

**APPENDIX 1**

**ENVIRONMENTAL, INC., MIDWEST LABORATORY  
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (REMP)  
FOR THE POINT BEACH NUCLEAR PLANT  
TWO RIVERS, WISCONSIN**

**REPORTING PERIOD: JANUARY – DECEMBER 2008**



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FINAL REPORT  
TO  
FPL ENERGY

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (REMP)  
FOR  
THE POINT BEACH NUCLEAR PLANT  
TWO RIVERS, WISCONSIN

**COPY**

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POINT BEACH NUCLEAR PLANT

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## POINT BEACH NUCLEAR PLANT

### 1.0 INTRODUCTION

The following constitutes the final 2008 Monthly Progress Report for the Environmental Radiological Monitoring Program conducted at the Point Beach Nuclear Plant, Two Rivers, Wisconsin. Results of analyses are presented in the attached tables. Data tables reflect sample analysis results for both Technical Specification requirements and Special Interest locations and samples are randomly selected within the Program monitoring area to provide additional data for cross-comparisons.

For gamma isotopic analyses, the spectrum covers an energy range from 80 to 2048 KeV. Specifically included are Mn-54, Fe-59, Co-58, Co-60, Zn-65, Zr-95, Nb-95, Ru-103, Ru-106, I-131, Ba-La-140, Cs-134, Cs-137, Ce-141, and Ce-144. Naturally occurring gamma-emitters, such as K-40 and Ra daughters, are frequently detected in soil and sediment samples. Specific isotopes listed are K-40, Tl-208, Pb-212, Bi-214, Ra-226 and Ac-228. Unless noted otherwise, the results reported under "Other Gammas" are for Co-60 and may be higher or lower for other radionuclides.

All concentrations, except 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.

POINT BEACH NUCLEAR PLANT  
2.0 LISTING OF MISSED SAMPLES

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Sample Type	Location	Expected Collection Date	Reason
AP/AI	E-02	03-19-08	GFI breaker inside site boundary building was blown.
AP/AI	E-04	06-19-08	Loss of power at sampler.
AP/AI	E-02	09-03-08	Equipment failure.
AP/AI	E-03	12-30-08	Loss of power at sampler.
LW	E-01	12-17-08	Inaccessible due to icy conditions.
LW	E-06	12-17-08	Inaccessible due to icy conditions.

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NOTE: Page 3 is intentionally left out.

POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

Location: E-01, Meteorological Tower

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

Collection: Continuous, weekly exchange.

Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131	Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	272	0.027 ± 0.004	< 0.014	07-09-08	335	0.017 ± 0.003	< 0.010
01-16-08	274	0.028 ± 0.004	< 0.014	07-16-08	316	0.016 ± 0.003	< 0.017
01-23-08	278	0.035 ± 0.004	< 0.014	07-23-08	320	0.021 ± 0.003	< 0.010
01-31-08	370	0.042 ± 0.004	< 0.014	07-30-08	326	0.021 ± 0.003	< 0.010
02-07-08	325	0.025 ± 0.004	< 0.024	08-06-08	332	0.017 ± 0.003	< 0.010
02-13-08	280	0.038 ± 0.005	< 0.019	08-13-08	318	0.011 ± 0.003	< 0.019
02-20-08	319	0.036 ± 0.004	< 0.011	08-21-08	365	0.019 ± 0.003	< 0.013
02-28-08	370	0.028 ± 0.003	< 0.009	08-25-08	178	0.025 ± 0.005	< 0.026
03-06-08	321	0.028 ± 0.004	< 0.015	09-03-08	362	0.039 ± 0.003	< 0.008
03-12-08	277	0.034 ± 0.004	< 0.013	09-11-08	343	0.022 ± 0.003	< 0.017
03-19-08	324	0.021 ± 0.003	< 0.008	09-17-08	250	0.022 ± 0.004	< 0.015
03-27-08	371	0.022 ± 0.003	< 0.020	09-24-08	294	0.032 ± 0.004	< 0.019
04-03-08	321	0.022 ± 0.004	< 0.008	10-01-08	291	0.035 ± 0.004	< 0.008
<u>1st Quarter</u>				<u>3rd Quarter</u>			
Mean ± s.d.		0.030 ± 0.007 < 0.014		Mean ± s.d.		0.023 ± 0.008 < 0.014	
04-10-08	327	0.023 ± 0.003	< 0.012	10-09-08	334	0.017 ± 0.003	< 0.015
04-17-08	322	0.016 ± 0.003	< 0.008	10-15-08	253	0.033 ± 0.004	< 0.020
04-23-08	280	0.025 ± 0.004	< 0.014	10-23-08	334	0.020 ± 0.003	< 0.012
05-01-08	372	0.024 ± 0.003	< 0.015	10-29-08	253	0.019 ± 0.003	< 0.017
05-08-08	318	0.023 ± 0.003	< 0.014	11-06-08	336	0.045 ± 0.004	< 0.017
05-15-08	324	0.010 ± 0.003	< 0.009	11-12-08	249	0.013 ± 0.003	< 0.022
05-21-08	302	0.013 ± 0.003	< 0.009	11-19-08	297	0.025 ± 0.003	< 0.016
05-29-08	370	0.009 ± 0.002	< 0.013	11-26-08	292	0.031 ± 0.004	< 0.010
06-05-08	323	0.017 ± 0.003	< 0.017	12-03-08	294	0.027 ± 0.003	< 0.017
06-12-08	325	0.008 ± 0.003	< 0.010	12-10-08	297	0.024 ± 0.003	< 0.016
06-19-08	322	0.009 ± 0.003	< 0.015	12-17-08	290	0.032 ± 0.004	< 0.015
06-25-08	278	0.010 ± 0.003	< 0.010	12-23-08	250	0.047 ± 0.005	< 0.013
07-02-08	324	0.018 ± 0.003	< 0.015	12-30-08	293	0.053 ± 0.004	< 0.009
<u>2nd Quarter</u>				<u>4th Quarter</u>			
Mean ± s.d.		0.016 ± 0.006 < 0.012		Mean ± s.d.		0.030 ± 0.012 < 0.015	
<u>Cumulative Average</u>						0.025 ± 0.010	< 0.014

POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

Location: E-02, Site Boundary Control Center

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

Collection: Continuous, weekly exchange.

Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131	Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	264	0.025 ± 0.004	< 0.014	07-09-08	312	0.015 ± 0.003	< 0.011
01-16-08	300	0.025 ± 0.004	< 0.013	07-16-08	295	0.016 ± 0.003	< 0.019
01-23-08	301	0.039 ± 0.004	< 0.012	07-23-08	300	0.022 ± 0.003	< 0.011
01-31-08	346	0.037 ± 0.004	< 0.015	07-30-08	305	0.025 ± 0.003	< 0.011
02-07-08	304	0.022 ± 0.004	< 0.025	08-06-08	309	0.018 ± 0.003	< 0.011
02-13-08	262	0.037 ± 0.005	< 0.020	08-13-08	298	0.013 ± 0.003	< 0.021
02-20-08	299	0.033 ± 0.004	< 0.011	08-21-08	341	0.023 ± 0.003	< 0.014
02-28-08	345	0.026 ± 0.003	< 0.010	08-25-08	171	0.029 ± 0.005	< 0.027
03-06-08	300	0.027 ± 0.004	< 0.017	09-03-08		NS <sup>a</sup>	
03-12-08	258	0.033 ± 0.004	< 0.014	09-11-08	305	0.017 ± 0.003	< 0.019
03-19-08		NS <sup>a</sup>		09-17-08	248	0.022 ± 0.004	< 0.015
03-27-08	337	0.022 ± 0.003	< 0.024	09-24-08	301	0.032 ± 0.004	< 0.018
04-03-08	300	0.016 ± 0.003	< 0.009	10-01-08	280	0.032 ± 0.004	< 0.009
<u>1st Quarter</u>				<u>3rd Quarter</u>			
Mean ± s.d.		0.029 ± 0.007 < 0.015		Mean ± s.d.		0.022 ± 0.007 < 0.016	
04-10-08	307	0.021 ± 0.003	< 0.013	10-09-08	320	0.018 ± 0.003	< 0.016
04-17-08	300	0.017 ± 0.003	< 0.009	10-15-08	243	0.037 ± 0.004	< 0.021
04-23-08	261	0.022 ± 0.004	< 0.015	10-23-08	320	0.022 ± 0.003	< 0.012
05-01-08	348	0.023 ± 0.003	< 0.016	10-29-08	242	0.020 ± 0.004	< 0.018
05-08-08	296	0.022 ± 0.003	< 0.015	11-06-08	323	0.050 ± 0.004	< 0.018
05-15-08	305	0.010 ± 0.003	< 0.009	11-12-08	239	0.014 ± 0.003	< 0.023
05-21-08	259	0.016 ± 0.004	< 0.011	11-19-08	284	0.022 ± 0.003	< 0.016
05-29-08	346	0.009 ± 0.002	< 0.013	11-26-08	280	0.028 ± 0.004	< 0.010
06-05-08	301	0.030 ± 0.004	< 0.019	12-03-08	282	0.031 ± 0.004	< 0.018
06-12-08	304	0.003 ± 0.003	< 0.010	12-10-08	285	0.021 ± 0.003	< 0.017
06-19-08	301	0.012 ± 0.003	< 0.016	12-17-08	279	0.031 ± 0.004	< 0.015
06-25-08	259	0.013 ± 0.004	< 0.010	12-23-08	239	0.041 ± 0.005	< 0.014
07-02-08	303	0.018 ± 0.003	< 0.016	12-30-08	282	0.049 ± 0.004	< 0.010
<u>2nd Quarter</u>				<u>4th Quarter</u>			
Mean ± s.d.		0.017 ± 0.007 < 0.013		Mean ± s.d.		0.029 ± 0.012 < 0.016	
<u>Cumulative Average</u>						0.024 ± 0.009	< 0.015

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



POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

Location: E-03, West Boundary

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

Collection: Continuous, weekly exchange.

Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131	Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	263	0.027 ± 0.004	< 0.014	07-09-08	313	0.015 ± 0.003	< 0.011
01-16-08	300	0.029 ± 0.004	< 0.013	07-16-08	292	0.015 ± 0.003	< 0.019
01-23-08	301	0.039 ± 0.004	< 0.013	07-23-08	292	0.020 ± 0.003	< 0.011
01-31-08	346	0.038 ± 0.004	< 0.015	07-30-08	301	0.021 ± 0.003	< 0.011
02-07-08	304	0.025 ± 0.004	< 0.025	08-06-08	303	0.015 ± 0.003	< 0.011
02-13-08	262	0.040 ± 0.005	< 0.020	08-13-08	299	0.011 ± 0.003	< 0.021
02-20-08	299	0.035 ± 0.004	< 0.011	08-21-08	330	0.020 ± 0.003	< 0.014
02-28-08	345	0.025 ± 0.003	< 0.010	08-25-08	162	0.023 ± 0.005	< 0.029
03-06-08	300	0.027 ± 0.004	< 0.017	09-03-08	377	0.029 ± 0.003	< 0.008
03-12-08	260	0.028 ± 0.004	< 0.014	09-11-08	337	0.015 ± 0.003	< 0.017
03-19-08	301	0.019 ± 0.003	< 0.008	09-17-08	250	0.016 ± 0.003	< 0.015
03-27-08	347	0.017 ± 0.003	< 0.025	09-24-08	294	0.029 ± 0.004	< 0.019
04-03-08	301	0.018 ± 0.004	< 0.009	10-01-08	292	0.031 ± 0.004	< 0.008
1st Quarter Mean ± s.d.		<u>0.028 ± 0.008 &lt; 0.015</u>		3rd Quarter Mean ± s.d.		<u>0.020 ± 0.006 &lt; 0.015</u>	
04-10-08	306	0.021 ± 0.003	< 0.013	10-09-08	337	0.017 ± 0.003	< 0.015
04-17-08	300	0.015 ± 0.003	< 0.009	10-15-08	251	0.031 ± 0.004	< 0.020
04-23-08	261	0.025 ± 0.004	< 0.015	10-23-08	333	0.016 ± 0.003	< 0.012
05-01-08	348	0.024 ± 0.003	< 0.016	10-29-08	253	0.021 ± 0.004	< 0.017
05-08-08	297	0.020 ± 0.003	< 0.015	11-06-08	336	0.041 ± 0.004	< 0.017
05-15-08	304	0.009 ± 0.003	< 0.009	11-12-08	250	0.013 ± 0.003	< 0.022
05-21-08	259	0.013 ± 0.003	< 0.011	11-19-08	300	0.021 ± 0.003	< 0.016
05-29-08	346	0.008 ± 0.002	< 0.013	11-26-08	289	0.024 ± 0.003	< 0.010
06-05-08	301	0.014 ± 0.003	< 0.019	12-03-08 ✓	293	0.028 ± 0.003	< 0.017
06-12-08	304	0.007 ± 0.003	< 0.010	12-10-08 ✓	297	0.024 ± 0.003	< 0.016
06-19-08	301	0.009 ± 0.003	< 0.016	12-17-08 ✓	291	0.034 ± 0.004	< 0.015
06-25-08	260	0.011 ± 0.004	< 0.010	12-23-08 ✓	250	0.039 ± 0.004	< 0.013
07-02-08	302	0.018 ± 0.003	< 0.016	12-30-08 ✓		NS <sup>a</sup>	
2nd Quarter Mean ± s.d.		<u>0.015 ± 0.006 &lt; 0.013</u>		4th Quarter Mean ± s.d.		<u>0.026 ± 0.009 &lt; 0.016</u>	
Cumulative Average						0.022 ± 0.008	< 0.015

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

POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

E-004

Location: E-04, North Boundary

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

Collection: Continuous, weekly exchange.

Date	Vol.	Gross Beta	I-131	Date	Vol.	Gross Beta	I-131
Collected	(m <sup>3</sup> )			Collected	(m <sup>3</sup> )		
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	297	0.028 ± 0.004	< 0.013	07-10-08	363	0.014 ± 0.003	< 0.009
01-16-08	339	0.028 ± 0.004	< 0.011	07-16-08	284	0.017 ± 0.003	< 0.019
01-23-08	340	0.038 ± 0.004	< 0.011	07-23-08	320	0.021 ± 0.003	< 0.010
01-31-08	391	0.037 ± 0.003	< 0.013	07-30-08	328	0.024 ± 0.003	< 0.010
02-07-08	343	0.024 ± 0.003	< 0.022	08-06-08	330	0.020 ± 0.003	< 0.010
02-13-08	296	0.036 ± 0.004	< 0.018	08-13-08	316	0.013 ± 0.003	< 0.020
02-20-08	337	0.035 ± 0.004	< 0.010	08-21-08	360	0.021 ± 0.003	< 0.013
02-28-08	390	0.027 ± 0.003	< 0.009	08-25-08	184	0.024 ± 0.004	< 0.025
03-06-08	339	0.025 ± 0.004	< 0.015	09-03-08	427	0.029 ± 0.003	< 0.007
03-12-08	293	0.029 ± 0.004	< 0.013	09-11-08	388	0.016 ± 0.002	< 0.013
03-19-08	341	0.018 ± 0.003	< 0.007	09-17-08	278	0.017 ± 0.003	< 0.013
03-27-08	379	0.019 ± 0.003	< 0.021	09-24-08	333	0.028 ± 0.003	< 0.016
04-03-08	330	0.017 ± 0.003	< 0.008	10-01-08	332	0.027 ± 0.003	< 0.007
<u>1st Quarter</u>				<u>3rd Quarter</u>			
Mean ± s.d.		0.028 ± 0.007	< 0.013	Mean ± s.d.		0.021 ± 0.005	< 0.013
04-10-08	333	0.020 ± 0.003	< 0.012	10-09-08	380	0.018 ± 0.003	< 0.013
04-17-08	317	0.014 ± 0.003	< 0.008	10-15-08	285	0.028 ± 0.004	< 0.018
04-23-08	275	0.024 ± 0.004	< 0.014	10-23-08	378	0.018 ± 0.003	< 0.010
05-01-08	367	0.021 ± 0.003	< 0.016	10-29-08	288	0.020 ± 0.003	< 0.015
05-08-08	335	0.024 ± 0.003	< 0.014	11-06-08	380	0.038 ± 0.003	< 0.015
05-15-08	321	0.010 ± 0.003	< 0.009	11-12-08	283	0.010 ± 0.003	< 0.019
05-21-08	273	0.015 ± 0.003	< 0.010	11-19-08	339	0.019 ± 0.003	< 0.014
05-29-08	378	0.009 ± 0.002	< 0.012	11-26-08	329	0.024 ± 0.003	< 0.009
06-05-08	340	0.014 ± 0.003	< 0.016	12-03-08	332	0.026 ± 0.003	< 0.015
06-12-08	344	0.008 ± 0.003	< 0.009	12-10-08	337	0.020 ± 0.003	< 0.014
06-19-08		NS <sup>a</sup>		12-17-08	331	0.024 ± 0.003	< 0.013
06-25-08	274	0.013 ± 0.003	< 0.010	12-23-08	282	0.039 ± 0.004	< 0.012
07-02-08	319	0.020 ± 0.003	< 0.015	12-30-08	302	0.045 ± 0.004	< 0.009
<u>2nd Quarter</u>				<u>4th Quarter</u>			
Mean ± s.d.		0.016 ± 0.006	< 0.012	Mean ± s.d.		0.025 ± 0.010	< 0.014
<u>Cumulative Average</u>						0.023 ± 0.008	< 0.013

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

POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

Location: E-08, G.J. Francar Residence

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

Collection: Continuous, weekly exchange.

Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131	Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	271	0.025 ± 0.004	< 0.014	07-10-08	354	0.014 ± 0.003	< 0.009
01-16-08	309	0.028 ± 0.004	< 0.012	07-16-08	273	0.018 ± 0.004	< 0.020
01-23-08	310	0.035 ± 0.004	< 0.012	07-23-08	307	0.024 ± 0.003	< 0.010
01-31-08	356	0.041 ± 0.004	< 0.014	07-30-08	315	0.019 ± 0.003	< 0.011
02-07-08	313	0.021 ± 0.003	< 0.024	08-06-08	316	0.017 ± 0.003	< 0.010
02-13-08	270	0.032 ± 0.004	< 0.020	08-13-08	309	0.012 ± 0.003	< 0.020
02-20-08	308	0.033 ± 0.004	< 0.011	08-21-08	356	0.022 ± 0.003	< 0.013
02-28-08	355	0.026 ± 0.003	< 0.009	08-25-08	175	0.023 ± 0.004	< 0.026
03-06-08	309	0.026 ± 0.004	< 0.016	09-03-08	384	0.034 ± 0.003	< 0.008
03-12-08	266	0.029 ± 0.004	< 0.014	09-11-08	349	0.015 ± 0.003	< 0.016
03-19-08	312	0.015 ± 0.003	< 0.008	09-17-08	247	0.018 ± 0.003	< 0.015
03-27-08	357	0.021 ± 0.003	< 0.022	09-24-08	283	0.046 ± 0.004	< 0.019
04-03-08	312	0.020 ± 0.004	< 0.009	10-01-08	302	0.031 ± 0.004	< 0.008
<u>1st Quarter</u>				<u>3rd Quarter</u>			
Mean ± s.d.		0.027 ± 0.007	< 0.014	Mean ± s.d.		0.023 ± 0.010	< 0.014
04-10-08	313	0.022 ± 0.003	< 0.013	10-09-08	346	0.019 ± 0.003	< 0.014
04-17-08	309	0.015 ± 0.003	< 0.009	10-15-08	261	0.031 ± 0.004	< 0.019
04-23-08	269	0.023 ± 0.004	< 0.015	10-23-08	341	0.018 ± 0.003	< 0.011
05-01-08	358	0.023 ± 0.003	< 0.016	10-29-08	264	0.021 ± 0.003	< 0.016
05-08-08	306	0.021 ± 0.003	< 0.015	11-06-08	344	0.045 ± 0.004	< 0.017
05-15-08	314	0.010 ± 0.003	< 0.009	11-12-08	258	0.014 ± 0.003	< 0.021
05-21-08	267	0.011 ± 0.003	< 0.010	11-19-08	306	0.019 ± 0.003	< 0.015
05-29-08	357	0.009 ± 0.002	< 0.013	11-26-08	300	0.024 ± 0.003	< 0.009
06-05-08	310	0.018 ± 0.003	< 0.018	12-03-08	302	0.030 ± 0.004	< 0.017
06-12-08	314	0.009 ± 0.003	< 0.010	12-10-08	306	0.024 ± 0.003	< 0.016
06-19-08	310	0.010 ± 0.003	< 0.016	12-17-08	301	0.036 ± 0.004	< 0.014
06-25-08	268	0.011 ± 0.003	< 0.010	12-23-08	256	0.045 ± 0.005	< 0.013
07-02-08	311	0.018 ± 0.003	< 0.016	12-30-08	302	0.048 ± 0.004	< 0.009
<u>2nd Quarter</u>				<u>4th Quarter</u>			
Mean ± s.d.		0.015 ± 0.006	< 0.013	Mean ± s.d.		0.029 ± 0.012	< 0.015
<u>Cumulative Average</u>						0.024 ± 0.010	< 0.014

POINT BEACH NUCLEAR PLANT

Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131.

Location: E-20, Silver Lake

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

Collection: Continuous, weekly exchange.

Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131	Date Collected	Vol. (m <sup>3</sup> )	Gross Beta	I-131
<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>	<u>Required LLD</u>		<u>0.010</u>	<u>0.030</u>
01-09-08	264	0.025 ± 0.004	< 0.014	07-09-08	305	0.019 ± 0.003	< 0.011
01-16-08	300	0.034 ± 0.004	< 0.013	07-16-08	303	0.016 ± 0.003	< 0.018
01-23-08	302	0.039 ± 0.004	< 0.012	07-23-08	298	0.028 ± 0.003	< 0.011
01-31-08	345	0.060 ± 0.004	< 0.015	07-30-08	305	0.023 ± 0.003	< 0.011
02-07-08	303	0.026 ± 0.004	< 0.025	08-06-08	303	0.018 ± 0.003	< 0.011
02-13-08	262	0.038 ± 0.005	< 0.020	08-13-08	306	0.012 ± 0.003	< 0.020
02-20-08	299	0.034 ± 0.004	< 0.011	08-21-08	327	0.022 ± 0.003	< 0.014
02-28-08	345	0.027 ± 0.004	< 0.010	08-25-08	160	0.035 ± 0.005	< 0.029
03-06-08	301	0.028 ± 0.004	< 0.016	09-03-08	368	0.026 ± 0.003	< 0.008
03-12-08	260	0.033 ± 0.004	< 0.014	09-11-08	347	0.016 ± 0.003	< 0.017
03-19-08	304	0.015 ± 0.003	< 0.008	09-17-08	258	0.019 ± 0.003	< 0.014
03-27-08	346	0.022 ± 0.003	< 0.025	09-24-08	303	0.035 ± 0.004	< 0.018
04-03-08	304	0.019 ± 0.004	< 0.009	10-01-08	305	0.028 ± 0.003	< 0.008
<b>1st Quarter</b>				<b>3rd Quarter</b>			
Mean ± s.d.		<u>0.031 ± 0.011 &lt; 0.015</u>		Mean ± s.d.		<u>0.023 ± 0.007 &lt; 0.015</u>	
04-10-08	303	0.021 ± 0.004	< 0.013	10-09-08	345	0.019 ± 0.003	< 0.014
04-17-08	301	0.015 ± 0.003	< 0.009	10-15-08	263	0.030 ± 0.004	< 0.019
04-23-08	260	0.025 ± 0.004	< 0.015	10-23-08	337	0.017 ± 0.003	< 0.012
05-01-08	348	0.022 ± 0.003	< 0.016	10-29-08	265	0.022 ± 0.003	< 0.016
05-08-08	297	0.021 ± 0.003	< 0.015	11-06-08	342	0.041 ± 0.004	< 0.017
05-15-08	304	0.013 ± 0.003	< 0.009	11-12-08	262	0.012 ± 0.003	< 0.021
05-21-08	262	0.012 ± 0.003	< 0.011	11-19-08	299	0.021 ± 0.003	< 0.016
05-29-08	344	0.009 ± 0.002	< 0.014	11-26-08	304	0.021 ± 0.003	< 0.009
06-05-08	300	0.017 ± 0.003	< 0.019	12-03-08	302	0.029 ± 0.003	< 0.016
06-12-08	305	0.008 ± 0.003	< 0.010	12-10-08	305	0.024 ± 0.003	< 0.016
06-19-08	301	0.012 ± 0.003	< 0.016	12-17-08	300	0.034 ± 0.004	< 0.014
06-25-08	261	0.015 ± 0.004	< 0.010	12-23-08	257	0.048 ± 0.005	< 0.013
07-02-08	302	0.021 ± 0.003	< 0.016	12-30-08	302	0.053 ± 0.004	< 0.009
<b>2nd Quarter</b>				<b>4th Quarter</b>			
Mean ± s.d.		<u>0.016 ± 0.005 &lt; 0.013</u>		Mean ± s.d.		<u>0.028 ± 0.012 &lt; 0.015</u>	
<b>Cumulative Average</b>						0.025 ± 0.011	< 0.014
<b>All Locations Annual Mean + s.d.</b>						<b>0.023 ± 0.010</b>	<b>&lt; 0.014</b>

POINT BEACH NUCLEAR PLANT  
 GAMMA EMITTERS IN QUARTERLY COMPOSITES OF  
 AIR PARTICULATE FILTERS  
 (Concentration pCi/m<sup>3</sup>)

Location	Lab Code Req. LL	Be-7 -	Cs-134 0.01	Cs-137 0.01	Other Gammas <sup>a</sup> (0.10)	Volume m <sup>3</sup>
<u>1st Quarter</u>						
E-01	EAP- 1742	0.083 ± 0.014	0.0002 ± 0.0004	-0.0002 ± 0.0005	-0.0001 ± 0.0006	4102
E-02	- 1743	0.089 ± 0.020	-0.0009 ± 0.0006	0.0000 ± 0.0006	-0.0001 ± 0.0006	3616
E-03	- 1744	0.075 ± 0.012	-0.0001 ± 0.0004	0.0001 ± 0.0005	0.0001 ± 0.0005	3928
E-04	- 1745	0.063 ± 0.013	-0.0002 ± 0.0004	-0.0001 ± 0.0004	0.0000 ± 0.0004	4414
E-08	- 1746	0.061 ± 0.010	-0.0003 ± 0.0004	-0.0003 ± 0.0005	-0.0001 ± 0.0005	4047
E-20	- 1747	0.083 ± 0.015	-0.0002 ± 0.0006	-0.0002 ± 0.0006	0.0004 ± 0.0008	3934
<u>2nd Quarter</u>						
E-01	EAP- 3661	0.073 ± 0.014	0.0001 ± 0.0005	0.0000 ± 0.0005	0.0004 ± 0.0005	4186
E-02	- 3662	0.075 ± 0.014	0.0002 ± 0.0005	0.0000 ± 0.0003	0.0000 ± 0.0007	3890
E-03	- 3663,4	0.078 ± 0.010	0.0000 ± 0.0005	-0.0006 ± 0.0005	-0.0003 ± 0.0006	3889
E-04	- 3665	0.075 ± 0.013	-0.0003 ± 0.0005	-0.0001 ± 0.0005	0.0010 ± 0.0007	3875
E-08	- 3666	0.056 ± 0.012	0.0001 ± 0.0005	0.0003 ± 0.0004	0.0002 ± 0.0006	4004
E-20	- 3667	0.075 ± 0.014	0.0003 ± 0.0005	-0.0006 ± 0.0005	0.0005 ± 0.0005	3887
<u>3rd Quarter</u>						
E-01	EAP- 5873	0.096 ± 0.018	0.0000 ± 0.0005	0.0000 ± 0.0006	-0.0002 ± 0.0008	4031
E-02	- 5874	0.060 ± 0.018	-0.0002 ± 0.0006	0.0002 ± 0.0005	-0.0003 ± 0.0009	3464
E-03	- 5875	0.062 ± 0.015	-0.0003 ± 0.0004	0.0001 ± 0.0006	0.0001 ± 0.0006	3840
E-04	- 5876	0.080 ± 0.014	0.0004 ± 0.0004	0.0001 ± 0.0005	0.0000 ± 0.0006	4244
E-08	- 5877	0.090 ± 0.014	0.0001 ± 0.0004	0.0004 ± 0.0006	-0.0001 ± 0.0006	3971
E-20	- 5878	0.080 ± 0.015	0.0002 ± 0.0004	-0.0005 ± 0.0005	-0.0002 ± 0.0006	3890
<u>4th Quarter</u>						
E-01	EAP- 7477	0.061 ± 0.013	0.0001 ± 0.0004	0.0002 ± 0.0003	0.0002 ± 0.0005	3772
E-02	7478	0.070 ± 0.014	0.0001 ± 0.0005	0.0005 ± 0.0005	0.0003 ± 0.0004	3617
E-03	7479	0.052 ± 0.012	-0.0003 ± 0.0005	0.0000 ± 0.0005	-0.0001 ± 0.0006	3478
E-04	7480	0.055 ± 0.013	-0.0003 ± 0.0005	0.0003 ± 0.0003	0.0000 ± 0.0006	4245
E-08	7481	0.069 ± 0.013	0.0000 ± 0.0004	-0.0001 ± 0.0005	0.0003 ± 0.0005	3886
E-20	7482	0.053 ± 0.013	-0.0001 ± 0.0004	0.0002 ± 0.0004	-0.0002 ± 0.0005	3883
<hr/>						
<b>Annual Means ± s.d.</b>		<b>0.071 ± 0.012</b>	<b>-0.0001 ± 0.0003</b>	<b>0.0000 ± 0.0003</b>	<b>0.0001 ± 0.0003</b>	
<b>Indicators</b>		<b>0.071 ± 0.012</b>	<b>-0.0001 ± 0.0003</b>	<b>0.0000 ± 0.0002</b>	<b>0.0001 ± 0.0003</b>	
<b>Control</b>		<b>0.073 ± 0.015</b>	<b>0.0000 ± 0.0002</b>	<b>0.0001 ± 0.0003</b>	<b>0.0001 ± 0.0002</b>	

<sup>a</sup> See Introduction

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN MILK SAMPLES

(Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-11 Funk Dairy Farm</u>				
Collection Date	01-09-08	02-13-08	03-12-08	Required LLD
Lab Code	EMI- 100	EMI- 537	EMI- 1005	
Sr-89	-0.3 ± 1.0	-0.7 ± 1.0	-0.2 ± 0.9	5.0
Sr-90	0.8 ± 0.4	1.1 ± 0.4	0.9 ± 0.3	1.0
I-131	0.25 ± 0.26	-0.04 ± 0.11	-0.14 ± 0.17	0.5
K-40	1316 ± 132	1359 ± 108	1373 ± 119	
Cs-134	-2.4 ± 2.3	0.6 ± 2.0	-2.1 ± 2.1	5.0
Cs-137	-1.1 ± 3.2	-0.8 ± 2.5	-1.3 ± 2.8	5.0
Ba-La-140	2.6 ± 2.1	0.4 ± 2.1	2.2 ± 2.4	5.0
Co-60	3.6 ± 2.4	-0.2 ± 2.7	1.3 ± 3.0	15.0
Collection Date	04-09-08	05-14-08	06-11-08	Required LLD
Lab Code	EMI- 1480	EMI- 2365	EMI- 2904	
Sr-89	-0.9 ± 1.1	-1.1 ± 0.9	-1.9 ± 1.0	5.0
Sr-90	1.1 ± 0.4	1.3 ± 0.4	1.6 ± 0.4	1.0
I-131	-0.09 ± 0.16	-0.13 ± 0.16	0.09 ± 0.13	0.5
K-40	1245 ± 107	1352 ± 110	1388 ± 121	
Cs-134	-0.2 ± 2.4	-0.2 ± 1.7	-2.9 ± 2.5	5.0
Cs-137	-0.6 ± 2.6	1.7 ± 1.9	-0.3 ± 2.4	5.0
Ba-La-140	-3.0 ± 2.3	1.5 ± 1.8	-2.7 ± 2.2	5.0
Co-60	1.5 ± 2.7	1.2 ± 1.8	-1.9 ± 2.3	15.0

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN MILK SAMPLES  
(Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-11 Funk Dairy Farm</u>				
Collection Date	07-09-08	08-13-08	09-10-08	Required LLD
Lab Code	EMI- 3445	EMI- 4253	EMI- 4862	
Sr-89	-0.9 ± 0.9	-0.4 ± 1.1	-1.2 ± 0.9	5.0
Sr-90	0.9 ± 0.3	1.0 ± 0.4	1.1 ± 0.3	1.0
I-131	-0.19 ± 0.17	0.01 ± 0.13	0.03 ± 0.11	0.5
K-40	1286 ± 90	1455 ± 97	1387 ± 99	
Cs-134	-1.4 ± 1.6	-0.4 ± 1.6	0.0 ± 1.7	5.0
Cs-137	-1.2 ± 1.6	-1.3 ± 2.0	0.6 ± 1.9	5.0
Ba-La-140	0.9 ± 1.3	-0.6 ± 1.4	-3.2 ± 1.4	5.0
Co-60	1.3 ± 1.7	-0.2 ± 2.0	0.4 ± 1.9	15.0
Collection Date	10-08-08	11-12-08	12-10-08	Required LLD
Lab Code	EMI- 5493	EMI- 6456	EMI- 6915	
Sr-89	-1.2 ± 1.2	-0.6 ± 1.2	-0.6 ± 0.9	5.0
Sr-90	1.0 ± 0.4	1.2 ± 0.4	1.1 ± 0.4	1.0
I-131	0.12 ± 0.16	-0.17 ± 0.15	-0.08 ± 0.19	0.5
K-40	1369 ± 104	1349 ± 107	1430 ± 100	
Cs-134	0.1 ± 1.4	-0.3 ± 1.5	-0.1 ± 1.8	5.0
Cs-137	0.6 ± 1.7	0.1 ± 1.6	-0.2 ± 1.9	5.0
Ba-La-140	0.9 ± 1.7	0.5 ± 1.0	1.4 ± 1.8	5.0
Co-60	-0.1 ± 2.1	0.4 ± 2.0	0.2 ± 2.2	15.0

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN MILK SAMPLES

(Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-21 Strutz Dairy Farm</u>				
Collection Date	01-09-08	02-13-08	03-12-08	Required LLD
Lab Code	EMI- 101	EMI- 538	EMI- 1006	
Sr-89	0.0 ± 0.8	0.6 ± 1.0	0.4 ± 0.8	5.0
Sr-90	0.5 ± 0.3	0.4 ± 0.4	0.5 ± 0.3	1.0
I-131	0.21 ± 0.25	0.02 ± 0.12	0.07 ± 0.24	0.5
K-40	1357 ± 123	1491 ± 111	1452 ± 113	
Cs-134	1.0 ± 1.6	0.3 ± 2.5	-2.1 ± 2.3	5.0
Cs-137	0.4 ± 2.1	-3.6 ± 2.6	-1.3 ± 2.7	5.0
Ba-La-140	0.2 ± 2.3	1.6 ± 1.9	-2.5 ± 2.2	5.0
Co-60	-2.0 ± 2.4	0.9 ± 2.5	-1.7 ± 2.0	15.0
Collection Date	04-09-08	05-14-08	06-11-08	Required LLD
Lab Code	EMI- 1481	EMI- 2366	EMI- 2905	
Sr-89	0.0 ± 1.0	0.1 ± 0.8	0.2 ± 0.8	5.0
Sr-90	0.7 ± 0.4	0.3 ± 0.3	0.5 ± 0.3	1.0
I-131	-0.16 ± 0.16	-0.09 ± 0.16	0.09 ± 0.14	0.5
K-40	1428 ± 112	1358 ± 111	1406 ± 113	
Cs-134	0.4 ± 1.6	-3.2 ± 2.4	-0.1 ± 1.6	5.0
Cs-137	0.9 ± 1.9	0.9 ± 2.5	0.1 ± 1.9	5.0
Ba-La-140	0.2 ± 1.8	-0.1 ± 1.7	0.7 ± 1.6	5.0
Co-60	-1.4 ± 1.9	-1.7 ± 2.3	1.1 ± 2.0	15.0



POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN MILK SAMPLES

(Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-21 Strutz Dairy Farm</u>				
Collection Date	07-09-08	08-13-08	09-10-08	Required LLD
Lab Code	EMI- 3446	EMI- 4254	EMI- 4863	
Sr-89	0.0 ± 0.8	-0.4 ± 0.8	0.5 ± 0.9	5.0
Sr-90	0.6 ± 0.3	0.5 ± 0.3	0.4 ± 0.3	1.0
I-131	0.00 ± 0.19	0.17 ± 0.19	0.06 ± 0.11	0.5
K-40	1369 ± 94	1349 ± 89	1455 ± 111	
Cs-134	0.4 ± 1.2	0.0 ± 1.2	0.6 ± 1.4	5.0
Cs-137	0.3 ± 1.5	1.1 ± 1.5	0.1 ± 1.6	5.0
Ba-La-140	0.9 ± 1.3	-0.2 ± 1.3	-0.8 ± 2.0	5.0
Co-60	0.0 ± 1.8	0.8 ± 1.5	1.0 ± 1.6	15.0
Collection Date	10-08-08	11-12-08	12-10-08	Required LLD
Lab Code	EMI- 5494	EMI- 6457	EMI- 6916	
Sr-89	-2.1 ± 1.0	0.5 ± 1.0	-0.4 ± 0.8	5.0
Sr-90	1.3 ± 0.4	0.3 ± 0.3	0.5 ± 0.3 ✓	1.0
I-131	0.00 ± 0.14	-0.04 ± 0.15	0.10 ± 0.15 ✓	0.5
K-40	1478 ± 113	1482 ± 110	1496 ± 107 ✓	
Cs-134	0.1 ± 1.5	0.3 ± 1.8	1.5 ± 1.6 ✓	5.0
Cs-137	1.3 ± 1.9	0.3 ± 2.3	-0.1 ± 2.2	5.0
Ba-La-140	-0.5 ± 1.7	0.1 ± 1.6	0.3 ± 1.4	5.0
Co-60	-1.1 ± 2.1	1.0 ± 2.4	1.0 ± 1.8 ✓	15.0

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN MILK SAMPLES

(Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-40 Barta</u>				
Collection Date	01-09-08	02-13-08	03-12-08	Required LLD
Lab Code	EMI- 102	EMI- 539	EMI- 1008	
Sr-89	-1.5 ± 1.0	0.0 ± 1.0	-0.5 ± 0.9	5.0
Sr-90	1.6 ± 0.4	1.1 ± 0.4	1.0 ± 0.3	1.0
I-131	0.04 ± 0.20	-0.01 ± 0.13	-0.06 ± 0.16	0.5
K-40	1309 ± 104	1310 ± 109	1430 ± 113	
Cs-134	0.6 ± 1.5	-0.1 ± 1.6	-2.7 ± 2.9	5.0
Cs-137	0.1 ± 1.8	1.0 ± 1.8	-2.1 ± 2.8	5.0
Ba-La-140	0.7 ± 0.9	-3.2 ± 1.9	-1.7 ± 2.0	5.0
Co-60	0.4 ± 1.8	1.1 ± 1.5	-2.9 ± 2.6	15.0
Collection Date	04-09-08	05-14-08	06-11-08	Required LLD
Lab Code	EMI- 1482	EMI- 2367	EMI- 2906	
Sr-89	-1.2 ± 1.1	-0.8 ± 1.3	-1.8 ± 1.0	5.0
Sr-90	1.3 ± 0.4	1.2 ± 0.5	1.8 ± 0.4	1.0
I-131	-0.03 ± 0.20	0.01 ± 0.24	-0.03 ± 0.13	0.5
K-40	1424 ± 118	1467 ± 117	1416 ± 113	
Cs-134	-0.8 ± 1.9	0.2 ± 1.6	-0.5 ± 2.2	5.0
Cs-137	-2.0 ± 2.6	0.6 ± 1.9	-2.3 ± 2.7	5.0
Ba-La-140	1.7 ± 2.2	2.3 ± 1.2	-1.6 ± 2.3	5.0
Co-60	0.1 ± 2.5	-0.1 ± 1.9	-1.7 ± 2.1	15.0

POINT BEACH NUCLEAR PLANT  
 RADIOACTIVITY IN MILK SAMPLES  
 (Monthly Collections)

Sample Description and Concentration (pCi/L)				
<u>E-40 Barta</u>				
Collection Date	07-09-08	08-13-08	09-10-08	Required LLD
Lab Code	EMI- 3447	EMI- 4255	EMI- 4864	
Sr-89	0.5 ± 0.9	-0.3 ± 1.1	0.4 ± 0.8	5.0
Sr-90	0.8 ± 0.3	0.9 ± 0.4	0.7 ± 0.3	1.0
I-131	0.20 ± 0.22	0.19 ± 0.18	0.07 ± 0.17	0.5
K-40	1412 ± 96	1390 ± 92	1387 ± 99	
Cs-134	-1.1 ± 1.6	-1.0 ± 1.4	0.0 ± 1.7	5.0
Cs-137	0.2 ± 2.1	0.6 ± 1.6	0.6 ± 1.9	5.0
Ba-La-140	-0.7 ± 1.5	-0.4 ± 1.8	-3.2 ± 1.4	5.0
Co-60	-0.1 ± 1.8	0.1 ± 1.7	0.4 ± 1.9	15.0
Collection Date	10-08-08	11-12-08	12-10-09	Required LLD
Lab Code	EMI- 5495	EMI- 6458	EMI- 6917	
Sr-89	-1.2 ± 1.0	-0.7 ± 1.2	-0.4 ± 0.8	5.0
Sr-90	1.4 ± 0.4	1.3 ± 0.4	0.8 ± 0.3 ✓	1.0
I-131	0.04 ± 0.14	0.10 ± 0.21	0.03 ± 0.15 ✓	0.5
K-40	1292 ± 110	1313 ± 98	1451 ± 99 ✓	
Cs-134	-0.2 ± 1.4	-0.6 ± 1.7	-0.5 ± 1.6	5.0
Cs-137	1.3 ± 1.9	0.8 ± 2.0	0.8 ± 1.8 ✓	5.0
Ba-La-140	-0.2 ± 1.4	-0.7 ± 1.8	-2.6 ± 1.5	5.0
Co-60	0.1 ± 1.9	1.8 ± 1.7	-0.3 ± 2.0 ✓	15.0

Sr-89 Annual Mean + s.d.	-0.5 ± 0.7
Sr-90 Annual Mean + s.d.	0.9 ± 0.4
I-131 Annual Mean + s.d.	0.02 ± 0.11
K-40 Annual Mean + s.d.	1390 ± 64
Cs-134 Annual Mean + s.d.	-0.5 ± 1.1
Cs-137 Annual Mean + s.d.	-0.1 ± 1.2
Ba-La Annual Mean + s.d.	-0.3 ± 1.7
Co-60 Annual Mean + s.d.	0.1 ± 1.3

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN WELL WATER SAMPLES, E-10

(Quarterly Collections)

Units: pCi/L

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Req. LLD	Annual Mean    s.d
Collection Date	01-17-08	04-11-08	07-17-08	10-15-08		
Lab Code	EW- 193	EW- 1604	EW- 3701	EW- 5686		
Gross Beta	0.0 ± 0.9	1.5 ± 0.5	1.1 ± 1.2	0.9 ± 0.9	4.0	0.9 ± 0.6
H-3	66.7 ± 83.5	55.5 ± 81.9	14.9 ± 74.4	10.8 ± 85.1	500	37.0 ± 28.3
Sr-89	0.1 ± 0.6	-0.3 ± 0.6	-0.1 ± 0.6	0.0 ± 0.7	5.0	-0.1 ± 0.2
Sr-90	0.1 ± 0.3	0.2 ± 0.2	0.0 ± 0.2	0.1 ± 0.3	1.0	0.1 ± 0.1
I-131	0.14 ± 0.3	0.00 ± 0.15	0.05 ± 0.14	0.13 ± 0.16	0.5	0.08 ± 0.07
Mn-54	0.1 ± 2.4	-0.3 ± 1.5	-2.0 ± 2.2	0.0 ± 1.8	10	-0.5 ± 1.0
Fe-59	4.6 ± 4.8	2.3 ± 2.5	-4.7 ± 4.6	-0.4 ± 2.7	30	0.5 ± 4.0
Co-58	-1.1 ± 2.5	-1.1 ± 1.6	-1.3 ± 2.4	-1.4 ± 1.4	10	-1.2 ± 0.2
Co-60	0.6 ± 2.8	0.9 ± 1.4	0.7 ± 2.2	0.5 ± 1.7	10	0.7 ± 0.2
Zn-65	2.4 ± 4.7	-0.2 ± 2.6	-5.9 ± 5.2	1.7 ± 2.6	30	-0.5 ± 3.8
Zr-Nb-95	-0.3 ± 1.9	-5.4 ± 2.0	-1.6 ± 2.2	-2.1 ± 1.7	15	-2.4 ± 2.2
Cs-134	-0.1 ± 2.1	0.3 ± 1.3	-0.2 ± 2.4	-0.6 ± 1.7	10	-0.2 ± 0.4
Cs-137	-0.5 ± 2.1	-0.1 ± 1.7	-0.9 ± 2.8	-1.4 ± 2.0	10	-0.7 ± 0.6
Ba-La-140	-0.4 ± 2.7	-0.8 ± 1.9	-8.5 ± 3.5	1.7 ± 1.8	15	-2.0 ± 4.5
Ru-103	0.5 ± 2.2	1.0 ± 1.5	-2.2 ± 2.5	-0.6 ± 1.5	30	-0.3 ± 1.4

POINT BEACH

Lake water, analyses for gross beta, iodine-131 and gamma emitting isotopes.

Location: E-01 (Meteorological Tower)

Collection: Monthly composites

Units: pCi/L

Lab Code	ELW- 188	ELW- 574	ELW- 1028	ELW- 1598	Req. LLD
Date Collected	01-16-08	02-14-08	03-13-08	04-11-08	
Gross beta	2.6 ± 1.1	1.3 ± 0.6	1.4 ± 0.9	1.4 ± 0.9	4.0
I-131	0.01 ± 0.18	-0.02 ± 0.20	0.02 ± 0.16	0.06 ± 0.18	0.5
Be-7	-0.5 ± 15.7	-10.4 ± 15.4	8.6 ± 18.6	-14.2 ± 16.1	
Mn-54	-0.4 ± 1.7	-1.2 ± 1.8	-0.3 ± 2.0	0.4 ± 1.8	10
Fe-59	3.5 ± 3.2	-3.8 ± 3.6	2.0 ± 3.8	-0.8 ± 3.2	30
Co-58	0.9 ± 1.7	-0.6 ± 1.8	0.6 ± 1.8	-0.9 ± 1.6	10
Co-60	0.1 ± 1.9	0.7 ± 1.9	0.5 ± 2.0	0.4 ± 1.7	10
Zn-65	-4.7 ± 4.2	2.3 ± 3.4	-4.0 ± 3.9	2.0 ± 2.8	30
Zr-Nb-95	-1.3 ± 2.1	1.0 ± 1.9	0.2 ± 2.2	-1.5 ± 1.9	15
Cs-134	-1.2 ± 1.9	-2.8 ± 2.1	-2.9 ± 2.4	-1.3 ± 1.9	10
Cs-137	-1.3 ± 2.0	0.6 ± 2.0	-0.3 ± 2.1	-1.1 ± 2.1	10
Ba-La-140	1.7 ± 2.0	4.4 ± 2.0	1.2 ± 2.4	0.0 ± 1.6	15
Ru-103	-1.1 ± 1.7	-0.9 ± 1.9	-1.3 ± 2.2	-0.1 ± 1.8	30

Lab Code	ELW- 2395	ELW- 2939	ELW- 3697	ELW- 4371	Req. LLD
Date Collected	05-15-08	06-12-08	07-16-08	08-14-08	
Gross beta	1.4 ± 0.5	1.5 ± 0.6	2.7 ± 1.0	1.4 ± 0.6	4.0
I-131	-0.07 ± 0.16	0.02 ± 0.21	-0.23 ± 0.19	0.06 ± 0.14	0.5
Be-7	34.8 ± 24.1	3.4 ± 11.2	-0.9 ± 14.4	5.1 ± 13.8	
Mn-54	-1.7 ± 3.0	-0.6 ± 1.5	1.1 ± 1.4	0.1 ± 1.5	10
Fe-59	2.1 ± 5.0	-1.5 ± 2.7	-3.3 ± 3.2	0.6 ± 2.7	30
Co-58	2.8 ± 2.7	-0.4 ± 1.5	-0.8 ± 1.4	-0.4 ± 1.6	10
Co-60	-1.5 ± 3.1	0.3 ± 1.4	-1.3 ± 1.7	-0.4 ± 1.7	10
Zn-65	-1.4 ± 7.0	-2.3 ± 2.4	-1.5 ± 2.7	0.6 ± 3.0	30
Zr-Nb-95	-0.7 ± 2.6	1.0 ± 1.1	-0.7 ± 1.8	0.1 ± 1.9	15
Cs-134	0.1 ± 2.8	0.1 ± 1.1	-1.2 ± 1.8	0.3 ± 1.6	10
Cs-137	-1.3 ± 3.1	-0.2 ± 1.2	1.3 ± 2.0	-0.7 ± 1.9	10
Ba-La-140	-0.8 ± 4.1	0.1 ± 1.6	0.1 ± 1.3	0.3 ± 1.7	15
Ru-103	1.2 ± 2.7	-0.2 ± 1.2	-1.0 ± 1.5	-1.4 ± 1.5	30

Lab Code	ELW- 4931	ELW- 5682	ELW- 6494	NS <sup>a</sup>	Req. LLD
Date Collected	09-12-08	10-15-08	11-12-08	-	
Gross beta	2.0 ± 1.0	2.6 ± 1.1	2.0 ± 1.0	-	4.0
I-131	-0.24 ± 0.17	0.17 ± 0.18	0.16 ± 0.19	-	0.5
Be-7	-15.2 ± 23.4	4.1 ± 11.1	-8.9 ± 18.1	-	
Mn-54	2.3 ± 3.0	0.2 ± 1.3	1.9 ± 2.2	-	10
Fe-59	-1.1 ± 6.2	-0.3 ± 2.6	-6.3 ± 4.6	-	30
Co-58	2.1 ± 2.4	-1.2 ± 1.3	0.7 ± 2.0	-	10
Co-60	1.9 ± 3.1	-0.4 ± 1.4	-0.4 ± 2.3	-	10
Zn-65	0.8 ± 6.3	-1.9 ± 3.1	0.2 ± 4.7	-	30
Zr-Nb-95	-2.3 ± 2.9	-0.9 ± 1.3	-0.1 ± 2.3	-	15
Cs-134	-0.6 ± 3.1	-0.1 ± 1.2	-2.3 ± 1.9	-	10
Cs-137	3.0 ± 3.1	0.8 ± 1.5	1.4 ± 2.3	-	10
Ba-La-140	-2.4 ± 3.0	-1.3 ± 1.5	-4.9 ± 3.0	-	15
Ru-103	4.0 ± 2.8	-0.2 ± 1.2	-1.8 ± 2.4	-	30

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

POINT BEACH

Lake water, analyses for gross beta, iodine-131 and gamma emitting isotopes.

Location: E-05 (Two Creeks Park)

Collection: Monthly composites

Units: pCi/L

Lab Code	ELW- 189	ELW- 715	ELW- 1030	ELW- 1599	
Date Collected	01-16-08	02-21-08	03-13-08	04-11-08	Req. LLD
Gross beta	2.5 ± 1.0	1.3 ± 0.6	0.0 ± 0.9	2.0 ± 0.5	4.0
I-131	0.03 ± 0.18	-0.23 ± 0.17	0.12 ± 0.19	0.15 ± 0.18	0.5
Be-7	1.6 ± 21.0	-2.0 ± 12.6	-16.5 ± 16.4	9.6 ± 16.7	
Mn-54	1.1 ± 2.7	-0.6 ± 1.8	2.8 ± 1.7	-0.3 ± 1.7	10
Fe-59	-1.4 ± 5.2	1.6 ± 3.0	-0.3 ± 3.2	-2.3 ± 3.1	30
Co-58	0.3 ± 2.6	0.4 ± 1.6	-1.0 ± 1.7	-0.1 ± 1.6	10
Co-60	-1.4 ± 2.8	1.0 ± 1.9	0.6 ± 1.9	0.5 ± 1.8	10
Zn-65	-5.0 ± 5.6	0.9 ± 3.2	-2.2 ± 4.1	1.3 ± 3.3	30
Zr-Nb-95	1.2 ± 2.5	0.1 ± 1.8	-0.8 ± 1.8	-1.1 ± 1.7	15
Cs-134	1.9 ± 2.4	0.6 ± 1.4	0.3 ± 1.7	-1.6 ± 1.5	10
Cs-137	-1.8 ± 2.8	0.1 ± 1.6	0.1 ± 2.1	-1.3 ± 2.1	10
Ba-La-140	1.7 ± 3.7	-1.2 ± 2.3	-0.1 ± 2.0	-0.9 ± 2.1	15
Ru-103	-1.2 ± 2.4	-0.2 ± 1.5	-1.5 ± 1.9	-0.2 ± 1.7	30
Lab Code	ELW- 2396	ELW- 2941	ELW- 3698	ELW- 4372	
Date Collected	05-15-08	06-12-08	07-17-08	08-14-08	Req. LLD
Gross beta	0.5 ± 0.5	1.7 ± 0.6	2.5 ± 1.0	0.7 ± 0.5	4.0
I-131	0.03 ± 0.15	-0.06 ± 0.17	-0.10 ± 0.14	0.32 ± 0.26	0.5
Be-7	3.3 ± 15.4	-22.5 ± 22.4	-6.3 ± 17.9	9.2 ± 25.0	
Mn-54	0.5 ± 2.0	-0.9 ± 2.9	0.2 ± 2.5	-0.3 ± 2.7	10
Fe-59	0.1 ± 3.6	0.2 ± 5.3	-0.6 ± 4.6	2.4 ± 6.2	30
Co-58	0.5 ± 1.9	-0.2 ± 3.1	-0.2 ± 2.3	2.8 ± 2.4	10
Co-60	-0.6 ± 1.7	0.7 ± 3.2	-0.6 ± 2.1	1.5 ± 2.9	10
Zn-65	-2.3 ± 3.9	-3.1 ± 5.6	-3.0 ± 4.9	0.1 ± 6.9	30
Zr-Nb-95	0.3 ± 2.0	-0.7 ± 2.8	-1.2 ± 2.2	0.2 ± 2.9	15
Cs-134	-2.5 ± 2.0	-1.0 ± 2.5	-2.0 ± 2.2	-3.6 ± 3.0	10
Cs-137	0.5 ± 2.2	-1.3 ± 3.0	-1.5 ± 2.7	4.8 ± 3.0	10
Ba-La-140	-2.8 ± 2.1	3.2 ± 3.4	3.2 ± 2.3	-2.1 ± 3.2	15
Ru-103	-0.9 ± 2.0	0.5 ± 3.0	-0.6 ± 2.4	-0.5 ± 2.7	30
Lab Code	ELW- 4932	ELW- 5683	ELW- 6495	ELW- 7063	
Date Collected	09-12-08	10-15-08	11-12-08	12-17-08 ✓	Req. LLD
Gross beta	3.1 ± 1.0	1.0 ± 0.9	3.4 ± 1.0	2.6 ± 1.0 ✓	4.0
I-131	-0.11 ± 0.18	0.05 ± 0.17	0.00 ± 0.17	0.01 ± 0.13 ✓	0.5
Be-7	4.0 ± 21.7	4.3 ± 11.4	1.9 ± 17.0	-8.1 ± 10.3	
Mn-54	2.1 ± 2.6	1.0 ± 1.4	-0.6 ± 1.5	-0.6 ± 1.3	10
Fe-59	3.1 ± 4.8	1.6 ± 2.3	-2.8 ± 3.5	0.9 ± 2.3	30
Co-58	1.4 ± 2.4	-0.5 ± 1.3	1.6 ± 1.7	-0.9 ± 1.2	10
Co-60	-1.3 ± 2.7	-0.8 ± 1.6	0.6 ± 1.8	-0.2 ± 1.2	10
Zn-65	-4.6 ± 5.8	-2.0 ± 2.9	2.1 ± 4.0	0.5 ± 2.3	30
Zr-Nb-95	0.7 ± 2.7	0.1 ± 1.5	0.7 ± 1.7	-0.7 ± 1.1	15
Cs-134	-1.7 ± 2.7	0.2 ± 1.5	0.0 ± 2.0	0.2 ± 1.0	10
Cs-137	-0.8 ± 3.1	2.3 ± 1.6	-0.9 ± 2.0	0.8 ± 1.2 ✓	10
Ba-La-140	3.5 ± 3.1	-0.8 ± 1.3	-2.3 ± 2.0	-0.8 ± 1.6	15
Ru-103	-0.2 ± 2.5	0.1 ± 1.5	-1.8 ± 2.0	-0.9 ± 1.2	30

POINT BEACH

Lake water, analyses for gross beta, iodine-131 and gamma emitting isotopes.

Location: E-06 (Coast Guard Station)

Collection: Monthly composites

Units: pCi/L

Lab Code	ELW- 190	ELW- 716	ELW- 1031	ELW- 1600	
Date Collected	01-16-08	02-21-08	03-13-08	04-11-08	Req. LLD
Gross beta	2.8 ± 1.1	0.6 ± 0.5	0.8 ± 0.8	1.0 ± 0.4	4.0
I-131	0.08 ± 0.18	-0.02 ± 0.20	-0.01 ± 0.18	-0.03 ± 0.14	0.5
Be-7	-1.3 ± 9.4	1.8 ± 30.0	13.1 ± 17.7	-3.5 ± 15.3	
Mn-54	0.4 ± 1.2	-1.3 ± 2.9	2.5 ± 1.9	1.7 ± 1.7	10
Fe-59	-2.2 ± 2.0	-1.7 ± 6.1	-2.5 ± 3.7	-1.0 ± 3.1	30
Co-58	-0.2 ± 1.1	-1.6 ± 3.6	1.0 ± 1.8	-2.1 ± 1.8	10
Co-60	0.1 ± 1.2	-0.3 ± 4.4	1.1 ± 1.8	-1.1 ± 1.5	10
Zn-65	0.6 ± 2.1	0.4 ± 6.5	2.5 ± 3.1	-1.5 ± 3.1	30
Zr-Nb-95	-0.7 ± 1.3	1.3 ± 3.3	-1.4 ± 2.2	0.4 ± 1.6	15
Cs-134	0.8 ± 0.9	-2.6 ± 2.8	0.8 ± 2.1	-2.1 ± 1.9	10
Cs-137	0.3 ± 1.1	0.3 ± 3.4	-0.1 ± 2.5	0.5 ± 2.1	10
Ba-La-140	-2.7 ± 1.6	3.6 ± 3.0	-1.2 ± 1.9	1.2 ± 1.7	15
Ru-103	0.0 ± 1.2	0.7 ± 3.2	0.2 ± 2.0	-1.6 ± 1.8	30
Lab Code	ELW- 2397	ELW- 2942	ELW- 3699	ELW- 4373	
Date Collected	05-15-08	06-12-08	07-17-08	08-14-08	Req. LLD
Gross beta	1.3 ± 0.5	1.3 ± 0.5	1.5 ± 1.0	0.6 ± 0.5	4.0
I-131	-0.02 ± 0.18	0.07 ± 0.14	0.09 ± 0.14	-0.04 ± 0.17	0.5
Be-7	3.2 ± 23.1	7.8 ± 12.3	1.9 ± 18.5	-14.3 ± 12.5	
Mn-54	-1.5 ± 3.3	0.5 ± 1.5	-1.1 ± 1.9	-0.9 ± 1.6	10
Fe-59	3.7 ± 6.1	-1.1 ± 2.4	2.7 ± 3.5	-1.8 ± 2.7	30
Co-58	-0.5 ± 3.1	-0.3 ± 1.8	1.2 ± 1.6	0.8 ± 1.3	10
Co-60	-1.2 ± 4.0	0.1 ± 1.3	-1.3 ± 1.8	-0.5 ± 1.5	10
Zn-65	-6.0 ± 5.9	1.5 ± 2.8	-0.4 ± 3.9	-1.1 ± 2.7	30
Zr-Nb-95	1.7 ± 2.6	-0.3 ± 1.3	1.6 ± 1.6	-0.5 ± 1.4	15
Cs-134	-0.4 ± 2.8	0.3 ± 1.4	-0.1 ± 2.0	1.3 ± 1.5	10
Cs-137	-1.2 ± 3.3	-0.1 ± 1.5	-0.9 ± 2.1	0.1 ± 1.6	10
Ba-La-140	4.3 ± 4.0	0.7 ± 2.2	1.3 ± 2.4	1.7 ± 1.8	15
Ru-103	-0.1 ± 3.1	-1.0 ± 1.5	-1.8 ± 2.1	0.0 ± 1.5	30
Lab Code	ELW- 4933	ELW- 5684	ELW- 6496	NS <sup>a</sup>	
Date Collected	09-12-08	10-15-08	11-12-08	-	Req. LLD
Gross beta	1.9 ± 1.0	1.3 ± 1.0	1.4 ± 1.0	-	4.0
I-131	-0.12 ± 0.20	-0.07 ± 0.19	0.01 ± 0.16	-	0.5
Be-7	-2.7 ± 15.8	-7.6 ± 12.3	-0.2 ± 17.4	-	
Mn-54	0.7 ± 2.0	-1.6 ± 1.6	0.7 ± 1.7	-	10
Fe-59	1.5 ± 3.3	2.2 ± 3.0	-2.0 ± 4.0	-	30
Co-58	1.7 ± 1.8	-0.7 ± 1.5	-0.2 ± 1.5	-	10
Co-60	-0.2 ± 2.0	-0.7 ± 1.8	-0.7 ± 1.8	-	10
Zn-65	-0.7 ± 4.4	1.3 ± 3.1	-1.0 ± 3.7	-	30
Zr-Nb-95	-2.8 ± 1.9	-0.9 ± 1.4	-3.2 ± 2.2	-	15
Cs-134	0.2 ± 1.8	0.5 ± 1.2	0.3 ± 1.9	-	10
Cs-137	0.1 ± 2.2	0.5 ± 1.8	-0.9 ± 2.0	-	10
Ba-La-140	-0.3 ± 2.8	0.3 ± 1.4	-1.0 ± 2.0	-	15
Ru-103	1.0 ± 1.9	-1.0 ± 1.4	-2.8 ± 2.2	-	30

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

POINT BEACH

Lake water, analyses for gross beta, iodine-131 and gamma emitting isotopes.

Location: E-33 (Nature Conservancy)

Collection: Monthly composites

Units: pCi/L

Lab Code	ELW- 192	ELW- 575	ELW- 1032	ELW- 1601		
Date Collected	01-16-08	02-14-08	03-13-08	04-11-08	Req. LLD	
Gross beta	3.4 ± 1.1	1.4 ± 0.5	0.8 ± 0.9	1.9 ± 0.5	4.0	
I-131	0.05 ± 0.14	-0.04 ± 0.17	0.03 ± 0.15	-0.04 ± 0.17	0.5	
Be-7	13.3 ± 18.2	-1.8 ± 13.9	7.7 ± 13.4	-8.0 ± 13.8		
Mn-54	0.4 ± 1.9	0.9 ± 1.6	0.6 ± 1.5	-1.5 ± 1.7	10	
Fe-59	1.6 ± 4.5	-1.8 ± 2.9	0.1 ± 2.8	1.0 ± 3.1	30	
Co-58	2.3 ± 1.9	-1.8 ± 1.7	0.1 ± 1.7	0.6 ± 1.7	10	
Co-60	0.8 ± 2.6	-0.5 ± 1.4	1.0 ± 1.3	0.5 ± 1.7	10	
Zn-65	-6.1 ± 6.2	1.6 ± 2.8	3.1 ± 3.2	-3.1 ± 3.4	30	
Zr-Nb-95	1.5 ± 2.0	1.8 ± 1.9	1.1 ± 1.6	-1.7 ± 1.7	15	
Cs-134	-4.5 ± 2.7	-0.2 ± 1.4	-0.2 ± 1.4	-1.3 ± 1.4	10	
Cs-137	0.4 ± 2.7	0.6 ± 1.8	0.0 ± 1.5	0.2 ± 1.8	10	
Ba-La-140	-2.4 ± 2.1	-0.6 ± 2.2	-2.1 ± 1.9	-0.4 ± 2.3	15	
Ru-103	-0.1 ± 2.1	0.4 ± 1.8	-0.9 ± 1.5	-1.3 ± 1.7	30	
Lab Code	ELW- 2398	ELW- 2943	ELW- 3700	ELW- 4374		
Date Collected	05-15-08	06-12-08	07-17-08	07-17-08	Req. LLD	
Gross beta	1.1 ± 0.6	1.8 ± 0.6	1.7 ± 0.9	1.1 ± 0.6	4.0	
I-131	-0.07 ± 0.14	0.12 ± 0.15	0.05 ± 0.15	0.11 ± 0.20	0.5	
Be-7	1.7 ± 16.3	-1.6 ± 13.5	6.6 ± 12.9	-6.8 ± 16.3		
Mn-54	-0.1 ± 1.6	0.1 ± 1.5	0.7 ± 1.5	-1.9 ± 2.1	10	
Fe-59	0.6 ± 3.1	0.5 ± 2.6	0.5 ± 3.0	-1.9 ± 4.1	30	
Co-58	0.2 ± 1.7	-0.9 ± 1.7	-0.3 ± 1.6	1.5 ± 2.1	10	
Co-60	0.8 ± 1.7	-0.6 ± 1.5	-1.4 ± 1.8	-0.9 ± 2.2	10	
Zn-65	-1.3 ± 3.6	-0.6 ± 3.1	-0.5 ± 2.9	-3.3 ± 4.9	30	
Zr-Nb-95	0.2 ± 2.0	-0.7 ± 1.5	-0.8 ± 1.6	-1.5 ± 2.2	15	
Cs-134	-0.1 ± 2.0	-0.3 ± 1.6	-0.6 ± 1.7	-0.2 ± 2.0	10	
Cs-137	-0.1 ± 1.9	-0.1 ± 1.8	-0.1 ± 1.9	-0.7 ± 2.1	10	
Ba-La-140	1.6 ± 2.1	2.6 ± 1.8	-0.7 ± 2.1	-0.4 ± 2.4	15	
Ru-103	-3.7 ± 2.0	-1.1 ± 1.5	0.6 ± 1.6	-0.9 ± 2.3	30	
Lab Code	ELW- 4934	ELW- 5685	ELW- 6497	ELW- 7064		All locations
Date Collected	09-12-08	10-15-08	11-12-08	12-17-08	Req. LLD	Annual
Gross beta	3.2 ± 2.0	2.1 ± 0.9	2.2 ± 0.4	1.5 ± 1.0 ✓	4.0	1.6 ± 0.9
I-131	0.06 ± 0.19	0.10 ± 0.23	-0.04 ± 0.16	-0.07 ± 0.14	0.5	0.01 ± 0.10
Be-7	1.7 ± 13.2	10.9 ± 13.1	5.1 ± 16.1	4.1 ± 10.1 ✓		0.3 ± 9.4
Mn-54	0.4 ± 1.6	-0.2 ± 1.5	0.1 ± 2.0	0.1 ± 1.2	10	0.1 ± 1.1
Fe-59	0.1 ± 3.0	3.2 ± 2.6	4.5 ± 3.6	-0.8 ± 2.2	30	0.0 ± 2.2
Co-58	1.7 ± 1.2	-0.6 ± 1.6	1.0 ± 2.2	-0.1 ± 1.1	10	0.2 ± 1.1
Co-60	0.6 ± 1.8	1.0 ± 1.7	1.0 ± 1.9	0.7 ± 1.3 ✓	10	0.0 ± 0.8
Zn-65	-0.5 ± 3.1	0.1 ± 3.2	0.9 ± 4.0	1.7 ± 2.3 ✓	30	-0.8 ± 2.3
Zr-Nb-95	0.4 ± 1.5	0.5 ± 1.4	0.4 ± 2.1	-0.8 ± 1.3	15	-0.2 ± 1.1
Cs-134	0.2 ± 1.4	0.1 ± 1.6	-0.2 ± 1.9	-0.7 ± 1.3	10	-0.6 ± 1.3
Cs-137	1.2 ± 1.6	0.1 ± 1.5	-0.9 ± 2.4	-0.8 ± 1.4	10	0.0 ± 1.2
Ba-La-140	-3.2 ± 2.1	-3.6 ± 2.4	-0.3 ± 2.8	-1.7 ± 1.4	15	-0.1 ± 2.1
Ru-103	1.2 ± 1.5	0.0 ± 1.5	-0.3 ± 2.1	-1.4 ± 1.2	30	-0.5 ± 1.2



POINT BEACH NUCLEAR PLANT

Lake water, analyses for tritium, strontium-89 and strontium-90.

Collection: Quarterly composites of weekly grab samples

Units: pCi/L

Location		E-01 (Meteorological Tower)			
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Lab Code	ELW-1097	ELW-2953	ELW-4949	ELW-7304	
H-3	132 ± 101	56 ± 88	-19 ± 96	88 ± 75	
Sr-89	0.11 ± 0.69	0.34 ± 1.03	0.00 ± 0.57	-0.11 ± 1.29	
Sr-90	0.26 ± 0.27	0.25 ± 0.34	0.23 ± 0.28	0.36 ± 0.32	

Location		E-05 (Two Creeks Park)			
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Lab Code	ELW-1098	ELW-2954	ELW-4950	ELW-7305	
H-3	116 ± 88	135 ± 92	-37 ± 95	65 ± 73	
Sr-89	-0.26 ± 0.70	0.55 ± 0.94	-0.06 ± 0.58	0.53 ± 0.68	
Sr-90	0.45 ± 0.28	0.35 ± 0.30	0.51 ± 0.29	0.57 ± 0.27	

Location		E-06 (Coast Guard Station)			
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Lab Code	ELW-1099	ELW-2955	ELW-4951	ELW-7306	
H-3	72 ± 86	84 ± 89	15 ± 98	68 ± 74	
Sr-89	0.20 ± 0.73	1.04 ± 1.18	0.63 ± 0.75	-0.90 ± 1.23	
Sr-90	0.33 ± 0.29	0.51 ± 0.41	0.28 ± 0.28	0.40 ± 0.33	

Location		E-33 (Nature Conservancy)			
Period	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Lab Code	ELW-1100	ELW-2956 <sup>a</sup>	ELW-4952	ELW-7307	
H-3	28 ± 96	1251 ± 132	72 ± 100	58 ± 73	
Sr-89	0.14 ± 0.73	0.16 ± 0.72	-0.05 ± 0.52	0.05 ± 0.72	
Sr-90	0.22 ± 0.28	0.13 ± 0.23	0.32 ± 0.26	0.25 ± 0.29	

<sup>a</sup> Tritium repeated with a result of 1383±127 pCi/L.

Results of monthly samples; April: 4057±189 pCi/L; May -73±77 pCi/L; June -129±79 pCi/L

**Tritium Annual Mean + s.d.            137 ± 301**  
**Sr-89 Annual Mean + s.d.            0.15 ± 0.43**  
**Sr-90 Annual Mean + s.d.            0.34 ± 0.12**

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POINT BEACH NUCLEAR PLANT

Fish, analyses for gross beta and gamma emitting isotopes.

Location: E-13

Collection: 3x / year

Units: pCi/g wet

Sample Description and Concentration				Required LLD
Collection Date	03-11-08	03-11-08	03-11-08	
Lab Code	EF- 954	EF- 955	EF- 956	
Type	Brown Trout	Smallmouth Bass	Catfish	
Ratio (wet/dry wt.)	3.92	4.59	2.94	
Gross Beta	2.80 ± 0.12	4.30 ± 0.16	4.02 ± 0.13	0.5
K-40	1.63 ± 0.38	2.88 ± 0.38	3.05 ± 0.45	
Mn-54	-0.005 ± 0.013	0.006 ± 0.008	0.004 ± 0.010	0.13
Fe-59	-0.012 ± 0.025	-0.004 ± 0.018	-0.029 ± 0.027	0.26
Co-58	-0.002 ± 0.012	0.005 ± 0.010	0.000 ± 0.011	0.13
Co-60	0.008 ± 0.014	0.002 ± 0.010	0.006 ± 0.013	0.13
Zn-65	0.016 ± 0.020	0.009 ± 0.017	0.008 ± 0.028	0.26
Cs-134	-0.008 ± 0.010	0.010 ± 0.009	-0.011 ± 0.013	0.13
Cs-137	0.015 ± 0.012	0.007 ± 0.011	0.070 ± 0.025	0.15
Ru-103	-0.011 ± 0.010	-0.003 ± 0.008	0.005 ± 0.010	0.5
Collection Date	08-14-08	08-14-08	08-14-08	
Lab Code	EF- 4279	EF- 4280	EF- 4281	
Type	Brown Trout	Lake Trout	Lake Trout	
Ratio (wet/dry wt.)	3.60	4.58	4.18	
Gross Beta	4.27 ± 0.10	3.19 ± 0.08	3.76 ± 0.11	0.5
K-40	3.07 ± 3.07	2.12 ± 0.48	3.27 ± 3.27	
Mn-54	-0.004 ± 0.008	0.000 ± 0.010	-0.001 ± 0.007	0.13
Fe-59	0.006 ± 0.018	0.040 ± 0.026	0.006 ± 0.016	0.26
Co-58	0.003 ± 0.008	0.010 ± 0.010	0.002 ± 0.008	0.13
Co-60	0.007 ± 0.009	-0.003 ± 0.013	0.006 ± 0.010	0.13
Zn-65	-0.024 ± 0.022	-0.016 ± 0.031	-0.019 ± 0.020	0.26
Cs-134	0.007 ± 0.006	-0.001 ± 0.012	-0.011 ± 0.008	0.13
Cs-137	0.038 ± 0.014	0.058 ± 0.030	0.019 ± 0.011	0.15
Ru-103	-0.003 ± 0.007	0.010 ± 0.010	0.001 ± 0.007	0.5

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POINT BEACH NUCLEAR PLANT

Fish, analyses for gross beta and gamma emitting isotopes.

Location: E-13

Collection: 3x / year

Units: pCi/g wet

Sample Description and Concentration (pCi/g wet)				Required LLD
Collection Date	12-18-08	12-18-08	Annual	
Lab Code	EF- 7104	EF- 7105		
Type	Lake Trout	Rainbow Trout		
Ratio (wet/dry wt.)	2.25	2.27	Mean	s.d.
Gross Beta	3.84 ± 0.15	4.34 ± 0.16	<b>3.82 ± 0.56</b>	0.5
K-40	2.52 ± 0.36 ✓	3.01 ± 0.43 ✓	<b>2.69 ± 0.56</b>	
Mn-54	-0.004 ± 0.008	-0.001 ± 0.010	<b>-0.001 ± 0.004</b>	0.13
Fe-59	0.009 ± 0.014 ✓	-0.008 ± 0.020	<b>0.001 ± 0.020</b>	0.26
Co-58	-0.002 ± 0.007	-0.002 ± 0.009	<b>0.002 ± 0.004</b>	0.13
Co-60	-0.005 ± 0.011	0.001 ± 0.011	<b>0.003 ± 0.005</b>	0.13
Zn-65	-0.001 ± 0.019	-0.016 ± 0.025	<b>-0.005 ± 0.015</b>	0.26
Cs-134	-0.001 ± 0.007	0.002 ± 0.011	<b>-0.002 ± 0.008</b>	0.13
Cs-137	0.033 ± 0.015 ✓	0.025 ± 0.012 ✓	<b>0.033 ± 0.022</b>	0.15
Ru-103	-0.007 ± 0.007	0.011 ± 0.009 ✓	<b>0.000 ± 0.008</b>	0.5

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POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN SHORELINE SEDIMENT SAMPLES

(Semiannual Collections)

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Sample Description and Concentration (pCi/g dry)

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Collection Date	4/11/2008	4/11/2008	4/11/2008	Required
Lab Code	ESS- 1655	ESS- 1656	ESS- 1657	LLD
Location	E-01	E-05	E-06	
Gross Beta	9.96 ± 2.07	11.10 ± 1.82	13.84 ± 1.99	2.0
Be-7	0.021 ± 0.054	-0.010 ± 0.080	0.042 ± 0.062	
K-40	6.27 ± 0.42	6.63 ± 0.60	8.57 ± 0.52	-
Cs-137	0.036 ± 0.015	0.011 ± 0.013	0.035 ± 0.019	0.15
Tl-208	0.041 ± 0.014	0.058 ± 0.024	0.049 ± 0.024	-
Pb-212	0.11 ± 0.11	0.11 ± 0.022	0.10 ± 0.017	-
Bi-214	0.13 ± 0.023	0.14 ± 0.033	0.11 ± 0.027	-
Ra-226	0.32 ± 0.13	0.52 ± 0.17	0.24 ± 0.14	-
Ac-228	0.16 ± 0.048	0.20 ± 0.080	0.11 ± 0.059	-
Collection Date	4/11/2008	4/11/2008		
Lab Code	ESS- 1658	ESS- 1659		
Location	E-12	E-33		
Gross Beta	25.60 ± 2.70	14.58 ± 1.99		2.0
Be-7	0.031 ± 0.062	0.068 ± 0.058		
K-40	5.54 ± 0.40	8.53 ± 0.52		-
Cs-137	0.014 ± 0.010	0.015 ± 0.010		0.15
Tl-208	0.046 ± 0.015	0.044 ± 0.020		-
Pb-212	0.15 ± 0.019	0.11 ± 0.018		-
Bi-214	0.13 ± 0.029	0.10 ± 0.029		-
Ra-226	0.25 ± 0.15	0.19 ± 0.15		-
Ac-228	0.16 ± 0.048	0.12 ± 0.048		-

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POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN SHORELINE SEDIMENT SAMPLES  
(Semiannual Collections)

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Sample Description and Concentration (pCi/g dry)

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Collection Date	10/15/2008	10/15/2008	10/15/2008	Required	
Lab Code	ESS- 5688	ESS- 5689	ESS- 5690	LLD	
Location	E-01	E-05	E-06		
Gross Beta	11.05 ± 2.11	23.94 ± 2.45	9.48 ± 1.66	2.0	
Be-7	-0.028 ± 0.061	0.188 ± 0.081	0.089 ± 0.055		
K-40	3.15 ± 0.28	3.54 ± 0.34	7.13 ± 0.44	-	
Cs-137	0.038 ± 0.015	0.015 ± 0.010	0.037 ± 0.019	0.15	
Tl-208	0.246 ± 0.026	0.513 ± 0.030	0.072 ± 0.014	-	
Pb-212	0.67 ± 0.03	1.32 ± 0.041	0.25 ± 0.062	-	
Bi-214	0.57 ± 0.051	0.92 ± 0.053	0.21 ± 0.028	-	
Ra-226	0.84 ± 0.21	1.67 ± 0.28	0.43 ± 0.17	-	
Ac-228	0.76 ± 0.074	1.58 ± 0.110	0.22 ± 0.051	-	
Collection Date	10/15/2008	10/15/2008			
Lab Code	ESS- 5691	ESS- 5692			
Location	E-12	E-33			Annual
Gross Beta	7.58 ± 1.46	11.47 ± 1.73		2.0	Mean s.d.
Be-7	0.077 ± 0.054	0.208 ± 0.054			0.068 ± 0.077
K-40	4.30 ± 0.34	6.66 ± 0.41		-	6.03 ± 1.90
Cs-137	0.031 ± 0.016	0.020 ± 0.009		0.15	0.025 ± 0.011
Tl-208	0.104 ± 0.019	0.047 ± 0.018		-	0.12 ± 0.15
Pb-212	0.33 ± 0.068	0.24 ± 0.064		-	0.34 ± 0.38
Bi-214	0.19 ± 0.030	0.20 ± 0.041		-	0.27 ± 0.27
Ra-226	0.47 ± 0.17	0.28 ± 0.16		-	0.52 ± 0.45
Ac-228	0.31 ± 0.049	0.22 ± 0.061		-	0.38 ± 0.46

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POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN SOIL SAMPLES  
(Semiannual Collections)

Sample Description and Concentration (pCi/g dry)				
Collection Date	5/28/2008	5/28/2008	5/28/2008	Required
Lab Code	ESO- 2565	ESO- 2566	ESO- 2567	LLD
Location	E-01	E-02	E-03	
Gross Beta	27.55 ± 2.24	32.15 ± 2.29	15.43 ± 1.89	2.0
Be-7	0.026 ± 0.074	0.587 ± 0.21	-0.010 ± 0.057	
K-40	14.80 ± 0.69	18.97 ± 0.82	8.75 ± 0.47	-
Cs-137	0.14 ± 0.026	0.084 ± 0.025	0.005 ± 0.008	0.15
Tl-208	0.16 ± 0.025	0.21 ± 0.029	0.062 ± 0.014	-
Pb-212	0.50 ± 0.085	0.74 ± 0.089	0.16 ± 0.021	-
Bi-214	0.29 ± 0.039	0.45 ± 0.048	0.14 ± 0.025	-
Ra-226	0.90 ± 0.24	1.00 ± 0.27	0.41 ± 0.18	-
Ac-228	0.48 ± 0.086	0.74 ± 0.13	0.20 ± 0.052	-
Collection Date	5/28/2008	5/28/2008	5/28/2008	
Lab Code	ESO- 2568	ESO- 2569	ESO- 2570	
Location	E-04	E-06	E-08	
Gross Beta	15.61 ± 1.81	20.91 ± 2.08	21.20 ± 2.51	2.0
Be-7	0.065 ± 0.068	0.056 ± 0.062	-0.011 ± 0.061	
K-40	8.66 ± 0.53	12.67 ± 0.63	11.10 ± 0.54	-
Cs-137	0.15 ± 0.024	0.35 ± 0.027	0.046 ± 0.022	0.15
Tl-208	0.078 ± 0.019	0.071 ± 0.019	0.089 ± 0.022	-
Pb-212	0.22 ± 0.226	0.18 ± 0.029	0.21 ± 0.028	-
Bi-214	0.22 ± 0.030	0.17 ± 0.028	0.10 ± 0.031	-
Ra-226	0.61 ± 0.24	0.44 ± 0.20	0.39 ± 0.19	-
Ac-228	0.28 ± 0.061	0.28 ± 0.077	0.28 ± 0.067	-
Collection Date	5/28/2008	5/28/2008		
Lab Code	ESO- 2571	ESO- 2572		
Location	E-09	E-20		
Gross Beta	38.31 ± 2.86	34.96 ± 2.75		
Be-7	-0.059 ± 0.097	0.044 ± 0.075		
K-40	21.28 ± 0.92	17.11 ± 0.76		
Cs-137	0.17 ± 0.034	0.13 ± 0.024		
Tl-208	0.22 ± 0.035	0.15 ± 0.028		
Pb-212	0.71 ± 0.11	0.41 ± 0.034		
Bi-214	0.45 ± 0.052	0.22 ± 0.044		
Ra-226	1.33 ± 0.32	0.88 ± 0.28		
Ac-228	0.69 ± 0.091	0.57 ± 0.099		

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN SOIL SAMPLES  
(Semiannual Collections)

Sample Description and Concentration (pCi/g dry)				
Collection Date	10/29/2008	10/29/2008	10/29/2008	Required
Lab Code	ESO- 6237	ESO- 6238	ESO- 6239	LLD
Location	E-01	E-02	E-03	
Gross Beta	36.58 ± 2.90	41.37 ± 3.30	34.24 ± 2.76	2.0
Be-7	0.042 ± 0.088	0.053 ± 0.074	0.198 ± 0.084	
K-40	15.58 ± 0.73	14.84 ± 0.70	19.07 ± 0.85	-
Cs-137	0.21 ± 0.030	0.073 ± 0.023	0.25 ± 0.034	0.15
Tl-208	0.18 ± 0.030	0.13 ± 0.025	0.22 ± 0.034	-
Pb-212	0.46 ± 0.035	0.39 ± 0.033	0.78 ± 0.103	-
Bi-214	0.38 ± 0.045	0.26 ± 0.043	0.47 ± 0.067	-
Ra-226	1.32 ± 0.31	0.74 ± 0.26	1.31 ± 0.28	-
Ac-228	0.62 ± 0.13	0.48 ± 0.11	0.83 ± 0.12	-
Collection Date	10/29/2008	10/29/2008	10/29/2008	
Lab Code	ESO- 6240	ESO- 6241	ESO- 6242	
Location	E-04	E-06	E-08	
Gross Beta	32.20 ± 2.74	30.04 ± 4.06	25.85 ± 3.49	2.0
Be-7	0.047 ± 0.090	-0.099 ± 0.071	-0.069 ± 0.065	
K-40	15.43 ± 15.43	12.96 ± 12.96	13.23 ± 0.61	-
Cs-137	0.11 ± 0.025	0.24 ± 0.032	0.17 ± 0.022	0.15
Tl-208	0.14 ± 0.027	0.11 ± 0.021	0.085 ± 0.019	-
Pb-212	0.48 ± 0.091	0.35 ± 0.079	0.30 ± 0.071	-
Bi-214	0.29 ± 0.053	0.31 ± 0.046	0.22 ± 0.048	-
Ra-226	0.75 ± 0.21	0.62 ± 0.22	0.46 ± 0.17	-
Ac-228	0.44 ± 0.087	0.37 ± 0.070	0.31 ± 0.061	-
Collection Date	10/29/2008	10/29/2008	<b>Annual</b>	
Lab Code	ESO- 6243	ESO- 6244		
Location	E-09	E-20	Mean	s.d.
Gross Beta	39.16 ± 4.17	34.98 ± 2.22	30.03 ± 8.19	2.0
Be-7	0.113 ± 0.083	-0.006 ± 0.074	0.061 ± 0.16	
K-40	18.98 ± 0.85	14.76 ± 0.69	14.89 ± 3.65	-
Cs-137	0.15 ± 0.026	0.22 ± 0.030	0.16 ± 0.09	0.15
Tl-208	0.14 ± 0.028	0.17 ± 0.029	0.14 ± 0.05	-
Pb-212	0.47 ± 0.092	0.57 ± 0.089	0.43 ± 0.20	-
Bi-214	0.32 ± 0.063	0.40 ± 0.050	0.29 ± 0.11	-
Ra-226	0.71 ± 0.28	0.98 ± 0.25	0.80 ± 0.32	-
Ac-228	0.55 ± 0.156	0.46 ± 0.095	0.47 ± 0.18	-

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN VEGETATION SAMPLES  
(Tri-Annual Collections)

Sample Description and Concentration (pCi/g wet)				
Location	E-01	E-02	E-03	
Collection Date	5/28/2008	5/28/2008	5/28/2008	
Lab Code	EG- 2540	EG- 2541	EG- 2542	Req. LLD
Ratio (wet/dry)	5.28	4.20	3.81	-
Gross Beta	6.51 ± 0.15	7.55 ± 0.17	9.68 ± 0.23	0.25
Be-7	0.12 ± 0.06	0.31 ± 0.13	0.62 ± 0.23	-
K-40	5.16 ± 0.40	5.86 ± 0.44	7.27 ± 0.51	-
I-131	0.000 ± 0.007	0.001 ± 0.006	0.002 ± 0.010	0.060
Cs-134	0.000 ± 0.006	0.002 ± 0.006	-0.011 ± 0.011	0.060
Cs-137	0.002 ± 0.008	0.004 ± 0.008	0.000 ± 0.011	0.080
Co-60	-0.005 ± 0.007	0.001 ± 0.009	0.010 ± 0.010	0.060
Location	E-04	E-06	E-08	
Collection Date	5/28/2008	5/28/2008	5/28/2008	
Lab Code	EG- 2543	EG- 2544	EG- 2545	Req. LLD
Ratio (wet/dry)	4.04	3.54	3.40	-
Gross Beta	4.23 ± 0.09	8.48 ± 0.19	4.28 ± 0.08	0.25
Be-7	0.26 ± 0.12	0.30 ± 0.12	0.78 ± 0.24	-
K-40	5.89 ± 0.44	5.02 ± 0.51	6.35 ± 0.56	-
I-131	-0.003 ± 0.007	-0.004 ± 0.012	0.005 ± 0.012	0.060
Cs-134	-0.006 ± 0.007	0.004 ± 0.010	-0.006 ± 0.014	0.060
Cs-137	0.003 ± 0.009	0.011 ± 0.015	0.014 ± 0.013	0.080
Co-60	0.005 ± 0.008	0.010 ± 0.012	0.004 ± 0.012	0.060
Location	E-09	E-20		
Collection Date	5/28/2008	5/28/2008		
Lab Code	EG- 2546	EG- 2547		Req. LLD
Ratio (wet/dry)	4.20	3.22		-
Gross Beta	4.63 ± 0.09	4.37 ± 0.09		0.25
Be-7	0.32 ± 0.16	0.23 ± 0.17		-
K-40	6.90 ± 0.55	6.34 ± 0.77		-
I-131	0.000 ± 0.008	-0.007 ± 0.017		0.060
Cs-134	0.002 ± 0.007	-0.009 ± 0.015		0.060
Cs-137	0.000 ± 0.009	-0.006 ± 0.018		0.080
Co-60	0.003 ± 0.010	-0.007 ± 0.018		0.060



POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN VEGETATION SAMPLES  
(Tri-Annual Collections)

Sample Description and Concentration (pCi/g wet)				
Location	E-01	E-02	E-03	
Collection Date	7/30/2008	7/30/2008	7/30/2008	
Lab Code	EG- 3929	EG- 3930	EG- 3931	Req. LLD
Ratio (wet/dry)	3.46	3.05	4.82	-
Gross Beta	7.95 ± 0.20	8.01 ± 0.20	9.60 ± 0.33	0.25
Be-7	0.76 ± 0.26	1.91 ± 0.30	0.29 ± 0.15	-
K-40	6.29 ± 0.58	6.97 ± 0.74	6.62 ± 0.70	-
I-131	0.014 ± 0.011	-0.005 ± 0.013	0.026 ± 0.014	0.060
Cs-134	-0.006 ± 0.012	-0.003 ± 0.015	0.010 ± 0.015	0.060
Cs-137	0.004 ± 0.011	0.009 ± 0.018	-0.019 ± 0.016	0.080
Co-60	0.002 ± 0.017	-0.003 ± 0.021	-0.013 ± 0.020	0.060
Location	E-04	E-06	E-08	
Collection Date	7/30/2008	7/30/2008	7/30/2008	
Lab Code	EG- 3932	EG- 3933	EG- 3934	Req. LLD
Ratio (wet/dry)	2.38	2.39	2.17	-
Gross Beta	5.73 ± 0.23	6.50 ± 0.24	9.70 ± 0.38	0.25
Be-7	1.70 ± 0.32	1.44 ± 0.29	1.67 ± 0.32	-
K-40	4.37 ± 0.56	4.64 ± 0.55	6.02 ± 0.58	-
I-131	-0.002 ± 0.013	-0.005 ± 0.012	0.001 ± 0.013	0.060
Cs-134	0.002 ± 0.015	0.001 ± 0.010	0.013 ± 0.011	0.060
Cs-137	0.017 ± 0.013	0.019 ± 0.013	-0.015 ± 0.014	0.080
Co-60	0.003 ± 0.018	-0.003 ± 0.014	-0.001 ± 0.016	0.060
Location	E-09	E-20		
Collection Date	7/30/2008	7/30/2008		
Lab Code	EG- 3936	EG- 3937		Req. LLD
Ratio (wet/dry)	2.78	2.78		-
Gross Beta	8.60 ± 0.34	8.73 ± 0.25		0.25
Be-7	1.84 ± 0.38	0.99 ± 0.30		-
K-40	4.98 ± 0.57	5.83 ± 0.60		-
I-131	0.001 ± 0.012	0.016 ± 0.011		0.060
Cs-134	0.014 ± 0.012	0.004 ± 0.011		0.060
Cs-137	0.005 ± 0.014	0.006 ± 0.014		0.080
Co-60	0.018 ± 0.016	-0.003 ± 0.016		0.060

POINT BEACH NUCLEAR PLANT  
RADIOACTIVITY IN VEGETATION SAMPLES  
(Tri-Annual Collections)

Sample Description and Concentration (pCi/g wet)				
Location	E-01	E-02	E-03	
Collection Date	10/29/2008	10/29/2008	10/29/2008	
Lab Code	EG- 6229	EG- 6230	EG- 6231	Req. LLD
Ratio (wet/dry)	2.78	2.67	5.22	-
Gross Beta	11.27 ± 0.34	6.07 ± 0.22	9.10 ± 0.22	0.25
Be-7	3.41 ± 0.31	1.64 ± 0.29	2.97 ± 0.24	-
K-40	4.91 ± 0.47	5.81 ± 0.49	6.26 ± 0.41	-
I-131	0.014 ± 0.012	-0.022 ± 0.011	0.013 ± 0.009	0.060
Cs-134	-0.003 ± 0.008	-0.004 ± 0.010	-0.004 ± 0.007	0.060
Cs-137	0.007 ± 0.010	-0.006 ± 0.011	-0.001 ± 0.008	0.080
Co-60	-0.010 ± 0.010	-0.002 ± 0.009	-0.001 ± 0.007	0.060
Location	E-04	E-06	E-08	
Collection Date	10/29/2008	10/29/2008	10/29/2008	
Lab Code	EG- 6232	EG- 6233	EG- 6234	Req. LLD
Ratio (wet/dry)	3.57	2.13	1.68	-
Gross Beta	9.89 ± 0.30	5.77 ± 0.18	7.76 ± 0.30	0.25
Be-7	3.22 ± 0.29	2.36 ± 0.09	5.08 ± 0.16	-
K-40	5.92 ± 0.46	2.43 ± 0.13	4.74 ± 0.20	-
I-131	-0.006 ± 0.007	-0.002 ± 0.003	0.003 ± 0.004	0.060
Cs-134	0.001 ± 0.005	0.000 ± 0.003	-0.001 ± 0.004	0.060
Cs-137	0.006 ± 0.009	0.010 ± 0.003	0.004 ± 0.004	0.080
Co-60	0.005 ± 0.008	0.001 ± 0.003	0.003 ± 0.004	0.060
Location	E-09	E-20		
Collection Date	10/29/2008	10/29/2008		
Lab Code	EG- 6235	EG- 6236		Req. LLD
Ratio (wet/dry)	2.08	3.08		-
Gross Beta	8.57 ± 0.37	9.57 ± 0.27		0.25
Be-7	3.73 ± 0.20	3.12 ± 0.38		-
K-40	4.34 ± 0.30	5.18 ± 0.53		-
I-131	0.016 ± 0.007	0.019 ± 0.012		0.060
Cs-134	-0.005 ± 0.007	-0.003 ± 0.010		0.060
Cs-137	0.004 ± 0.008	0.005 ± 0.011		0.080
Co-60	0.003 ± 0.008	0.001 ± 0.011		0.060

Gross Beta Annual Mean + s.d.	7.61 ± 2.03
Be-7 Annual Mean + s.d.	1.63 ± 1.36
K-40 Annual Mean + s.d.	5.59 ± 1.07
I-131 Annual Mean + s.d.	0.004 ± 0.010
Cs-134 Annual Mean + s.d.	0.000 ± 0.006
Cs-137 Annual Mean + s.d.	0.005 ± 0.008
Co-60 Annual Mean + s.d.	0.001 ± 0.006

POINT BEACH NUCLEAR PLANT

Aquatic Vegetation, analyses for gross beta and gamma emitting isotopes.

Collection: Semiannual

Units: pCi/g wet

Sample Description and Concentration				
Collection Date	06-04-08	06-04-08	Required	
Lab Code	ESL- 2828	ESL- 2829	LLD	
Location	E-05	E-12		
Ratio (wet wt./dry wt.)	4.25	3.80		
Gross Beta	5.69 ± 0.42	11.04 ± 0.66	0.25	
Be-7	1.42 ± 0.26	0.79 ± 1.28	-	
K-40	3.00 ± 0.37	2.67 ± 2.67	-	
Co-58	0.006 ± 0.009	0.015 ± 0.007	0.25	
Co-60	0.001 ± 0.013	0.019 ± 0.007	0.25	
Cs-134	-0.007 ± 0.009	-0.002 ± 0.007	0.25	
Cs-137	0.016 ± 0.012	0.038 ± 0.017	0.25	
Collection Date	08-07-08	08-07-08	Required	
Lab Code	ESL- 4172	ESL- 4173	LLD	
Location	E-05	E-12		
Ratio (wet wt./dry wt.)	4.31	2.47		
Gross Beta	7.91 ± 0.66	10.55 ± 1.23	0.25	
Be-7	2.25 ± 0.22	2.61 ± 0.21	-	
K-40	2.22 ± 0.29	2.67 ± 0.32	-	
Co-58	0.006 ± 0.008	0.006 ± 0.008	0.25	
Co-60	0.006 ± 0.009	0.007 ± 0.009	0.25	
Cs-134	0.000 ± 0.008	0.004 ± 0.008	0.25	
Cs-137	0.028 ± 0.009	0.031 ± 0.011	0.25	
Collection Date	10-09-08	10-09-08	Required	
Lab Code	ESL- 5518	ESL- 5519	LLD	Annual
Location	E-05	E-12		Mean s.d.
Ratio (wet wt./dry wt.)	4.66	2.07		
Gross Beta	6.54 ± 0.42	10.34 ± 1.04	0.25	8.68 ± 2.28
Be-7	0.43 ± 0.15	1.42 ± 0.26	-	1.49 ± 0.83
K-40	1.96 ± 0.21	3.86 ± 0.30	-	2.73 ± 0.66
Co-58	0.001 ± 0.006	0.001 ± 0.008	0.25	0.006 ± 0.005
Co-60	-0.003 ± 0.006	0.008 ± 0.009	0.25	0.006 ± 0.008
Cs-134	0.000 ± 0.006	-0.007 ± 0.008	0.25	-0.002 ± 0.004
Cs-137	0.009 ± 0.007	0.027 ± 0.012	0.25	0.025 ± 0.011

POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 1st. Quarter, 2008

Date Annealed:	12-05-07	Days in the field	85
Date Placed:	01-10-08	Days from Annealing	
Date Removed:	04-04-08	to Readout:	125
Date Read:	04-08-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	85	15.3 ± 1.1	10.9 ± 1.3	0.90 ± 0.11
E-2	85	19.9 ± 1.1	15.5 ± 1.3	1.28 ± 0.11
E-3	85	20.5 ± 1.3	16.1 ± 1.5	1.33 ± 0.12
E-4	85	17.8 ± 1.3	13.4 ± 1.5	1.10 ± 0.12
E-5	85	16.8 ± 0.9	12.4 ± 1.2	1.02 ± 0.10
E-6	85	17.9 ± 0.9	13.5 ± 1.2	1.11 ± 0.10
E-7	85	18.0 ± 1.0	13.6 ± 1.2	1.12 ± 0.10
E-8	85	17.1 ± 0.7	12.7 ± 1.0	1.05 ± 0.08
E-9	85	19.9 ± 0.7	15.5 ± 1.0	1.28 ± 0.08
E-12	85	15.8 ± 0.3	11.4 ± 0.8	0.94 ± 0.07
E-14	85	18.9 ± 0.4	14.5 ± 0.8	1.19 ± 0.07
E-15	85	18.3 ± 0.6	13.9 ± 1.0	1.14 ± 0.08
E-16	85	17.4 ± 0.3	13.0 ± 0.8	1.07 ± 0.07
E-17	85	18.9 ± 0.7	14.5 ± 1.0	1.19 ± 0.08
E-18	85	18.5 ± 0.7	14.1 ± 1.0	1.16 ± 0.08
E-22	85	18.9 ± 1.1	14.5 ± 1.3	1.19 ± 0.11
E-23	85	18.1 ± 0.5	13.7 ± 0.9	1.13 ± 0.07
E-24	85	18.8 ± 0.6	14.4 ± 1.0	1.19 ± 0.08
E-25	85	17.2 ± 0.2	12.8 ± 0.8	1.05 ± 0.06
E-26	85	17.2 ± 0.5	12.8 ± 0.9	1.05 ± 0.07
E-27	85	19.5 ± 0.4	15.1 ± 0.8	1.24 ± 0.07
E-28	85	15.1 ± 0.3	10.7 ± 0.8	0.88 ± 0.07
E-29	85	15.7 ± 0.9	11.3 ± 1.2	0.93 ± 0.10
E-30	85	17.1 ± 0.7	12.7 ± 1.0	1.05 ± 0.08
E-31	85	17.9 ± 0.6	13.5 ± 1.0	1.11 ± 0.08
E-32	85	17.0 ± 0.6	12.6 ± 1.0	1.04 ± 0.08
E-38	85	17.5 ± 1.4	13.1 ± 1.6	1.08 ± 0.13
E-39	85	15.0 ± 0.6	10.6 ± 1.0	0.87 ± 0.08
<u>Control</u>				
E-20	85	19.4 ± 0.9	15.0 ± 1.2	1.24 ± 0.10
Mean±s.d.		17.8 ± 1.5	13.4 ± 1.5	1.10 ± 0.11

<u>In-Transit Exposure</u>			
Date Annealed	12-05-07	03-26-08	
Date Read	01-22-08	04-08-08	
	<u>Total mR</u>		
ITC-1	7.2 ± 0.7	2.2 ± 0.2	
ITC-2	6.1 ± 0.1	2.1 ± 0.1	

POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 2nd Quarter, 2008

Date Annealed:	03-26-08	Days in the field	89
Date Placed:	04-04-08	Days from Annealing	
Date Removed:	07-02-08	to Readout:	105
Date Read:	07-09-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	89	12.7 ± 1.1	9.8 ± 1.2	0.77 ± 0.09
E-2	89	17.9 ± 1.0	15.0 ± 1.1	1.18 ± 0.08
E-3	89	18.4 ± 1.4	15.5 ± 1.5	1.22 ± 0.11
E-4	89	14.5 ± 0.3	11.6 ± 0.5	0.91 ± 0.04
E-5	89	16.2 ± 0.4	13.3 ± 0.6	1.04 ± 0.04
E-6	89	14.2 ± 0.5	11.3 ± 0.6	0.88 ± 0.05
E-7	89	13.5 ± 0.5	10.6 ± 0.6	0.83 ± 0.05
E-8	89	14.2 ± 0.5	11.3 ± 0.6	0.88 ± 0.05
E-9	89	16.4 ± 0.9	13.5 ± 1.0	1.06 ± 0.08
E-12	89	11.7 ± 0.8	8.8 ± 0.9	0.69 ± 0.07
E-14	89	15.2 ± 0.9	12.3 ± 1.0	0.96 ± 0.08
E-15	89	18.3 ± 0.9	15.4 ± 1.0	1.21 ± 0.08
E-16	89	14.5 ± 0.2	11.6 ± 0.4	0.91 ± 0.03
E-17	89	15.2 ± 0.8	12.3 ± 0.9	0.96 ± 0.07
E-18	89	16.4 ± 0.3	13.5 ± 0.5	1.06 ± 0.04
E-22	89	16.1 ± 0.3	13.2 ± 0.5	1.03 ± 0.04
E-23	89	17.2 ± 0.7	14.3 ± 0.8	1.12 ± 0.06
E-24	89	15.2 ± 0.2	12.3 ± 0.4	0.96 ± 0.03
E-25	89	16.7 ± 0.3	13.8 ± 0.5	1.08 ± 0.04
E-26	89	13.3 ± 0.2	10.4 ± 0.4	0.81 ± 0.03
E-27	89	17.9 ± 0.4	15.0 ± 0.6	1.18 ± 0.04
E-28	89	11.3 ± 0.3	8.4 ± 0.5	0.66 ± 0.04
E-29	89	12.0 ± 0.4	9.1 ± 0.6	0.71 ± 0.04
E-30	89	15.0 ± 0.4	12.1 ± 0.6	0.95 ± 0.04
E-31	89	16.7 ± 1.3	13.8 ± 1.4	1.08 ± 0.11
E-32	89	14.8 ± 0.2	11.9 ± 0.4	0.93 ± 0.03
E-38	89	14.6 ± 0.7	11.7 ± 0.8	0.92 ± 0.06
E-39	89	13.8 ± 0.4	10.9 ± 0.6	0.85 ± 0.04
<u>Control</u>				
E-20	89	<u>14.4 ± 0.2</u>	<u>11.5 ± 0.4</u>	<u>0.90 ± 0.03</u>
Mean±s.d.		15.1 ± 1.9	12.2 ± 1.9	0.96 ± 0.15

<u>In-Transit Exposure</u>			
Date Annealed	03-26-08	06-13-08	
Date Read	04-08-08	07-09-08	
	<u>Total mR</u>		
ITC-1	2.2 ± 0.2	3.8 ± 0.3	
ITC-2	2.1 ± 0.1	3.7 ± 0.1	

POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 3rd Quarter, 2008

Date Annealed:	06-13-08	Days in the field	91
Date Placed:	07-02-08	Days from Annealing	
Date Removed:	10-01-08	to Readout:	117
Date Read:	10-08-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	91	15.0 ± 1.1	11.4 ± 1.2	0.88 ± 0.09
E-2	91	20.2 ± 0.3	16.6 ± 0.5	1.28 ± 0.04
E-3	91	23.1 ± 1.3	19.5 ± 1.4	1.50 ± 0.11
E-4	91	19.2 ± 1.1	15.6 ± 1.2	1.20 ± 0.09
E-5	91	18.2 ± 1.0	14.6 ± 1.1	1.12 ± 0.08
E-6	91	17.6 ± 0.8	14.0 ± 0.9	1.08 ± 0.07
E-7	91	17.9 ± 0.8	14.3 ± 0.9	1.10 ± 0.07
E-8	91	18.4 ± 1.4	14.8 ± 1.5	1.14 ± 0.11
E-9	91	21.6 ± 0.6	18.0 ± 0.7	1.38 ± 0.06
E-12	91	14.2 ± 0.5	10.6 ± 0.7	0.82 ± 0.05
E-14	91	19.4 ± 0.6	15.8 ± 0.7	1.22 ± 0.06
E-15	91	20.6 ± 0.5	17.0 ± 0.7	1.31 ± 0.05
E-16	91	19.0 ± 0.3	15.4 ± 0.5	1.18 ± 0.04
E-17	91	19.4 ± 0.8	15.8 ± 0.9	1.22 ± 0.07
E-18	91	21.4 ± 0.9	17.8 ± 1.0	1.37 ± 0.08
E-22	91	20.5 ± 1.1	16.9 ± 1.2	1.30 ± 0.09
E-23	91	20.2 ± 0.4	16.6 ± 0.6	1.28 ± 0.05
E-24	91	19.1 ± 0.7	15.5 ± 0.8	1.19 ± 0.06
E-25	91	18.8 ± 0.4	15.2 ± 0.6	1.17 ± 0.05
E-26	91	17.1 ± 0.5	13.5 ± 0.7	1.04 ± 0.05
E-27	91	20.9 ± 0.3	17.3 ± 0.5	1.33 ± 0.04
E-28	91	14.0 ± 0.3	10.4 ± 0.5	0.80 ± 0.04
E-29	91	15.1 ± 0.6	11.5 ± 0.7	0.88 ± 0.06
E-30	91	17.8 ± 0.7	14.2 ± 0.8	1.09 ± 0.06
E-31	91	19.5 ± 1.0	15.9 ± 1.1	1.22 ± 0.08
E-32	91	19.5 ± 0.6	15.9 ± 0.7	1.22 ± 0.06
E-38	91	19.0 ± 1.2	15.4 ± 1.3	1.18 ± 0.10
E-39	91	16.9 ± 0.6	13.3 ± 0.7	1.02 ± 0.06
<u>Control</u>				
E-20	91	<u>18.8 ± 1.1</u>	<u>15.2 ± 1.2</u>	<u>1.17 ± 0.09</u>
Mean±s.d.		18.7 ± 2.2	15.1 ± 2.2	1.16 ± 0.16

	<u>In-Transit Exposure</u>	
	Date Annealed	Date Read
	06-13-08	09-15-08
	07-09-08	10-08-08
	<u>Total mR</u>	
ITC-1	3.8 ± 0.3	3.8 ± 0.3
ITC-2	3.7 ± 0.1	3.1 ± 0.1

POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 1st. Quarter, 2008

Date Annealed:	12-05-07	Days in the field	85
Date Placed:	01-10-08	Days from Annealing	
Date Removed:	04-04-08	to Readout:	125
Date Read:	04-08-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	85	15.3 ± 1.1	10.9 ± 1.3	0.90 ± 0.11
E-2	85	19.9 ± 1.1	15.5 ± 1.3	1.28 ± 0.11
E-3	85	20.5 ± 1.3	16.1 ± 1.5	1.33 ± 0.12
E-4	85	17.8 ± 1.3	13.4 ± 1.5	1.10 ± 0.12
E-5	85	16.8 ± 0.9	12.4 ± 1.2	1.02 ± 0.10
E-6	85	17.9 ± 0.9	13.5 ± 1.2	1.11 ± 0.10
E-7	85	18.0 ± 1.0	13.6 ± 1.2	1.12 ± 0.10
E-8	85	17.1 ± 0.7	12.7 ± 1.0	1.05 ± 0.08
E-9	85	19.9 ± 0.7	15.5 ± 1.0	1.28 ± 0.08
E-12	85	15.8 ± 0.3	11.4 ± 0.8	0.94 ± 0.07
E-14	85	18.9 ± 0.4	14.5 ± 0.8	1.19 ± 0.07
E-15	85	18.3 ± 0.6	13.9 ± 1.0	1.14 ± 0.08
E-16	85	17.4 ± 0.3	13.0 ± 0.8	1.07 ± 0.07
E-17	85	18.9 ± 0.7	14.5 ± 1.0	1.19 ± 0.08
E-18	85	18.5 ± 0.7	14.1 ± 1.0	1.16 ± 0.08
E-22	85	18.9 ± 1.1	14.5 ± 1.3	1.19 ± 0.11
E-23	85	18.1 ± 0.5	13.7 ± 0.9	1.13 ± 0.07
E-24	85	18.8 ± 0.6	14.4 ± 1.0	1.19 ± 0.08
E-25	85	17.2 ± 0.2	12.8 ± 0.8	1.05 ± 0.06
E-26	85	17.2 ± 0.5	12.8 ± 0.9	1.05 ± 0.07
E-27	85	19.5 ± 0.4	15.1 ± 0.8	1.24 ± 0.07
E-28	85	15.1 ± 0.3	10.7 ± 0.8	0.88 ± 0.07
E-29	85	15.7 ± 0.9	11.3 ± 1.2	0.93 ± 0.10
E-30	85	17.1 ± 0.7	12.7 ± 1.0	1.05 ± 0.08
E-31	85	17.9 ± 0.6	13.5 ± 1.0	1.11 ± 0.08
E-32	85	17.0 ± 0.6	12.6 ± 1.0	1.04 ± 0.08
E-38	85	17.5 ± 1.4	13.1 ± 1.6	1.08 ± 0.13
E-39	85	15.0 ± 0.6	10.6 ± 1.0	0.87 ± 0.08
<u>Control</u>				
E-20	85	19.4 ± 0.9	15.0 ± 1.2	1.24 ± 0.10
Mean±s.d.		17.8 ± 1.5	13.4 ± 1.5	1.10 ± 0.11

<u>In-Transit Exposure</u>			
Date Annealed	12-05-07	03-26-08	
Date Read	01-22-08	04-08-08	
		<u>Total mR</u>	
ITC-1	7.2 ± 0.7	2.2 ± 0.2	
ITC-2	6.1 ± 0.1	2.1 ± 0.1	

POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 2nd Quarter, 2008

Date Annealed:	03-26-08	Days in the field	89
Date Placed:	04-04-08	Days from Annealing	
Date Removed:	07-02-08	to Readout:	105
Date Read:	07-09-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	89	12.7 ± 1.1	9.8 ± 1.2	0.77 ± 0.09
E-2	89	17.9 ± 1.0	15.0 ± 1.1	1.18 ± 0.08
E-3	89	18.4 ± 1.4	15.5 ± 1.5	1.22 ± 0.11
E-4	89	14.5 ± 0.3	11.6 ± 0.5	0.91 ± 0.04
E-5	89	16.2 ± 0.4	13.3 ± 0.6	1.04 ± 0.04
E-6	89	14.2 ± 0.5	11.3 ± 0.6	0.88 ± 0.05
E-7	89	13.5 ± 0.5	10.6 ± 0.6	0.83 ± 0.05
E-8	89	14.2 ± 0.5	11.3 ± 0.6	0.88 ± 0.05
E-9	89	16.4 ± 0.9	13.5 ± 1.0	1.06 ± 0.08
E-12	89	11.7 ± 0.8	8.8 ± 0.9	0.69 ± 0.07
E-14	89	15.2 ± 0.9	12.3 ± 1.0	0.96 ± 0.08
E-15	89	18.3 ± 0.9	15.4 ± 1.0	1.21 ± 0.08
E-16	89	14.5 ± 0.2	11.6 ± 0.4	0.91 ± 0.03
E-17	89	15.2 ± 0.8	12.3 ± 0.9	0.96 ± 0.07
E-18	89	16.4 ± 0.3	13.5 ± 0.5	1.06 ± 0.04
E-22	89	16.1 ± 0.3	13.2 ± 0.5	1.03 ± 0.04
E-23	89	17.2 ± 0.7	14.3 ± 0.8	1.12 ± 0.06
E-24	89	15.2 ± 0.2	12.3 ± 0.4	0.96 ± 0.03
E-25	89	16.7 ± 0.3	13.8 ± 0.5	1.08 ± 0.04
E-26	89	13.3 ± 0.2	10.4 ± 0.4	0.81 ± 0.03
E-27	89	17.9 ± 0.4	15.0 ± 0.6	1.18 ± 0.04
E-28	89	11.3 ± 0.3	8.4 ± 0.5	0.66 ± 0.04
E-29	89	12.0 ± 0.4	9.1 ± 0.6	0.71 ± 0.04
E-30	89	15.0 ± 0.4	12.1 ± 0.6	0.95 ± 0.04
E-31	89	16.7 ± 1.3	13.8 ± 1.4	1.08 ± 0.11
E-32	89	14.8 ± 0.2	11.9 ± 0.4	0.93 ± 0.03
E-38	89	14.6 ± 0.7	11.7 ± 0.8	0.92 ± 0.06
E-39	89	13.8 ± 0.4	10.9 ± 0.6	0.85 ± 0.04
<u>Control</u>				
E-20	89	<u>14.4 ± 0.2</u>	<u>11.5 ± 0.4</u>	<u>0.90 ± 0.03</u>
Mean±s.d.		15.1 ± 1.9	12.2 ± 1.9	0.96 ± 0.15

<u>In-Transit Exposure</u>			
Date Annealed	03-26-08	06-13-08	
Date Read	04-08-08	07-09-08	
	<u>Total mR</u>		
ITC-1	2.2 ± 0.2	3.8 ± 0.3	
ITC-2	2.1 ± 0.1	3.7 ± 0.1	



POINT BEACH NUCLEAR PLANT  
 AMBIENT GAMMA RADIATION (TLD)  
 3rd Quarter, 2008

Date Annealed:	06-13-08	Days in the field	91
Date Placed:	07-02-08	Days from Annealing	
Date Removed:	10-01-08	to Readout:	117
Date Read:	10-08-08		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	91	15.0 ± 1.1	11.4 ± 1.2	0.88 ± 0.09
E-2	91	20.2 ± 0.3	16.6 ± 0.5	1.28 ± 0.04
E-3	91	23.1 ± 1.3	19.5 ± 1.4	1.50 ± 0.11
E-4	91	19.2 ± 1.1	15.6 ± 1.2	1.20 ± 0.09
E-5	91	18.2 ± 1.0	14.6 ± 1.1	1.12 ± 0.08
E-6	91	17.6 ± 0.8	14.0 ± 0.9	1.08 ± 0.07
E-7	91	17.9 ± 0.8	14.3 ± 0.9	1.10 ± 0.07
E-8	91	18.4 ± 1.4	14.8 ± 1.5	1.14 ± 0.11
E-9	91	21.6 ± 0.6	18.0 ± 0.7	1.38 ± 0.06
E-12	91	14.2 ± 0.5	10.6 ± 0.7	0.82 ± 0.05
E-14	91	19.4 ± 0.6	15.8 ± 0.7	1.22 ± 0.06
E-15	91	20.6 ± 0.5	17.0 ± 0.7	1.31 ± 0.05
E-16	91	19.0 ± 0.3	15.4 ± 0.5	1.18 ± 0.04
E-17	91	19.4 ± 0.8	15.8 ± 0.9	1.22 ± 0.07
E-18	91	21.4 ± 0.9	17.8 ± 1.0	1.37 ± 0.08
E-22	91	20.5 ± 1.1	16.9 ± 1.2	1.30 ± 0.09
E-23	91	20.2 ± 0.4	16.6 ± 0.6	1.28 ± 0.05
E-24	91	19.1 ± 0.7	15.5 ± 0.8	1.19 ± 0.06
E-25	91	18.8 ± 0.4	15.2 ± 0.6	1.17 ± 0.05
E-26	91	17.1 ± 0.5	13.5 ± 0.7	1.04 ± 0.05
E-27	91	20.9 ± 0.3	17.3 ± 0.5	1.33 ± 0.04
E-28	91	14.0 ± 0.3	10.4 ± 0.5	0.80 ± 0.04
E-29	91	15.1 ± 0.6	11.5 ± 0.7	0.88 ± 0.06
E-30	91	17.8 ± 0.7	14.2 ± 0.8	1.09 ± 0.06
E-31	91	19.5 ± 1.0	15.9 ± 1.1	1.22 ± 0.08
E-32	91	19.5 ± 0.6	15.9 ± 0.7	1.22 ± 0.06
E-38	91	19.0 ± 1.2	15.4 ± 1.3	1.18 ± 0.10
E-39	91	16.9 ± 0.6	13.3 ± 0.7	1.02 ± 0.06
<u>Control</u>				
E-20	91	<u>18.8 ± 1.1</u>	<u>15.2 ± 1.2</u>	<u>1.17 ± 0.09</u>
Mean±s.d.		18.7 ± 2.2	15.1 ± 2.2	1.16 ± 0.16

	<u>In-Transit Exposure</u>	
	Date Annealed	Date Read
	06-13-08	09-15-08
	07-09-08	10-08-08
	<u>Total mR</u>	
ITC-1	3.8 ± 0.3	3.8 ± 0.3
ITC-2	3.7 ± 0.1	3.1 ± 0.1

**POINT BEACH NUCLEAR PLANT**  
**AMBIENT GAMMA RADIATION (TLD)**  
**4th Quarter, 2008**

Date Annealed:	09-15-08	Days in the field	100
Date Placed:	10-01-08	Days from Annealing	
Date Removed:	01-09-09	to Readout:	121
Date Read:	01-14-09		

Location	Days in Field	Total mR	Net mR	Net mR per 7 days
<u>Indicator</u>				
E-1	100	16.2 ± 0.7	10.5 ± 0.9	0.73 ± 0.06
E-2	100	22.6 ± 1.3	16.9 ± 1.4	1.18 ± 0.10
E-3	100	24.1 ± 1.7	18.4 ± 1.8	1.29 ± 0.13
E-4	100	19.1 ± 0.4	13.4 ± 0.7	0.94 ± 0.05
E-5	100	20.9 ± 0.4	15.2 ± 0.7	1.06 ± 0.05
E-6	100	18.9 ± 0.5	13.2 ± 0.8	0.92 ± 0.05
E-7	100	17.8 ± 0.5	12.1 ± 0.8	0.85 ± 0.05
E-8	100	18.8 ± 0.7	13.1 ± 0.9	0.92 ± 0.06
E-9	100	21.7 ± 1.1	16.0 ± 1.2	1.12 ± 0.09
E-12	100	15.7 ± 1.2	10.0 ± 1.3	0.70 ± 0.09
E-14	100	18.9 ± 0.5	13.2 ± 0.8	0.92 ± 0.05
E-15	100	23.0 ± 1.0	17.3 ± 1.2	1.21 ± 0.08
E-16	100	19.2 ± 0.2	13.5 ± 0.6	0.94 ± 0.04
E-17	100	19.5 ± 1.0	13.8 ± 1.2	0.96 ± 0.08
E-18	100	20.5 ± 0.4	14.8 ± 0.7	1.03 ± 0.05
E-22	100	20.9 ± 0.4	15.2 ± 0.7	1.06 ± 0.05
E-23	100	21.5 ± 0.9	15.8 ± 1.1	1.10 ± 0.08
E-24	100	19.4 ± 0.3	13.7 ± 0.7	0.96 ± 0.05
E-25	100	21.3 ± 0.4	15.6 ± 0.7	1.09 ± 0.05
E-26	100	18.2 ± 0.6	12.5 ± 0.8	0.87 ± 0.06
E-27	100	22.4 ± 0.5	16.7 ± 0.8	1.17 ± 0.05
E-28	100	15.1 ± 0.4	9.4 ± 0.7	0.66 ± 0.05
E-29	100	16.1 ± 0.7	10.4 ± 0.9	0.73 ± 0.06
E-30	100	18.9 ± 0.4	13.2 ± 0.7	0.92 ± 0.05
E-31	100	21.2 ± 1.5	15.5 ± 1.6	1.08 ± 0.11
E-32	100	18.9 ± 0.2	13.2 ± 0.6	0.92 ± 0.04
E-38	100	18.8 ± 0.3	13.1 ± 0.7	0.92 ± 0.05
E-39	100	17.9 ± 0.4	12.2 ± 0.7	0.85 ± 0.05
<u>Control</u>				
E-20	100	17.4 ± 0.8	11.7 ± 1.0	0.82 ± 0.07
Mean±s.d.		19.5 ± 2.3	13.8 ± 2.3	0.96 ± 0.15

	<u>In-Transit Exposure</u>	
	Date Annealed	Date Read
	09-15-08	12-02-08
	10-08-08	01-15-09
	<u>Total mR</u>	
ITC-1	3.8 ± 0.3	8.2 ± 0.4
ITC-2	3.1 ± 0.1	7.8 ± 0.3

<b>Annual Indicator Mean±s.d.</b>	<b>17.8 ± 2.6</b>	<b>13.6 ± 2.2</b>	<b>1.05 0.17</b>
<b>Annual Control Mean±s.d.</b>	<b>17.5 ± 2.2</b>	<b>13.3 ± 2.0</b>	<b>1.03 0.20</b>
<b>Annual Indicator/Control Mean±s.</b>	<b>17.8 ± 2.6</b>	<b>13.6 ± 2.2</b>	<b>1.05 0.17</b>

POINT BEACH NUCLEAR PLANT

Groundwater Tritium Monitoring Program  
(Monthly Collections)  
Units = pCi/L

**Intermittent Streams**

Sample ID		GW-01		GW-02			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
03-27-08	EWV-1264	57 ± 92	<171	03-27-08	EWV-1265	276 ± 101	<171
04-23-08	EWV-1957	91 ± 97	<178	04-23-08	EWV-1958	342 ± 107	<178
05-30-08	EWV-2618	22 ± 73	<145	05-30-08	EWV-2619	69 ± 76	<145
06-25-08	EWV-3136	58 ± 88	<172	06-25-08	EWV-3137	165 ± 92	<172
07-31-08	EWV-4126	-1 ± 74	<150	07-31-08	EWV-4127	27 ± 76	<150
10-30-08	EWV-6223	66 ± 80	<153	09-03-08	EWV-4889	70 ± 76	<147
11-26-08	EWV-6733	71 ± 77	<147	10-30-08	EWV-6224	141 ± 83	<153
				11-26-08	EWV-6734	21 ± 74	<147
Mean + s.d.		52 ± 31		Mean + s.d.		139 ± 118	

Sample ID		GW-03		GW-17			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
03-27-08	EWV-1266	135 ± 96	<171	03-28-08	EWV-1269	252 ± 100	<171
04-23-08	EWV-1959	71 ± 96	<178	04-23-08	EWV-1961	123 ± 99	<178
05-30-08	EWV-2621	168 ± 80	<145	10-30-08	EWV-6228	180 ± 85	<153
06-25-08	EWV-3138	56 ± 88	<172	11-26-08	EWV-6736	-62 ± 70	<147
07-31-08	EWV-4128	40 ± 76	<150				
09-03-08	EWV-4890	70 ± 76	<147				
09-24-08	EWV-5142	64 ± 101	<161				
10-30-08	EWV-6226	60 ± 79	<153				
Mean + s.d.		83 ± 44		Mean + s.d.		123 ± 134	

**Wells**

Sample ID		GW-04 (EIC Well)		GW-11			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-31-08	EWV-458	35 ± 93	<174	01-28-08	EWV-459	85 ± 95	<174
02-28-08	EWV-783	-17 ± 74	<152	02-29-08	EWV-825	24 ± 89	<178
03-27-08	EWV-1268	-25 ± 89	<171	03-26-08	EWV-1273	138 ± 93	<180
04-23-08	EWV-1960	-83 ± 90	<178	04-30-08	EWV-2097	45 ± 80	<156
05-30-08	EWV-2622	-12 ± 71	<145	05-29-08	EWV-2639	108 ± 77	<145
06-25-08	EWV-3139	30 ± 86	<172	06-24-08	EWV-3140	124 ± 91	<172
07-31-08	EWV-4129	-13 ± 74	<150	07-29-08	EWV-4120	97 ± 82	<147
09-03-08	EWV-4891	-30 ± 71	<147	08-27-08	EWV-4595	86 ± 80	<152
09-24-08	EWV-5143	-32 ± 96	<161	09-30-08	EWV-5378	67 ± 96	<154
10-30-08	EWV-6227	81 ± 80	<153	10-22-08	EWV-6031	106 ± 85	<151
11-26-08	EWV-6735	85 ± 77	<147	11-19-08	EWV-6602	-1 ± 72	<145
12-30-08	EWV-7248	121 ± 106	<168	12-23-08	EWV-7322	46 ± 72	<133
Mean + s.d.		12 ± 60		Mean + s.d.		77 ± 42	

POINT BEACH NUCLEAR PLANT

Groundwater Tritium Monitoring Program  
(Monthly Collections)  
Units = pCi/L

**Wells (cont.)**

Sample ID		GW-12		GW-13			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-28-08	EWW-460	-35 ± 90	<174	01-28-08	EWW-461	110 ± 96	<174
02-29-08	EWW-826	-64 ± 85	<178	02-29-08	EWW-827	66 ± 91	<178
03-26-08	EWW-1274	2 ± 87	<180	03-26-08	EWW-1275	108 ± 91	<180
04-30-08	EWW-2098	-51 ± 75	<156	04-30-08	EWW-2099	-8 ± 77	<156
05-29-08	EWW-2640	-19 ± 71	<145	05-29-08	EWW-2641	125 ± 78	<145
06-24-08	EWW-3141	46 ± 87	<172	06-24-08	EWW-3142	102 ± 90	<172
07-28-08	EWW-4121	39 ± 79	<147	07-28-08	EWW-4122	74 ± 78	<150
08-27-08	EWW-4596	-24 ± 74	<152	08-27-08	EWW-4597	104 ± 81	<152
09-30-08	EWW-5379	-16 ± 93	<154	09-30-08	EWW-5380	16 ± 94	<154
10-22-08	EWW-6032	-27 ± 78	<151	10-22-08	EWW-6033	12 ± 80	<151
11-19-08	EWW-6603	-14 ± 71	<145	11-19-08	EWW-6604	-1 ± 72	<145
12-23-08	EWW-7323	85 ± 74	<133	12-23-08	EWW-7324	79 ± 74	<133
Mean + s.d.		-7 ± 43		Mean + s.d.		66 ± 48	

Sample ID		GW-14		GW-15			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-29-08	EWW-462	96 ± 96	<174	01-28-08	EWW-463	456 ± 109	<174
02-29-08	EWW-828	96 ± 92	<178	02-29-08	EWW-829	404 ± 105	<178
03-26-08	EWW-1276	124 ± 92	<180	03-26-08	EWW-1277	450 ± 105	<180
04-30-08	EWW-2100	86 ± 82	<156	04-30-08	EWW-2101	466 ± 98	<156
05-29-08	EWW-2642	189 ± 81	<145	05-29-08	EWW-2643	450 ± 93	<145
06-24-08	EWW-3143	138 ± 91	<172	06-24-08	EWW-3144	533 ± 107	<172
07-28-08	EWW-4123	59 ± 77	<150	07-28-08	EWW-4124	433 ± 94	<150
08-27-08	EWW-4598	96 ± 81	<152	08-27-08	EWW-4599	507 ± 100	<152
09-30-08	EWW-5381	82 ± 97	<154	09-30-08	EWW-5382	434 ± 111	<154
10-22-08	EWW-6034	52 ± 82	<151	10-22-08	EWW-6035	542 ± 104	<151
11-19-08	EWW-6605	15 ± 73	<145	11-19-08	EWW-6606	344 ± 88	<145
12-23-08	EWW-7325	-1 ± 70	<133	12-23-08	EWW-7326	396 ± 88	<133
Mean + s.d.		86 ± 52		Mean + s.d.		451 ± 57	

Sample ID		GW-16	
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
02-29-08	EWW-830	204 ± 97	<178
03-26-08	EWW-1278	232 ± 97	<180
04-30-08	EWW-2102	182 ± 86	<156
05-29-08	EWW-2644	262 ± 85	<145
06-24-08	EWW-3145	334 ± 99	<172
07-28-08	EWW-4125	198 ± 84	<150
08-27-08	EWW-4600	150 ± 83	<152
09-30-08	EWW-5383	202 ± 102	<154
10-22-08	EWW-6036	151 ± 87	<151
11-19-08	EWW-6607	66 ± 75	<145
12-23-08	EWW-7327	213 ± 80	<133
Mean + s.d.		199 ± 68	

POINT BEACH NUCLEAR PLANT

Groundwater Tritium Monitoring Program  
(Monthly Collections)  
Units = pCi/L

**Beach Drains**

Sample ID		S-1		S-3			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-11-08	EW-182	355 ± 97	<155	01-11-08	EW-183 <sup>a</sup>	1103 ± 124	<155
02-07-08	EW-514	302 ± 77	<153	03-07-08	EW-894	317 ± 108	<158
03-07-08	EW-893	300 ± 107	<158	04-02-08	EW-1595	401 ± 97	<151
04-02-08	EW-1594	391 ± 96	<151	05-08-08	EW-2291	266 ± 92	<154
05-08-08	EW-2290	275 ± 93	<154	06-04-08	EW-2831	425 ± 103	<172
06-04-08	EW-2830	357 ± 101	<172	07-10-08	EW-3605	142 ± 86	<151
07-10-08	EW-3604	352 ± 95	<151	08-06-08	EW-4145	277 ± 87	<150
08-06-08	EW-4144	292 ± 88	<150	09-05-08	EW-4764	356 ± 89	<147
09-05-08	EW-4763	78 ± 77	<147	10-09-08	EW-5521	127 ± 102	<159
10-09-08	EW-5520	350 ± 111	<159	11-06-08	EW-6389	254 ± 85	<147
11-06-08	EW-6388	313 ± 88	<147				
Mean + s.d.		306 ± 83		Mean + s.d.		367 ± 277	

Sample ID		S-7		S-8			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-11-08	EW-184	187 ± 90	<155	01-11-08	EW-185	194 ± 102	<179
				04-02-08	EW-1597	215 ± 89	<151
		Mean + s.d.				205 ± 15	

Sample ID		S-9		S-10			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-11-08	EW-186	52 ± 96	<179	01-11-08	EW-187	320 ± 107	<179

<sup>a</sup> Tritium recount = 1257±130 pCi/L; repeat = 1301±137 pCi/L. Supplemental analyses in Appendix E.

↳ S-3 is the southernmost drain which collects water from parking lot runoff and groundwater from the area S of the plant. May be in the subsurface flow from former retention pond area. Reason for high value is unknown. KAJ 2-23-09

POINT BEACH NUCLEAR PLANT

Groundwater Tritium Monitoring Program

(Monthly Collections)

Units = pCi/L

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Sample ID	U2 Façade Subsurface Drain Sump		
Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-05-08	EW-240	462 ± 112	<183
02-01-08	EW-734	322 ± 92	<156
03-07-08	EW-1118	566 ± 107	<172
04-03-08	EW-1667	482 ± 112	<177
05-02-08	EW-2416	387 ± 91	<147
05-31-08	EW-2984	452 ± 103	<169
07-08-08	EW-3841	424 ± 96	<146
08-07-08	EW-5544	394 ± 113	<160
09-02-08	EW-5552	485 ± 116	<160
11-02-08	EW-7342	393 ± 89	<134
10-02-08	EW-5597	509 ± 113	<151
12-05-08	EW-7183	610 ± 124	<174
Mean + s.d.		457 ± 81	

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POINT BEACH NUCLEAR PLANT

Groundwater Tritium Monitoring Program  
(Quarterly Collections)  
Units = pCi/L

**Quarterly Wells**

Sample ID		GW-05 (WH 6 Well)		GW-06 (SBCC Well)			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
01-17-08	EW-281	96 ± 100	<183	01-17-08	EW-282	26 ± 97	<183
04-01-08	EW-1602	63 ± 82	<151	04-01-08	EW-1603	107 ± 84	<151
07-17-08	EW-3702	62 ± 77	<140	07-17-08	EW-3703	30 ± 75	<140
10-15-08	EW-5679	-36 ± 83	<139	10-15-08	EW-5680	-72 ± 81	<139
Mean + s.d.		46 ± 57		Mean + s.d.		23 ± 73	

**Quarterly Façade Wells**

Sample ID		GW-09 1Z-361A		GW-09 1Z-361B			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
12-13-07	EW-6390	1331 ± 128	<154	04-20-08	EW-6391	210 ± 87	<154
04-20-08	EW-6392	1169 ± 122	<151	04-20-08	EW-6393	62 ± 78	<151
07-11-08	EW-4116	1066 ± 118	<147	07-11-08	EW-4117	83 ± 81	<147
10-26-08	EW-6253	929 ± 117	<154	10-26-08	EW-6254	102 ± 82	<154
Mean + s.d.		1124 ± 170		Mean + s.d.		114 ± 66	

Sample ID		GW-10 2Z-361A		GW-10 2Z-361B			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
04-20-08	EW-6394	25 ± 76	<151	04-20-08	EW-6395	268 ± 88	<151
07-11-08	EW-4118	23 ± 78	<147	07-11-08	EW-4119	464 ± 97	<147
10-26-08	EW-6255	37 ± 78	<154	10-26-08	EW-6256	110 ± 82	<154
Mean + s.d.		28 ± 8		Mean + s.d.		281 ± 177	

Groundwater Tritium Monitoring Program  
(Annual Collections)  
Units = pCi/L

**Bogs**

Sample ID		GW-07 (North Bog)		GW-08 EIC Bog			
Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)	Collection Date	Lab Code	Tritium (pCi/L)	LLD (pCi/L)
05-30-08	EW-2623	59 ± 75	<145	05-30-08	EW-2624	67 ± 75	<145



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## APPENDIX A

### INTERLABORATORY COMPARISON PROGRAM RESULTS

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

January, 2008 through December, 2008



## Appendix A

### Interlaboratory Comparison Program Results

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

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

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

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

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

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

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

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

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

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

Analysis	Level	One standard deviation 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 = 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 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 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
Other Analyses <sup>b</sup>	---	20% of known value

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

<sup>b</sup> Laboratory limit.

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

Lab Code	Date	Analysis	Concentration (pCi/L)			
			Laboratory Result <sup>b</sup>	ERA Result <sup>c</sup>	Control Limits	Acceptance
STW-1148	03/24/08	Sr-89	50.6 ± 2.4	60.4	48.6 - 68.2	Pass
STW-1148	03/24/08	Sr-90	42.4 ± 1.4	39.2	28.8 - 45.1	Pass
STW-1149	03/24/08	Ba-133	56.9 ± 5.4	58.3	48.3 - 64.3	Pass
STW-1149	03/24/08	Co-60	73.9 ± 1.6	76.6	68.9 - 86.7	Pass
STW-1149	03/24/08	Cs-134	50.2 ± 1.9	46.6	37.4 - 51.3	Pass
STW-1149	03/24/08	Cs-137	97.7 ± 2.2	102.0	91.8 - 115.0	Pass
STW-1149	03/24/08	Zn-65	109.9 ± 5.8	106.0	95.4 - 126.0	Pass
STW-1150	03/24/08	Gr. Alpha	43.7 ± 7.5	50.8	26.5 - 63.7	Pass
STW-1150	03/24/08	Gr. Beta	36.4 ± 1.8	51.4	35.0 - 58.4	Pass
STW-1151	03/24/08	I-131	29.3 ± 1.4	28.7	23.9 - 33.6	Pass
STW-1152	03/24/08	Ra-226	15.0 ± 1.1	15.3	11.4 - 17.6	Pass
STW-1152	03/24/08	Ra-228	18.4 ± 1.8	17.0	11.4 - 20.4	Pass
STW-1152	03/24/08	Uranium	23.4 ± 1.3	24.6	19.8 - 27.6	Pass
STW-1153	03/24/08	H-3	12551.0 ± 207.0	12000.0	10400.0 - 13200.0	Pass
STW-1154	07/07/08	Sr-89	24.9 ± 3.5	28.7	20.4 - 35.3	Pass
STW-1154	07/07/08	Sr-90	39.7 ± 0.5	40.0	29.4 - 46.0	Pass
STW-1155	07/07/08	Ba-133	45.0 ± 1.2	46.6	38.1 - 51.8	Pass
STW-1155	07/07/08	Co-60	24.9 ± 3.0	25.7	22.3 - 31.0	Pass
STW-1155	07/07/08	Cs-134	90.4 ± 5.3	93.2	76.6 - 102.0	Pass
STW-1155	07/07/08	Cs-137	57.1 ± 2.8	54.6	49.1 - 62.9	Pass
STW-1155	07/07/08	Zn-65	102.9 ± 7.3	98.8	88.9 - 118.0	Pass
STW-1156	07/07/08	Gr. Alpha	24.8 ± 1.6	30.7	15.7 - 40.0	Pass
STW-1156	07/07/08	Gr. Beta	23.9 ± 0.9	25.8	16.1 - 33.7	Pass
STW-1157	07/07/08	Ra-226	8.0 ± 0.6	8.1	6.1 - 9.5	Pass
STW-1157	07/07/08	Ra-228	7.7 ± 0.8	7.4	4.7 - 9.5	Pass
STW-1157	07/07/08	Uranium	11.2 ± 0.3	11.3	8.9 - 13.0	Pass
STW-1164	10/06/08	Sr-89	42.2 ± 3.2	48.7	38.2 - 56.1	Pass
STW-1164	10/06/08	Sr-90	35.4 ± 1.2	33.6	24.6 - 38.8	Pass
STW-1165	10/06/08	Ba-133	56.9 ± 1.0	63.5	52.8 - 69.9	Pass
STW-1165	10/06/08	Co-60	47.6 ± 1.3	49.1	44.2 - 56.6	Pass
STW-1165	10/06/08	Cs-134	26.4 ± 4.0	25.6	19.7 - 28.4	Pass
STW-1165	10/06/08	Cs-137	24.3 ± 0.7	25.6	21.6 - 31.2	Pass
STW-1165	10/06/08	Zn-65	72.0 ± 2.9	68.6	61.2 - 83.0	Pass
STW-1166	10/06/08	Gr. Alpha	24.2 ± 4.8	26.9	13.6 - 35.5	Pass
STW-1166	10/06/08	Gr. Beta	32.6 ± 1.0	38.0	25.1 - 45.5	Pass
STW-1167	10/06/08	I-131	29.0 ± 0.3	28.1	23.4 - 33.0	Pass
STW-1168	10/06/08	Ra-226	15.0 ± 1.0	16.1	12.0 - 18.4	Pass
STW-1168	10/06/08	Ra-228	16.0 ± 1.0	14.1	9.4 - 17.1	Pass
STW-1168	10/06/08	Uranium	47.8 ± 2.0	50.3	40.8 - 55.9	Pass
STW-1169	10/06/08	H-3	2357.0 ± 66.0	2220.0	1830.0 - 2460.0	Pass

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

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

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

TABLE A-2. Crosscheck program results; Thermoluminescent Dosimetry, (TLD, CaSO<sub>4</sub>: Dy Cards).

Lab Code	Date	Description	Known Value	mR		Acceptance
				Lab Result ± 2 sigma	Control Limits	
<u>Environmental, Inc.</u>						
2008-1	6/16/2008	40 cm.	30.23	33.87 ± 1.17	21.16 - 39.30	Pass
2008-1	6/16/2008	50 cm.	19.35	23.13 ± 0.57	13.55 - 25.16	Pass
2008-1	6/16/2008	60 cm.	13.44	16.25 ± 1.10	9.41 - 17.47	Pass
2008-1	6/16/2008	70 cm.	9.87	10.39 ± 0.52	6.91 - 12.83	Pass
2008-1	6/16/2008	80 cm.	7.56	7.44 ± 0.51	5.29 - 9.83	Pass
2008-1	6/16/2008	90 cm.	5.97	5.80 ± 1.04	4.18 - 7.76	Pass
2008-1	6/16/2008	100 cm.	4.84	4.32 ± 0.43	3.39 - 6.29	Pass
2008-1	6/16/2008	120 cm.	3.36	2.69 ± 0.15	2.35 - 4.37	Pass
2008-1	6/16/2008	150 cm.	2.15	2.05 ± 0.69	1.51 - 2.80	Pass
2008-1	6/16/2008	180 cm.	1.49	1.23 ± 0.80	1.04 - 1.94	Pass
<u>Environmental, Inc.</u>						
2008-2	11/17/2008	30 cm.	63.05	73.10 ± 1.84	44.14 - 81.97	Pass
2008-2	11/17/2008	40 cm.	35.46	40.80 ± 2.30	24.82 - 46.10	Pass
2008-2	11/17/2008	50 cm.	22.7	24.10 ± 0.58	15.89 - 29.51	Pass
2008-2	11/17/2008	60 cm.	15.76	15.98 ± 0.55	11.03 - 20.49	Pass
2008-2	11/17/2008	60 cm.	15.76	19.49 ± 0.93	11.03 - 20.49	Pass
2008-2	11/17/2008	70 cm.	11.58	11.97 ± 0.54	8.11 - 15.05	Pass
2008-2	11/17/2008	75 cm.	10.09	9.45 ± 0.28	7.06 - 13.12	Pass
2008-2	11/17/2008	80 cm.	8.87	9.30 ± 0.18	6.21 - 11.53	Pass
2008-2	11/17/2008	90 cm.	7.01	7.19 ± 0.43	4.91 - 9.11	Pass
2008-2	11/17/2008	90 cm.	7.01	6.84 ± 0.42	4.91 - 9.11	Pass
2008-2	11/17/2008	100 cm.	5.67	5.47 ± 0.19	3.97 - 7.37	Pass
2008-2	11/17/2008	110 cm.	4.69	3.98 ± 0.27	3.28 - 6.10	Pass
2008-2	11/17/2008	120 cm.	3.94	3.09 ± 0.21	2.76 - 5.12	Pass
2008-2	11/17/2008	120 cm.	3.94	3.12 ± 0.34	2.76 - 5.12	Pass
2008-2	11/17/2008	150 cm.	2.52	2.55 ± 0.12	1.76 - 3.28	Pass
2008-2	11/17/2008	150 cm.	2.52	2.24 ± 0.08	1.76 - 3.28	Pass
2008-2	11/17/2008	180 cm.	1.75	1.36 ± 0.08	1.23 - 2.28	Pass

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

Lab Code <sup>b</sup>	Date	Analysis	Concentration (pCi/L) <sup>a</sup>			Acceptance
			Laboratory results 2s, n=1 <sup>c</sup>	Known Activity	Control Limits <sup>d</sup>	
SPW-111	1/14/2008	Tc-99	32.20 ± 0.85	32.34	20.34 - 44.34	Pass
SPW-298	1/31/2008	Ni-63	213.55 ± 3.07	212.58	148.81 - 276.35	Pass
W-11708	1/17/2008	Ra-226	11.34 ± 0.43	12.69	8.88 - 16.50	Pass
SPW-711	2/25/2008	U-238	33.56 ± 1.74	41.70	29.19 - 54.21	Pass
SPAP-881	3/11/2008	Cs-134	19.29 ± 1.53	20.09	10.09 - 30.09	Pass
SPAP-881	3/11/2008	Cs-137	114.04 ± 3.03	113.90	102.51 - 125.29	Pass
SPAP-883	3/11/2008	Gr. Beta <sup>e</sup>	54.56 ± 0.12	51.64	30.98 - 72.30	Pass
SPMI-885	3/11/2008	Sr-90	45.93 ± 1.60	45.13	36.10 - 54.16	Pass
SPW-887	3/11/2008	Sr-90	38.82 ± 1.60	45.13	36.10 - 54.16	Pass
SPW-889	3/11/2008	H-3	67325.00 ± 725.00	67384.00	53907.20 - 80860.80	Pass
W-31808	3/18/2008	Gr. Alpha	19.51 ± 0.40	20.08	10.04 - 30.12	Pass
W-31808	3/18/2008	Gr. Beta	47.20 ± 0.42	45.67	35.67 - 55.67	Pass
SPMI-885	3/24/2008	Cs-134	40.93 ± 1.55	39.69	29.69 - 49.69	Pass
SPMI-885	3/24/2008	Cs-137	61.36 ± 2.82	56.91	46.91 - 66.91	Pass
SPW-887	3/24/2008	Cs-134	40.68 ± 1.44	39.69	29.69 - 49.69	Pass
SPW-887	3/24/2008	Cs-137	58.52 ± 2.93	56.91	46.91 - 66.91	Pass
SPW-1282	4/2/2008	U-238	41.30 ± 1.78	41.70	29.19 - 54.21	Pass
W-40308	4/3/2008	Ra-226	15.17 ± 0.50	12.69	8.88 - 16.50	Pass
SPW-5580	4/7/2008	H-3	211.02 ± 7.71	240.00	0.00 - 806.46	Pass
SPW-1562	4/8/2008	Ra-228	28.93 ± 2.09	30.51	21.36 - 39.66	Pass
SPW-1560	4/10/2008	Tc-99	29.74 ± 0.84	32.34	20.34 - 44.34	Pass
SPW-1621	4/16/2008	Fe-55	27205.80 ± 982.90	28370.00	22696.00 - 34044.00	Pass
W-51508	5/15/2008	Gr. Alpha	24.01 ± 0.41	20.08	10.04 - 30.12	Pass
W-51508	5/15/2008	Gr. Beta	47.97 ± 0.41	45.68	35.68 - 55.68	Pass
SPAP-2673	6/2/2008	Cs-134	17.39 ± 1.32	18.60	8.60 - 28.60	Pass
SPAP-2673	6/2/2008	Cs-137	106.82 ± 3.42	113.30	101.97 - 124.63	Pass
SPAP-2674	6/2/2008	Gr. Beta <sup>e</sup>	53.57 ± 0.13	51.40	30.84 - 71.96	Pass
SPF-2745	6/2/2008	Cs-134	0.34 ± 0.02	0.37	0.22 - 0.52	Pass
SPF-2745	6/2/2008	Cs-137	2.06 ± 0.04	2.27	1.36 - 3.18	Pass
SPMI-2677	6/3/2008	Cs-137	53.99 ± 6.15	56.66	46.66 - 66.66	Pass
SPMI-2677A	6/3/2008	I-131	26.64 ± 0.59	28.58	16.58 - 40.58	Pass
SPW-2677	6/3/2008	Cs-134	40.30 ± 3.35	37.21	27.21 - 47.21	Pass
SPW-2677	6/3/2008	I-131(G)	25.92 ± 4.48	28.58	18.58 - 38.58	Pass
SPMI-2679	6/3/2008	Cs-134	35.02 ± 2.93	37.21	27.21 - 47.21	Pass
SPMI-2679	6/3/2008	Cs-137	58.49 ± 6.05	56.66	46.66 - 66.66	Pass
SPMI-2679	6/3/2008	I-131(G)	25.30 ± 4.97	28.58	18.58 - 38.58	Pass
SPMI-2679A	6/3/2008	I-131	30.37 ± 0.50	28.58	16.58 - 40.58	Pass
SPVE-2681	6/3/2008	I-131(G)	1.11 ± 0.06	0.95	0.57 - 1.33	Pass
SPW-2683	6/2/2008	Ni-63	2151.70 ± 10.22	2119.30	1483.51 - 2755.09	Pass
SPW-2685	6/2/2008	H-3	64927.20 ± 704.80	66540.80	53232.64 - 79848.96	Pass
SPW-2689	6/2/2008	C-14	4405.40 ± 15.21	4742.00	2845.20 - 6638.80	Pass

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

Lab Code <sup>b</sup>	Date	Analysis	Concentration (pCi/L) <sup>a</sup>			Acceptance
			Laboratory results 2s, n=1	Known Activity	Control Limits <sup>c</sup>	
W-81408	8/14/2008	Ra-226	12.98 ± 0.35	12.69	8.88 - 16.50	Pass
SPW-1562	8/14/2008	Ra-228	29.09 ± 2.46	30.51	21.36 - 39.66	Pass
SPW-81808	8/18/2008	U-238	42.59 ± 1.96	41.70	29.19 - 54.21	Pass
W-81808	8/18/2008	Gr. Alpha	21.36 ± 0.42	20.08	10.04 - 30.12	Pass
W-81808	8/18/2008	Gr. Beta	49.33 ± 1.01	45.68	35.68 - 55.68	Pass
W-112008	11/20/2008	Gr. Alpha	20.13 ± 0.40	20.08	10.04 - 30.12	Pass
W-112008	11/20/2008	Gr. Beta	48.28 ± 0.42	45.60	35.60 - 55.60	Pass
SPAP-6839	12/5/2008	Cs-134	15.39 ± 2.72	15.68	5.68 - 25.68	Pass
SPAP-6839	12/5/2008	Cs-137	111.45 ± 9.85	112.00	100.80 - 123.20	Pass
SPAP-6841	12/5/2008	Gr. Beta <sup>e</sup>	49.26 ± 0.12	50.72	30.43 - 71.01	Pass
SPW-6843	12/5/2008	C-14	19377.50 ± 55.27	23708.00	14224.80 - 33191.20	Pass
SPW-6845	12/5/2008	Fe-55	7068.30 ± 692.30	6028.00	4822.40 - 7233.60	Pass
SPW-6847	12/5/2008	Tc-99	37.71 ± 1.33	32.34	20.34 - 44.34	Pass
SPW-6849	12/5/2008	Ni-63	232.56 ± 3.26	211.34	147.94 - 274.74	Pass
SPW-6851	12/5/2008	H-3	63664.00 ± 8745.00	64674.00	51739.20 - 77608.80	Pass
SPF-6859	12/5/2008	Cs-134	0.63 ± 0.02	0.63	0.38 - 0.88	Pass
SPF-6859	12/5/2008	Cs-137	2.35 ± 0.01	2.24	1.34 - 3.14	Pass
SPW-7059	12/19/2008	Sr-90	49.19 ± 2.62	44.33	35.46 - 53.20	Pass
SPMI-7061	12/19/2008	Sr-90	39.39 ± 2.19	44.33	35.46 - 53.20	Pass

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

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

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

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

<sup>e</sup> Control limits based on the laboratory limit, Attachment A ("Other Analyses").

NOTE: For fish, Jello is used for the Spike matrix. For Vegetation, cabbage is used for the Spike matrix.

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

Lab Code	Sample Type	Date	Analysis <sup>b</sup>	Concentration (pCi/L) <sup>a</sup>		
				Laboratory results (4.66σ)		Acceptance Criteria (4.66 σ)
				LLD	Activity <sup>c</sup>	
SPW-17	Water	1/3/2008	U-238	0.09	0.01 ± 0.07	1
SPW-112	Water	1/14/2008	Tc-99	4.70	-0.06 ± 2.85	10
W-11408	Water	1/14/2008	Ra-226	0.05	0.05 ± 0.04	1
SPAP-880	Air Filter	3/11/2008	Cs-134	0.91	-	100
SPAP-880	Air Filter	3/11/2008	Cs-137	1.13	-	100
SPW-888	Water	3/11/2008	H-3	159.99	-78.90 ± 80.40	200
W-31808	Water	3/18/2008	Gr. Alpha	0.42	-0.05 ± 0.29	1
W-31808	Water	3/18/2008	Gr. Beta	0.72	0.09 ± 0.51	3.2
SPMI-884	Milk	3/24/2008	Cs-134	2.79	-	10
SPMI-884	Milk	3/24/2008	Cs-137	3.36	-	10
W-40308	Water	4/3/2008	Ra-226	0.04	0.05 ± 0.03	1
SPW-1563	Water	4/8/2008	Ra-228	0.57	0.31 ± 0.30	2
SPW-1561	Water	4/10/2008	Tc-99	4.77	-3.42 ± 2.85	10
SPW-1621	Water	4/16/2008	Fe-55	668.50	-170.70 ± 397.20	1000
SPW-2451	Water	5/22/2008	U-238	0.21	0.35 ± 0.24	1
SPW-2676	Water	6/2/2008	Cs-134	2.03	-	10
SPW-2676	Water	6/2/2008	Cs-134	3.60	-	10
SPW-2676	Water	6/2/2008	Cs-137	2.38	-	10
SPW-2677	Water	6/2/2008	Cs-134	2.78	-	10
SPW-2677	Water	6/2/2008	I-131(G)	3.49	-	20
SPW-2677	Water	6/2/2008	I-131(G)	5.25	-	20
SPF-2744	Fish	6/2/2008	Cs-134	5.48	-	100
SPF-2744	Fish	6/2/2008	Cs-137	4.83	-	100
SPW-2676	Water	6/3/2008	I-131	0.18	0.01 ± 0.11	0.5
SPMI-2678	Milk	6/3/2008	I-131	0.22	0.12 ± 0.15	0.5
SPVE-2680	Vegetation	6/3/2008	I-131(G)	0.01	-	20
SPW-3581	Water	7/14/2008	U-238	0.10	0.13 ± 0.12	1
W-80708	Water	8/7/2008	Gr. Alpha	0.63	-0.02 ± 0.44	1
W-80708	Water	8/7/2008	Gr. Beta	1.43	-0.47 ± 0.99	3.2
W-81408	Water	8/14/2008	Ra-226	0.06	0.14 ± 0.04	1
SPW-1563	Water	8/14/2008	Ra-228	0.79	0.89 ± 0.47	2
SPW-81808	Water	8/18/2008	U-238	0.18	0.04 ± 0.13	1

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

Lab Code	Sample Type	Date	Analysis <sup>b</sup>	Concentration (pCi/L) <sup>a</sup>		
				Laboratory results (4.66σ)		Acceptance Criteria (4.66 σ)
				LLD	Activity <sup>c</sup>	
W-112008	Water	11/20/2008	Gr. Alpha	0.40	0.02 ± 0.28	1
W-112008	Water	11/20/2008	Gr. Beta	0.75	-0.16 ± 0.52	3.2
SPAP-6838	Air Filter	12/5/2008	Cs-134	1.01	-	100
SPAP-6838	Air Filter	12/5/2008	Cs-137	0.95	-	100
SPAP-6840	Air Filter	12/5/2008	Gr. Beta	0.96	2.69 ± 0.64	3.2
SPW-6842	Water	12/5/2008	C-14	7.79	-3.04 ± 4.05	200
SPW-6844	Water	12/5/2008	Fe-55	715.10	21.70 ± 435.10	1000
SPW-6846	Water	12/5/2008	Tc-99	1.36	-0.47 ± 0.82	10
SPW-6848	Water	12/5/2008	Ni-63	1.94	3.08 ± 1.23	20
SPF-6858	Fish	12/5/2008	Cs-134	1.53	-	100
SPF-6858	Fish	12/5/2008	Cs-137	3.92	-	100
SPW-7058	Water	12/19/2008	Cs-134	2.62	-	10
SPW-7058	Water	12/19/2008	Cs-137	2.39	-	10
SPW-7058	Water	12/19/2008	Sr-90	0.65	-0.28 ± 0.26	1
SPMI-7060	Milk	12/19/2008	Cs-134	2.18	-	10
SPMI-7060	Milk	12/19/2008	Cs-137	3.87	-	10
SPMI-7060	Milk	12/19/2008	I-131(G)	2.80	-	20
SPMI-7060 <sup>d</sup>	Milk	12/19/2008	Sr-90	0.53	0.76 ± 0.34	1

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

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

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

<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>			Acceptance
			First Result	Second Result	Averaged Result	
AP-8809, 8810	1/2/2008	Be-7	0.06 ± 0.02	0.06 ± 0.01	0.06 ± 0.01	Pass
CF-42, 43	1/2/2008	Gr. Beta	8.88 ± 0.19	8.99 ± 0.19	8.94 ± 0.13	Pass
CF-42, 43	1/2/2008	K-40	5.08 ± 0.29	5.19 ± 0.30	5.14 ± 0.21	Pass
DW-80020, 80021	1/7/2008	Gr. Alpha	2.28 ± 0.84	1.98 ± 0.86	2.13 ± 0.60	Pass
U-169, 170	1/10/2008	Beta-K40	7.50 ± 5.50	11.70 ± 5.10	9.60 ± 3.75	Pass
SO-8836, 8837	1/14/2008	Cs-137	0.80 ± 0.05	0.75 ± 0.05	0.77 ± 0.03	Pass
SO-8836, 8837	1/14/2008	Gr. Alpha	13.30 ± 4.31	15.58 ± 4.10	14.44 ± 2.98	Pass
SO-8836, 8837	1/14/2008	Gr. Alpha	33.68 ± 3.73	29.21 ± 3.10	31.45 ± 2.43	Pass
SO-8836, 8837	1/14/2008	K-40	12.31 ± 0.74	12.96 ± 0.73	12.64 ± 0.52	Pass
DW-80045, 80046	1/15/2008	Gr. Alpha	2.94 ± 1.13	3.41 ± 1.04	3.17 ± 0.77	Pass
DW-80045, 80046	1/15/2008	Gr. Beta	1.86 ± 0.66	1.36 ± 0.63	1.61 ± 0.45	Pass
MI-138, 139	1/15/2008	K-40	1262.40 ± 81.70	1396.20 ± 154.20	1329.30 ± 87.25	Pass
LW-190, 191	1/16/2008	Gr. Beta	2.85 ± 1.07	1.64 ± 1.02	2.24 ± 0.74	Pass
DW-8008, 8009	1/16/2008	Ra-226	2.77 ± 0.20	3.11 ± 0.22	2.94 ± 0.15	Pass
DW-8008, 8009	1/16/2008	Ra-228	3.95 ± 0.74	3.96 ± 0.77	3.96 ± 0.53	Pass
DW-80057, 80058	1/21/2008	Gr. Alpha	6.77 ± 0.66	7.91 ± 1.73	7.34 ± 0.92	Pass
DW-80057, 80058	1/21/2008	Gr. Beta	13.83 ± 0.97	14.78 ± 1.01	14.31 ± 0.70	Pass
SWU-479, 480	1/29/2008	Gr. Beta	4.49 ± 1.13	3.13 ± 1.14	3.81 ± 0.80	Pass
W-920, 921	2/4/2008	Gr. Beta	4.20 ± 1.30	3.30 ± 1.30	3.75 ± 0.92	Pass
SW-540, 541	2/12/2008	Gr. Alpha	2.75 ± 1.16	4.01 ± 1.18	3.38 ± 0.83	Pass
SW-540, 541	2/12/2008	Gr. Beta	6.46 ± 1.11	6.71 ± 1.03	6.59 ± 0.76	Pass
DW-80155, 80156	2/12/2008	Ra-226	2.55 ± 0.22	2.01 ± 0.16	2.28 ± 0.14	Fail
DW-80155, 80156	2/12/2008	Ra-228	1.86 ± 0.70	1.53 ± 0.67	1.70 ± 0.48	Pass
DW-80165, 80166	2/20/2008	Gr. Alpha	1.51 ± 0.90	0.80 ± 1.05	1.16 ± 0.69	Pass
DW-80166, 80167	2/20/2008	Ra-226	0.40 ± 0.09	0.46 ± 0.09	0.43 ± 0.06	Pass
DW-80166, 80167	2/20/2008	Ra-228	1.44 ± 0.52	1.42 ± 0.57	1.43 ± 0.39	Pass
DW-80166, 80167	2/20/2008	Uranium	0.69 ± 0.25	0.69 ± 0.26	0.69 ± 0.18	Pass
W-1413, 1414	3/3/2008	Gr. Beta	7.50 ± 3.00	3.70 ± 2.60	5.60 ± 1.98	Pass
DW-80189, 80190	3/11/2008	Ra-226	4.41 ± 0.30	4.09 ± 0.25	4.25 ± 0.20	Pass
DW-80189, 80190	3/11/2008	Ra-228	1.99 ± 0.65	2.17 ± 0.66	2.08 ± 0.46	Pass
MI-1006, 1007	3/12/2008	K-40	1451.90 ± 112.80	1409.50 ± 111.40	1430.70 ± 79.27	Pass
MI-1006, 1007	3/12/2008	Sr-90	0.48 ± 0.31	0.97 ± 0.38	0.72 ± 0.24	Pass
DW-80205, 80206	3/14/2008	Gr. Alpha	3.64 ± 0.80	3.39 ± 0.82	3.52 ± 0.57	Pass
DW-80202, 80203	3/14/2008	Ra-226	3.16 ± 0.21	3.00 ± 0.19	3.08 ± 0.14	Pass
DW-80202, 80203	3/14/2008	Ra-228	2.40 ± 1.00	2.07 ± 0.69	2.24 ± 0.61	Pass
DW-80208, 80209	3/14/2008	U-233/4	1.32 ± 0.25	1.29 ± 0.36	1.31 ± 0.22	Pass
SG-1080, 1081	3/18/2008	Pb-214	3.99 ± 0.30	4.15 ± 0.29	4.07 ± 0.21	Pass
SO-1195, 1196	3/18/2008	U-233/4	0.14 ± 0.02	0.14 ± 0.02	0.14 ± 0.01	Pass
SO-1195, 1196	3/18/2008	U-238	0.13 ± 0.02	0.13 ± 0.02	0.13 ± 0.01	Pass
WW-1242, 1243	3/24/2008	Gr. Beta	10.36 ± 1.63	9.06 ± 1.55	9.71 ± 1.13	Pass
AP-1519, 1520	4/2/2008	Be-7	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass
W-1565, 1566	4/2/2008	Gr. Alpha	0.82 ± 0.64	1.58 ± 0.72	1.20 ± 0.48	Pass
W-1565, 1566	4/2/2008	Gr. Beta	3.73 ± 0.86	5.51 ± 1.09	4.62 ± 0.69	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>			Acceptance
			First Result	Second Result	Averaged Result	
DW-80255, 80256	4/8/2008	Ra-226	0.19 ± 0.08	0.28 ± 0.11	0.24 ± 0.07	Pass
DW-80255, 80256	4/8/2008	Ra-228	1.79 ± 0.57	1.32 ± 0.55	1.56 ± 0.40	Pass
DW-80259, 80260	4/8/2008	Gr. Alpha	3.39 ± 0.82	3.62 ± 0.82	3.51 ± 0.58	Pass
DW-80301, 80302	4/11/2008	Ra-226	0.47 ± 0.09	0.47 ± 0.09	0.47 ± 0.06	Pass
DW-80301, 80302	4/11/2008	Ra-228	1.02 ± 0.42	0.82 ± 0.45	0.92 ± 0.31	Pass
SO-1913, 1914	4/15/2008	K-40	12.79 ± 0.73	13.88 ± 0.85	13.34 ± 0.56	Pass
DW-80313, 80314	4/16/2008	Ra-226	3.39 ± 0.22	3.28 ± 0.21	3.34 ± 0.15	Pass
DW-80313, 80314	4/16/2008	Ra-228	4.27 ± 0.72	5.14 ± 0.77	4.71 ± 0.53	Pass
SWU-2087, 2088	4/29/2008	Gr. Beta	2.20 ± 0.60	3.50 ± 0.90	2.85 ± 0.54	Pass
LW-2297, 2298	4/30/2008	Gr. Beta	1.41 ± 0.43	1.02 ± 0.40	1.22 ± 0.30	Pass
LW-2321, 2322	4/30/2008	Gr. Beta	1.33 ± 0.54	1.23 ± 0.54	1.28 ± 0.38	Pass
BS-2063, 2064	5/1/2008	Gr. Beta	13.71 ± 2.06	17.60 ± 2.49	15.66 ± 1.62	Pass
SG-2229, 2230	5/5/2008	Ac-228	26.25 ± 2.70	24.90 ± 2.55	25.58 ± 1.86	Pass
W-2792, 2793	5/5/2008	Gr. Beta	7.20 ± 2.30	7.00 ± 2.50	7.10 ± 1.70	Pass
SG-2229, 2230	5/5/2008	Pb-214	23.28 ± 0.30	23.54 ± 0.33	23.41 ± 0.22	Pass
F-2850, 2851	5/7/2008	Cs-137	3.37 ± 0.21	3.16 ± 0.19	3.27 ± 0.14	Pass
DW-80376, 80377	5/9/2008	Ra-226	0.94 ± 0.13	1.07 ± 0.13	1.01 ± 0.09	Pass
DW-80376, 80377	5/9/2008	Ra-228	2.05 ± 0.57	1.40 ± 0.51	1.73 ± 0.38	Pass
MI-2363, 2364	5/14/2008	K-40	1335.40 ± 111.20	1510.70 ± 124.30	1423.05 ± 83.39	Pass
SG-2752, 2753	5/14/2008	Be-7	264.60 ± 83.90	222.80 ± 93.10	243.70 ± 62.66	Pass
SG-2752, 2753	5/14/2008	Cs-137	64.80 ± 6.00	68.90 ± 5.80	66.85 ± 4.17	Pass
SG-2752, 2753	5/14/2008	Gr. Alpha	19.35 ± 3.48	22.88 ± 4.04	21.12 ± 2.67	Pass
SG-2752, 2753	5/14/2008	Gr. Beta	30.53 ± 2.40	33.31 ± 2.71	31.92 ± 1.81	Pass
SG-2752, 2753	5/14/2008	K-40	9121.90 ± 191.80	9183.70 ± 194.20	9152.80 ± 136.47	Pass
DW-80389, 80390	5/14/2008	Ra-226	2.99 ± 0.36	2.58 ± 0.31	2.79 ± 0.24	Pass
DW-80389, 80390	5/14/2008	Ra-228	2.87 ± 0.68	1.73 ± 0.57	2.30 ± 0.44	Pass
DW-80392, 80393	5/14/2008	Gr. Alpha	19.94 ± 1.30	17.89 ± 1.26	18.92 ± 0.91	Pass
DW-80394, 80395	5/14/2008	U-233/4	2.03 ± 0.27	2.54 ± 0.39	2.29 ± 0.24	Pass
BS-2490, 2491	5/16/2008	Cs-137	6.81 ± 1.20	6.76 ± 1.23	6.78 ± 0.86	Pass
WW-2462, 2463	5/19/2008	H-3	158.61 ± 80.90	205.63 ± 83.06	182.12 ± 57.97	Pass
W-2826, 2827	5/27/2008	Gr. Alpha	3.47 ± 2.23	4.22 ± 2.20	3.84 ± 1.57	Pass
W-2826, 2827	5/27/2008	Gr. Beta	10.67 ± 1.92	9.43 ± 1.76	10.05 ± 1.30	Pass
SG-3378, 3379	6/2/2008	Gr. Alpha	6.51 ± 1.15	7.83 ± 1.32	7.17 ± 0.88	Pass
SG-3378, 3379	6/2/2008	Gr. Beta	16.23 ± 0.95	15.76 ± 1.06	16.00 ± 0.71	Pass
SG-3393, 3394	6/4/2008	Be-7	0.82 ± 0.23	0.66 ± 0.33	0.74 ± 0.20	Pass
SG-3393, 3394	6/4/2008	Cs-137	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
SG-3393, 3394	6/4/2008	Gr. Alpha	18.96 ± 3.49	16.96 ± 3.34	17.96 ± 2.42	Pass
SG-3393, 3394	6/4/2008	Gr. Beta	30.01 ± 2.49	30.17 ± 2.56	30.09 ± 1.79	Pass
SG-3393, 3394	6/4/2008	K-40	9.78 ± 0.30	10.00 ± 0.28	9.89 ± 0.21	Pass
LW-2939, 2940	6/12/2008	Gr. Beta	1.46 ± 0.59	1.74 ± 0.59	1.60 ± 0.42	Pass
WW-3053, 3054	6/17/2008	Gr. Beta	4.28 ± 0.83	5.27 ± 0.91	4.77 ± 0.61	Pass
SW-3154, 3155	6/24/2008	Gr. Beta	2.15 ± 1.01	2.79 ± 0.97	2.47 ± 0.70	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>			Acceptance
			First Result	Second Result	Averaged Result	
BS-3245, 3246	6/27/2008	Co-60	108.84 ± 44.14	91.10 ± 22.32	99.97 ± 24.73	Pass
BS-3245, 3246	6/27/2008	Cs-137	952.18 ± 52.78	941.56 ± 13.61	946.87 ± 27.25	Pass
XW-1080, 1081	6/30/2008	Fe-55	2.96 ± 0.32	2.71 ± 0.30	2.84 ± 0.22	Pass
XW-3786, 3787	6/30/2008	Fe-55	2.96 ± 0.32	2.71 ± 0.30	2.84 ± 0.22	Pass
G-3274, 3275	7/1/2008	Gr. Beta	7.65 ± 0.24	7.44 ± 0.24	7.55 ± 0.17	Pass
SL-3295, 3296	7/1/2008	Gr. Beta	3.76 ± 0.24	3.64 ± 0.24	3.70 ± 0.17	Pass
AP-3531, 3532	7/1/2008	Be-7	0.10 ± 0.01	0.08 ± 0.01	0.09 ± 0.01	Pass
AP-3663, 3664	7/2/2008	Be-7	0.08 ± 0.01	0.08 ± 0.02	0.08 ± 0.01	Pass
AP-3690, 3691	7/2/2008	Be-7	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
W-4333, 4334	7/7/2008	Gr. Beta	7.20 ± 1.90	7.70 ± 1.70	7.45 ± 1.27	Pass
W-4840, 4841	7/7/2008	Gr. Beta	6.70 ± 1.60	6.70 ± 1.80	6.70 ± 1.20	Pass
DW-80415, 80416	7/7/2008	Ra-226	2.81 ± 0.47	2.00 ± 0.34	2.41 ± 0.29	Pass
SG-3964, 3965	7/9/2008	Be-7	1.35 ± 0.23	1.51 ± 0.22	1.43 ± 0.16	Pass
SG-3964, 3965	7/9/2008	Cs-137	0.04 ± 0.01	0.04 ± 0.01	0.04 ± 0.00	Pass
SG-3964, 3965	7/9/2008	Gr. Alpha	23.17 ± 3.39	18.76 ± 3.24	20.97 ± 2.34	Pass
SG-3964, 3965	7/9/2008	Gr. Beta	28.99 ± 2.12	29.25 ± 2.31	29.12 ± 1.57	Pass
SG-3964, 3965	7/9/2008	K-40	6.86 ± 0.19	6.84 ± 0.17	6.85 ± 0.13	Pass
DW-80427, 80428	7/9/2008	Ra-226	3.25 ± 0.24	3.27 ± 0.20	3.26 ± 0.16	Pass
DW-80427, 80428	7/9/2008	Ra-228	2.65 ± 0.67	3.25 ± 0.72	2.95 ± 0.49	Pass
DW-80451, 80452	7/15/2008	Ra-226	1.02 ± 0.10	0.96 ± 0.12	0.99 ± 0.08	Pass
DW-80451, 80452	7/15/2008	Ra-228	1.09 ± 0.62	1.14 ± 0.60	1.12 ± 0.43	Pass
DW-80481, 80482	7/16/2008	Ra-226	1.20 ± 0.13	1.40 ± 0.14	1.30 ± 0.10	Pass
DW-80481, 80482	7/16/2008	Ra-228	1.69 ± 0.68	1.65 ± 0.77	1.67 ± 0.51	Pass
MI-3842, 3843	7/21/2008	K-40	1282.60 ± 108.30	1379.00 ± 111.40	1330.80 ± 77.68	Pass
MI-3892, 3893	7/28/2008	K-40	1371.50 ± 102.90	1501.20 ± 111.80	1436.35 ± 75.97	Pass
DW-4067, 4068	7/29/2008	Gr. Beta	10.46 ± 2.37	14.25 ± 2.78	12.36 ± 1.83	Pass
SWT-4158, 4159	7/29/2008	Gr. Beta	1.58 ± 0.45	1.80 ± 0.47	1.69 ± 0.33	Pass
LW-4221, 4222	7/31/2008	Gr. Beta	1.35 ± 0.56	0.91 ± 0.52	1.13 ± 0.38	Pass
LW-4242, 4243	7/31/2008	Gr. Beta	1.36 ± 0.56	1.18 ± 0.53	1.27 ± 0.38	Pass
VE-4046, 4047	8/4/2008	Be-7	0.77 ± 0.13	0.82 ± 0.19	0.80 ± 0.12	Pass
VE-4046, 4047	8/4/2008	Gr. Beta	8.81 ± 0.36	8.34 ± 0.31	8.58 ± 0.24	Pass
VE-4046, 4047	8/4/2008	K-40	5.17 ± 0.34	5.33 ± 0.42	5.25 ± 0.27	Pass
W-4821, 4822	8/4/2008	Gr. Alpha	1.70 ± 0.80	1.70 ± 0.90	1.70 ± 0.60	Pass
W-4821, 4822	8/4/2008	Gr. Beta	3.90 ± 0.80	3.70 ± 0.90	3.80 ± 0.60	Pass
W-4801, 4802	8/5/2008	Gr. Alpha	4.40 ± 2.40	4.80 ± 2.30	4.60 ± 1.66	Pass
W-4801, 4802	8/5/2008	Gr. Beta	13.20 ± 1.30	14.50 ± 1.40	13.85 ± 0.96	Pass
DW-80522, 80523	8/5/2008	Ra-226	0.50 ± 0.12	0.28 ± 0.12	0.39 ± 0.08	Pass
DW-80522, 80523	8/5/2008	Ra-228	1.23 ± 0.60	1.09 ± 0.57	1.16 ± 0.41	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>		Averaged Result	Acceptance
			First Result	Second Result		
DW-80531, 80532	8/5/2008	Gr. Alpha	18.90 ± 1.86	17.80 ± 1.96	18.35 ± 1.35	Pass
DW-80534, 80535	8/5/2008	Ra-226	3.01 ± 0.18	3.33 ± 0.18	3.17 ± 0.13	Pass
DW-80534, 80535	8/5/2008	Ra-228	2.24 ± 0.59	2.12 ± 0.59	2.18 ± 0.42	Pass
SG-4584, 4585	8/6/2008	Be-7	7.11 ± 0.20	7.44 ± 0.37	7.27 ± 0.21	Pass
SG-4584, 4585	8/6/2008	Cs-137	0.05 ± 0.01	0.04 ± 0.01	0.04 ± 0.00	Pass
SG-4584, 4585	8/6/2008	K-40	7.88 ± 10.18	8.02 ± 0.21	7.95 ± 5.09	Pass
SG-4584, 4585	8/6/2008	Ra-226	3.94 ± 0.18	3.74 ± 0.22	3.84 ± 0.14	Pass
SG-4573, 4574	8/13/2008	Gr. Alpha	240.72 ± 8.74	251.53 ± 9.56	246.13 ± 6.48	Pass
SG-4573, 4574	8/13/2008	Gr. Beta	201.60 ± 4.28	206.88 ± 4.71	204.24 ± 3.18	Pass
SG-4584, 4585	8/13/2008	Gr. Alpha	14.07 ± 3.10	12.97 ± 3.04	13.52 ± 2.17	Pass
SG-4584, 4585	8/13/2008	Gr. Beta	22.08 ± 2.36	23.02 ± 2.34	22.55 ± 1.66	Pass
DW-80547, 80548	8/13/2008	Gr. Alpha	3.33 ± 1.11	3.88 ± 1.07	3.61 ± 0.77	Pass
DW-80551, 80552	8/13/2008	U-233/4	2.57 ± 0.48	2.13 ± 0.46	2.35 ± 0.33	Pass
DW-80553, 80554	8/13/2008	Ra-226	0.92 ± 0.14	1.21 ± 0.17	1.07 ± 0.11	Pass
DW-80553, 80554	8/13/2008	Ra-228	2.20 ± 0.61	1.64 ± 0.56	1.92 ± 0.41	Pass
DW-80566, 80567	8/20/2008	Ra-226	1.10 ± 0.11	1.10 ± 0.10	1.10 ± 0.07	Pass
DW-80566, 80567	8/20/2008	Ra-228	2.01 ± 0.58	1.74 ± 0.58	1.88 ± 0.41	Pass
VE-4647, 4648	8/27/2008	K-40	1.97 ± 0.17	2.00 ± 0.21	1.99 ± 0.14	Pass
SL-4690, 4691	9/2/2008	Gr. Beta	2.28 ± 0.25	2.35 ± 0.24	2.32 ± 0.17	Pass
ME-4732, 4733	9/2/2008	Gr. Beta	2.86 ± 0.09	2.70 ± 0.09	2.78 ± 0.06	Pass
ME-4732, 4733	9/2/2008	K-40	2.44 ± 0.37	2.82 ± 0.51	2.63 ± 0.32	Pass
SG-5180, 5181	9/3/2008	Be-7	15.50 ± 0.43	15.54 ± 0.38	15.52 ± 0.29	Pass
SG-5180, 5181	9/3/2008	Cs-137	0.07 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
SG-5180, 5181	9/3/2008	Gr. Alpha	18.74 ± 3.33	17.61 ± 3.15	18.18 ± 2.29	Pass
SG-5180, 5181	9/3/2008	Gr. Beta	29.19 ± 2.10	28.49 ± 2.15	28.84 ± 1.50	Pass
SG-5180, 5181	9/3/2008	K-40	8.55 ± 0.32	8.11 ± 0.27	8.33 ± 0.21	Pass
SG-5187, 5188	9/3/2008	Be-7	6.18 ± 0.54	5.90 ± 0.77	6.04 ± 0.47	Pass
SG-5187, 5188	9/3/2008	K-40	7.16 ± 0.60	7.29 ± 0.60	7.23 ± 0.42	Pass
SG-5193, 5194	9/3/2008	Gr. Alpha	5.80 ± 1.30	7.00 ± 1.50	6.40 ± 0.99	Pass
SG-5193, 5194	9/3/2008	Gr. Beta	15.60 ± 1.10	15.60 ± 1.10	15.60 ± 0.78	Pass
DW-4871, 4872	9/5/2008	I-131	1.15 ± 0.27	1.16 ± 0.31	1.16 ± 0.21	Pass
VE-5022, 5023	9/10/2008	K-40	1.27 ± 0.14	1.11 ± 0.06	1.19 ± 0.08	Pass
DW-5337, 5338	9/10/2008	Gr. Beta	3.00 ± 1.07	2.19 ± 1.05	2.60 ± 0.75	Pass
WW-4977, 4978	9/17/2008	Gr. Beta	3.71 ± 1.10	2.32 ± 1.11	3.01 ± 0.78	Pass
BS-5088, 5089	9/19/2008	K-40	10493 ± 607	10299 ± 470	10396 ± 384	Pass
DW-80584, 80585	9/19/2008	U-233/4	3.01 ± 0.52	2.44 ± 0.47	2.73 ± 0.35	Pass
DW-80584, 80585	9/19/2008	U-238	0.70 ± 0.25	0.27 ± 0.18	0.49 ± 0.15	Pass
DW-80579, 80580	9/25/2008	Gr. Alpha	10.69 ± 1.31	12.84 ± 1.51	11.77 ± 1.00	Pass
DW-80579, 80580	9/25/2008	Ra-226	3.13 ± 0.22	2.89 ± 0.21	3.01 ± 0.15	Pass
DW-80579, 80580	9/25/2008	Ra-228	3.03 ± 0.73	1.98 ± 0.69	2.51 ± 0.50	Pass
G-5389, 5390	10/1/2008	Be-7	1.49 ± 0.32	1.36 ± 0.28	1.43 ± 0.21	Pass
G-5389, 5390	10/1/2008	Gr. Beta	10.86 ± 0.24	11.18 ± 0.25	11.02 ± 0.17	Pass
G-5389, 5390	10/1/2008	K-40	7.42 ± 0.67	8.06 ± 0.63	7.74 ± 0.46	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) <sup>a</sup>			Acceptance
			First Result	Second Result	Averaged Result	
AP-5814, 5815	10/1/2008	Be-7	0.08 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass
SG-6111, 6112	10/6/2008	Gr. Alpha	9.34 ± 1.82	8.95 ± 1.67	9.15 ± 1.24	Pass
SG-6111, 6112	10/6/2008	Gr. Beta	17.46 ± 1.46	18.86 ± 1.35	18.16 ± 0.99	Pass
DW-80592, 80593	10/7/2008	Gr. Alpha	2.30 ± 1.14	1.57 ± 0.88	1.94 ± 0.72	Pass
DW-80594, 80595	10/7/2008	Ra-228	1.41 ± 0.55	1.22 ± 0.50	1.32 ± 0.37	Pass
DW-80650, 80651	10/8/2008	Gr. Alpha	1.30 ± 0.86	0.12 ± 0.79	0.71 ± 0.58	Pass
DW-80650, 80651	10/8/2008	Gr. Beta	2.92 ± 0.69	3.03 ± 0.64	2.98 ± 0.47	Pass
DW-80629, 80630	10/13/2008	Ra-226	3.12 ± 0.18	2.87 ± 0.17	3.00 ± 0.12	Pass
DW-80629, 80630	10/13/2008	Ra-228	2.71 ± 0.80	3.28 ± 0.81	3.00 ± 0.57	Pass
DW-80663, 80664	10/13/2008	Gr. Alpha	5.91 ± 1.70	3.14 ± 1.44	4.53 ± 1.11	Pass
MI-5572, 5573	10/14/2008	K-40	1391.00 ± 97.39	1443.90 ± 110.60	1417.45 ± 73.68	Pass
MI-5603, 5604	10/14/2008	K-40	1412.80 ± 109.30	1413.80 ± 110.50	1413.30 ± 77.71	Pass
DW-80676, 80677	10/20/2008	Gr. Alpha	12.20 ± 1.48	11.87 ± 1.54	12.04 ± 1.07	Pass
DW-80676, 80677	10/20/2008	Ra-226	5.04 ± 0.25	5.10 ± 0.25	5.07 ± 0.18	Pass
DW-80676, 80677	10/20/2008	Ra-228	5.87 ± 0.86	6.98 ± 0.95	6.43 ± 0.64	Pass
SW-80687, 80688	10/22/2008	Gr. Alpha	3.42 ± 1.03	2.98 ± 1.01	3.20 ± 0.72	Pass
DW-80729, 80730	10/30/2008	Gr. Alpha	8.40 ± 1.45	7.76 ± 2.00	8.08 ± 1.24	Pass
DW-80729, 80730	10/30/2008	Gr. Beta	16.94 ± 1.45	15.41 ± 1.37	16.18 ± 1.00	Pass
DW-80738, 80739	10/31/2008	U-233/4	2.94 ± 0.50	3.06 ± 0.63	3.00 ± 0.40	Pass
DW-80747, 80748	10/31/2008	Ra-226	0.60 ± 0.09	0.50 ± 0.08	0.55 ± 0.06	Pass
DW-80747, 80748	10/31/2008	Ra-228	1.33 ± 0.59	1.38 ± 0.60	1.36 ± 0.42	Pass
BS-6271, 6272	11/3/2008	Gr. Beta	12.26 ± 1.69	13.78 ± 1.84	13.02 ± 1.25	Pass
SS-6593, 6594	11/19/2008	K-40	12.35 ± 0.57	13.10 ± 0.76	12.73 ± 0.48	Pass
MI-7046, 7047	12/16/2008	K-40	1380.10 ± 109.80	1477.30 ± 98.32	1428.70 ± 73.69	Pass
DW-80698, 80699	12/23/2008	Ra-226	3.13 ± 0.22	3.21 ± 0.23	3.17 ± 0.16	Pass
DW-80698, 80699	12/23/2008	Ra-228	5.48 ± 0.91	5.86 ± 0.93	5.67 ± 0.65	Pass
SW-7281, 7282	12/30/2008	Gr. Beta	0.87 ± 0.54	1.35 ± 0.54	1.11 ± 0.38	Pass

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

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

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

Lab Code <sup>c</sup>	Date	Analysis	Concentration <sup>b</sup>			Acceptance
			Laboratory result	Known Activity	Control Limits <sup>d</sup>	
STW-1137	01/01/08	Am-241	1.27 ± 0.06	1.23	0.86 - 1.60	Pass
STW-1137	01/01/08	Co-57	23.80 ± 0.60	22.80	16.00 - 29.60	Pass
STW-1137	01/01/08	Co-60	8.60 ± 0.50	8.40	5.88 - 10.92	Pass
STW-1137 <sup>e</sup>	01/01/08	Cs-134	-0.021 ± 0.10	0.00	-1.00 - 1.00	Pass
STW-1137 <sup>e</sup>	01/01/08	Cs-137	0.00 ± 0.10	0.00	-1.00 - 1.00	Pass
STW-1137	01/01/08	Fe-55	32.60 ± 11.60	36.50	25.60 - 47.50	Pass
STW-1137	01/01/08	H-3	515.10 ± 12.70	472.00	330.00 - 614.00	Pass
STW-1137	01/01/08	Mn-54	12.90 ± 0.80	12.10	8.50 - 15.70	Pass
STW-1137	01/01/08	Ni-63	29.50 ± 2.30	30.70	21.50 - 39.90	Pass
STW-1137	01/01/08	Pu-238	0.60 ± 0.06	0.73	0.51 - 0.95	Pass
STW-1137	01/01/08	Pu-239/40	0.019 ± 0.015	0.01	0.00 - 1.00	Pass
STW-1137	01/01/08	Sr-90	12.00 ± 1.50	11.40	7.98 - 14.82	Pass
STW-1137	01/01/08	Tc-99	9.40 ± 1.70	11.20	7.80 - 14.60	Pass
STW-1137	01/01/08	U-233/4	3.37 ± 0.20	3.63	2.54 - 4.72	Pass
STW-1137	01/01/08	U-238	3.63 ± 0.21	3.74	2.62 - 4.86	Pass
STW-1137	01/01/08	Zn-65	16.90 ± 1.40	16.30	11.40 - 21.20	Pass
STW-1138	01/01/08	Gr. Alpha	0.96 ± 0.14	1.40	0.00 - 2.80	Pass
STW-1138	01/01/08	Gr. Beta	2.30 ± 0.15	2.43	1.22 - 3.65	Pass
STAP-1139	01/01/08	Co-57	3.90 ± 0.07	3.55	2.49 - 4.62	Pass
STAP-1139	01/01/08	Co-60	1.43 ± 0.07	1.31	0.92 - 1.70	Pass
STAP-1139	01/01/08	Cs-134	2.59 ± 0.16	2.52	1.76 - 3.28	Pass
STAP-1139	01/01/08	Cs-137	3.05 ± 0.12	2.70	1.89 - 3.51	Pass
STAP-1139	01/01/08	Mn-54	0.43 ± 0.58	0.00	0.00 - 1.00	Pass
STAP-1139	01/01/08	Pu-238	0.080 ± 0.016	0.11	0.07 - 0.14	Pass
STAP-1139	01/01/08	Pu-239/40	0.12 ± 0.02	0.11	0.08 - 0.15	Pass
STAP-1139	01/01/08	Sr-90	1.30 ± 0.27	1.55	1.08 - 2.01	Pass
STAP-1139 <sup>e</sup>	01/01/08	U-233/4	0.43 ± 0.03	0.22	0.15 - 0.28	Fail
STAP-1139 <sup>e</sup>	01/01/08	U-238	0.44 ± 0.03	0.23	0.16 - 0.29	Fail
STAP-1139	01/01/08	Zn-65	2.36 ± 0.18	2.04	1.43 - 2.65	Pass
STAP-1140	01/01/08	Gr. Alpha	0.11 ± 0.03	0.35	0.00 - 0.70	Pass
STAP-1140	01/01/08	Gr. Beta	0.34 ± 0.04	0.29	0.14 - 0.43	Pass
STVE-1141	01/01/08	Co-57	8.30 ± 0.18	6.89	4.82 - 8.96	Pass
STVE-1141	01/01/08	Co-60	3.03 ± 0.13	2.77	1.94 - 3.60	Pass
STVE-1141	01/01/08	Cs-134	6.53 ± 0.29	6.28	4.40 - 8.16	Pass
STVE-1141	01/01/08	Cs-137	3.90 ± 0.19	3.41	2.39 - 4.43	Pass
STVE-1141	01/01/08	Mn-54	5.43 ± 0.21	4.74	3.32 - 6.16	Pass
STVE-1141	01/01/08	Zn-65	0.033 ± 0.10	0.00	0.00 - 1.00	Pass

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

Lab Code <sup>c</sup>	Date	Analysis	Concentration <sup>b</sup>		Control Limits <sup>d</sup>	Acceptance
			Laboratory result	Known Activity		
STSO-1142	01/01/08	Co-57	483.00 ± 3.00	421.00	295.00 - 547.00	Pass
STSO-1142	01/01/08	Co-60	3.00 ± 0.80	2.90	0.00 - 5.00	Pass
STSO-1142	01/01/08	Cs-134	896.50 ± 7.40	854.00	598.00 - 1110.00	Pass
STSO-1142	01/01/08	Cs-137	624.40 ± 4.10	545.00	382.00 - 709.00	Pass
STSO-1142	01/01/08	Mn-54	667.20 ± 3.80	570.00	399.00 - 741.00	Pass
STSO-1142	01/01/08	Ni-63	536.00 ± 15.50	640.00	448.00 - 832.00	Pass
STSO-1142	01/01/08	Pu-238	78.60 ± 4.80	72.80	51.00 - 94.60	Pass
STSO-1142	01/01/08	Pu-239/40	89.10 ± 4.50	90.10	63.10 - 117.10	Pass
STSO-1142	01/01/08	U-233/4	134.41 ± 5.40	142.00	99.00 - 185.00	Pass
STSO-1142	01/01/08	U-238	139.00 ± 5.50	148.00	104.00 - 192.00	Pass
STSO-1142	01/01/08	Zn-65	0.093 ± 0.91	0.00	0.00 - 1.00	Pass
STSO-1158	08/01/08	Am-241	57.73 ± 4.78	69.10	48.40 - 89.80	Pass
STSO-1158	08/01/08	Co-57	353.02 ± 2.01	333.00	233.00 - 433.00	Pass
STSO-1158	08/01/08	Co-60	151.99 ± 1.58	145.00	102.00 - 189.00	Pass
STSO-1158	08/01/08	Cs-134	499.72 ± 2.65	581.00	407.00 - 755.00	Pass
STSO-1158	08/01/08	Cs-137	2.54 ± 0.25	2.80	0.00 - 5.00	Pass
STSO-1158	08/01/08	K-40	643.94 ± 15.50	570.00	399.00 - 741.00	Pass
STSO-1158	08/01/08	Mn-54	452.14 ± 2.96	415.00	291.00 - 540.00	Pass
STSO-1158	08/01/08	Ni-63	803.09 ± 17.01	760.00	532.00 - 988.00	Pass
STSO-1158	08/01/08	Pu-238	0.12 ± 0.54	0.00	0.00 - 5.00	Pass
STSO-1158	08/01/08	Pu-239/40	60.88 ± 5.89	55.60	38.90 - 72.30	Pass
STSO-1158	08/01/08	Sr-90	1.95 ± 2.04	0.00	0.00 - 5.00	Pass
STSO-1158	08/01/08	Tc-99	337.00 ± 17.30	335.00	235.00 - 436.00	Pass
STSO-1158	08/01/08	U-238	315.67 ± 11.29	303.00	212.00 - 394.00	Pass
STSO-1158	08/01/08	Zn-65	0.10 ± 2.04	0.00	0.00 - 5.00	Pass
STVE-1159	08/01/08	Co-57	8.52 ± 0.23	7.10	5.00 - 9.20	Pass
STVE-1159	08/01/08	Co-60	5.08 ± 0.19	4.70	3.30 - 6.10	Pass
STVE-1159	08/01/08	Cs-134	5.26 ± 0.18	5.50	3.90 - 7.20	Pass
STVE-1159	08/01/08	Cs-137	0.01 ± 0.14	0.00	0.00 - 1.00	Pass
STVE-1159	08/01/08	Mn-54	6.39 ± 0.28	5.80	4.10 - 7.50	Pass
STVE-1159	08/01/08	Zn-65	7.73 ± 0.45	6.90	4.80 - 9.00	Pass

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

Lab Code <sup>c</sup>	Date	Analysis	Concentration <sup>b</sup>		Control - Limits <sup>d</sup>	Acceptance
			Laboratory result	Known Activity		
STW-1162 <sup>g</sup>	08/01/08	Am-241	0.20 ± 0.06	0.00	0.00 - 0.10	Fail
STW-1162	08/01/08	Co-57	0.03 ± 0.16	0.00	0.00 - 5.00	Pass
STW-1162	08/01/08	Co-60	11.27 ± 0.23	11.60	8.10 - 15.10	Pass
STW-1162	08/01/08	Cs-134	17.93 ± 0.52	19.50	13.70 - 25.40	Pass
STW-1162	08/01/08	Cs-137	23.72 ± 0.43	23.60	16.50 - 30.70	Pass
STW-1162	08/01/08	Fe-55	43.36 ± 16.81	46.20	32.30 - 60.10	Pass
STW-1162	08/01/08	H-3	385.15 ± 8.93	341.00	239.00 - 443.00	Pass
STW-1162	08/01/08	Mn-54	13.87 ± 0.37	13.70	9.60 - 17.80	Pass
STW-1162 <sup>h</sup>	08/01/08	Ni-63	10.77 ± 2.01	0.00	0.00 - 5.00	Fail
STW-1162 <sup>i</sup>	08/01/08	Pu-238	0.33 ± 0.06	0.50	0.40 - 0.70	Fail
STW-1162	08/01/08	Pu-239/40	0.14 ± 0.15	0.00	0.00 - 0.20	Pass
STW-1162	08/01/08	Sr-90	6.49 ± 1.12	6.45	4.52 - 8.39	Pass
STW-1162 <sup>j</sup>	08/01/08	Tc-99	1.80 ± 0.62	3.76	2.63 - 4.89	Fail
STW-1162	08/01/08	U-233/4	3.33 ± 0.18	3.44	2.41 - 4.47	Pass
STW-1162	08/01/08	U-238	3.38 ± 0.18	3.55	2.49 - 4.62	Pass
STW-1162	08/01/08	Zn-65	17.64 ± 0.61	17.10	12.00 - 22.20	Pass
STW-1163	08/01/08	Gr. Alpha	0.08 ± 0.04	0.00	0.00 - 0.56	Pass
STW-1163	08/01/08	Gr. Beta	0.12 ± 0.05	0.00	0.00 - 1.85	Pass

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

<sup>c</sup> Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

<sup>d</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>e</sup> The results of a repeat analysis were still unacceptable. A spiked air filter was prepared (known activity 4.17 pCi/filter) to verify the methodology; results of the spike analysis were acceptable, 4.64 pCi/filter.

<sup>f</sup> Corrected result. An error in calculation was found.

<sup>g</sup> Included in the testing series as a "false positive". Result of reanalysis, 0.04 ± 0.01 Bq/L.

<sup>h</sup> Included in the testing series as a "false positive". Result of reanalysis, 3.78 ± 2.03 Bq/L.

<sup>i</sup> The reason for the deviation is unknown. Result of the original sample recount: 0.47 ± 0.07 Bq/L. The analysis was then repeated from the beginning. Result of reanalysis: 0.51 ± 0.07 Bq/L.

<sup>j</sup> The lower result was due to a higher than average background count used in the calculation. Average background result, 4.11 ± 0.6



TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)<sup>3</sup>.

Lab Code <sup>b</sup>	Date	Analysis	Concentration (pCi/L)			Acceptance
			Laboratory Result <sup>c</sup>	ERA Result <sup>d</sup>	Control Limits	
STAP-1143	03/24/08	Am-241	60.48 ± 3.52	50.1	29.3 - 68.7	Pass
STAP-1143	03/24/08	Co-60	650.72 ± 3.00	730.0	565.0 - 912.0	Pass
STAP-1143	03/24/08	Cs-134	467.50 ± 5.53	523.0	341.0 - 647.0	Pass
STAP-1143	03/24/08	Cs-137	1375.90 ± 25.41	1450.0	1090.0 - 1900.0	Pass
STAP-1143	03/24/08	Fe-55	145.60 ± 28.94	241.0	106.0 - 375.0	Pass
STAP-1143 <sup>e</sup>	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STAP-1143	03/24/08	Pu-238	53.65 ± 1.54	46.8	32.1 - 61.5	Pass
STAP-1143	03/24/08	Pu-239/40	70.44 ± 3.11	64.1	46.5 - 83.0	Pass
STAP-1143	03/24/08	Sr-90	157.60 ± 7.70	152.0	66.9 - 236.0	Pass
STAP-1143	03/24/08	U-233/4	62.15 ± 3.41	66.7	42.0 - 98.8	Pass
STAP-1143	03/24/08	U-238	64.11 ± 3.29	66.2	42.4 - 94.0	Pass
STAP-1143	03/24/08	Uranium	128.40 ± 3.29	136.0	69.5 - 216.0	Pass
STAP-1143	03/24/08	Zn-65	889.90 ± 15.90	872.0	604.0 - 1210.0	Pass
STAP-1144	03/24/08	Gr. Alpha	13.08 ± 1.09	8.8	4.56 - 13.2	Pass
STAP-1144	03/24/08	Gr. Beta	99.90 ± 3.09	92.2	56.80 - 135.0	Pass
STSO-1145	03/24/08	Ac-228	1269.02 ± 36.81	1180.0	757.0 - 1660.0	Pass
STSO-1145	03/24/08	Am-241	1268.50 ± 85.80	1230.0	735.0 - 1580.0	Pass
STSO-1145	03/24/08	Bi-212	1407.10 ± 56.64	1360.0	357.0 - 2030.0	Pass
STSO-1145	03/24/08	Bi-214	2145.50 ± 305.63	1790.0	1100.0 - 2570.0	Pass
STSO-1145	03/24/08	Co-60	5219.70 ± 90.30	5130.0	3730.0 - 6890.0	Pass
STSO-1145	03/24/08	Cs-134	5427.30 ± 102.94	5640.0	3630.0 - 6790.0	Pass
STSO-1145	03/24/08	Cs-137	6346.60 ± 201.80	6010.0	4600.0 - 7810.0	Pass
STSO-1145	03/24/08	K-40	11052.70 ± 181.80	11000.0	7980.0 - 14900.0	Pass
STSO-1145 <sup>e</sup>	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STSO-1145	03/24/08	Pb-212	1198.20 ± 96.58	1080.0	697.0 - 1520.0	Pass
STSO-1145	03/24/08	Pb-214	2253.30 ± 291.60	2020.0	1210.0 - 3010.0	Pass
STSO-1145	03/24/08	Sr-90	6407.00 ± 277.00	5360.0	1940.0 - 8750.0	Pass
STSO-1145	03/24/08	Th-234	2421.80 ± 321.00	2030.0	644.0 - 3870.0	Pass
STSO-1145 <sup>f</sup>	03/24/08	U-233/4	1227.93 ± 91.52	2050.0	1240.0 - 2580.0	Fail
STSO-1145	03/24/08	U-238	1319.90 ± 48.81	2030.0	1240.0 - 2580.0	Pass
STSO-1145	03/24/08	Uranium	2592.00 ± 140.50	4180.0	2380.0 - 5640.0	Pass
STSO-1145	03/24/08	Zn-65	2936.20 ± 73.50	2660.0	2110.0 - 3570.0	Pass

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

Lab Code <sup>b</sup>	Date	Analysis	Concentration (pCi/L)		Control Limits	Acceptance
			Laboratory Result <sup>c</sup>	ERA Result <sup>d</sup>		
STVE-1146	03/24/08	Am-241	1261.50 ± 73.90	1260.0	718.0 - 1730.0	Pass
STVE-1146	03/24/08	Cm-244	1152.50 ± 57.44	1200.0	591.0 - 1870.0	Pass
STVE-1146	03/24/08	Co-60	912.41 ± 13.59	888.0	600.0 - 1280.0	Pass
STVE-1146	03/24/08	Cs-134	1547.70 ± 38.81	1540.0	882.0 - 2130.0	Pass
STVE-1146	03/24/08	Cs-137	1163.80 ± 20.62	1100.0	807.0 - 1530.0	Pass
STVE-1146	03/24/08	K-40	22186.00 ± 339.40	24600.0	17700.0 - 34800.0	Pass
STVE-1146 <sup>e</sup>	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STVE-1146	03/24/08	Sr-90	3825.90 ± 140.66	4130.0	2310.0 - 5480.0	Pass
STVE-1146	03/24/08	U-233/4	2753.30 ± 227.90	3070.0	2110.0 - 4070.0	Pass
STVE-1146	03/24/08	U-238	2697.10 ± 143.20	3050.0	2140.0 - 3850.0	Pass
STVE-1146	03/24/08	Uranium	5586.10 ± 455.20	6260.0	4300.0 - 8080.0	Pass
STVE-1146	03/24/08	Zn-65	1676.80 ± 43.00	1430.0	1030.0 - 1960.0	Pass
STW-1147	03/24/08	Am-241	97.56 ± 1.02	90.9	62.0 - 124.0	Pass
STW-1147	03/24/08	Co-60	1430.00 ± 33.33	1420.0	1240.0 - 1680.0	Pass
STW-1147	03/24/08	Cs-134	730.18 ± 33.39	751.0	555.0 - 862.0	Pass
STW-1147	03/24/08	Cs-137	1947.80 ± 13.80	1990.0	1690.0 - 2380.0	Pass
STW-1147	03/24/08	Fe-55	1422.70 ± 172.16	2080.0	1210.0 - 2780.0	Pass
STW-1147 <sup>e</sup>	03/24/08	Mn-54	0.00 ± 0.00	0.0	0.0 - 10.0	Pass
STW-1147	03/24/08	Pu-238	144.16 ± 4.54	135.0	102.0 - 168.0	Pass
STW-1147	03/24/08	Pu-239/40	82.16 ± 2.50	80.7	62.4 - 99.8	Pass
STW-1147	03/24/08	Sr-90	512.03 ± 43.37	512.0	325.0 - 684.0	Pass
STW-1147	03/24/08	U-233/4	74.40 ± 1.20	81.0	61.0 - 104.0	Pass
STW-1147	03/24/08	U-238	75.10 ± 1.35	80.3	61.3 - 99.5	Pass
STW-1147	03/24/08	Uranium	152.10 ± 2.55	165.0	119.0 - 220.0	Pass
STW-1147	03/24/08	Zn-65	708.90 ± 29.00	694.0	588.0 - 865.0	Pass
STW-1120	03/19/07	Uranium	339.60 ± 10.66	391.0	282.0 - 521.0	Pass
STW-1120	03/19/07	Zn-65	2009.00 ± 36.40	1910.0	1600.0 - 2410.0	Pass

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

<sup>b</sup> Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

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

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

<sup>e</sup> Included in the testing series as a "false positive". No activity expected.

<sup>f</sup> The analysis was repeated by leaching and total dissolution methods. Total dissolution yielded results within expected range. Results of the reanalysis: U-233,4, 1655 ± 95 pCi/kg. U-238 1805 ± 97 pCi/kg.

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

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

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

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

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

4.5 In rounding off, the following rules are followed:

4.5.1. If the number following those to be retained is less than 5, the number is dropped, and the retained number  $s$  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.

POINT BEACH NUCLEAR PLANT

APPENDIX C

Sampling Program and Locations

POINT BEACH NUCLEAR PLANT

Sample Type	Locations		Collection Type (and Frequency) <sup>b</sup>	Analysis (and Frequency) <sup>b</sup>
	No.	Codes (and Type) <sup>a</sup>		
Airborne Filters	6	E-1-4, 8, 20	Weekly	GB, GS, on QC for each location
Airborne Iodine	6	E-1-4, 8, 20	Weekly	I-131
Ambient Radiation (TLD's)	22	E-1-9, 12, 14-18, 20, 22-32, 34-36, 38,39	Quarterly	Ambient Gamma
Lake Water	5	E-1, 5, 6, 33	Monthly	GB, GS, I-131 on MC H-3, Sr-89-90 on QC
Well Water	1	E-10	Quarterly	GB, GS, H-3, Sr-89-90, I-131
Vegetation	8	E-1-4, 6, 9, 20	3x / year as available	GB, GS
Shoreline Silt	5	E-1, 5, 6, 12, 33	2x / year	GB, GS
Soil	8	E-1-4, 6, 8, 9, 20	2x / year	GB, GS
Milk	3	E-11, 40, 21	Monthly	GS, I-131, Sr-89-90
Algae	2	E-5, 12	3x / year as available	GB, GS
Fish	1	E-13	3x / year as available	GB, GS (in edible portions)

SPECIAL COLLECTIONS AND ANALYSES

Airborne Filters	4 per month 1 per quarter	Sr-89, Sr-90 Sr-89, Sr-90 (comp.)
Liquid	1 per month	GA, Sr-89, Sr-90
Subsoil Water	4 per quarter	GA, GB, H-3, GS
Miscellaneous Water Samples	4-5 per year	Sr-89, Sr-90

<sup>a</sup> Locations codes are defined in Table 2. Control Stations are indicated by (C). All other stations are indicators.

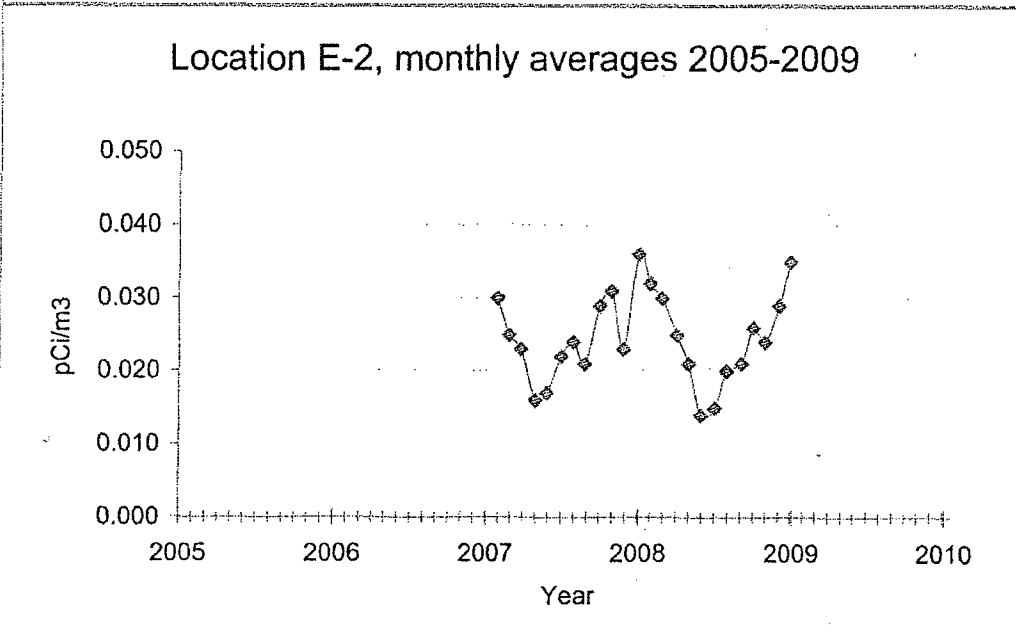
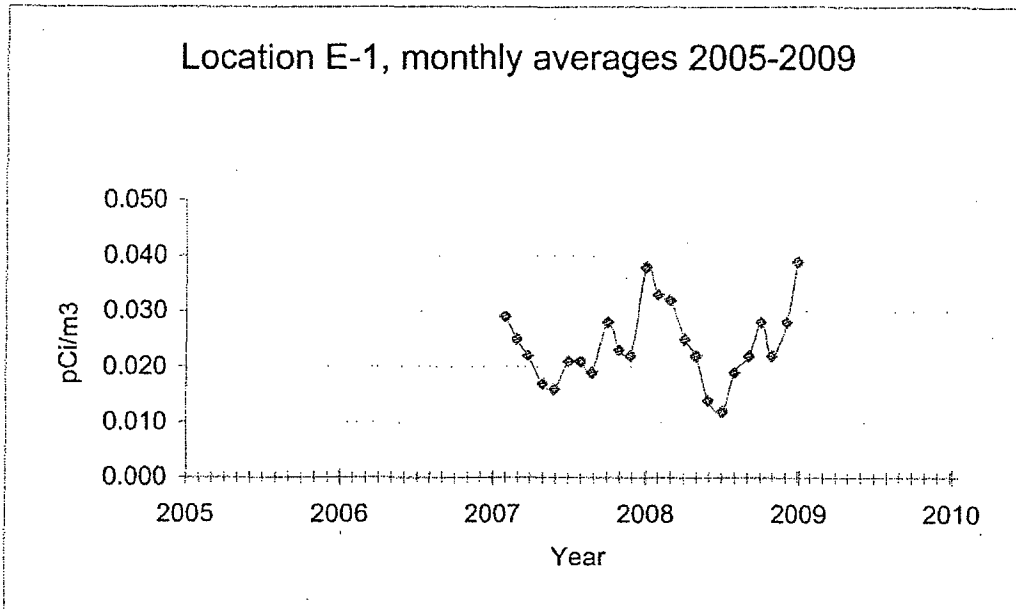
<sup>b</sup> Analysis type is coded as follows: GB = gross beta, GA = gross alpha, GS = gamma spectroscopy, H-3 = tritium, Sr-89 = strontium-89, Sr-90 = strontium-90, I-131 = iodine-131. Analysis frequency is coded as follows: MC = monthly composite, QC = quarterly composite.

POINT BEACH NUCLEAR PLANT

APPENDIX D  
Graphs of Data Trends

POINT BEACH

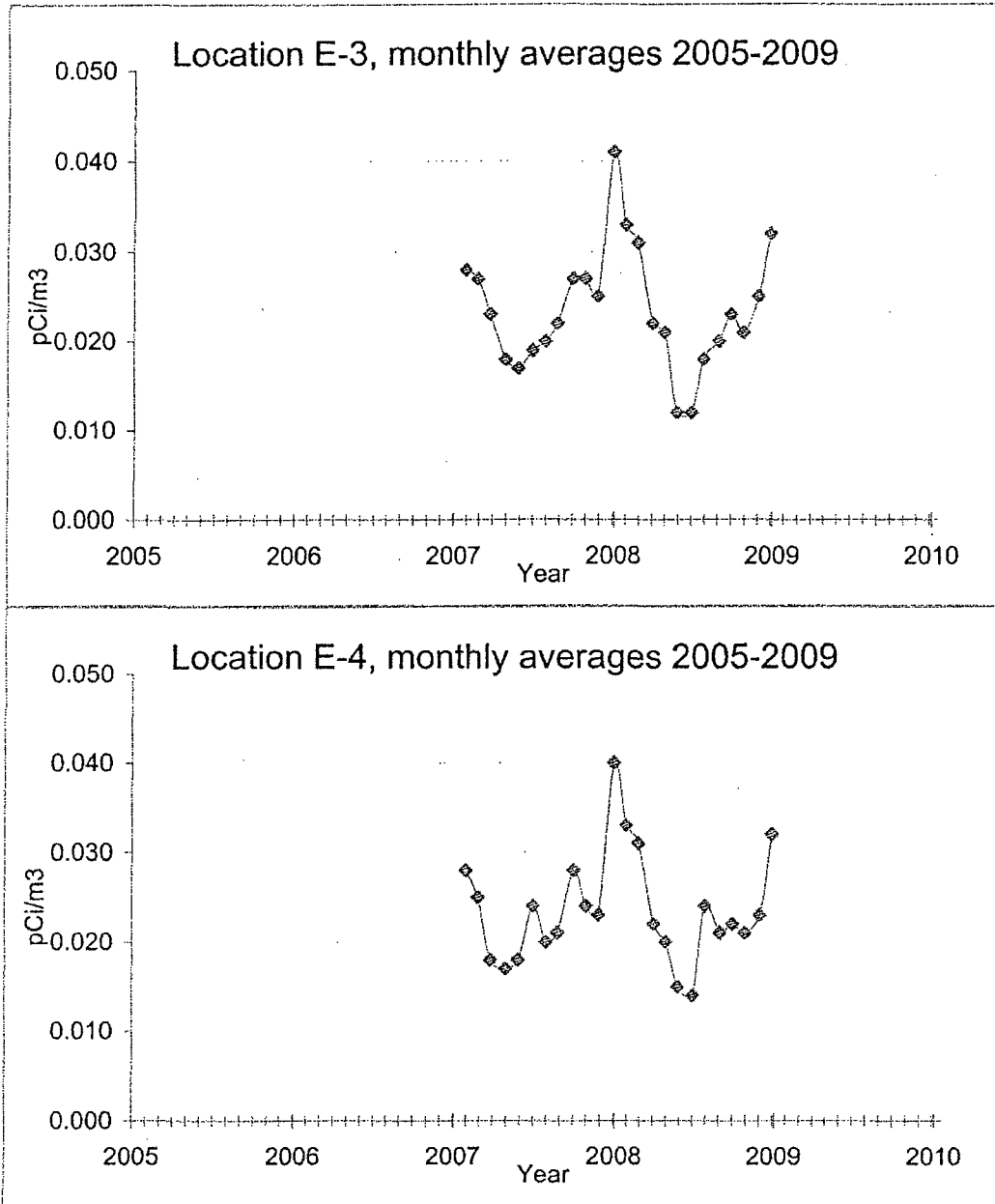
Air Particulates - Gross Beta





POINT BEACH

Air Particulates - Gross Beta



POINT BEACH NUCLEAR PLANT

APPENDIX E

Supplemental Analyses

POINT BEACH NUCLEAR PLANT

Supplemental Analyses

Location	S-3	GW-09 1Z-361A <sup>b</sup>	GW-Special	GW-09 1Z-361A	GW-09 1Z-361A
Collection Date	01-11-08	07-11-08	09-03-08	12-13-07	04-19-08
Lab Code	EW-183	EW-4116	EW-4892	EW-6390	EW-6392
H-3		1066 ± 118	23 ± 74		
Fe-55	-0.06 ± 0.43	42 ± 415			
Sr-89	0.5 ± 0.9				
Sr-90	0.0 ± 0.3	0.4 ± 3.9			
Be-7		-20.8 ± 15.7		1647.1 ± 22.8	222.4 ± 20.0
Mn-54	0.6 ± 1.4	-0.3 ± 2.0		5.2 ± 3.4	1.0 ± 2.4
Fe-59	0.3 ± 2.4	2.7 ± 3.7		-113.2 ± 6.2	-17.1 ± 4.5
Co-58	0.2 ± 1.2	-0.7 ± 1.9		51.5 ± 3.3	-11.3 ± 2.3
Co-60	-0.1 ± 1.3	3.0 ± 2.0		2.8 ± 3.5	2.9 ± 2.7
Zn-65	1.1 ± 2.7	1.5 ± 3.9		5.4 ± 8.3	-6.6 ± 5.1
Zr-Nb-95	-1.3 ± 1.5	-5.8 ± 2.1		-2519.9 ± 3.1	-37.7 ± 2.4
Cs-134	1.2 ± 1.0	-0.5 ± 2.1		4.4 ± 3.4	2.0 ± 2.1
Cs-137	-0.3 ± 1.2	-0.1 ± 2.2		2.1 ± 3.3	-2.2 ± 2.3
Ba-La-140	-4.6 ± 2.0	-5.5 ± 6.6		>12 halfives	>12 halfives
Other Gammas <sup>a</sup>	0.2 ± 1.3	-0.5 ± 1.7		-276.6 ± 3.0	3.5 ± 2.0

<sup>a</sup> RU-103

<sup>b</sup> From report 8006-100-830.

APPENDIX F

DUPLICATE ANALYSES

F-1. Airborne particulate filters, duplicate analyses for gross beta.

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

Collection: Continuous, weekly exchange.

Location	Date Collected	Volume (m <sup>3</sup> )	Gross Beta
E-04	01-16-08	339	0.031 ± 0.004
E-08	01-31-08	356	0.041 ± 0.004
E-02	02-07-08	304	0.023 ± 0.004
E-08	02-28-08	355	0.025 ± 0.003
E-03	04-10-08	306	0.020 ± 0.003
E-03	04-17-08	300	0.012 ± 0.003
E-20	04-23-08	260	0.023 ± 0.004
E-08	05-01-08	358	0.019 ± 0.003
E-08	05-29-08	357	0.011 ± 0.003
E-01	07-09-08	335	0.014 ± 0.003
E-08	07-23-08	307	0.022 ± 0.003
E-03	08-06-08	303	0.017 ± 0.003
E-04	08-25-08	184	0.026 ± 0.005
E-08	10-15-08	261	0.030 ± 0.004
E-01	10-29-08	253	0.021 ± 0.004
E-04	11-06-08	380	0.038 ± 0.003
E-01	12-03-08	294	0.030 ± 0.004
E-08	12-10-08	306	0.026 ± 0.003
E-08	12-30-08	302	0.055 ± 0.004

F -2. Lake Water, duplicate analyses for gross beta, iodine-131 and gamma isotopic.

---

Units: pCi/L

Collections: Monthly

Location	E-06	E-01	E-01
Lab Code	ELW- 191	ELW- 191	ELW- 2940
Date Collected	01-16-08	03-13-08	06-12-08
Gross beta	1.6 ± 1.0	1.1 ± 0.9	1.7 ± 0.6
I-131	0.13 ± 0.22	0.02 ± 0.16	-0.06 ± 0.24
Be-7	1.3 ± 2.1	4.0 ± 12.6	6.1 ± 17.1
Mn-54	1.1 ± 2.3	-0.2 ± 1.7	-0.9 ± 2.0
Fe-59	-0.6 ± 4.7	-1.2 ± 2.6	0.5 ± 3.8
Co-58	-1.1 ± 2.1	0.6 ± 1.3	0.3 ± 1.7
Co-60	-2.7 ± 2.8	-1.9 ± 1.6	1.5 ± 1.9
Zn-65	3.7 ± 6.5	0.8 ± 3.0	0.3 ± 3.8
Zr-Nb-95	1.7 ± 2.9	1.9 ± 1.7	-1.1 ± 1.8
Cs-134	-1.2 ± 2.7	-0.3 ± 1.4	-0.5 ± 2.2
Cs-137	0.8 ± 2.7	0.8 ± 1.4	1.3 ± 1.9
Ba-La-140	-1.5 ± 4.4	1.1 ± 1.5	-0.4 ± 1.9
Ru-103	2.2 ± 2.5	0.0 ± 1.4	0.8 ± 2.2

F -3. Lake Water, duplicate analyses for tritium, strontium-89 and strontium-90.

---

Location	E-33
Lab Code	ELW- 7308
Collection Period	4th Quarter
H-3	-32 ± 68
Sr-89	0.23 ± 0.75
Sr-90	0.14 ± 0.29

---

F-4. Milk, duplicate analyses for I-131, Sr-89/90 and gamma isotopic.

---

Units: pCi/L

Collection: Monthly

---

Location	E-21	E-40
Lab Code	EMI- 1007	EMI- 6459
Date Collected	03-12-08	11-12-08
Sr-89	-0.8 ± 1.0	-0.2 ± 0.9
Sr-90	1.0 ± 0.4	0.6 ± 0.3
I-131	0.04 ± 0.21	0.02 ± 0.26
K-40	1410 ± 111	1362 ± 118
Cs-134	0.2 ± 1.5	0.2 ± 2.1
Cs-137	1.4 ± 1.9	-0.5 ± 2.2
Ba-La-140	-2.2 ± 1.6	-2.4 ± 2.1
Co-60	0.4 ± 2.2	-0.5 ± 2.5

---

F-5. Surface Water/Well Water, duplicate analyses for tritium.

---

Units: pCi/L

Collections: Monthly, quarterly, quarterly composites

---

Location	GW-03	S-03	GW-02
Collection Date	03-27-08	04-02-08	05-30-08
Lab Code	EWW-1267	EWW-1596	EWW-2620
H-3	99 ± 94	335 ± 94	97 ± 77
Location	GW-16	Façade Subsoil Sump	GW-16
Collection Date	05-29-08	05-31-08	06-24-08
Lab Code	EWW-2645	EW-2985	EWW-3146
H-3	277 ± 85	472 ± 104	289 ± 98
Location	GW-2	GW-16	GW-06
Collection Date	10-30-08	10-22-08	10-15-08
Lab Code	EWW-6225	EWW-6037	EWW-5681
H-3	178 ± 85	127 ± 86	-23 ± 84

---



F.6 Sediment, duplicate analyses for gross beta and gamma isotopic

---

Units: pCi/g dry  
Collection: Semiannual

---

Location	48
Collection Date	04-11-08
Lab Code	ESS- 1660
Gross Beta	17.28 ± 2.15
Be-7	0.057 ± 0.072
K-40	7.85 ± 0.68
Cs-137	0.049 ± 0.024
Tl-208	0.046 ± 0.017
Pb-212	0.09 ± 0.024
Bi-214	0.09 ± 0.030
Ra-226	0.27 ± 0.17
Ac-228	0.14 ± 0.075

---

F.7 Grass, duplicate analyses for gross beta and gamma isotopic

---

Units: pCi/g dry  
Collection: Semiannual

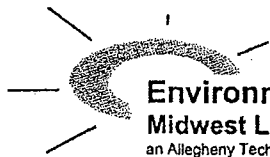
---

Location	E-08
Collection Date	7/30/2008
Lab Code	EG- 3935
Ratio (wet/dry)	2.17
Gross Beta	9.17 ± 0.34
Be-7	1.41 ± 0.27
K-40	5.98 ± 0.57
I-131	-0.010 ± 0.015
Cs-134	-0.004 ± 0.013
Cs-137	0.005 ± 0.013
Co-60	0.001 ± 0.012

---

POINT BEACH NUCLEAR PLANT

APPENDIX G  
Special Reports



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

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

Dr. Kjell Johansen  
 FPL Energy  
 Point Beach Nuclear Plant  
 6610 Nuclear Road  
 Two Rivers, Wisconsin 54241

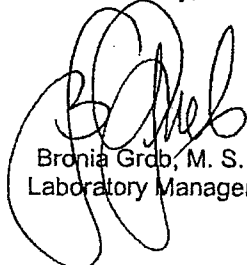
LABORATORY REPORT NO.: 8006-100-826  
 DATE: 06-26-2008  
 SAMPLES RECEIVED: 03-11-2008  
 PURCHASE ORDER NO.: \_\_\_\_\_

Below are the results of the analyses for tritium in three water samples.

Sample Description	Lab Code	Concentration / LLD (pCi/L) H-3	Collection Date
MH-06	EWV-890	31 ± 97 / < 158	03-05-08
MH-07	EWV-891	242 ± 105 / < 158	03-05-08
MH-08	EWV-892	139 ± 101 / < 158	03-05-08

The error given is the probable counting error at the 95% confidence level. The less than (<) value, is based on 4.66 sigma counting error for the background sample.

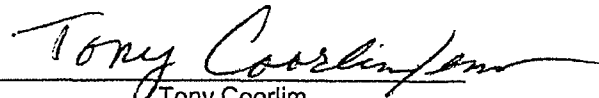
Sincerely,



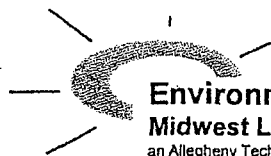
Bronia Grob, M. S.  
 Laboratory Manager

E-mail: Kjell\_Johansen@fpl.com  
 Hard copy included in the Monthly Report

APPROVED BY



Tony Coorlim,  
 Quality Assurance



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

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

Dr. Kjell Johansen  
 FPL Energy  
 Point Beach Nuclear Plant  
 6610 Nuclear Road  
 Two Rivers, Wisconsin 54241

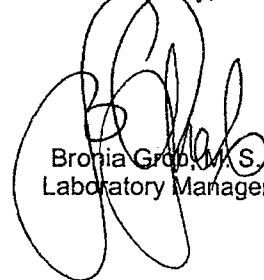
LABORATORY REPORT NO.: 8006-100-824  
 DATE: 06-24-2008  
 SAMPLES RECEIVED: 06-09-2008  
 PURCHASE ORDER NO.: \_\_\_\_\_

Below are the results of the analyses for tritium in five ground water samples.

Sample Description	Lab Code	Concentration / LLD (pCi/L) H-3	Collection Date
MH-67A	EWV-2832	247 ± 96 / < 172	06-02-08
MH-67B	EWV-2833	309 ± 99 / < 172	06-02-08
MH-67C	EWV-2834	241 ± 96 / < 172	06-02-08
MH-67D	EWV-2835	155 ± 92 / < 172	06-02-08
MH-68	EWV-2836	223 ± 95 / < 172	06-02-08

The error given is the probable counting error at the 95% confidence level. The less than (<) value, is based on 4.66 sigma counting error for the background sample.

Sincerely,



Bronia Grob, M.S.  
 Laboratory Manager

E-mail: Kjell\_Johansen@fpl.com

APPROVED BY

Tony Coorlim  
 Tony Coorlim,  
 Quality Assurance

## **APPENDIX 2**

**UNIVERSITY OF WATERLOO (ONTARIO)  
ENVIRONMENTAL ISOTOPE LABORATORY  
PRECIPITATION MONITORING RESULTS  
FOR THE POINT BEACH NUCLEAR PLANT  
REPORTING PERIOD: JANUARY – DECEMBER 2008**

Client: Johansen  
Point Beach Nuclear Plant

ISO# 2008061  
Location: T - 1  
1 for 3H

Environmental Isotope Lab  
2008-02-27  
1 of 1

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 (SBCC Rain Water) 01/23/08	171246	X	19.2	8.0		

618 pCi/l  
KAD 3/18/09

TU = TRITIUM UNIT

1 TU = 3.221 pCi/l per IAEA, 2000 Report

KAD 3/28/09

To Contact EIL:  
mepatton@uwaterloo.ca  
or phone:  
519 888 4732

**Robert J. Drimmie**  
Laboratory Manager  
rdrimmie@uwaterloo.ca  
519 888 4567 ext 32580

Client: Johansen  
FPL Energy Point Beach, LLC

ISO# 2008261  
Location: T-3  
3 for 3H

Environmental Isotope Lab  
3/28/2009  
1 of 1

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 4-3-08	179606	X	29.1	8.0		
2	E-03 4-3-08	179607	X	16.6	8.0		
3	E-04 4-3-08	179608	X	19.2	8.0	21.8	8.0

94 pCi/L  
54 " KAJ 3-28-09  
66 "

Tritium is reported in Tritium Units.  
1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

To Contact uwEILAB:  
519 888 4732

**Robert J. Drimmie**  
uwEILAB Manager  
rdrimmie@uwaterloo.ca  
519 888 4567 ext 32580

Project # 8006

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 (SBCC Rain Water) 5/8	181622	X	23.6	8.0		
2	E-03 (Tapawingo Rd West of Lakeshore Rd)	181623	X	15.6	8.0		
3	E-04 (North Boundary)	181624	X	20.8	8.0		

*Handwritten notes:*  
FCL/L  
76  
50  
67  
May 15, 2008  
5/08  
KDJ 5-28-09

Tritium is reported in Tritium Units.  
1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.



Client: Johansen  
 FPL Energy  
 Point Beach Nuclear Plant  
 Project# 8006

ISO# 2008656  
 Location: T-7  
 3 for 3H

Environmental Isotope Lab  
 3/28/2009  
 1 of 1

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 (SBCC Rain Water) 09/10/08	191771	X	13.7	8.0		
2	E-03 (Tapawingo Rd West of Lakeshore Rd) 09/10/08	191772	X	9.7	8.0		
3	E-04 (North Boundary 09/10/08	191773	X	12.4	8.0	16.6	8.0

*PC/L*  
*44*  
*31*  
*40*  
*KAD*  
*3-28-09*

Tritium is reported in Tritium Units.  
 1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
 1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

To Contact uwEILAB:  
 519 888 4732

**Robert J. Drimmie**  
 uwEILAB Manager  
 rdrimmie@uwaterloo.ca  
 519 888 4567 ext 32580

Client: Johansen  
FPL Energy  
Point Beach Nuclear Plant  
NPL 2008-0274  
Project # 8006

ISO# 2008738  
Location: T - 1  
3 for 3H

Environmental Isotope Lab  
3/13/2009  
1 of 1

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 0627 10/09/08	193702	X	16.1	8.0		
2	E-03 0928 10/09/08	193703	X	21.3	8.0		
3	E-04 0913 10/09/08	193704	X	18.9	8.0	21.0	8.0

PCi/L  
52  
69  
61

Tritium is reported in Tritium Units.  
1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

Oct 2008  
SEPT  
KAJ 3-28-09

To Contact uwEILAB:  
519 888 4732

**Robert J. Drimmie**  
uwEILAB Manager  
rdrimmie@uwaterloo.ca  
519 888 4567 ext 32580

Client: Johansen  
FPL Energy Point Beach  
Nuclear Plant  
Contract #15872  
Project #: 8006

ISO# 2008803  
Location: T - 8  
3 for 3H

Environmental Isotope Lab  
1/16/2009  
1 of 1

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 11-06-08	195573	X	<6	8.0	<6	8.0
2	E-03 11-06-08	195574	X	10.6	8.0		
3	E-04 11-06-08	195575	X	10.5	8.0		

*pCi/l*  
*<19*  
*34 SAMPLE FOR*  
*34 OCT 2008*  
*MAY 3-25-09*

Tritium is reported in Tritium Units.  
1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

To Contact uwEILAB:  
519 888 4732

**Robert J. Drimmie**  
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519 888 4567 ext 32580

Client: Johansen  
FPL Energy Point Beach Nuclear Plant  
Contract #15872

ISO# 2008883  
Location: T -  
3 for 3H

Environmental Isotope Lab  
3/28/2009  
1 of 2

REF 3-25-0

#	Sample	Lab#	<sup>3</sup> H	Result	± 1σ	Repeat	± 1σ
1	E-02 (SBCC Rain Water) 12/03/08	198071	X	20.6	8.0		
2	E-03 (Tapawingo Rd West of Lakeshore Rd) 12/03/08	198072	X	13.0	8.0	16.9	8.0
3	E-04 (North Boundary) 12/03/08	198073	X	<6	8.0	<6	8.0

Pc/L

66

48

<19

→ AVG = 15 TU

\*This sample bottle arrived broken - water sample froze and we saved portion in jar.  
Sample to be run. See what result we get.

Tritium is reported in Tritium Units.  
1TU = 3.221 Picocuries/L per IAEA, 2000 Report.  
1TU = 0.11919 Becquerels/L per IAEA, 2000 Report.

To Contact uwEILAB:  
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