Cs-137	4.16		10
SPMI-1686	Milk	4/16/2004	I-131	0.45	0.13 ± 0.24	0.5
SPMI-1686	Milk	4/16/2004	I-131(G)	6.53		20
SPMI-1686	Milk	4/16/2004	Sr-89	0.71	0.11 ± 0.70	5
SPMI-1686	Milk	4/16/2004	Sr-90	0.71	0.66 ± 0.40	1
SPVE-1863	Vegetation	4/26/2004	I-131(G)	3.55		20
SPCH-1887	Charcoal	4/26/2004	I-131(G)	7.04		9.6
SPAP-1889	Air Filter	4/27/2004	Gr. Beta	0.74	-0.96 ± 0.35	3.2
SPF-1918	Fish	4/29/2004	Cs-134	7.13		100
SPF-1918	Fish	4/29/2004	Cs-137	6.59		100
SPW-3152	Water	6/24/2004	Fe-55	790.30	-70.0 ± 474.50	1000
SPW-4233	Water	8/4/2004	H-3	154.23	102.67 ± 81.38	200
SPAP-4235	Air Filter	8/4/2004	Gr. Beta	0.96	-0.99 ± 0.38	3.2
SPW-5711	Water	10/6/2004	Co-60	4.26		10
SPW-5711	Water	10/6/2004	Cs-134	6.02		10
SPW-5711	Water	10/6/2004	Cs-137	5.28		10
SPW-5711	Water	10/6/2004	Sr-90	0.61	-0.13 ± 0.27	1

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

Lab Code	Sample Type	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		Acceptance Criteria (4.66 $\sigma$ )
				Laboratory results (4.66 $\sigma$ )		
				LLD	Activity <sup>b</sup>	
SPMI-5713	Milk	10/6/2004	Cs-134	4.60		10
SPMI-5713	Milk	10/6/2004	Cs-137	5.81		10
SPMI-5713	Milk	10/6/2004	I-131(G)	6.07		20
SPMI-5713	Milk	10/6/2004	Sr-90	0.68	1.4 $\pm$ 0.45	1
SPMI-7419	Milk	12/22/2004	Cs-134	8.66		10
SPMI-7419	Milk	12/22/2004	Cs-137	5.61		10
SPMI-7419	Milk	12/22/2004	Sr-90	0.82	1.67 $\pm$ 0.48	1
SPW-7421	Water	12/22/2004	Sr-89	1.21	0.58 $\pm$ 0.94	5
SPW-7421	Water	12/22/2004	Sr-90	0.82	0.26 $\pm$ 0.41	1
SPAP-7438	Air Filter	12/22/2004	Gr. Beta	0.93	-0.78 $\pm$ 0.40	3.2
SPF-7525	Fish	12/29/2004	Cs-134	8.27		100
SPF-7525	Fish	12/29/2004	Cs-137	10.60		100
SPW-7526	Water	12/29/2004	H-3	164.80	-47.0 $\pm$ 84.60	200
SPW-7533	Water	12/29/2004	Fe-55	753.00	118.6 $\pm$ 465.80	1000
SPW-7535	Water	12/29/2004	Ni-63	13.10	4.3 $\pm$ 8.10	20
SPW-7540	Water	12/29/2004	Tc-99	1.19	-0.036 $\pm$ 0.72	10

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

<sup>b</sup> Activity reported is a net activity result. For gamma spectroscopic analysis, activity detected below the LLD value is not reported.

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

<sup>d</sup> Low levels of Sr-90 are still detected in the environment. A concentration of (1-5 pCi/L) in milk is not unusual.

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		Averaged Result
			First Result	Second Result	
E-30, 31	1/5/2004	Gr. Beta	1.27 ± 0.06	1.26 ± 0.05	1.27 ± 0.04
E-30, 31	1/5/2004	K-40	1.33 ± 0.21	1.11 ± 0.20	1.22 ± 0.15
WW-58, 59	1/5/2004	Gr. Beta	4.20 ± 1.33	4.46 ± 1.34	4.33 ± 0.94
WW-58, 59	1/5/2004	K-40	2.30 ± 0.23	2.70 ± 0.27	2.50 ± 0.18
TD-7889, 7890	1/5/2004	H-3	16582.00 ± 366.00	16060.00 ± 360.00	16321.00 ± 256.69
MI-79, 80	1/7/2004	K-40	1451.50 ± 125.90	1383.60 ± 115.50	1417.55 ± 85.43
MI-79, 80	1/7/2004	Sr-90	0.90 ± 0.31	1.05 ± 0.34	0.97 ± 0.23
S-100, 101	1/13/2004	Cs-137	8.50 ± 0.23	8.52 ± 0.21	8.51 ± 0.16
SW-225, 226	1/13/2004	Gr. Alpha	2.62 ± 1.26	2.05 ± 1.16	2.34 ± 0.86
SW-225, 226	1/13/2004	Gr. Beta	6.37 ± 1.15	4.92 ± 1.06	5.65 ± 0.78
U-304, 305	1/16/2004	Gr. Beta	5.18 ± 1.38	7.04 ± 1.53	6.11 ± 1.03
SW-345, 346	1/27/2004	I-131	1.32 ± 0.24	1.56 ± 0.21	1.44 ± 0.16
SWT-423, 424	1/27/2004	Gr. Beta	2.34 ± 0.54	2.38 ± 0.52	2.36 ± 0.38
SWU-469, 470	1/27/2004	Gr. Beta	2.99 ± 0.57	3.09 ± 0.67	3.04 ± 0.44
TD-545, 546	2/2/2004	H-3	658.40 ± 104.60	712.30 ± 106.60	685.35 ± 74.67
MI-524, 525	2/4/2004	K-40	1240.00 ± 147.90	1265.60 ± 166.30	1252.80 ± 111.28
MI-567, 568	2/9/2004	K-40	1322.90 ± 105.50	1340.80 ± 112.80	1331.85 ± 77.22
MI-567, 568	2/9/2004	Sr-90	0.98 ± 0.48	0.79 ± 0.42	0.89 ± 0.32
MI-588, 589	2/11/2004	K-40	1185.70 ± 157.80	1337.70 ± 160.00	1261.70 ± 112.36
SWU-778, 779	2/24/2004	Gr. Beta	2.55 ± 0.54	2.53 ± 0.56	2.54 ± 0.39
LW-1014, 1015	3/1/2004	Gr. Beta	1.78 ± 0.56	2.06 ± 0.57	1.92 ± 0.40
SW-966, 967	3/9/2004	Gr. Alpha	2.70 ± 1.43	2.96 ± 1.63	2.83 ± 1.08
SW-966, 967	3/9/2004	Gr. Beta	8.06 ± 1.20	7.33 ± 1.21	7.69 ± 0.85
SW-966, 967	3/9/2004	H-3	182.04 ± 86.24	198.87 ± 86.97	190.45 ± 61.24
SW-1249, 1250	3/31/2004	Gr. Beta	4.71 ± 1.11	5.25 ± 1.10	4.98 ± 0.78
LW-1464, 1465	3/31/2004	Gr. Beta	2.13 ± 0.52	2.39 ± 0.53	2.26 ± 0.37
AP-1633, 1634	3/31/2004	Be-7	0.05 ± 0.02	0.05 ± 0.02	0.05 ± 0.01
AP-1714, 1715	3/31/2004	Be-7	0.04 ± 0.01	0.05 ± 0.01	0.05 ± 0.01
TD-1489, 1490	4/1/2004	H-3	681.00 ± 110.00	709.00 ± 111.00	695.00 ± 78.14
SWT-1299, 1300	4/2/2004	Gr. Beta	3.13 ± 0.57	3.64 ± 0.60	3.39 ± 0.41
DW-1420, 1421	4/2/2004	Gr. Beta	1.29 ± 0.83	1.62 ± 0.87	1.46 ± 0.60
DW-1510, 1511	4/2/2004	I-131	0.68 ± 0.27	0.62 ± 0.36	0.65 ± 0.23
BS-1537, 1538	4/6/2004	Gr. Beta	6.81 ± 1.20	6.76 ± 1.23	6.78 ± 0.86
WW-1654, 1655	4/13/2004	Gr. Beta	6.83 ± 1.17	5.60 ± 1.12	6.21 ± 0.81
LW-1680, 1681	4/13/2004	Gr. Beta	2.45 ± 0.64	2.93 ± 0.62	2.69 ± 0.45
MI-1735, 1736	4/14/2004	K-40	1384.90 ± 182.00	1408.20 ± 187.90	1396.55 ± 130.80
MI-1802, 1803	4/19/2004	K-40	1327.50 ± 109.10	1206.30 ± 113.30	1266.90 ± 78.64
MI-1802, 1803	4/19/2004	Sr-90	0.72 ± 0.40	0.77 ± 0.41	0.74 ± 0.28
U-1781, 1782	4/21/2004	Gr. Alpha	0.20 ± 1.90	-0.30 ± 2.40	-0.05 ± 1.53
SWT-1933, 1934	4/27/2004	Gr. Beta	2.60 ± 0.55	2.33 ± 0.52	2.46 ± 0.38
F-1912, 1913	4/29/2004	H-3	8875.00 ± 250.00	9119.00 ± 253.00	8997.00 ± 177.84
F-1912, 1913	4/29/2004	K-40	3406.90 ± 533.30	3550.60 ± 581.40	3478.75 ± 394.47
LW-1960, 1961	4/29/2004	Gr. Beta	2.23 ± 0.55	2.38 ± 0.57	2.31 ± 0.40

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		
			First Result	Second Result	Averaged Result
BS-2083, 2084	5/3/2004	Be-7	1.10 ± 0.44	1.17 ± 0.20	1.14 ± 0.24
BS-2083, 2084	5/3/2004	Gr. Beta	28.44 ± 2.27	25.56 ± 2.04	27.00 ± 1.53
BS-2083, 2084	5/3/2004	K-40	6.75 ± 0.89	6.35 ± 0.53	6.55 ± 0.52
BS-2083, 2084	5/3/2004	Sr-90	0.12 ± 0.04	0.17 ± 0.05	0.15 ± 0.03
MI-2225, 2226	5/11/2004	K-40	1396.30 ± 124.20	1227.60 ± 125.40	1311.95 ± 88.25
SW-2267, 2268	5/11/2004	Gr. Alpha	2.95 ± 1.44	2.41 ± 1.37	2.68 ± 0.99
SW-2267, 2268	5/11/2004	Gr. Beta	6.80 ± 1.18	7.25 ± 1.21	7.03 ± 0.84
MI-2437, 2438	5/17/2004	K-40	1549.00 ± 123.40	1566.20 ± 118.60	1557.60 ± 85.58
MI-2437, 2438	5/17/2004	Sr-90	1.83 ± 0.44	1.99 ± 0.42	1.91 ± 0.30
F-2413, 2414	5/20/2004	K-40	2844.60 ± 550.40	2963.00 ± 532.30	2903.80 ± 382.85
SO-2578, 2579	5/26/2004	Cs-137	0.16 ± 0.02	0.21 ± 0.05	0.18 ± 0.03
SO-2578, 2579	5/26/2004	Gr. Beta	28.07 ± 3.24	28.73 ± 3.00	28.40 ± 2.21
SO-2578, 2579	5/26/2004	K-40	19.41 ± 0.78	18.93 ± 1.04	19.17 ± 0.65
SS-2603, 2604	5/26/2004	Cs-137	0.06 ± 0.02	0.06 ± 0.02	0.06 ± 0.02
SS-2603, 2604	5/26/2004	K-40	10.18 ± 0.63	10.43 ± 0.56	10.30 ± 0.42
G-2677, 2678	6/1/2004	Be-7	1.31 ± 0.25	1.25 ± 0.23	1.28 ± 0.17
G-2677, 2678	6/1/2004	Gr. Beta	5.73 ± 0.12	5.86 ± 0.12	5.79 ± 0.09
G-2677, 2678	6/1/2004	K-40	5.56 ± 0.49	5.78 ± 0.50	5.67 ± 0.35
G-2677, 2678	6/1/2004	Sr-90	0.01 ± 0.00	0.01 ± 0.01	0.01 ± 0.00
DW-2700, 2701	6/1/2004	Gr. Beta	1.82 ± 1.01	2.66 ± 0.94	2.24 ± 0.69
TD-2876, 2877	6/1/2004	H-3	13116.00 ± 324.00	12746.00 ± 320.00	12931.00 ± 227.69
MI-2724, 2725	6/3/2004	K-40	1509.00 ± 116.10	1489.20 ± 126.10	1499.10 ± 85.70
MI-2724, 2725	6/3/2004	Sr-90	1.64 ± 0.46	1.81 ± 0.44	1.73 ± 0.32
BS-2921, 2922	6/3/2004	K-40	8.32 ± 0.63	8.55 ± 0.62	8.44 ± 0.44
TD-2876, 2877	6/4/2004	H-3	13116.00 ± 324.00	12746.00 ± 320.00	12931.00 ± 227.69
BS-2897, 2898	6/4/2004	Gr. Beta	9.31 ± 1.43	8.82 ± 1.39	9.06 ± 1.00
SWU-3092, 3093	6/9/2004	Gr. Beta	1.95 ± 0.71	2.55 ± 0.76	2.25 ± 0.52
CF-2986, 2987	6/14/2004	Be-7	0.69 ± 0.12	0.84 ± 0.19	0.76 ± 0.11
CF-2986, 2987	6/14/2004	K-40	4.50 ± 0.32	3.82 ± 0.48	4.16 ± 0.29
MI-2977, 2978	6/15/2004	K-40	1486.70 ± 120.10	1291.60 ± 167.40	1389.15 ± 103.01
MI-3007, 3008	6/15/2004	K-40	1333.90 ± 121.30	1355.80 ± 176.50	1344.85 ± 107.08
W-3031, 3032	6/18/2004	H-3	642.00 ± 108.00	562.00 ± 105.00	602.00 ± 75.31
W-3071, 3072	6/21/2004	H-3	273.00 ± 94.00	203.00 ± 92.00	238.00 ± 65.76
SW-3145, 3146 <sup>b</sup>	6/22/2004	I-131	0.97 ± 0.20	1.43 ± 0.20	1.20 ± 0.14
DW-3278, 3279	6/25/2004	I-131	0.67 ± 0.26	0.48 ± 0.25	0.57 ± 0.18
AP-3922, 3923	6/28/2004	Be-7	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01
AP-3637, 3638	6/29/2004	Be-7	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01
LW-3589, 3590	6/30/2004	Gr. Alpha	0.28 ± 0.55	1.29 ± 0.89	0.79 ± 0.53
LW-3589, 3590	6/30/2004	Gr. Beta	1.91 ± 0.64	2.86 ± 0.70	2.39 ± 0.48
LW-3589, 3590	6/30/2004	H-3	8369.20 ± 262.57	8226.01 ± 260.51	8297.61 ± 184.94
AP-3943, 3944	6/30/2004	Be-7	0.08 ± 0.02	0.09 ± 0.02	0.08 ± 0.01



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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		Averaged Result
			First Result	Second Result	
E-3327, 3328	7/1/2004	Gr. Beta	1.21 ± 0.06	1.35 ± 0.07	1.28 ± 0.05
E-3327, 3328	7/1/2004	K-40	1.08 ± 0.20	1.30 ± 0.22	1.19 ± 0.15
G-3377, 3378	7/1/2004	Be-7	1.10 ± 0.13	1.16 ± 0.16	1.13 ± 0.10
G-3377, 3378	7/1/2004	Gr. Beta	6.42 ± 0.19	6.28 ± 0.19	6.35 ± 0.13
G-3377, 3378	7/1/2004	K-40	5.26 ± 0.31	5.36 ± 0.28	5.31 ± 0.21
VE-3681, 3682	7/13/2004	K-40	2.65 ± 0.45	2.90 ± 0.61	2.77 ± 0.38
CF-3707, 3708	7/13/2004	Be-7	1.97 ± 0.44	2.11 ± 0.25	2.04 ± 0.25
CF-3707, 3708	7/13/2004	K-40	5.39 ± 0.44	4.98 ± 0.42	5.19 ± 0.30
SW-3773, 3774	7/14/2004	H-3	10697.20 ± 295.70	10689.60 ± 295.70	10693.40 ± 209.09
LW-3849, 3850	7/14/2004	Gr. Beta	2.21 ± 0.54	2.32 ± 0.65	2.27 ± 0.42
SWU-4307, 4308	7/14/2004	Gr. Beta	3.49 ± 0.57	3.68 ± 0.61	3.59 ± 0.42
MI-4051, 4052	7/28/2004	K-40	1190.70 ± 204.60	1357.00 ± 145.90	1273.85 ± 125.65
VE-4079, 4080	7/28/2004	K-40	4.90 ± 0.51	4.62 ± 0.61	4.76 ± 0.40
MI-4163, 4164	7/28/2004	K-40	1422.40 ± 186.50	1330.80 ± 181.00	1376.60 ± 129.95
MI-4163, 4164	7/28/2004	Sr-90	0.87 ± 0.32	1.00 ± 0.35	0.93 ± 0.24
WW-4387, 4388	8/3/2004	Gr. Beta	5.94 ± 0.76	6.28 ± 0.76	6.11 ± 0.54
MI-4286, 4287	8/4/2004	K-40	1435.20 ± 76.90	1404.70 ± 80.54	1419.95 ± 55.68
MI-4286, 4287	8/4/2004	Sr-90	1.88 ± 0.40	1.31 ± 0.35	1.59 ± 0.26
VE-4370, 4371	8/4/2004	H-3	0.54 ± 0.08	0.62 ± 0.08	0.58 ± 0.06
VE-4408, 4409	8/5/2004	K-40	2.03 ± 0.39	2.12 ± 0.32	2.08 ± 0.25
VE-4467, 4468	8/9/2004	K-40	6.28 ± 0.76	6.11 ± 0.75	6.20 ± 0.53
MI-4492, 4493	8/10/2004	K-40	1478.70 ± 116.70	1472.50 ± 105.10	1475.60 ± 78.53
MI-4492, 4493	8/10/2004	Sr-90	1.35 ± 0.40	1.08 ± 0.42	1.22 ± 0.29
MI-4518, 4519	8/11/2004	K-40	1197.30 ± 158.50	1350.20 ± 202.30	1273.75 ± 128.50
VE-4748, 4749	8/25/2004	Gr. Beta	2.31 ± 0.05	2.32 ± 0.05	2.31 ± 0.04
VE-4748, 4749	8/25/2004	K-40	1.70 ± 0.25	1.94 ± 0.31	1.82 ± 0.20
LW-4769, 4770	8/26/2004	Gr. Beta	2.00 ± 0.58	2.07 ± 0.58	2.04 ± 0.41
ME-4905, 4906	9/1/2004	Gr. Beta	3.06 ± 0.10	2.93 ± 0.10	3.00 ± 0.07
ME-4905, 4906	9/1/2004	K-40	2.33 ± 0.67	3.26 ± 0.58	2.80 ± 0.44
MI-4926, 4927	9/1/2004	K-40	1316.20 ± 115.40	1285.80 ± 117.30	1301.00 ± 82.27
MI-4926, 4927	9/1/2004	Sr-90	3.62 ± 0.52	2.07 ± 0.43	2.84 ± 0.34
VE-5027, 5028	9/2/2004	Gr. Beta	2.43 ± 0.07	2.39 ± 0.06	2.41 ± 0.05
VE-5027, 5028	9/2/2004	K-40	1.77 ± 0.20	1.94 ± 0.31	1.86 ± 0.18
SW-5003, 5004	9/7/2004	I-131	1.69 ± 0.23	1.50 ± 0.25	1.59 ± 0.17
MI-5050, 5051	9/7/2004	K-40	1559.40 ± 131.80	1560.70 ± 121.20	1560.05 ± 89.53
MI-5050, 5051	9/7/2004	Sr-90	2.26 ± 0.52	1.61 ± 0.47	1.94 ± 0.35
WW-5072, 5073	9/7/2004	Gr. Beta	4.31 ± 0.70	4.11 ± 0.69	4.21 ± 0.49
SW-5216, 5217	9/14/2004	Gr. Alpha	4.34 ± 1.71	4.30 ± 1.77	4.32 ± 1.23
SW-5216, 5217	9/14/2004	Gr. Beta	7.97 ± 1.24	8.58 ± 1.29	8.27 ± 0.89

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		
			First Result	Second Result	Averaged Result
G-5237, 5238	9/15/2004	Be-7	1.18 ± 0.23	1.28 ± 0.24	1.23 ± 0.17
G-5237, 5238	9/15/2004	K-40	7.16 ± 0.58	7.56 ± 0.55	7.36 ± 0.40
LW-5316, 5317	9/16/2004	Gr. Beta	2.76 ± 0.58	2.64 ± 0.54	2.70 ± 0.40
SS-5450, 5451	9/24/2004	K-40	10.33 ± 0.66	10.10 ± 0.74	10.22 ± 0.50
AP-6308, 6309	9/27/2004	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01
SWU-5495, 5496	9/28/2004	Gr. Beta	3.38 ± 1.78	4.41 ± 1.94	3.90 ± 1.32
AP-6070, 6071	9/28/2004	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01
G-5516, 5517	9/29/2004	Be-7	1.81 ± 0.29	1.74 ± 0.30	1.77 ± 0.21
G-5516, 5517	9/29/2004	K-40	7.35 ± 0.70	7.43 ± 0.62	7.39 ± 0.47
AP-6258, 6259	9/29/2004	Be-7	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01
F-7211, 7212	9/29/2004	Cs-137	0.04 ± 0.01	0.05 ± 0.02	0.05 ± 0.01
F-7211, 7212	9/29/2004	K-40	2.76 ± 0.27	3.07 ± 0.26	2.92 ± 0.19
BS-5902, 5903	10/1/2004	Co-60	0.25 ± 0.05	0.26 ± 0.03	0.25 ± 0.03
BS-5902, 5903	10/1/2004	Co-60	2.53 ± 0.11	2.52 ± 0.06	2.52 ± 0.06
E-5654, 5655	10/4/2004	Gr. Beta	1.40 ± 0.06	1.32 ± 0.06	1.36 ± 0.04
E-5654, 5655	10/4/2004	K-40	1.32 ± 0.26	1.22 ± 0.24	1.27 ± 0.18
MI-5676, 5677	10/4/2004	K-40	1311.00 ± 122.00	1398.00 ± 125.00	1354.50 ± 87.33
SO-5756, 5757	10/4/2004	Gr. Alpha	7.12 ± 3.09	6.69 ± 2.92	6.91 ± 2.13
SO-5756, 5757	10/4/2004	Gr. Beta	19.66 ± 2.63	22.32 ± 2.65	20.99 ± 1.87
SO-5756, 5757	10/4/2004	K-40	16.45 ± 0.86	17.52 ± 0.78	16.99 ± 0.58
VE-6483, 6484	10/6/2004	K-40	9.35 ± 0.55	9.88 ± 0.23	9.61 ± 0.30
MI-5923, 5924	10/12/2004	K-40	1333.60 ± 183.50	1552.40 ± 179.20	1443.00 ± 128.24
SS-6046, 6047	10/13/2004	Cs-137	0.02 ± 0.01	0.02 ± 0.01	0.02 ± 0.01
SS-6046, 6047	10/13/2004	Gr. Beta	7.93 ± 1.72	9.57 ± 1.88	8.75 ± 1.27
SS-6046, 6047	10/13/2004	K-40	5.77 ± 0.42	5.77 ± 0.40	5.77 ± 0.29
DW-6208, 6209	10/15/2004	I-131	0.89 ± 0.26	0.65 ± 0.27	0.77 ± 0.19
BS-6694, 6695	10/19/2004	K-40	11.84 ± 0.67	12.75 ± 0.79	12.29 ± 0.52
VE-6354, 6355	10/25/2004	Gr. Beta	4.82 ± 0.14	4.76 ± 0.14	4.79 ± 0.10
VE-6354, 6355	10/25/2004	K-40	4.71 ± 0.54	4.82 ± 0.61	4.77 ± 0.41
DW-6462, 6463	10/27/2004	Gr. Beta	8.46 ± 1.27	8.22 ± 1.24	8.34 ± 0.89
LW-6377, 6378	10/28/2004	Gr. Beta	2.18 ± 0.54	2.33 ± 0.53	2.25 ± 0.38
SS-6504, 6505	10/29/2004	K-40	9.28 ± 0.61	8.51 ± 0.78	8.89 ± 0.50
LW-6762, 6763	10/31/2004	Gr. Beta	1.85 ± 0.66	1.69 ± 0.64	1.77 ± 0.46
BS-6576, 6577	11/1/2004	Gr. Beta	11.02 ± 1.54	13.77 ± 1.77	12.40 ± 1.17
BS-6576, 6577	11/1/2004	K-40	9.43 ± 0.71	8.84 ± 0.68	9.14 ± 0.49
SO-6715, 6716	11/2/2004	Cs-137	0.29 ± 0.04	0.33 ± 0.06	0.31 ± 0.04
SO-6715, 6716	11/2/2004	Gr. Alpha	10.94 ± 3.95	14.72 ± 4.16	12.83 ± 2.87
SO-6715, 6716	11/2/2004	Gr. Beta	21.33 ± 3.10	24.82 ± 3.10	23.07 ± 2.19
SO-6715, 6716	11/2/2004	K-40	10.42 ± 0.71	12.16 ± 1.06	11.29 ± 0.64
VE-6673, 6674	11/8/2004	Gr. Alpha	0.07 ± 0.04	0.14 ± 0.05	0.11 ± 0.03
VE-6673, 6674	11/8/2004	Gr. Beta	4.50 ± 0.12	4.48 ± 0.12	4.49 ± 0.09
VE-6673, 6674	11/8/2004	K-40	4.05 ± 0.49	4.65 ± 0.55	4.35 ± 0.37

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		Averaged Result
			First Result	Second Result	
SO-6820, 6821	11/10/2004	K-40	14.41 ± 1.03	15.01 ± 1.09	14.71 ± 0.75
SO-6820, 6821	11/10/2004	Sr-90	0.04 ± 0.02	0.07 ± 0.02	0.06 ± 0.02
SWU-7160, 7161	11/30/2004	Gr. Beta	4.39 ± 1.98	3.09 ± 1.77	3.74 ± 1.33
MI-7062, 7063	12/1/2004	K-40	1456.00 ± 124.80	1640.50 ± 131.40	1548.25 ± 90.61
MI-7062, 7063	12/1/2004	Sr-90	1.13 ± 0.41	0.98 ± 0.43	1.06 ± 0.30
S-7281, 7282	12/5/2004	Cs-137	0.82 ± 0.15	1.16 ± 0.20	0.99 ± 0.12
VE-7343, 7344	12/13/2004	Gr. Beta	5.25 ± 0.14	5.08 ± 0.14	5.16 ± 0.10
VE-7343, 7344	12/13/2004	K-40	4.23 ± 0.71	4.33 ± 0.69	4.28 ± 0.49
MI-7317, 7318	12/14/2004	K-40	1702.80 ± 129.70	1536.80 ± 115.10	1619.80 ± 86.70
WW-7375, 7376	12/14/2004	Gr. Beta	14.13 ± 1.03	15.22 ± 1.06	14.68 ± 0.74
SWU-7507, 7508	12/14/2004	Gr. Beta	4.48 ± 0.66	5.31 ± 0.69	4.89 ± 0.48
DW-7563, 7564	12/27/2004	Gr. Beta	1.88 ± 0.51	2.34 ± 0.52	2.11 ± 0.37
P-7698, 7699	12/27/2004	H-3	246.01 ± 95.00	259.06 ± 95.51	252.53 ± 67.35
AP-7741, 7742	12/28/2004	Be-7	0.06 ± 0.02	0.05 ± 0.02	0.05 ± 0.01

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

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

<sup>b</sup> 600 minute count time or longer, resulting in lower error.

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP)<sup>a</sup>.

Lab Code	Type	Date	Analysis	Concentration <sup>b</sup>		
				Laboratory result	Known Activity	Control Limits <sup>c</sup>
STSO-1022	soil	05/01/04	Am-241	65.90 ± 4.50	66.97 ± 6.70	46.88 - 87.06
STSO-1022	soil	05/01/04	Co-57	388.90 ± 4.00	399.60 ± 40.00	279.72 - 519.48
STSO-1022	soil	05/01/04	Co-60	524.80 ± 7.10	518.00 ± 51.80	362.60 - 673.40
STSO-1022	soil	05/01/04	Cs-134	403.40 ± 4.60	414.40 ± 41.40	290.08 - 538.72
STSO-1022	soil	05/01/04	Cs-137	829.10 ± 7.60	836.20 ± 83.62	585.34 - 1088.00
STSO-1022	soil	05/01/04	K-40	620.60 ± 29.50	604.00 ± 60.40	422.80 - 785.20
STSO-1022	soil	05/01/04	Ni-63	254.80 ± 8.40	357.05 ± 35.70	249.94 - 464.17
STSO-1022 <sup>d,1</sup>	soil	05/01/04	Tc-99	59.00 ± 6.00	117.66 ± 11.78	82.36 - 152.96
STSO-1022 <sup>d,1</sup>	soil	05/01/04	U-233/4	24.70 ± 3.60	37.00 ± 3.70	25.90 - 48.40
STSO-1022 <sup>d,1</sup>	soil	05/01/04	U-238	24.20 ± 3.50	38.85 ± 3.90	27.20 - 50.51
STSO-1022	soil	05/01/04	Zn-65	743.00 ± 13.10	699.30 ± 69.90	489.51 - 909.09
STAP-1023	Air Filter	05/01/04	Gr. Alpha	0.06 ± 0.02	0.40 ± 0.04	0.00 - 0.80
STAP-1023	Air Filter	05/01/04	Gr. Beta	1.37 ± 0.08	1.20 ± 0.12	0.60 - 1.80
STAP-1024	Air Filter	05/01/04	Am-241	0.08 ± 0.03	0.10 ± 0.01	0.07 - 0.13
STAP-1024	Air Filter	05/01/04	Co-57	2.07 ± 0.06	2.40 ± 0.24	1.68 - 3.12
STAP-1024	Air Filter	05/01/04	Co-60	2.11 ± 0.08	2.30 ± 0.23	1.61 - 2.99
STAP-1024 <sup>e</sup>	Air Filter	05/01/04	Cs-134	1.78 ± 0.08	2.90 ± 0.29	2.03 - 3.77
STAP-1024	Air Filter	05/01/04	Cs-137	1.76 ± 0.08	2.00 ± 0.20	1.40 - 2.60
STAP-1024	Air Filter	05/01/04	Mn-54	2.84 ± 0.11	3.00 ± 0.30	2.10 - 3.90
STAP-1024	Air Filter	05/01/04	Pu-238	0.12 ± 0.01	0.13 ± 0.01	0.09 - 0.17
STAP-1024	Air Filter	05/01/04	Pu-239/40	0.08 ± 0.01	0.09 ± 0.01	0.06 - 0.12
STAP-1024	Air Filter	05/01/04	Sr-90	0.66 ± 0.19	0.80 ± 0.08	0.56 - 1.04
STAP-1024	Air Filter	05/01/04	U-233/4	0.23 ± 0.03	0.21 ± 0.02	0.15 - 0.27
STAP-1024	Air Filter	05/01/04	U-238	0.23 ± 0.03	0.22 ± 0.02	0.15 - 0.29
STAP-1024	Air Filter	05/01/04	Zn-65	3.90 ± 0.22	4.00 ± 0.40	2.80 - 5.20
STW-1026	water	05/01/04	Am-241	0.56 ± 0.07	0.60 ± 0.06	0.42 - 0.78
STW-1026	water	05/01/04	Co-57	184.10 ± 13.50	185.00 ± 18.50	129.50 - 240.50
STW-1026	water	05/01/04	Co-60	164.40 ± 11.70	163.00 ± 16.30	114.10 - 211.90
STW-1026	water	05/01/04	Cs-134	201.10 ± 14.00	208.00 ± 20.80	145.60 - 270.40
STW-1026	water	05/01/04	Cs-137	245.50 ± 15.80	250.00 ± 25.00	175.00 - 325.00
STW-1026	water	05/01/04	Fe-55	37.60 ± 25.30	33.00 ± 3.30	23.10 - 42.90
STW-1026	water	05/01/04	H-3	76.50 ± 5.40	83.00 ± 8.30	58.10 - 107.90
STW-1026	water	05/01/04	Mn-54	272.10 ± 17.50	267.00 ± 26.70	186.90 - 347.10
STW-1026	water	05/01/04	Ni-63	94.40 ± 3.20	100.00 ± 10.00	70.00 - 130.00
STW-1026	water	05/01/04	Pu-238	1.11 ± 0.09	1.20 ± 0.12	0.84 - 1.56
STW-1026	water	05/01/04	Pu-239/40	0.01 ± 0.01	0.00 ± 0.00	0.00 - 0.10
STW-1026	water	05/01/04	Sr-90	6.20 ± 1.10	7.00 ± 0.70	4.90 - 9.10
STW-1026	water	05/01/04	Tc-99	10.70 ± 1.00	10.00 ± 1.00	7.00 - 13.00

TABLE A-6. Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP)<sup>a</sup>.

Lab Code	Type	Date	Analysis	Concentration <sup>b</sup>		
				Laboratory result	Known Activity	Control Limits <sup>c</sup>
STW-1026	water	05/01/04	U-233/4	0.14 ± 0.02	0.12 ± 0.01	0.08 - 0.16
STW-1026	water	05/01/04	U-238	0.94 ± 0.05	0.90 ± 0.09	0.63 - 1.17
STW-1026	water	05/01/04	Zn-65	219.60 ± 27.90	208.00 ± 20.80	145.60 - 270.40
STW-1027	water	05/01/04	Gr. Alpha	1.20 ± 0.10	1.20 ± 0.12	0.00 - 2.40
STW-1027	water	05/01/04	Gr. Beta	4.30 ± 0.10	4.10 ± 0.41	2.05 - 6.15

<sup>a</sup> Results obtained by Environmental, Inc., Midwest Laboratory as a participant in the Department of Energy's Mixed Analyte Performance Evaluation Program, Idaho Operations office, Idaho Falls, Idaho

<sup>b</sup> All results are in Bq/kg or Bq/L as requested by the Department of Energy.

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

<sup>d</sup> The cause of the deviation seems to be incomplete dissolution of the sample.

<sup>e</sup> A spiked soil sample was prepared. Known activity; 32.98 pCi/g; laboratory result 33.47 pCi/g.

<sup>f</sup> The sample was reanalyzed with the same results. Investigation is in progress.

<sup>g</sup> Based on the results of gamma emitting isotopes (Cs-137 and Co-60), the filter geometry appears to be biased by -10%. Addition of the summation peak at 1400 KeV results in a recalculation of 2.12 ± 0.15 Bq/sample.

TABLE A-7. Environmental Measurements Laboratory Quality Assessment Program (EML)

Lab Code	Type	Date	Analysis	Concentration <sup>a</sup>		
				Laboratory results	EML Result <sup>b</sup>	Control Limits <sup>c</sup>
STW-1009	water	03/01/04	Am-241	1.21 ± 0.02	1.31	0.66 - 1.56
STW-1009	water	03/01/04	Co-60	152.30 ± 0.30	163.20	0.87 - 1.17
STW-1009	water	03/01/04	Cs-137	50.40 ± 0.90	51.95	0.90 - 1.25
STW-1009	water	03/01/04	H-3	263.50 ± 10.00	186.60	0.69 - 1.91
STW-1009	water	03/01/04	Pu-238	1.03 ± 0.04	1.10	0.68 - 1.33
STW-1009	water	03/01/04	Pu-239/40	2.90 ± 0.10	3.08	0.62 - 1.38
STW-1009	water	03/01/04	Sr-90	5.20 ± 0.30	4.76	0.73 - 1.65
STW-1009	water	03/01/04	Uranium	4.35 ± 0.21	4.62	0.40 - 1.45
STW-1010	water	03/01/04	Gr. Alpha	208.00 ± 20.70	326.00	0.55 - 1.31
STW-1010	water	03/01/04	Gr. Beta	1063.00 ± 27.00	1170.00	0.75 - 1.65
STSO-1011	Soil	03/01/04	Am-241	14.10 ± 4.30	13.00	0.52 - 2.41
STSO-1011	Soil	03/01/04	Cs-137	1292.00 ± 13.00	1323.00	0.74 - 1.40
STSO-1011	Soil	03/01/04	K-40	563.00 ± 83.00	539.00	0.70 - 1.59
STSO-1011	Soil	03/01/04	Pu-239/40	20.70 ± 1.10	22.82	0.62 - 1.99
STSO-1011	Soil	03/01/04	Sr-90	72.10 ± 5.80	51.00	0.58 - 2.96
STSO-1011	Soil	03/01/04	Uranium	139.10 ± 10.20	180.22	0.27 - 1.48
STVE-1012	Vegetation	03/01/04	Am-241	4.50 ± 0.20	4.93	0.58 - 2.86
STVE-1012	Vegetation	03/01/04	Co-60	14.10 ± 0.40	14.47	0.64 - 1.49
STVE-1012	Vegetation	03/01/04	Cs-137	573.90 ± 6.00	584.67	0.75 - 1.48
STVE-1012	Vegetation	03/01/04	K-40	709.00 ± 19.30	720.00	0.45 - 1.51
STVE-1012	Vegetation	03/01/04	Pu-239/40	6.60 ± 0.50	6.81	0.60 - 1.98
STVE-1012	Vegetation	03/01/04	Sr-90	766.50 ± 51.30	734.00	0.50 - 1.37
STAP-1013	Air Filter	03/01/04	Am-241	0.11 ± 0.01	0.10	0.62 - 1.93
STAP-1013	Air Filter	03/01/04	Co-60	30.90 ± 1.08	35.40	0.74 - 1.25
STAP-1013 <sup>d</sup>	Air Filter	03/01/04	Cs-134	12.30 ± 1.30	18.20	0.70 - 1.21
STAP-1013	Air Filter	03/01/04	Cs-137	24.90 ± 0.60	26.40	0.72 - 1.32
STAP-1013	Air Filter	03/01/04	Pu-238	0.04 ± 0.01	0.04	0.61 - 1.55
STAP-1013	Air Filter	03/01/04	Pu-239/40	0.17 ± 0.02	0.16	0.67 - 1.58
STAP-1013	Air Filter	03/01/04	Sr-90	1.80 ± 0.20	1.76	0.62 - 2.26
STAP-1013	Air Filter	03/01/04	Uranium	0.17 ± 0.01	0.17	0.79 - 2.88
STAP-1014	Air Filter	03/01/04	Gr. Alpha	1.09 ± 0.06	1.20	0.82 - 1.58
STAP-1014	Air Filter	03/01/04	Gr. Beta	2.68 ± 0.05	2.85	0.75 - 1.94

<sup>a</sup> Results are reported in Bq/L with the following exceptions: Air Filters (Bq/Filter), Soil and Vegetation (Bq/kg).

<sup>b</sup> The EML result listed is the mean of replicate determinations for each nuclide ± the standard error of the mean.

<sup>c</sup> Control limits are reported by EML as the ratio of Reported Value / EML value.

<sup>d</sup> Probable effect of summation peaks and slight difference in filter geometry.

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;

$s$  = 2s 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 4.66s uncertainty for a background sample.

### 3.0. Duplicate analyses

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  and standard deviation  $s$  of a set of  $n$  numbers  $x_1, x_2, \dots, x_n$  are defined as follows:

$$\text{Average} = \frac{1}{n} \sum x$$

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

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

Maximum Permissible Concentrations  
of Radioactivity in Air and Water  
Above Background in Unrestricted Areas

Table C-1. Maximum permissible concentrations of radioactivity in air and water above natural background in unrestricted areas<sup>a</sup>.

Air (pCi/m <sup>3</sup> )		Water (pCi/L)	
Gross alpha	1 x 10 <sup>-3</sup>	Strontium-89	8,000
Gross beta	1	Strontium-90	500
Iodine-131 <sup>b</sup>	2.8 x 10 <sup>-1</sup>	Cesium-137	1,000
		Barium-140	8,000
		Iodine-131	1,000
		Potassium-40 <sup>c</sup>	4,000
		Gross alpha	2
		Gross beta	10
		Tritium	1 x 10 <sup>6</sup>

<sup>a</sup> Taken from Table 2 of Appendix B to Code of Federal Regulations Title 10, Part 20, and appropriate footnotes. Concentrations may be averaged over a period not greater than one year.

<sup>b</sup> Value adjusted by a factor of 700 to reduce the dose resulting from the air-grass-cow-milk-child pathway.

<sup>c</sup> A natural radionuclide.

APPENDIX D  
REMP SAMPLING SUMMARY

Table 4.5 Radiological Environmental Monitoring Program Summary

Name of Facility Davis-Besse Nuclear Power Station Docket No. 50-346  
 Location of Facility Ottawa, Ohio Reporting Period January-December, 2004  
 ( County, State )

Sample Type (Units)	Type and Number of Analyses <sup>a</sup>	LLD <sup>b</sup>	Indicator Locations Mean (F) <sup>c</sup> Range <sup>c</sup>	Location with Highest Annual Mean		Control Locations Mean (F) <sup>c</sup> Range <sup>c</sup>	Number Non-Routine Results <sup>a</sup>
				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>		
Airborne Particulates (pCi/m3)	GB 517	0.005	0.023 (309/310) (0.011-0.048)	T-8, Farm 2.7 mi. WSW	0.024 (52/52) (0.013-0.043)	0.022 (208/208) (0.011-0.064)	0
	Sr-89 40	0.0012	< LLD	-	-	< LLD	0
	Sr-90 40	0.0011	< LLD	-	-	< LLD	0
	GS 40	0.015	0.068 (24/24) (0.053-0.085)	T-3, Site Boundary 1.4 mi. ESE	0.075 (4/4) (0.064-0.085)	0.064 (16/16) (0.046-0.087)	0
	K-40	0.029	< LLD	-	-	< LLD	0
	Nb-95	0.0015	< LLD	-	-	< LLD	0
	Zr-95	0.0028	< LLD	-	-	< LLD	0
	Ru-103	0.0014	< LLD	-	-	< LLD	0
	Ru-106	0.0092	< LLD	-	-	< LLD	0
	Cs-134	0.0011	< LLD	-	-	< LLD	0
	Cs-137	0.0010	< LLD	-	-	< LLD	0
	Ce-141	0.0022	< LLD	-	-	< LLD	0
	Ce-144	0.0062	< LLD	-	-	< LLD	0
Airborne Iodine (pCi/m3)	I-131 517	0.07	< LLD	-	-	< LLD	0
TLD (Quarterly) (mR/91 days)	Gamma 351	1.0	14.8 (307/307) (7.9-23.1)	T-8, Farm 2.7 mi. WSW	21.3 (4/4) (19.6-23.1)	15.4 (44/44) (11.5-19.7)	0
TLD (Quarterly) (mR/91 days) (Shield)	Gamma 4	1.0	7.4 (4/4) (6.6-8.2)	-	-	None	0
TLD (Annual) (mR/365 days)	Gamma 86	1.0	61.3 (75/75) (34.8-92.7)	T-8, Farm 2.7 mi. WSW	92.7 (1/1)	65.9 (11/11) (50.6-79.5)	0
TLD (Annual) (mR/365 days) (Shield)	Gamma 1	1.0	28.0 (1/1)	-	-	None	0

Table 4.5 Radiological Environmental Monitoring Program Summary

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 ( County, State )

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				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>			
Milk (pCi/L)	I-131 12	0.4	none	-	-	< LLD	0	
	Sr-89 12	0.8	none	-	-	< LLD	0	
	Sr-90 12	0.7	none	T-24, Sandusky 21.0 mi. SE	1.1 (11/12) (0.7-2.5)	1.1 (11/12) (0.7-2.5)	0	
	GS	12						
	K-40	100	none	T-24, Sandusky 21.0 mi. SE	1342 (12/12) (1135-1455)	1342 (12/12) (1135-1455)	0	
	Cs-134	9.8	none	-	-	< LLD	0	
	Cs-137	9.9	none	-	-	< LLD	0	
	Ba-La-140	11.7	none	-	-	< LLD	0	
	(g/L)	Ca 12	0.50	none	T-24, Sandusky 21.0 mi. SE	0.97 (12/12) (0.88-1.05)	0.97 (12/12) (0.88-1.05)	0
	(g/L)	K (stable) 12		none	T-24, Sandusky 21.0 mi. SE	1.55 (12/12) (1.31-1.68)	1.55 (12/12) (1.31-1.68)	0
(pCi/g)	Sr-90/Ca 12		none	T-24, Sandusky 21.0 mi. SE	1.11 (11/12) (0.69-2.38)	1.11 (11/12) (0.69-2.38)	0	
(pCi/g)	Cs-137/K 12		none	-	-	< LLD	0	
Ground Water (pCi/L)	GB (TR) 10	4.0	7.0 (2/5) (4.0-10.0)	T-225, residence 1.55 mi. NW	7.0 (2/5) (4.0-10.0)	5.7 (1/5)		
	H-3 10	330	< LLD	-	-	< LLD	0	
	Sr-89 10	0.9	< LLD	-	-	< LLD	0	
	Sr-90 10	0.8	< LLD	-	-	< LLD	0	
	GS							
	Mn-54 15	< LLD	-	-	< LLD	0		
	Fe-59 30	< LLD	-	-	< LLD	0		
	Co-58 15	< LLD	-	-	< LLD	0		
	Co-60 15	< LLD	-	-	< LLD	0		
	Zn-65 30	< LLD	-	-	< LLD	0		
	Zr-95 15	< LLD	-	-	< LLD	0		
	Cs-134 10	< LLD	-	-	< LLD	0		
	Cs-137 10	< LLD	-	-	< LLD	0		
Ba-La-140 15	< LLD	-	-	< LLD	0			

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				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>		
Edible Meat (pCi/g wet)	GS 6	0.10	2.46 (4/4) (1.88-3.04)	T-197, residence 4.0 mi. W	3.04 (1/1)	2.62 (2/2) (2.61-2.62)	0
	K-40						
	Nb-95						
	Zr-95						
	Ru-103						
	Ru-106						
	Cs-134						
	Cs-137						
	Ce-141						
Ce-144							
Fruits and Vegetables (pCi/g wet)	Sr-89 3	0.007	< LLD	-	-	< LLD	0
	Sr-90 3	0.002	0.005 (1/2)	T-8, Farm 2.7 mi. WSW	0.005 (1/2)	< LLD	0
	I-131 3	0.033	< LLD	-	-	< LLD	0
	GS 3	0.50	1.12 (2/2) (1.04-1.19)	T-209, Roving Off-site location	1.24 (1/1)	1.24 (1/1)	0
	K-40						
	Nb-95						
	Zr-95						
	Cs-134						
	Cs-137						
	Ce-141						
	Ce-144						
Broad Leaf Vegetation (pCi/g wet)	Sr-89 9	0.004	< LLD	-	-	< LLD	0
	Sr-90 9	0.002	0.003 (1/3)	T-37, Farm Market 13.0 mi. SW	0.003 (2/3) (0.002-0.003)	0.003 (2/3) (0.002-0.003)	0
	I-131 9	0.028	< LLD	-	-	< LLD	0
	GS 9	0.50	2.02 (6/6) (1.83-2.20)	T-19, Farm 0.68 mi. W	2.14 (3/3) (2.08-2.20)	1.64 (3/3) (1.34-1.76)	0
	K-40						
	Nb-95						
	Zr-95						
	Cs-134						
	Cs-137						
	Ce-141						
	Ce-144						

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				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>		
Animal / Wildlife Feed (pCi/g wet)	GS 5						
	Be-7	0.25	< LLD	-	-	< LLD	0
	K-40	0.10	3.94 (3/3) (2.08-6.91)	T-197, residence 4.0 mi. W	6.91 (1/1)	2.36 (2/2) (1.79-2.93)	0
	Nb-95	0.027	< LLD	-	-	< LLD	0
	Zr-95	0.046	< LLD	-	-	< LLD	0
	Ru-103	0.026	< LLD	-	-	< LLD	0
	Ru-106	0.14	< LLD	-	-	< LLD	0
	Cs-134	0.017	< LLD	-	-	< LLD	0
	Cs-137	0.015	< LLD	-	-	< LLD	0
	Ce-141	0.051	< LLD	-	-	< LLD	0
Ce-144	0.13	< LLD	-	-	< LLD	0	
Soil (pCi/g dry)	GS 20						
	Be-7	0.72	1.22 (3/12) (0.98-1.62)	T-12, Water Treatment Plant, 23.5 mi. WNW	2.74 (1/2)	2.74 (1/8)	0
	K-40	0.10	9.67 (12/12) (5.28-22.10)	T-9, Oak Harbor 6.8 mi. SW	21.63 (2/2) (20.65-22.61)	15.95 (8/8) (9.38-22.61)	0
	Nb-95	0.17	< LLD	-	-	< LLD	0
	Zr-95	0.081	< LLD	-	-	< LLD	0
	Ru-103	0.083	< LLD	-	-	< LLD	0
	Ru-106	0.39	< LLD	-	-	< LLD	0
	Cs-134	0.062	< LLD	-	-	< LLD	0
	Cs-137	0.031	0.095 (7/12) (0.038-0.16)	T-9, Oak Harbor 6.8 mi. SW	0.17 (2/2) (0.13-0.21)	0.13 (8/8) (0.083-0.21)	0
	Ce-141	0.19	< LLD	-	-	< LLD	0
Ce-144	0.24	< LLD	-	-	< LLD	0	



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				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>		
Treated Surface Water (pCi/L)	GB (TR) 48	1.0	2.5 (24/24)	T-22, Carroll Twp. WTP, 3.0 mi. NW	2.6 (12/12)	2.2 (24/24)	0
	H-3 16	330	< LLD	-	-	< LLD	0
	Sr-89 16	1.0	< LLD	-	-	< LLD	0
	Sr-90 16	0.7	< LLD	T-11, Ottawa WTP 9.5 mi. SE	0.8 (1/4)	0.8 (1/8)	0
	GS 16						
	Mn-54 15	15	< LLD	-	-	< LLD	0
	Fe-59 30	30	< LLD	-	-	< LLD	0
	Co-58 15	15	< LLD	-	-	< LLD	0
	Co-60 15	15	< LLD	-	-	< LLD	0
	Zn-65 30	30	< LLD	-	-	< LLD	0
	Zr-Nb-95 15	15	< LLD	-	-	< LLD	0
	Cs-134 10	10	< LLD	-	-	< LLD	0
	Cs-137 10	10	< LLD	-	-	< LLD	0
	Ba-La-140 15	15	< LLD	-	-	< LLD	0
Untreated Surface Water (pCi/L)	GB (TR) 90	1.0	3.0 (48/48)	T-3, Site Boundary 1.4 mi. ESE	4.2 (12/12)	2.9 (42/42)	0
	H-3 90	330	< LLD	T-162, Lake Erie 5.1 mi. SE	1185 (1/6)	1185 (1/42)	0
	Sr-89 20	0.9	< LLD	-	-	< LLD	0
	Sr-90 20	0.7	0.9 (1/12)	T-11, Ottawa WTP 9.5 mi. SE	1.0 (1/4)	0.9 (2/8)	0
	GS 90						
	Mn-54 15	15	< LLD	-	-	< LLD	0
	Fe-59 30	30	< LLD	-	-	< LLD	0
	Co-58 15	15	< LLD	-	-	< LLD	0
	Co-60 15	15	< LLD	-	-	< LLD	0
	Zn-65 30	30	< LLD	-	-	< LLD	0
	Zr-Nb-95 15	15	< LLD	-	-	< LLD	0
	Cs-134 10	10	< LLD	-	-	< LLD	0
	Cs-137 10	10	< LLD	-	-	< LLD	0
	Ba-La-140 15	15	< LLD	-	-	< LLD	0

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				Location <sup>d</sup>	Mean (F) <sup>c</sup> Range <sup>c</sup>								
Fish (pCi/g wet)	GB 6	0.10	3.05 (3/3) (2.28-3.59)	T-33, Lake Erie 1.5 mi. NE	3.05 (3/3) (2.28-3.59)	2.15 (4/4) (0.58-3.17)	0						
	GS 6												
	K-40	0.10	2.60 (3/3) (2.50-2.74)	T-33, Lake Erie 1.5 mi. NE	2.60 (3/3) (2.50-2.74)	2.10 (4/4) (1.40-2.65)	0						
	Mn-54	0.026	< LLD	-	-	< LLD	0						
	Fe-59	0.068	< LLD	-	-	< LLD	0						
	Co-58	0.027	< LLD	-	-	< LLD	0						
	Co-60	0.022	< LLD	-	-	< LLD	0						
	Zn-65	0.053	< LLD	-	-	< LLD	0						
Cs-134	0.036	< LLD	-	-	< LLD	0							
Cs-137	0.029	< LLD	-	-	< LLD	0							
Shoreline Sediments (pCi/g dry)	GS 8	0.10	11.87 (6/6) (9.59-13.47)	T-4, Site Boundary 0.8 mi. S	13.45 (2/2) (13.42-13.47)	11.82 (2/2) (11.06-12.57)	0						
	K-40												
	Mn-54							0.038	< LLD	-	-	< LLD	0
	Co-58							0.054	< LLD	-	-	< LLD	0
	Co-60							0.042	< LLD	-	-	< LLD	0
	Cs-134							0.054	< LLD	-	-	< LLD	0
Cs-137	0.041	< LLD	-	-	< LLD	0							

<sup>a</sup> GB = gross beta, GS = gamma scan.

<sup>b</sup> LLD = nominal lower limit of detection based on a 4.66 sigma counting error for background sample.

<sup>c</sup> Mean and range are based on detectable measurements only (i.e., >LLD) Fraction of detectable measurements at specified locations is indicated in parentheses (F).

<sup>d</sup> Locations are specified by station code (Table 4.1) and distance (miles) and direction relative to reactor site..

<sup>e</sup> Non-routine results are those which exceed ten times the control station value.