

State of Wisconsin

2008

Point Beach - Kewaunee

Environmental Radioactivity Survey

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State of Wisconsin DHS

2008

Point Beach - Kewaunee Environmental Radioactivity Survey

Introduction

Wisconsin Public Health Statutes 254.41 mandates the Department of Health Services to conduct environmental radiation monitoring around the nuclear power facilities that impact Wisconsin. This environmental monitoring report is for the Point Beach and Kewaunee nuclear generating plants for the calendar year January - December, 2008 and provides a description and results of this environmental monitoring program.

WI DHS Point Beach - Kewaunee Environmental Monitoring Sampling Program

The WI DHS environmental monitoring program consists of the collection of various types of samples from the air, water and terrestrial exposure pathways. The sampling program included samples of air, precipitation, ambient gamma radiation (TLD), surface water, fish, shoreline sediment, soil, milk, well water and vegetation that are collected from selected locations at planned sampling intervals.

Table 1 provides a listing of types of samples collected, collection frequency, sites where samples are collected, the number of samples collected, number of samples that were missed or had sample or analysis deviations and a listing of the required analyses. Table 2 is a listing of sampling sites and includes a description, direction and distance from the monitored power plants. Table 3 provides an explanation of missing samples or non-routine sample analyses. Figure 1 is a map showing the location of environmental sampling sites in relation to the Kewaunee plant and Figure 2 is a map showing the location of environmental sampling sites in relation to the Point Beach plant.

Program Modifications

There were no program modifications for 2008.

Laboratory Services and Quality Assurance

The analysis of the samples is performed under contract with the State Laboratory of Hygiene (SLH). SLH maintains a quality assurance program. Analytical procedures provide for routine replicate analyses to verify methods and instrument operation. Traceable sources are used to regularly calibrate the counters and daily performance checks are made between calibrations. In addition, quality control charts are maintained on the counters.

SLH participates in the Environmental Resource Associates' Proficiency Testing program and has performed satisfactorily over the report period. Proficiency testing results are available from the State Laboratory of Hygiene.

Detection Limits

Detection limits, required by WI DHS, will be expressed as a lower limit of detection (LLD). The required WI DHS LLD as indicated in Table 4 under the heading "LLD" is an "a priori" estimate of the capability for detecting an activity concentration by a given measurement system, procedure, and type of sample. Counting statistics of the appropriate instrument background are used to compute the LLD for each specific analysis. Using 4.66 times the standard deviation (s_b) of the instrument background, the LLD for each specific analysis is defined at the 95% Confidence Level.

The LLD for each radioisotope listed in Table 4 has been calculated from the following equation:

$$LLD = \frac{4.66 s_b}{E * V * 2.22 * Y * S * \exp(-dt)}$$

Where:

LLD	is the "a priori" lower limit of detection as defined above, as picocuries per unit mass or volume,
s_b	is the standard deviation of the background counting rate or of the counting rate of blank sample as appropriate, as counts per minute,
E	is the counting efficiency, as counts per disintegration,
V	is the sample size in units of mass or volume,
2.22	is the number of disintegrations per minute per picocurie,
Y	is the fractional radiochemical yield, when applicable,
S	is the self-absorption correction factor,
d	is the radioactive decay constant for the particular radionuclide, and
t	for environmental samples is the elapsed time between sample collection, or end of the sample collection period, and time of counting.

Typical values for E, V, Y and dt have been used to calculate the LLD.

Reporting of Sample Analysis Results

Results for specific analyses will be reported as either a "less than" (<) value or an actual activity value. The reporting of results in Table 4 under the heading "Range" and in Tables 5-15 are "a posteriori" calculations based on the actual analysis performed using the actual sample values for E, V, Y and dt. Typically the reported "less than" (<) results are lower than the required WI DHS LLD indicating that the required WI DHS LLD has been met.

An actual activity value will be accompanied by an uncertainty term for that analysis. The uncertainty term is a plus or minus counting uncertainty term at the 2 sigma (95%) confidence interval and is printed as (+- or ±). Examples and explanations of data reporting are:

<u>Example</u>	<u>Nuclide</u>	<u>Activity reported</u>
1	^{137}Cs	< 10 pCi/liter
2	^{137}Cs	15 ± 3 pCi/liter

In example 1 we can be 95% confident that the sample activity, if any, is less than the LLD of 10 pCi/liter. In example 2 we can be 95% confident that the actual sample activity is greater than the LLD for that analysis and is between 12 and 18 pCi/liter.

Table 1. Sample collection summary and required analyses for 2008.

Sample Type	Collection and Frequency	Site locations	Number of Samples Collected	Number of Sample Deviations	Required Analyses
air particulate	C/W	1, 4, 7, 8, 17, 18	313	8	GA, GB, GI
air iodine	C/W	4, 17, 18	154	4	GI
precipitation	C/BW	1, 4	12	0	GB, H
TLD	G/Q	T1 – T31	124	0	ambient gamma
surface water	G/M	9, 12a, 17	35	1	GA, GB, GI, Sr, H, I
surface water	G/SA	5, 25	4	0	GA, GB, GI, Sr, H
fish	G/SA	10	12	0	GI
shoreline sediment	G/A	5, 10a, 12a, 12b, 12c, 25, 26	7	0	GA, BG, GI
vegetation	G/SA	1, 2, 3, 4, 5, 7, 8, 14, 17, 25	20	0	GA, GB, GI
soil	G/SA	1, 2, 3, 4, 5, 7, 8, 14, 17, 25	20	0	GA, GB, GI
well water	G/SA	3, 10b, 11, 12d (2 sites)	10	0	GA, GB, H
milk	G/M	19, 24, 27	36	0	GI, I, Sr

Collection type: C/ = continuous; G/ = grab

Frequency: /W = weekly; /M = monthly; /Q = quarterly; /A = annually; /BW = bi-weekly; /SA = semi-annually

Required analyses: GA = gross alpha; GB = gross beta; GI = gamma isotopic; Sr = strontium; I = iodine; H = tritium

Table 2. WI DHS Point Beach - Kewaunee environmental monitoring sampling sites.

Sample site	Distance and direction (miles)		Location description
	Kewaunee	Point Beach	
PBK-1	5.7 WSW	5.7 WNW	Françar residence
PBK-2	4.9 S	0.7 SSW	Southwest corner property line - Point Beach
PBK-3	4.3 SSW	1.5 W	Two Creeks Town Hall
PBK-4	3.1 S	1.2 NNW	Residence north property line - Point Beach
PBK-5	2.6 S	1.7 NNW	Two Creeks Park; NW corner of property
PBK-6	9.2 S	5.1 SSE	Coast Guard station (discontinued August, 2002)
PBK-7	7.3 SSW	3.3 SSW	WPSC substation, Cty V
PBK-8	0.8 WNW	4.9 N	P Ihlenfeldt farm
PBK-9	4.7 S	0.5 SSE	Point Beach, meteorological tower
PBK-10a	4.2 S	0.1 E	Point Beach, effluent channel
PBK-10b	4.2 S	0.1 E	Point Beach, entrance
PBK-11	3.1 SSW	2.0 NW	Two Creeks International Harvester
PBK-12a	0.1 E	4.2 N	Kewaunee, effluent channel
PBK-12b	0.1 E	4.2 N	Kewaunee, effluent channel, 500 feet N
PBK-12c	0.1 E	4.2 N	Kewaunee, effluent channel, 500 feet S
PBK-12d	0.1 W	4.2 N	Kewaunee, well sites
PBK-14	0.8 W	4.3 N	Trailer on Nuclear Road

Table 2. WI DHS Point Beach - Kewaunee environmental monitoring sampling sites.

Sample site	Distance and direction (miles)		Location description
	Kewaunee	Point Beach	
PBK-15	1.7 SW	3.5 NNW	Jct of Cty BB and Woodside Road (discontinued July, 1996)
PBK-16	3.9 W	6.0 NW	Bruechert residence (discontinued July, 1996)
PBK-17	11.4 NNE	15.6 N	Green Bay Pumping Station - Rostok
PBK-18	0.1 S	4.1 N	Kewaunee, meteorological tower
PBK-19	6.2 SW	3.8 W	W. Funk farm
PBK-20	3.2 SSW	2.2 NW	L. Engelbrecht farm (discontinued in September, 2003)
PBK-21	3.0 N	7.3 N	D. Stangel farm (left the dairy business in October, 1999)
PBK-22	10.4 SSW	6.7 SW	Bertler's food stand (discontinued in July, 1998)
PBK-23	4.0 WNW	6.4 NW	Jansky farm (discontinued in July, 1998)
PBK-24	2.6 N	6.9 N	L. Struck farm
PBK-25	7.4 S	3.2 SSE	Manitowoc Public School District Property
PBK-26	8.3 NNE	12.6 N	Kewaunee
PBK-27	3.5 SSW	1.7 NW	R. Barta farm
PBK-(T1-T8)	4.0 S	0.6 NW	Point Beach ISFSI on outside of perimeter fence
PBK-T9	3.2 S	1.2 NNW	Point Beach north property line, Lakeshore Road
PBK-T10	5.1 S	0.8 SSE	Nuclear Road, 0.6 mile E of Lakeshore Road
PBK-T11	5.1 S	0.9 SSW	Nuclear Road, 0.1 mile E of Lakeshore Road
PBK-T12	5.0 SSW	1.4 WSW	Highway 42, 0.6 mile N of Nuclear Road
PBK-T13	4.0 SSW	1.4 WNW	Highway 42, 0.3 mile N of Tapawingo Road
PBK-T14	3.1 SSW	1.9 NW	Two Creeks Road, 0.1 mile E of Highway 42
PBK-T15	7.6 S	3.3 S	Junction of Lakeshore Road and Ravine Drive
PBK-T16	7.3 SSW	3.3 SW	Cty V, 0.5 mile W of Hwy 42
PBK-T17	5.6 SW	3.8 W	Junction of Saxonbury Road and Tapawingo Road
PBK-T18	3.2 SW	3.3 NW	Zander Road, 0.1 mile W on Tannery Road
PBK-T19	0.7 N	5.0 N	Junction of Sandy Bay Road and Lakeview Road
PBK-T20	1.4 SW	3.4 NNW	Junction of Cty BB and Ratajcsak Lane
PBK-T21	1.3 W	4.5 NNW	Junction of Nuclear Road and Woodside Road
PBK-T22	1.2 NW	5.3 N	Sandy Bay Road, 0.4 mile W of Hwy 42
PBK-T23	4.9 WSW	5.5 NW	Cty B, S of Tisch Mills
PBK-T24	3.8 NW	7.0 NNW	Jct of Norman Road and Cty G
PBK-T25	3.1 NNW	7.2 N	Woodside Road, 0.2 miles S of Old Settlers Road
PBK-T26	3.0 N	7.3 N	Old Settlers Road, 0.1 mile W of Cemetery Road
PBK-T27	17.4 NNE	21.6 NNE	Algoma, S on Hwy 42
PBK-T28	7.2 NNE	11.4 N	Kewaunee, S on Hwy 42
PBK-T29	12.4 S	8.1 SSW	Two Rivers, junction of Hwy 42 and 34th Avenue
PBK-T30	16.0 SSW	11.9 SSW	Manitowoc, Hwy 42, Two Rivers Chamber of Commerce
PBK-T31	8.6 SW	5.6 WSW	Mishicot, Cty V, in front of house #653

Table 3. Missing sample or sample deviation report for 2008.

Sample type	Date	Site	Explanation
air particulate	04/03/08	1	The air filter was positioned off center in the filter holder resulting in air leakage past the filter. No gross beta data is available for the indicated sampling period.
air particulate	02/04/08	4	Failed air pump; the air site was off for approximately 25 hours at the end of the collection period.
air particulate	02/13/08	4	The air pump was replaced. The air site was off from 02/04/08 09:30 until 02/12/08 12:17.
air particulate	06/16/08	4	Due to an electrical problem, the air site was off for approximately 3 days and 17 hours at the end of the collection period.
air particulate	01/15/08	8	Due to a lab accident, air filter RT09614 was lost and therefore, was not analyzed.
air particulate	11/18/08	8	Due to a lab accident, air filter RT098754 was lost and therefore, was not analyzed.
air particulate	02/08/08	17	The air filter was positioned off center in the filter holder resulting in air leakage past the filter. Gross beta data is not available for the indicated sampling period.
air particulate	12/05-26/08	17	Due to air an site equipment problem, the air site was not operating for the indicated collection period. Gross beta and air iodine results are not available.
air iodine	02/04/08	4	Failed air pump; the air site was off for approximately 25 hours at the end of the collection period.
air iodine	02/13/08	4	The air pump was replaced. The air site was off from 02/04/08 09:30 until 02/12/08 12:17.
air iodine	06/16/08	4	Due to an electrical problem, the air site was off for approximately 3 days and 17 hours at the end of the collection period.
air iodine	12/05-26/08	17	Due to air an site equipment problem, the air site was not operating for the indicated collection period. Gross beta and air iodine results are not available.
surface water	December	9	Due to safety concerns, a sample for December was not collected.

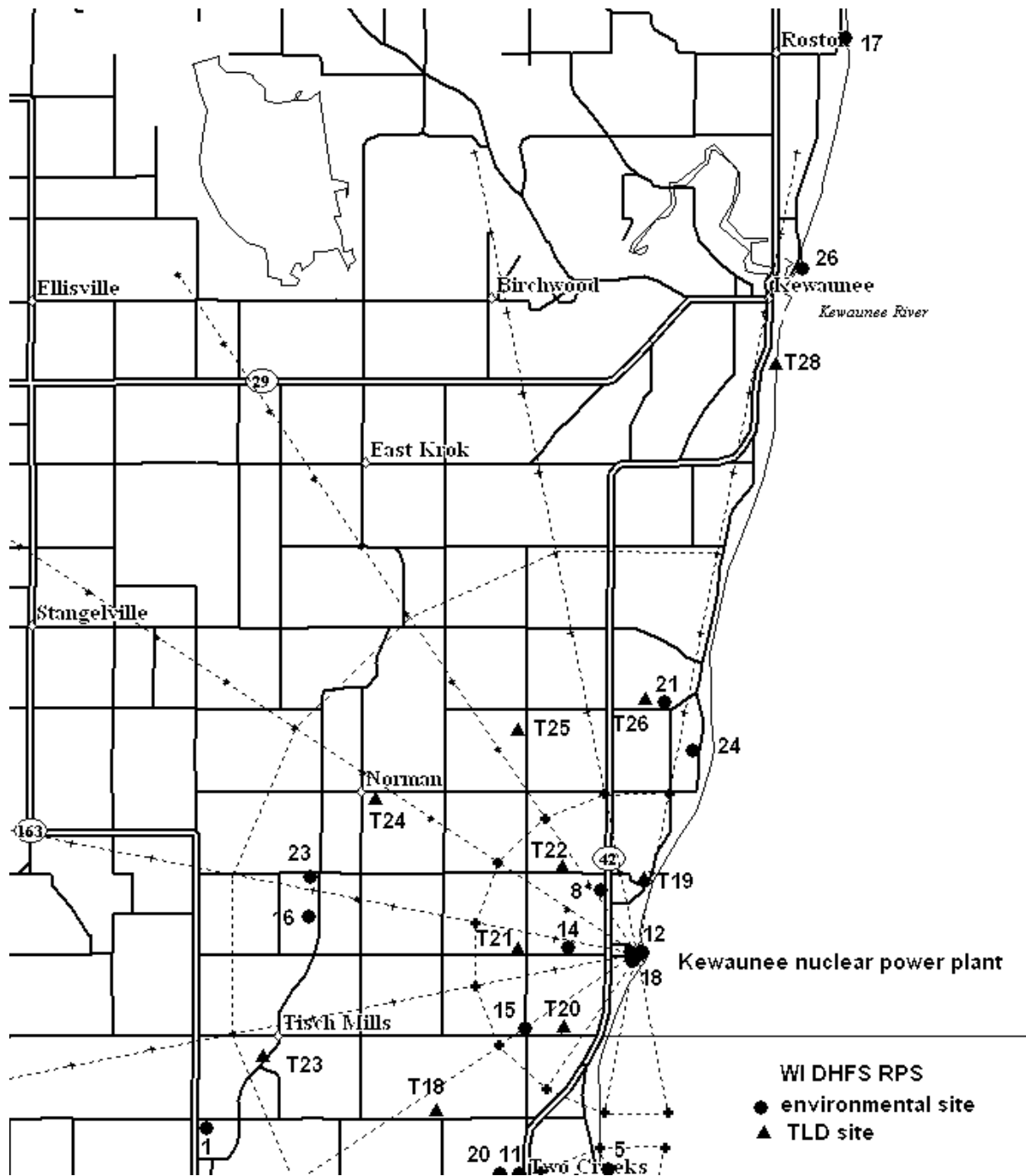


Figure 1. Point Beach - Kewaunee environmental monitoring sampling sites in relation to the Kewaunee plant.

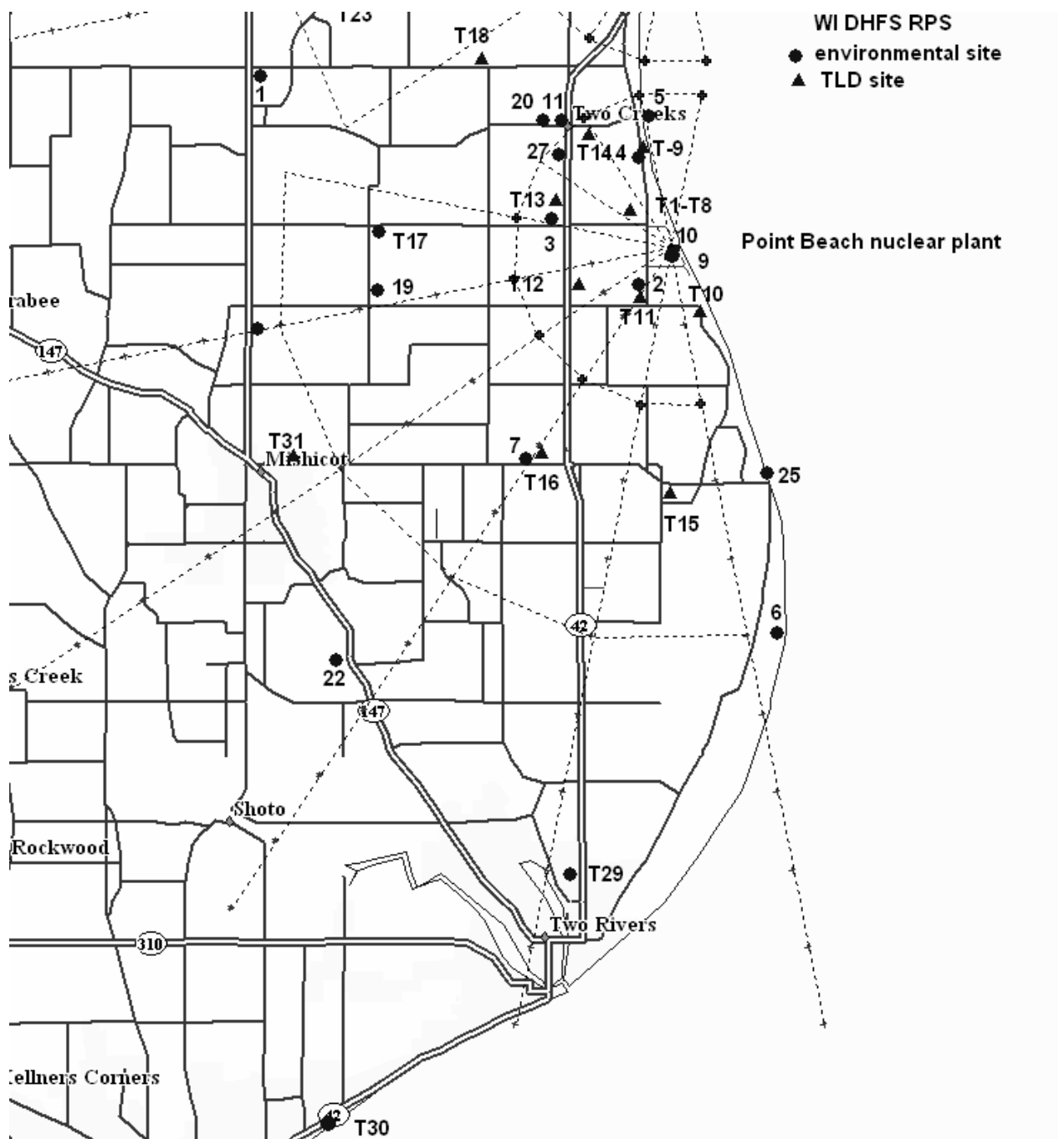


Figure 2. Point Beach - Kewaunee environmental monitoring sampling sites in relation to the Point Beach plant.

Results and Discussion

Air Particulate

A summary of reported activities by WI DHS for air particulate samples is included in Table 4. Results from the individual sample analyses are listed in Tables 5-6.

From the gross beta activities listed in Table 5, it may be noted that there are no significant differences due to distance from either the Kewaunee or the Point Beach facility. With no significant differences due to distance, an increase in gross beta activity attributable to the Kewaunee or the Point Beach facilities is not evident.

The gamma isotopic analysis of the quarterly air particulate filter composites detected only small amounts of the radioisotopes listed in Table 4. All other radioisotopes were below their respective LLD. Beryllium-7 (^7Be), detected in all composites, is a naturally occurring radioisotope that is constantly produced through nuclear reactions between cosmic rays and nuclei in the atmosphere and is detected in air composites from other areas of the state.

Influence by the Kewaunee or the Point Beach nuclear facility on air quality is not evident from air particulate analysis.

Air Iodine

A summary of reported activities by WI DHS for air iodine samples is included in Table 4. Results from the individual sample analyses are listed in Table 5.

Air iodine measurements were all below the LLD of 0.07 pCi/m^3 .

Ambient Gamma Radiation (TLD)

A summary of reported activities by WI DHS for direct radiation is included in Table 4. Results from the individual sample analyses are listed in Table 7.

Significant differences in exposure were not noticed at different distances from either the Kewaunee or the Point Beach nuclear facilities for sites PBK-T9 through PBK-T31. Excluding the sites around the perimeter of the Point Beach ISFSI (T1 – T8), the average quarterly exposure from the remaining 23 sites was 14.1 ± 1.6 milliroentgens. The average quarterly exposure for 2008 is at background levels and is comparable to other areas within Wisconsin.

Precipitation

A summary of reported activities by WI DHS for precipitation samples is included in Table 4. Results from the individual sample analyses are listed in Table 8.

The gross beta activity in precipitation was within the normal range of activity when compared to previous year's data.

Fish

A summary of reported activities by WI DHS for fish samples is included in Table 4. Results from the individual sample analyses are listed in Table 9.

The fish samples showed no unusual activities. The reported activities for cesium-137 (^{137}Cs) were also detected in previous years and are probably attributable to residual fallout from previous atmospheric nuclear weapons testing.

Shoreline Sediment

A summary of reported activities by WI DHS for shoreline sediment samples is included in Table 4. Results from the individual sample analyses are listed in Table 10.

Analysis of the shoreline samples showed no unusual activities. Naturally occurring potassium-40 (^{40}K) was detected in all samples. The reported activities for cesium-137 (^{137}Cs) were also detected in previous years and are probably attributable to residual fallout from previous atmospheric nuclear weapons testing. Naturally occurring radioisotopes such as radium-226 (^{226}Ra), bismuth-214 (^{214}Bi), lead-214 (^{214}Pb), actinium-228 (^{228}Ac), bismuth-212 (^{212}Bi), lead-212 (^{212}Pb) from the naturally occurring uranium-238 (^{238}U) and thorium-232 (^{232}Th) decay series are commonly detected but have not been quantified or reported.

Surface Water

A summary of reported activities by WI DHS for surface water samples is included in Table 4. Results from the individual sample analyses are listed in Table 11.

From the gamma isotopic analysis all radioisotopes were below their respective LLD. All reported activities for gross beta; gross alpha and tritium (^3H) are at background levels and are comparable to data from previous years. One quarterly composite for tritium (^3H) from site PBK-12a, Kewaunee discharge channel, had a reported activity of 3250 ± 160 probably due to the release of an effluent tank at the time of collection. The surface water samples uniformly show activities well below state or federal standards.

Well Water

A summary of reported activities by WI DHS for well water samples is included in Table 4. Results from the individual sample analyses are listed in Table 12.

The well water samples showed no unusual gross alpha and gross beta activities and all activities for tritium (^3H) were less than its LLD. The measured activities are all below state and federal standards.

Milk

A summary of reported activities by WI DHS for milk samples is included in Table 4. Results from the individual sample analyses are listed in Table 13.

The analysis of milk samples detected no unusual activities. Naturally occurring potassium-40 (^{40}K) was detected in all samples. The detected activities for strontium-90 (^{90}Sr), attributable to residual fallout from previous atmospheric nuclear weapons testing, were also detected in previous years at similar activity levels.

Influence by the Kewaunee or Point Beach facilities is not evident in milk samples.

Vegetation

A summary of reported activities by WI DHS for vegetation samples is included in Table 4. Results from the individual sample analyses are listed in Table 14.

Analysis of the vegetation samples showed no unusual activities. The gamma isotopic analysis detected only small amounts of naturally occurring potassium-40 (^{40}K) and beryllium-7 (^7Be) listed in Table 4.

Influence by the Kewaunee or Point Beach facilities in vegetation samples is not evident.

Soil

A summary of reported activities by WI DHS for soil samples is included in Table 4. Results from the individual sample analyses are listed in Table 15.

Analysis of the soil samples showed no unusual activities. Naturally occurring potassium-40 (^{40}K) was detected in all samples. The reported activities for cesium-137 (^{137}Cs) were also detected in previous years and are probably attributable to residual fallout from previous atmospheric nuclear weapons testing. Naturally occurring radioisotopes such as radium-226 (^{226}Ra), bismuth-214 (^{214}Bi), lead-214 (^{214}Pb), actinium-228 (^{228}Ac), bismuth-212 (^{212}Bi), lead-212 (^{212}Pb) from the naturally occurring uranium-238 (^{238}U) and thorium-232 (^{232}Th) decay series are commonly detected but have not been quantified or reported.

Point Beach ISFSI

A summary of reported activities by WI DHS for ambient gamma radiation monitored in the vicinity of the Point Beach Independent Spent Fuel Storage Installation (ISFSI) is included in Table 7.

Ambient gamma exposure levels greater than background, as measured by thermoluminescent dosimeters (TLDs), are apparent at all sites (T1 – T8) that are on the Point Beach ISFSI perimeter fence closest to the ventilated storage casks. An increase in ambient gamma exposure levels at sites T9 - T14 (0.8 – 1.9 miles from the Point Beach ISFSI) or at sites T15 – T31 (greater than 2 miles from the Point Beach ISFSI) was not evident and the ambient gamma exposure levels are consistent with previous years data. The average standard quarterly ambient gamma exposure for 2008 for sites T9 – T31 was 14.1 ± 1.6 milliroentgens and for sites T1 – T8 varied from 19.5 – 71.9 milliroentgens per standard quarter depending on the distance from the storage casks.

Dose to an Average Individual

Federal regulations 10 CFR 20, 10 CFR 50 Appendix I and 40 CFR 190 restrict the annual exposure of the population from all parts of the nuclear fuel cycle, including nuclear power plants. Doses resulting from gaseous and liquid effluent releases from the Point Beach or Kewaunee nuclear generating facilities are less than the limits as stated in these Federal regulations.

The WI DHS limits for permissible levels of radiation exposure from external sources in unrestricted areas is defined in the Wis. Adm. Code section HFS 157.23. Doses resulting from gaseous and liquid effluent releases from the Point Beach or Kewaunee nuclear generating facilities are less than the limits as stated in Wis. Adm. Code section HFS 157.23.

References

State of Wisconsin, Wisconsin Administrative Code, HFS 157.23

State of Wisconsin, "FINAL ENVIRONMENTAL IMPACT STATEMENT, Point Beach Nuclear Power Plant Plant Projects Proposed by Wisconsin Electric Power Company, Temporary Storage of Spent Nuclear Fuel in Dry Casks, PSC Docket 6630-CE-197, Unit 2 Steam Generator Replacement, PSC Docket 6630-CE-209, AUGUST 1994".

U.S. Environmental Protection Agency, Environmental Radiation Requirements for Normal Operations of Activities in the Uranium Fuel Cycle, EPA 520/4-76-016, 40 CFR Part 190, November 1976.

U.S. Nuclear Regulatory Commission, Title 10, Part 20.

U.S. Nuclear Regulatory Commission, Title 10, Part 50, Appendix I.

Table 4. Sample activity summary for the Point Beach - Kewaunee environmental monitoring program.

Sample type (units)	LLD	Number of samples ^a	Analysis	Range
air particulate (pCi/m ³)	0.005	313 / 313	gross beta gamma isotopic	0.005 - 0.047
	0.020	24 / 24	Be-7	0.037 - 0.077
	0.002	24 / 0	Mn-54	< 0.0008
	0.002	24 / 0	Co-58	< 0.0006
	0.005	24 / 0	Fe-59	< 0.0017
	0.002	24 / 0	Co-60	< 0.0007
	0.005	24 / 0	Zn-65	< 0.0019
	0.002	24 / 0	Nb-95	< 0.0008
	0.005	24 / 0	Zr-95	< 0.0010
	0.002	24 / 0	Ru-103	< 0.0007
	0.015	24 / 0	Ru-106	< 0.0050
	0.020	24 / 0	I-131	< 0.0058
	0.002	24 / 0	Cs-134	< 0.0007
	0.002	24 / 0	Cs-137	< 0.0006
	0.030	24 / 0	Ba-140	< 0.0069
	0.020	24 / 0	La-140	< 0.0043
	0.002	24 / 0	Ce-141	< 0.0011
0.005	24 / 0	Ce-144	< 0.0027	
air iodine (pCi/m ³)	0.07	154 / 0	I-131	< 0.060
surface water (pCi/liter)	3.0	39 / 11	gross beta (sol)	< 3.0 – 4.0
	3.0	39 / 2	gross beta (insol)	< 3.0 – 3.0
	3.0	39 / 3	gross alpha (sol)	< 3.0 – 4.0
	3.0	39 / 1	gross alpha (insol)	< 2.1 – 1.6
	300	16 / 2	H-3	< 190 - 3250
	1.5	22 / 2	I-131	< 0.7 – 4.0
	2.0	16 / 2	Sr-89	< 0.9 – 0.8
	1.0	16 / 2	Sr-90	< 0.4 – 0.6
			gamma isotopic	
	15	39 / 0	Mn-54	< 10
	15	39 / 0	Co-58	< 9
	30	39 / 0	Fe-59	< 18
	15	39 / 0	Co-60	< 10
	30	39 / 0	Zn-65	< 26
	15	39 / 0	Nb-95	< 9
	30	39 / 0	Zr-95	< 15
	15	39 / 0	I-131	< 15
	15	39 / 0	Cs-134	< 9
	15	39 / 0	Cs-137	< 9
60	39 / 0	Ba-140	< 39	
15	39 / 0	La-140	< 15	

Table 4. Sample activity summary for the Point Beach - Kewaunee environmental monitoring program.

Sample type (units)	MDC	Number of samples ^a	Analysis	Range
fish (pCi/kg wet)	800	12 / 12	gamma isotopic K-40	2100 - 4300
	50	12 / 0	Mn-54	< 43
	60	12 / 0	Co-58	< 47
	130	12 / 0	Fe-59	< 70
	70	12 / 0	Co-60	< 38
	130	12 / 0	Zn-65	< 130
	50	12 / 0	Nb-95	< 44
	100	12 / 0	Zr-95	< 60
	50	12 / 0	Cs-134	< 37
	60	12 / 9	Cs-137	< 31 - 49
shoreline sediment (pCi/kg dry)	6000	7 / 5	gross beta	< 6000 - 11000
	15000	7 / 0	gross alpha	< 8000
			gamma isotopic	
	800	7 / 7	K-40	4900 - 11400
	60	7 / 0	Mn-54	< 60
	90	7 / 0	Co-58	< 52
	600	7 / 0	Fe-59	< 180
	90	7 / 0	Co-60	< 70
	300	7 / 0	Zn-65	< 210
	100	7 / 0	Nb-95	< 80
	200	7 / 0	Zr-95	< 110
	80	7 / 0	Cs-134	< 60
80	7 / 4	Cs-137	< 46 - 41	
vegetation (pCi/kg wet)	6000	20 / 0	gross alpha	< 5000
	4000	20 / 20	gross beta	4000 - 10000
			gamma isotopic	
	600	20 / 15	Be-7	< 600 - 1900
	2000	20 / 20	K-40	3900 - 7700
	90	20 / 0	Mn-54	< 70
	100	20 / 0	Co-58	< 90
	200	20 / 0	Fe-59	< 190
	100	20 / 0	Co-60	< 100
	250	20 / 0	Zn-65	< 190
	100	20 / 0	Nb-95	< 80
	200	20 / 0	Zr-95	< 130
	80	20 / 0	I-131	< 80
	80	20 / 0	Cs-134	< 70
	90	20 / 0	Cs-137	< 70
	350	20 / 0	Ba-140	< 260
100	20 / 0	La-140	< 100	

Table 4. Sample activity summary for the Point Beach - Kewaunee environmental monitoring program.

Sample type (units)	MDC	Number of samples ^a	Analysis	Range
soil (pCi/kg dry)	6000	20 / 20	gross beta	12000 - 30000
	13000	20 / 15	gross alpha	< 8000 - 16000
			gamma isotopic	
	800	20 / 20	K-40	9700 – 24400
	60	20 / 0	Mn-54	< 60
	90	20 / 0	Co-58	< 60
	600	20 / 0	Fe-59	< 160
	90	20 / 0	Co-60	< 80
	300	20 / 0	Zn-65	< 270
	100	20 / 0	Nb-95	< 70
	250	20 / 0	Zr-95	< 110
	80	20 / 0	Cs-134	< 80
	80	20 / 20	Cs-137	140 - 450
milk (pCi/liter)	1.0	36 / 24	Sr-90	< 0.5 - 0.9
	1.5	21 / 1	I-131	< 1.3 – 0.5
			gamma isotopic	
	500	36 / 36	K-40	870 - 1810
	15	36 / 0	Mn-54	< 12
	15	36 / 0	Co-58	< 12
	40	36 / 0	Fe-59	< 29
	15	36 / 0	Co-60	< 15
	40	36 / 0	Zn-65	< 34
	15	36 / 0	Nb-95	< 14
	40	36 / 0	Zr-95	< 23
	15	36 / 0	I-131	< 15
	15	36 / 0	Cs-134	< 13
	15	36 / 0	Cs-137	< 12
	60	36 / 0	Ba-140	< 49
15	36 / 0	La-140	< 15	
well water (pCi/liter)	3.0	10 / 6	gross beta	< 3.0 – 3.0
	5.0	10 / 3	gross alpha	< 4.0 – 6.0
	300 ^b	10 / 0	H-3	< 190
precipitation (nCi/m ²)	1.5 ^b	12 / 10	gross beta	< 0.51 – 0.52
	300 ^b	12 / 0	H-3	< 57
ambient radiation (mR/Std Qtr)	1.0 ^c	124 / 124	exposure	9.8 – 71.9

a - Number of analyses / number of analyses detected above the WI DHS MDC.
b - MDC activities expressed in units of pCi/liter.
c - mR/TLD

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m³

Site: PBK-1

collection date	volume m ³	air particulate	collection date	volume m ³	air particulate
01/03/08	609	0.028 +- 0.002			
01/09/08	457	0.022 +- 0.003	07/10/08	511	0.014 +- 0.002
01/16/08	522	0.027 +- 0.003	07/16/08	392	0.014 +- 0.003
01/23/08	533	0.032 +- 0.003	07/23/08	430	0.023 +- 0.003
01/31/08	609	0.038 +- 0.003	07/30/08	451	0.018 +- 0.003
02/07/08	522	0.022 +- 0.003	08/06/08	451	0.017 +- 0.003
02/13/08	457	0.035 +- 0.003	08/13/08	449	0.011 +- 0.002
02/20/08	565	0.025 +- 0.002	08/21/08	511	0.019 +- 0.002
02/28/08	587	0.023 +- 0.002	08/25/08	258	0.018 +- 0.004
03/06/08	503	0.029 +- 0.003	09/03/08	565	0.027 +- 0.003
03/12/08	427	0.026 +- 0.003	09/11/08	525	0.012 +- 0.002
03/19/08	498	0.015 +- 0.002	09/17/08	378	0.015 +- 0.003
03/27/08	565	0.018 +- 0.002	09/24/08	446	0.028 +- 0.003
04/03/08 a	487				
1st Qtr			3rd Qtr		
mean +- s.d.		0.026 +- 0.006	mean +- s.d.		0.019 +- 0.006
04/10/08	481	0.021 +- 0.003	10/09/08	530	0.014 +- 0.002
04/17/08	476	0.013 +- 0.002	10/15/08	397	0.028 +- 0.003
04/23/08	408	0.022 +- 0.003	10/23/08	514	0.015 +- 0.002
05/01/08	546	0.021 +- 0.002	10/29/08	394	0.017 +- 0.003
05/08/08	465	0.019 +- 0.003	11/06/08	519	0.036 +- 0.003
05/15/08	476	0.009 +- 0.002	11/12/08	386	0.013 +- 0.003
05/21/08	405	0.010 +- 0.003	11/19/08	465	0.022 +- 0.003
05/29/08	536	0.008 +- 0.002	11/26/08	465	0.025 +- 0.003
06/05/08	459	0.016 +- 0.003	12/03/08	462	0.029 +- 0.003
06/12/08	457	0.011 +- 0.002	12/10/08	470	0.022 +- 0.003
06/19/08	454	0.010 +- 0.002	12/17/08	459	0.029 +- 0.003
06/25/08	386	0.013 +- 0.003	12/23/08	386	0.043 +- 0.004
07/02/08	449	0.017 +- 0.003	12/30/08	457	0.047 +- 0.004
2nd Qtr			4th Qtr		
mean +- s.d.		0.015 +- 0.005	mean +- s.d.		0.026 +- 0.011

a -The air filter was positioned off center in the filter holder resulting in air leakage past the filter. No gross beta data is available for the indicated sampling period.

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m ³							
Site: PBK-4							
collection date	volume m ³	air particulate	air iodine	collection date	volume m ³	air particulate	air iodine
01/02/08	463	0.030 +- 0.003	< 0.020				
01/09/08	472	0.021 +- 0.003	< 0.030	07/09/08	781	0.012 +- 0.002	< 0.045
01/14/08	330	0.029 +- 0.004	< 0.023	07/14/08	435	0.007 +- 0.002	< 0.047
01/21/08	469	0.031 +- 0.003	< 0.046	07/21/08	606	0.017 +- 0.002	< 0.031
01/28/08	469	0.039 +- 0.003	< 0.020	07/28/08	625	0.012 +- 0.002	< 0.024
02/04/08 a	394	0.027 +- 0.003	< 0.037	08/04/08	602	0.011 +- 0.002	< 0.026
02/13/08 b	91	0.023 +- 0.011	< 0.060	08/11/08	604	0.011 +- 0.002	< 0.022
02/18/08	473	0.025 +- 0.003	< 0.027	08/18/08	609	0.016 +- 0.002	< 0.022
02/25/08	667	0.023 +- 0.002	< 0.020	08/25/08	616	0.013 +- 0.002	< 0.023
03/03/08	660	0.021 +- 0.002	< 0.018	09/02/08	696	0.020 +- 0.002	< 0.015
03/12/08	852	0.024 +- 0.002	< 0.021	09/10/08	695	0.012 +- 0.002	< 0.025
03/17/08	474	0.015 +- 0.002	< 0.024	09/15/08	446	0.012 +- 0.003	< 0.039
03/24/08	647	0.016 +- 0.002	< 0.026	09/22/08	600	0.019 +- 0.002	< 0.017
04/01/08	741	0.016 +- 0.002	< 0.016	09/29/08	616	0.027 +- 0.002	< 0.019
1st Qtr				3rd Qtr			
mean +- s.d.		0.024 +- 0.007	< 0.028	mean +- s.d.		0.015 +- 0.005	< 0.027
04/09/08	749	0.018 +- 0.002	< 0.019	10/08/08	798	0.015 +- 0.002	< 0.011
04/14/08	474	0.011 +- 0.002	< 0.026	10/14/08	548	0.023 +- 0.003	< 0.026
04/21/08	663	0.018 +- 0.002	< 0.020	10/20/08	544	0.015 +- 0.002	< 0.021
04/28/08	640	0.017 +- 0.002	< 0.014	10/27/08	635	0.015 +- 0.002	< 0.029
05/06/08	710	0.018 +- 0.002	< 0.015	11/03/08	624	0.023 +- 0.002	< 0.016
05/14/08	738	0.011 +- 0.002	< 0.014	11/12/08	818	0.022 +- 0.002	< 0.007
05/19/08	458	0.008 +- 0.002	< 0.043	11/17/08	478	0.020 +- 0.003	< 0.024
05/27/08	717	0.005 +- 0.001	< 0.041	11/24/08	621	0.017 +- 0.002	< 0.017
06/02/08	541	0.009 +- 0.002	< 0.036	12/02/08	760	0.023 +- 0.002	< 0.025
06/11/08	813	0.010 +- 0.002	< 0.023	12/10/08	733	0.020 +- 0.002	< 0.014
06/16/08 c	120	0.012 +- 0.008	< 0.060	12/15/08	471	0.024 +- 0.003	< 0.025
06/23/08	620	0.009 +- 0.002	< 0.019	12/22/08	648	0.035 +- 0.003	< 0.024
06/30/08	597	0.013 +- 0.002	< 0.021	12/29/08	626	0.035 +- 0.003	< 0.016
2nd Qtr				4th Qtr			
mean +- s.d.		0.012 +- 0.004	< 0.027	mean +- s.d.		0.022 +- 0.007	< 0.020

a - Failed air pump; the air site was off for approximately 25 hours at the end of the collection period.

b - The air pump was replaced. The air site was off from 02/04/08 09:30 until 02/12/08 12:17.

c - Due to an electrical problem, the air site was off for approximately 3 days and 17 hours at the end of the collection period.

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m³

Site: PBK-7

collection date	volume m ³	air particulate	collection date	volume m ³	air particulate
01/03/08	554	0.029 +- 0.003			
01/09/08	405	0.022 +- 0.003	07/10/08	449	0.011 +- 0.002
01/16/08	474	0.023 +- 0.003	07/16/08	347	0.014 +- 0.003
01/23/08	496	0.034 +- 0.003	07/23/08	380	0.021 +- 0.003
01/31/08	557	0.036 +- 0.003	07/30/08	388	0.017 +- 0.003
02/07/08	477	0.018 +- 0.003	08/06/08	394	0.015 +- 0.003
02/13/08	424	0.033 +- 0.003	08/13/08	385	0.011 +- 0.003
02/20/08	469	0.025 +- 0.003	08/21/08	435	0.017 +- 0.003
02/28/08	549	0.020 +- 0.002	08/25/08	216	0.017 +- 0.005
03/06/08	474	0.026 +- 0.003	09/03/08	491	0.024 +- 0.003
03/12/08	410	0.023 +- 0.003	09/11/08	452	0.011 +- 0.002
03/19/08	485	0.015 +- 0.002	09/17/08	338	0.013 +- 0.003
03/27/08	535	0.017 +- 0.002	09/24/08	402	0.027 +- 0.003
04/03/08	474	0.016 +- 0.003	10/01/08	408	0.024 +- 0.003
1st Qtr			3rd Qtr		
mean +- s.d.		0.024 +- 0.007	mean +- s.d.		0.017 +- 0.005
04/10/08	455	0.021 +- 0.003	10/09/08	477	0.014 +- 0.002
04/17/08	455	0.015 +- 0.003	10/15/08	347	0.023 +- 0.003
04/23/08	391	0.018 +- 0.003	10/23/08	477	0.015 +- 0.003
05/01/08	516	0.016 +- 0.002	10/29/08	385	0.013 +- 0.003
05/08/08	433	0.019 +- 0.003	11/06/08	482	0.037 +- 0.003
05/15/08	446	0.007 +- 0.002	11/12/08	369	0.010 +- 0.003
05/21/08	366	0.010 +- 0.003	11/19/08	444	0.019 +- 0.003
05/29/08	494	0.007 +- 0.002	11/26/08	446	0.019 +- 0.003
06/05/08	413	0.016 +- 0.003	12/03/08	441	0.023 +- 0.003
06/12/08	410	0.008 +- 0.002	12/10/08	460	0.020 +- 0.003
06/19/08	408	0.008 +- 0.002	12/17/08	455	0.027 +- 0.003
06/25/08	338	0.011 +- 0.003	12/23/08	377	0.038 +- 0.004
07/02/08	396	0.015 +- 0.003	12/30/08	441	0.042 +- 0.004
2nd Qtr			4th Qtr		
mean +- s.d.		0.013 +- 0.005	mean +- s.d.		0.023 +- 0.010

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m³

Site: PBK-8

collection date	volume m ³	air particulate	collection date	volume m ³	air particulate
01/02/08	582	0.028 +- 0.003			
01/08/08	526	0.026 +- 0.003	07/08/08	561	0.012 +- 0.002
01/15/08 a			07/15/08	569	0.011 +- 0.002
01/21/08	515	0.034 +- 0.003	07/22/08	551	0.019 +- 0.002
01/28/08	623	0.036 +- 0.003	07/29/08	550	0.013 +- 0.002
02/04/08	596	0.028 +- 0.003	08/05/08	552	0.011 +- 0.002
02/12/08	689	0.029 +- 0.002	08/12/08	559	0.010 +- 0.002
02/19/08	589	0.030 +- 0.003	08/19/08	560	0.016 +- 0.002
02/26/08	640	0.026 +- 0.002	08/26/08	564	0.012 +- 0.002
03/04/08	592	0.024 +- 0.002	09/02/08	558	0.020 +- 0.002
03/11/08	626	0.025 +- 0.002	09/09/08	551	0.012 +- 0.002
03/18/08	609	0.018 +- 0.002	09/16/08	534	0.011 +- 0.002
03/25/08	630	0.019 +- 0.002	09/23/08	543	0.020 +- 0.002
04/01/08	730	0.015 +- 0.002	09/30/08	531	0.027 +- 0.003
1st Qtr			3rd Qtr		
mean +- s.d.		0.026 +- 0.006	mean +- s.d.		0.015 +- 0.005
04/07/08	364	0.032 +- 0.004	10/07/08	557	0.014 +- 0.002
04/15/08	666	0.010 +- 0.002	10/15/08	637	0.021 +- 0.002
04/22/08	598	0.020 +- 0.002	10/21/08	457	0.015 +- 0.003
04/29/08	589	0.018 +- 0.002	10/28/08	526	0.016 +- 0.002
05/06/08	592	0.020 +- 0.002	11/05/08	626	0.035 +- 0.003
05/13/08	606	0.011 +- 0.002	11/15/08	452	0.017 +- 0.003
05/20/08	593	0.010 +- 0.002	11/18/08 b		
05/28/08	676	0.006 +- 0.002	11/25/08	559	0.021 +- 0.002
06/02/08	432	0.012 +- 0.003	12/02/08	548	0.022 +- 0.002
06/09/08	574	0.012 +- 0.002	12/10/08	593	0.022 +- 0.002
06/16/08	574	0.013 +- 0.002	12/16/08	446	0.023 +- 0.003
06/23/08	563	0.010 +- 0.002	12/22/08	447	0.043 +- 0.004
07/01/08	648	0.015 +- 0.002	12/29/09		0.037 +- 0.003
2nd Qtr			4th Qtr		
mean +- s.d.		0.015 +- 0.007	mean +- s.d.		0.024 +- 0.009

a - Due to a lab accident, air filter RT09614 was lost and therefore, was not analyzed.

b - Due to a lab accident, air filter RT098754 was lost and therefore, was not analyzed.

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m ³							
Site: PBK-17							
collection date	volume m ³	air particulate	air iodine	collection date	volume m ³	air particulate	air iodine
01/04/08	657	0.027 +- 0.002	< 0.029	07/02/08	414	0.014 +- 0.003	< 0.024
01/11/08	617	0.023 +- 0.002	< 0.019	07/11/08	745	0.011 +- 0.002	< 0.006
01/18/08	643	0.029 +- 0.002	< 0.037	07/18/08	588	0.014 +- 0.002	< 0.021
01/25/08	669	0.029 +- 0.002	< 0.020	07/25/08	587	0.014 +- 0.002	< 0.027
02/01/08	630	0.038 +- 0.003	< 0.029	08/01/08	578	0.015 +- 0.002	< 0.035
02/08/08 a	646		< 0.026	08/08/08	553	0.014 +- 0.002	< 0.018
02/15/08	634	0.031 +- 0.003	< 0.038	08/15/08	582	0.009 +- 0.002	< 0.037
02/22/08	655	0.022 +- 0.002	< 0.022	08/22/08	574	0.020 +- 0.002	< 0.016
02/29/08	640	0.023 +- 0.002	< 0.029	08/29/08	569	0.017 +- 0.002	< 0.035
03/07/08	636	0.022 +- 0.002	< 0.033	09/05/08	582	0.020 +- 0.002	< 0.021
03/14/08	643	0.021 +- 0.002	< 0.028	09/12/08	591	0.014 +- 0.002	< 0.014
03/21/08	612	0.015 +- 0.002	< 0.027	09/19/08	601	0.012 +- 0.002	< 0.029
03/28/08	636	0.016 +- 0.002	< 0.032	09/26/08	572	0.029 +- 0.003	< 0.020
1st Qtr				3rd Qtr			
mean +- s.d.		0.025 +- 0.006	< 0.028	mean +- s.d.		0.016 +- 0.005	< 0.023
04/07/08	618	0.017 +- 0.002	< 0.020	10/03/08	602	0.016 +- 0.002	< 0.027
04/11/08	632	0.018 +- 0.002	< 0.023	10/10/08	608	0.015 +- 0.002	< 0.019
04/18/08	629	0.011 +- 0.002	< 0.030	10/17/08	611	0.022 +- 0.002	< 0.020
04/25/08	595	0.021 +- 0.002	< 0.028	10/24/08	599	0.015 +- 0.002	< 0.018
05/02/08	616	0.018 +- 0.002	< 0.017	10/31/08	613	0.016 +- 0.002	< 0.022
05/09/08	612	0.015 +- 0.002	< 0.012	11/07/08	613	0.034 +- 0.003	< 0.026
05/16/08	602	0.008 +- 0.002	< 0.038	11/14/08	624	0.015 +- 0.002	< 0.014
05/23/08	618	0.007 +- 0.002	< 0.016	11/21/08	628	0.012 +- 0.002	< 0.022
05/30/08	598	0.008 +- 0.002	< 0.035	11/25/08	237	0.026 +- 0.005	< 0.038
06/06/08	594	0.012 +- 0.002	< 0.024	12/05-26/08 b			
06/13/08	598	0.008 +- 0.002	< 0.019				
06/20/08	604	0.009 +- 0.002	< 0.021				
06/27/08	578	0.016 +- 0.002	< 0.023				
2nd Qtr				4th Qtr			
mean +- s.d.		0.013 +- 0.005	< 0.024	mean +- s.d.		0.019 +- 0.007	< 0.023

a - The air filter was positioned off center in the filter holder resulting in air leakage past the filter. Gross beta data is not available for the indicated sampling period.

b - Due to air an site equipment problem, the air site was not operating for the indicated collection period. Gross beta and air iodine results are not available.

Table 5. WI DHS air particulate gross beta and air iodine (I-131) analysis results from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m ³							
Site: PBK-18							
collection date	volume m ³	air particulate	air iodine	collection date	volume m ³	air particulate	air iodine
01/02/08	637	0.030 +- 0.002	< 0.021				
01/09/08	668	0.019 +- 0.002	< 0.020	07/09/08	803	0.012 +- 0.002	< 0.036
01/14/08	470	0.028 +- 0.003	< 0.040	07/14/08	446	0.008 +- 0.002	< 0.033
01/21/08	672	0.028 +- 0.002	< 0.018	07/21/08	623	0.017 +- 0.002	< 0.029
01/28/08	676	0.036 +- 0.003	< 0.017	07/28/08	628	0.013 +- 0.002	< 0.025
02/04/08	661	0.026 +- 0.002	< 0.020	08/04/08	618	0.011 +- 0.002	< 0.033
02/13/08	864	0.027 +- 0.002	< 0.020	08/11/08	604	0.010 +- 0.002	< 0.025
02/18/08	475	0.025 +- 0.003	< 0.028	08/18/08	611	0.015 +- 0.002	< 0.025
02/25/08	669	0.023 +- 0.002	< 0.026	08/25/08	621	0.014 +- 0.002	< 0.021
03/03/08	658	0.022 +- 0.002	< 0.026	09/02/08	709	0.023 +- 0.002	< 0.013
03/12/08	857	0.023 +- 0.002	< 0.022	09/10/08	698	0.013 +- 0.002	< 0.019
03/17/08	473	0.016 +- 0.003	< 0.035	09/15/08	454	0.011 +- 0.002	< 0.025
03/24/08	646	0.015 +- 0.002	< 0.027	09/22/08	617	0.017 +- 0.002	< 0.015
04/01/08	742	0.017 +- 0.002	< 0.009	09/29/08	628	0.030 +- 0.003	< 0.023
1st Qtr				3rd Qtr			
mean +- s.d.		0.024 +- 0.006	< 0.024	mean +- s.d.		0.015 +- 0.006	< 0.025
04/09/08	753	0.021 +- 0.002	< 0.019	10/08/08	806	0.013 +- 0.002	< 0.011
04/14/08	471	0.012 +- 0.002	< 0.029	10/14/08	555	0.022 +- 0.002	< 0.015
04/21/08	658	0.017 +- 0.002	< 0.026	10/20/08	549	0.016 +- 0.002	< 0.030
04/28/08	645	0.018 +- 0.002	< 0.017	10/27/08	641	0.016 +- 0.002	< 0.023
05/06/08	717	0.019 +- 0.002	< 0.019	11/03/08	629	0.024 +- 0.002	< 0.017
05/14/08	741	0.013 +- 0.002	< 0.017	11/12/08	835	0.020 +- 0.002	< 0.006
05/19/08	459	0.009 +- 0.002	< 0.031	11/17/08	482	0.018 +- 0.003	< 0.023
05/27/08	717	0.006 +- 0.002	< 0.045	11/24/08	631	0.016 +- 0.002	< 0.020
06/02/08	543	0.011 +- 0.002	< 0.034	12/02/08	771	0.020 +- 0.002	< 0.018
06/11/08	821	0.010 +- 0.002	< 0.017	12/10/08	748	0.019 +- 0.002	< 0.020
06/16/08	457	0.010 +- 0.002	< 0.018	12/15/08	485	0.025 +- 0.003	< 0.018
06/23/08	629	0.009 +- 0.002	< 0.015	12/22/08	664	0.033 +- 0.002	< 0.022
06/30/08	611	0.014 +- 0.002	< 0.042	12/29/08	648	0.041 +- 0.003	< 0.020
2nd Qtr				4th Qtr			
mean +- s.d.		0.013 +- 0.004	< 0.025	mean +- s.d.		0.022 +- 0.008	< 0.019

Table 6. WI DHS gamma isotopic analysis results from the quarterly composites of air particulate filters collected from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m ³				
Site: PBK-1	1st quarter	2nd quarter	3 rd quarter	4th quarter
Be-7	0.062 +- 0.002	0.076 +- 0.003	0.077 +- 0.003	0.068 +- 0.004
Mn-54	< 0.0004	< 0.0004	< 0.0004	< 0.0005
Co-58	< 0.0004	< 0.0004	< 0.0006	< 0.0006
Fe-59	< 0.0011	< 0.0010	< 0.0010	< 0.0011
Co-60	< 0.0004	< 0.0004	< 0.0004	< 0.0006
Zn-65	< 0.0009	< 0.0011	< 0.0009	< 0.0012
Nb-95	< 0.0006	< 0.0005	< 0.0004	< 0.0006
Zr-95	< 0.0008	< 0.0008	< 0.0008	< 0.0010
Ru-103	< 0.0005	< 0.0004	< 0.0005	< 0.0005
Ru-106	< 0.0030	< 0.0032	< 0.0049	< 0.0044
I-131	< 0.0026	< 0.0023	< 0.0016	< 0.0009
Cs-134	< 0.0004	< 0.0004	< 0.0005	< 0.0004
Cs-137	< 0.0004	< 0.0003	< 0.0004	< 0.0005
Ba-140	< 0.0041	< 0.0037	< 0.0032	< 0.0029
La-140	< 0.0019	< 0.0014	< 0.0013	< 0.0010
Ce-141	< 0.0007	< 0.0006	< 0.0005	< 0.0008
Ce-144	< 0.0021	< 0.0020	< 0.0014	< 0.0027
Site: PBK-4				
Be-7	0.068 +- 0.002	0.058 +- 0.002	0.063 +- 0.003	0.050 +- 0.003
Mn-54	< 0.0003	< 0.0003	< 0.0007	< 0.0003
Co-58	< 0.0004	< 0.0003	< 0.0005	< 0.0003
Fe-59	< 0.0009	< 0.0006	< 0.0017	< 0.0005
Co-60	< 0.0004	< 0.0003	< 0.0006	< 0.0003
Zn-65	< 0.0009	< 0.0008	< 0.0019	< 0.0007
Nb-95	< 0.0005	< 0.0003	< 0.0006	< 0.0004
Zr-95	< 0.0007	< 0.0005	< 0.0008	< 0.0005
Ru-103	< 0.0004	< 0.0003	< 0.0004	< 0.0002
Ru-106	< 0.0026	< 0.0023	< 0.0047	< 0.0022
I-131	< 0.0021	< 0.0010	< 0.0011	< 0.0006
Cs-134	< 0.0004	< 0.0003	< 0.0005	< 0.0002
Cs-137	< 0.0003	< 0.0002	< 0.0006	< 0.0002
Ba-140	< 0.0035	< 0.0022	< 0.0025	< 0.0014
La-140	< 0.0016	< 0.0011	< 0.0011	< 0.0006
Ce-141	< 0.0006	< 0.0004	< 0.0006	< 0.0004
Ce-144	< 0.0017	< 0.0014	< 0.0017	< 0.0013
Site: PBK-7				
Be-7	0.054 +- 0.002	0.072 +- 0.003	0.069 +- 0.002	0.048 +- 0.004
Mn-54	< 0.0003	< 0.0004	< 0.0002	< 0.0004
Co-58	< 0.0003	< 0.0005	< 0.0002	< 0.0004
Fe-59	< 0.0009	< 0.0012	< 0.0007	< 0.0011
Co-60	< 0.0003	< 0.0005	< 0.0002	< 0.0004
Zn-65	< 0.0008	< 0.0012	< 0.0006	< 0.0011
Nb-95	< 0.0004	< 0.0006	< 0.0003	< 0.0004
Zr-95	< 0.0006	< 0.0008	< 0.0004	< 0.0005
Ru-103	< 0.0003	< 0.0005	< 0.0003	< 0.0003
Ru-106	< 0.0025	< 0.0033	< 0.0018	< 0.0031
I-131	< 0.0020	< 0.0024	< 0.0020	< 0.0008
Cs-134	< 0.0003	< 0.0004	< 0.0002	< 0.0003
Cs-137	< 0.0003	< 0.0004	< 0.0002	< 0.0003
Ba-140	< 0.0031	< 0.0041	< 0.0027	< 0.0020
La-140	< 0.0015	< 0.0019	< 0.0017	< 0.0008
Ce-141	< 0.0005	< 0.0007	< 0.0003	< 0.0005
Ce-144	< 0.0015	< 0.0023	< 0.0006	< 0.0017

Radioisotopes other than those reported were not detected.

Table 6. WI DHS gamma isotopic analysis results from the quarterly composites of air particulate filters collected from the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/m ³				
Site: PBK-8	1st quarter	2nd quarter	3 rd quarter	4th quarter
Be-7	0.037 +- 0.0020	0.071 +- 0.002	0.056 +- 0.003	0.060 +- 0.004
Mn-54	< 0.0004	< 0.0003	< 0.0008	< 0.0004
Co-58	< 0.0003	< 0.0004	< 0.0006	< 0.0003
Fe-59	< 0.0014	< 0.0009	< 0.0014	< 0.0011
Co-60	< 0.0007	< 0.0004	< 0.0007	< 0.0003
Zn-65	< 0.0011	< 0.0008	< 0.0008	< 0.0007
Nb-95	< 0.0008	< 0.0005	< 0.0006	< 0.0005
Zr-95	< 0.0008	< 0.0006	< 0.0009	< 0.0007
Ru-103	< 0.0005	< 0.0003	< 0.0004	< 0.0004
Ru-106	< 0.0040	< 0.0025	< 0.0045	< 0.0031
I-131	< 0.0021	< 0.0022	< 0.0010	< 0.0015
Cs-134	< 0.0004	< 0.0003	< 0.0007	< 0.0004
Cs-137	< 0.0005	< 0.0003	< 0.0006	< 0.0004
Ba-140	< 0.0039	< 0.0037	< 0.0026	< 0.0024
La-140	< 0.0019	< 0.0014	< 0.0016	< 0.0013
Ce-141	< 0.0005	< 0.0005	< 0.0004	< 0.0006
Ce-144	< 0.0012	< 0.0015	< 0.0014	< 0.0017
Site: PBK-17				
Be-7	0.049 +- 0.0020	0.065 +- 0.002	0.059 +- 0.003	0.060 +- 0.005
Mn-54	< 0.0003	< 0.0001	< 0.0004	< 0.0005
Co-58	< 0.0003	< 0.0001	< 0.0005	< 0.0005
Fe-59	< 0.0008	< 0.0003	< 0.0012	< 0.0016
Co-60	< 0.0003	< 0.0001	< 0.0004	< 0.0004
Zn-65	< 0.0008	< 0.0003	< 0.0010	< 0.0013
Nb-95	< 0.0004	< 0.0002	< 0.0005	< 0.0007
Zr-95	< 0.0005	< 0.0002	< 0.0007	< 0.0010
Ru-103	< 0.0003	< 0.0001	< 0.0005	< 0.0007
Ru-106	< 0.0022	< 0.0008	< 0.0050	< 0.0034
I-131	< 0.0016	< 0.0005	< 0.0014	< 0.0058
Cs-134	< 0.0003	< 0.0001	< 0.0005	< 0.0004
Cs-137	< 0.0002	< 0.0001	< 0.0004	< 0.0004
Ba-140	< 0.0030	< 0.0010	< 0.0034	< 0.0069
La-140	< 0.0011	< 0.0005	< 0.0013	< 0.0043
Ce-141	< 0.0005	< 0.0001	< 0.0006	< 0.0011
Ce-144	< 0.0013	< 0.0003	< 0.0015	< 0.0021
Site: PBK-18				
Be-7	0.059 +- 0.002	0.058 +- 0.002	0.075 +- 0.003	0.058 +- 0.003
Mn-54	< 0.0002	< 0.0003	< 0.0004	< 0.0004
Co-58	< 0.0003	< 0.0003	< 0.0005	< 0.0004
Fe-59	< 0.0007	< 0.0008	< 0.0012	< 0.0009
Co-60	< 0.0003	< 0.0004	< 0.0005	< 0.0004
Zn-65	< 0.0007	< 0.0006	< 0.0018	< 0.0009
Nb-95	< 0.0004	< 0.0004	< 0.0005	< 0.0004
Zr-95	< 0.0005	< 0.0006	< 0.0007	< 0.0007
Ru-103	< 0.0003	< 0.0003	< 0.0003	< 0.0004
Ru-106	< 0.0020	< 0.0030	< 0.0048	< 0.0033
I-131	< 0.0017	< 0.0010	< 0.0008	< 0.0008
Cs-134	< 0.0002	< 0.0003	< 0.0004	< 0.0003
Cs-137	< 0.0002	< 0.0003	< 0.0005	< 0.0004
Ba-140	< 0.0029	< 0.0024	< 0.0023	< 0.0021
La-140	< 0.0014	< 0.0016	< 0.0013	< 0.0007
Ce-141	< 0.0004	< 0.0003	< 0.0005	< 0.0006
Ce-144	< 0.0012	< 0.0009	< 0.0016	< 0.0021

Radioisotopes other than those reported were not detected.

Table 7. WI DHS TLD network for the Point Beach – Kewaunee environmental monitoring program.

Date Placed:	01/04/08	04/02/08	07/02/08	10/02/08
Date Removed:	04/02/08	07/02/08	10/02/08	01/07/09
Days in the Field:	89	91	92	97

Individual quarterly date is reported as: mR / Standard Quarter + 2 sigma counting error.

TLD sites located at the Point Beach ISFSI.

1	31.5 +- 2.0	30.8 +- 1.3	29.2 +- 2.4	32.8 +- 1.8
2	60.8 +- 4.6	57.2 +- 3.8	56.4 +- 3.5	60.9 +- 4.0
3	27.9 +- 1.8	26.5 +- 1.4	26.6 +- 1.5	28.6 +- 1.5
4	22.3 +- 1.4	21.6 +- 0.7	21.2 +- 1.2	24.4 +- 0.6
5	21.2 +- 0.7	20.4 +- 0.7	19.5 +- 0.5	22.9 +- 0.8
6	44.5 +- 1.3	43.3 +- 3.0	41.1 +- 1.1	47.7 +- 3.0
7	69.0 +- 1.8	67.0 +- 2.1	67.3 +- 1.7	71.9 +- 1.6
8	29.8 +- 1.7	27.3 +- 2.0	28.1 +- 1.1	31.7 +- 1.7
Quarterly average +- s.d.	38.4 +- 18.0	36.8 +- 17.3	36.2 +- 17.4	40.1 +- 18.1

TLD sites, excluding sites 1-8, that are located 0 – 2 miles from either the Point Beach or the Kewaunee facility.

9	12.6 +- 0.9	12.9 +- 0.9	13.2 +- 0.7	15.1 +- 1.0
10	14.0 +- 0.7	15.4 +- 1.2	14.8 +- 0.5	17.7 +- 1.0
11	13.2 +- 0.9	13.7 +- 0.9	14.0 +- 0.7	16.0 +- 0.7
12	12.9 +- 0.8	13.7 +- 0.9	14.0 +- 0.8	16.3 +- 0.9
13	13.7 +- 0.9	14.2 +- 0.8	14.2 +- 0.8	16.1 +- 0.7
14	13.3 +- 0.7	14.2 +- 0.8	14.5 +- 1.2	16.5 +- 0.9
19	13.8 +- 0.8	13.6 +- 1.0	14.4 +- 0.7	16.0 +- 1.1
20	13.4 +- 0.7	13.5 +- 0.6	14.1 +- 0.5	16.0 +- 0.5
21	12.1 +- 0.8	14.6 +- 0.7	15.0 +- 0.6	16.6 +- 0.7
22	14.6 +- 0.7	17.6 +- 0.6	17.3 +- 0.5	19.4 +- 0.8
Quarterly average +- s.d.	13.4 +- 0.7	14.3 +- 1.3	14.6 +- 1.1	16.6 +- 1.2

TLD sites that are located 2 – 5 miles from either the Point Beach or the Kewaunee facility.

15	13.8 +- 1.0	14.3 +- 1.0	14.4 +- 0.9	16.7 +- 0.9
16	11.7 +- 1.1	11.6 +- 0.5	11.2 +- 0.9	13.4 +- 0.4
17	14.1 +- 0.9	13.6 +- 0.7	14.8 +- 0.6	15.5 +- 0.6
18	14.0 +- 0.7	17.1 +- 0.8	16.5 +- 0.4	19.3 +- 0.7
23	15.0 +- 0.8	14.9 +- 0.9	16.2 +- 0.5	17.0 +- 0.9
24	11.3 +- 0.9	12.0 +- 0.6	11.8 +- 0.7	14.1 +- 0.5
25	13.5 +- 0.9	16.8 +- 0.6	17.2 +- 0.7	18.7 +- 0.6
26	12.8 +- 0.7	14.1 +- 1.0	13.5 +- 0.6	16.5 +- 1.1
Quarterly average +- s.d.	13.3 +- 1.3	14.3 +- 2.0	14.5 +- 2.2	16.4 +- 2.0

TLD sites that are located greater than 5 miles from either the Point Beach or the Kewaunee facility.

27	11.8 +- 0.6	10.7 +- 0.7	11.8 +- 0.8	12.4 +- 1.1
28	12.5 +- 0.6	12.2 +- 0.8	12.8 +- 0.6	14.2 +- 0.8
29	11.4 +- 0.6	11.1 +- 0.8	10.9 +- 0.5	13.1 +- 0.9
30	12.8 +- 0.6	13.1 +- 0.6	13.4 +- 0.6	15.5 +- 0.7
31	11.8 +- 0.7	9.8 +- 0.7	11.7 +- 0.5	12.1 +- 0.5
Quarterly average +- s.d.	12.1 +- 0.6	11.4 +- 1.3	12.1 +- 1.0	13.5 +- 1.4

Table 8. WI DHS analysis results for precipitation samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of nCi/m²

monthly composite sample

Collection	inches	gross beta	tritium
01/23/08	2.92	0.52 +- 0.15	< 13
02/20/08	2.68	0.48 +- 0.14	< 12
03/19/08	0.78	0.12 +- 0.04	< 3.6
05/08/08	6.02	< 0.37	< 28
05/21/08	0.19	0.04 +- 0.01	< 0.9
06/04/08	0.87	0.13 +- 0.03	< 4.0
07/23/08	12.49	< 0.51	< 57
08/08/08	0.98	0.07 +- 0.05	< 4.7
09/17/08	1.56	0.12 +- 0.06	< 7.1
10/23/08	1.76	0.16 +- 0.07	< 8.5
11/19/08	1.55	0.24 +- 0.08	< 7.5
12/23/08	3.04	0.46 +- 0.15	< 15

Table 9. WI DHS analysis results for fish samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

Collection	03/11/08	03/11/08	03/11/08	06/16/08	06/16/08	06/16/08
Type	small mouth bass	catfish	sucker	lake trout	brown trout	whitefish
gamma isotopic						
K-40	4300 +- 300	3500 +- 300	2770 +- 80	3300 +- 200	3340 +- 100	3300 +- 200
Mn-54	< 29	< 29	< 5	< 16	< 5	< 25
Co-58	< 42	< 34	< 5	< 15	< 6	< 22
Fe-59	< 70	< 70	< 13	< 40	< 13	< 60
Co-60	< 38	< 38	< 6	< 23	< 7	< 21
Zn-65	< 100	< 80	< 14	< 38	< 16	< 70
Cs-134	< 37	< 33	< 6	< 17	< 5	< 27
Cs-137	< 30	49 +- 11	12 +- 2	25 +- 5	30 +- 2	27 +- 8
Collection	09/10/08	09/10/08	09/10/08	10/04/08	09/24/08	11/12/08
Type	lawyer	white sucker	white sucker	chinook	chinook	brown trout
gamma isotopic						
K-40	2100 +- 200	2900 +- 300	2700 +- 300	3030 +- 110	2610 +- 74	2770 +- 110
Mn-54	< 32	< 19	< 43	< 7	< 2	< 5
Co-58	< 47	< 39	< 38	< 11	< 4	< 7
Fe-59	< 60	< 60	< 53	< 47	< 18	< 21
Co-60	< 34	< 36	< 32	< 7	< 2	< 7
Zn-65	< 120	< 110	< 130	< 21	< 8	< 15
Cs-134	< 37	< 19	< 25	< 6	< 2	< 5
Cs-137	35 +- 11	< 31	< 24	37 +- 2	30 +- 2	34 +- 4

Radioisotopes other than those reported were not detected.

Table 10. WI DHS analysis results for shoreline sediment samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/kilogram (dry)

Collection date:	09/03/08	09/02/08	09/03/08	
Site	PBK-5	PBK-6	PBK-10a	
gross alpha	< 8000	< 8000	< 8000	
gross beta	8000 +- 4000	< 6000	7000 +- 4000	
gamma isotopic				
K-40	8700 +- 500	4900 +- 200	5230 +- 140	
Mn-54	< 43	< 7	< 6	
Co-58	< 50	< 7	< 5	
Fe-59	< 180	< 14	< 14	
Co-60	< 70	< 8	< 7	
Zn-65	< 200	< 15	< 22	
Nb-95	< 43	< 7	< 5	
Zr-95	< 70	< 12	< 9	
Cs-134	< 35	< 6	< 7	
Cs-137	< 38	15 +- 3	22 +- 2	

Collection date:	09/03/08	09/03/08	09/03/08	09/03/08
Site	PBK-12a	PBK-12b	PBK-12c	PBK-26
gross alpha	< 8000	< 8000	< 8000	< 8000
gross beta	< 6000	8000 +- 4000	10000 +- 4000	11000 +- 4000
gamma isotopic				
K-40	6500 +- 200	8600 +- 300	6100 +- 400	11400 +- 600
Mn-54	< 2	< 18	< 60	< 53
Co-58	< 2	< 18	< 29	< 52
Fe-59	< 6	< 42	< 70	< 100
Co-60	< 3	< 17	< 57	< 40
Zn-65	< 7	< 70	< 200	< 210
Nb-95	< 3	< 18	< 49	< 80
Zr-95	< 4	< 23	< 90	< 110
Cs-134	< 2	< 19	< 60	< 60
Cs-137	17 +- 1	< 18	< 46	41 +- 12

Naturally occurring radioisotopes such as radium-226 (²²⁶Ra), bismuth-214 (²¹⁴Bi), lead-214 (²¹⁴Pb), actinium-228 (²²⁸Ac), bismuth-212 (²¹²Bi), lead-212 (²¹²Pb) from the naturally occurring uranium-238 (²³⁸U) and thorium-232 (²³²Th) decay series are commonly detected but have not been quantified or reported.

Radioisotopes other than those reported were not detected.

Table 11. WI DHS analysis results for surface water samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-9; Point Beach meteorological tower

Collection date:	01/16/08	02/14/08	03/13/08	04/11/08	05/15/08	06/12/08
gross alpha-sol	< 2.0	< 1.9	3.0 +- 2.0	< 1.8	< 1.9	< 3.0
gross beta-sol	< 3.0	< 3.0	4.0 +- 2.0	< 3.0	3.0 +- 2.0	< 1.7
gross alpha-insol	< 1.1	1.6 +- 1.2	< 1.2	< 1.1	< 1.0	< 1.9
gross beta-insol	< 2.5	< 2.5	< 2.4	< 2.4	< 2.4	< 1.7
I-131	< 0.1	< 0.1		< 0.1	< 0.2	
H-3 *a			< 180			< 180
Sr-89 *a			< 0.4			< 0.6
Sr-90 *a			< 0.3			0.5 +- 0.3
gamma isotopic						
Mn-54	< 5	< 6	< 5	< 6	< 5	< 5
Co-58	< 5	< 5	< 6	< 6	< 5	< 6
Fe-59	< 12	< 10	< 11	< 13	< 11	< 12
Co-60	< 6	< 5	< 7	< 7	< 6	< 5
Zn-65	< 13	< 14	< 15	< 16	< 13	< 12
Nb-95	< 6	< 6	< 5	< 7	< 5	< 6
Zr-95	< 10	< 9	< 11	< 11	< 9	< 9
I-131	< 8	< 8	< 8	< 14	< 8	< 12
Cs-134	< 5	< 6	< 6	< 6	< 6	< 5
Cs-137	< 6	< 5	< 6	< 6	< 6	< 5
Ba-140	< 25	< 22	< 25	< 36	< 24	< 30
La-140	< 11	< 9	< 9	< 12	< 8	< 15
Collection date:	07/16/08	08/14/08	09/12/08	10/15/08	11/13/08	* b
gross alpha-sol	< 1.7	< 2.0	< 2.0	< 2.0	< 1.9	
gross beta-sol	1.4 +- 0.8	< 3.0	< 2.6	< 2.6	< 2.5	
gross alpha-insol	< 2.1	< 1.2	< 1.2	< 1.2	< 1.3	
gross beta-insol	< 1.6	< 2.4	< 2.4	< 2.4	< 2.3	
I-131	< 0.1			< 0.3	< 0.1	
H-3 *a			< 180			< 190
Sr-89 *a			< 0.5			< 0.4
Sr-90 *a			< 0.3			< 0.3
gamma isotopic						
Mn-54	< 5	< 7	< 7	< 6	< 6	
Co-58	< 5	< 7	< 8	< 5	< 5	
Fe-59	< 11	< 14	< 15	< 9	< 13	
Co-60	< 5	< 7	< 10	< 7	< 7	
Zn-65	< 13	< 16	< 18	< 14	< 16	
Nb-95	< 6	< 6	< 8	< 4	< 6	
Zr-95	< 9	< 11	< 13	< 8	< 9	
I-131	< 8	< 11	< 12	< 6	< 7	
Cs-134	< 6	< 7	< 8	< 5	< 6	
Cs-137	< 5	< 7	< 8	< 5	< 6	
Ba-140	< 24	< 29	< 30	< 18	< 24	
La-140	< 9	< 10	< 14	< 9	< 10	

*a - Analysis is performed on a quarterly composite.

*b - Due to safety concerns, a sample for December was not collected.

Radioisotopes other than those reported were not detected.

Table 11. WI DHS analysis results for surface water samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-12a; Kewaunee effluent channel

Collection date:	01/02/08	02/04/08	03/03/08	04/01/08	05/01/08	06/01/08
gross alpha-sol	< 1.4	< 1.8	< 1.8	< 1.9	< 1.7	< 2.5
gross beta-sol	2.4 +- 1.4	< 3.0	< 2.6	4.0 +- 2.0	< 3.0	< 1.7
gross alpha-insol	< 0.9	< 1.1	< 1.1	< 1.1	< 1.0	< 1.2
gross beta-insol	< 2.0	< 2.5	< 2.4	< 2.4	< 2.4	< 1.2
I-131	< 0.3	< 0.2		0.8 +- 0.2	< 0.6	
H-3 *			220 +- 120			< 180
Sr-89 *			0.8 +- 0.4			< 0.7
Sr-90 *			< 0.3			0.6 +- 0.3
gamma isotopic						
Mn-54	< 6	< 6	< 8	< 6	< 5	< 4
Co-58	< 6	< 6	< 6	< 6	< 5	< 4
Fe-59	< 14	< 13	< 13	< 13	< 11	< 9
Co-60	< 7	< 6	< 7	< 6	< 6	< 4
Zn-65	< 16	< 16	< 19	< 16	< 15	< 10
Nb-95	< 7	< 6	< 8	< 7	< 6	< 5
Zr-95	< 12	< 10	< 13	< 11	< 10	< 8
I-131	< 10	< 8	< 9	< 11	< 8	< 14
Cs-134	< 7	< 7	< 8	< 7	< 6	< 4
Cs-137	< 6	< 6	< 7	< 6	< 5	< 4
Ba-140	< 29	< 23	< 27	< 29	< 25	< 31
La-140	< 10	< 9	< 9	< 12	< 9	< 11
Collection date:	07/01/08	08/04/08	09/02/08	10/01/08	11/03/08	12/01/08
gross alpha-sol	< 3.0	< 1.9	< 2.1	< 2.0	1.9 +- 1.3	< 1.6
gross beta-sol	< 1.8	< 1.3	< 2.6	< 3.0	3.5 +- 1.2	3.7 +- 1.2
gross alpha-insol	< 1.6	< 1.7	< 1.2	< 1.2	< 1.4	< 1.6
gross beta-insol	< 1.6	< 1.7	< 2.4	< 2.4	< 2.3	< 3.0
I-131	< 0.4				< 0.2	4.0 +- 2.0
H-3 *			< 180			3250 +- 160
Sr-89 *			< 0.5			< 0.6
Sr-90 *			< 0.3			< 0.3
gamma isotopic						
Mn-54	< 5	< 6	< 9	< 5	< 7	< 8
Co-58	< 5	< 5	< 9	< 5	< 6	< 7
Fe-59	< 11	< 10	< 18	< 11	< 15	< 15
Co-60	< 6	< 6	< 9	< 7	< 8	< 7
Zn-65	< 14	< 14	< 26	< 13	< 18	< 20
Nb-95	< 6	< 5	< 7	< 5	< 7	< 7
Zr-95	< 9	< 9	< 15	< 9	< 14	< 15
I-131	< 10	< 7	< 10	< 5	< 7	< 9
Cs-134	< 5	< 6	< 8	< 5	< 7	< 6
Cs-137	< 6	< 5	< 8	< 5	< 7	< 6
Ba-140	< 28	< 23	< 32	< 17	< 23	< 23
La-140	< 9	< 8	< 15	< 8	< 11	< 12

* - Analysis is performed on a quarterly composite.

Radioisotopes other than those reported were not detected.

Table 11. WI DHS analysis results for surface water samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-17; Green Bay Water Utility - Rostok

Collection date:	01/07/08	02/05/08	03/04/08	04/08/08	05/07/08	06/02/08
gross alpha-sol	< 1.3	< 1.7	< 1.7	< 1.7	< 1.7	< 2.0
gross beta-sol	< 2.1	< 2.6	< 2.6	< 2.0	< 2.6	< 1.8
gross alpha-insol	< 0.9	< 1.0	< 1.0	< 1.0	< 1.0	< 1.1
gross beta-insol	< 2.0	< 2.4	< 2.4	< 2.4	< 2.4	< 1.1
I-131	< 0.2	< 0.2		< 0.1	< 0.3	
H-3 *			< 180			< 180
Sr-89 *			< 0.5			< 0.7
Sr-90 *			< 0.3			< 0.1
gamma isotopic						
Mn-54	< 5	< 5	< 5	< 5	< 6	< 7
Co-58	< 5	< 5	< 5	< 5	< 6	< 6
Fe-59	< 13	< 10	< 10	< 8	< 11	< 14
Co-60	< 7	< 6	< 6	< 7	< 6	< 8
Zn-65	< 15	< 12	< 13	< 12	< 16	< 18
Nb-95	< 5	< 5	< 5	< 5	< 6	< 7
Zr-95	< 10	< 9	< 7	< 7	< 10	< 12
I-131	< 5	< 5	< 5	< 5	< 7	< 9
Cs-134	< 6	< 5	< 4	< 5	< 7	< 8
Cs-137	< 6	< 5	< 5	< 5	< 6	< 7
Ba-140	< 19	< 17	< 17	< 16	< 22	< 30
La-140	< 10	< 7	< 8	< 7	< 7	< 10
Collection date:	07/07/08	08/04/08	09/08/08	10/06/08	11/03/08	12/01/08
gross alpha-sol	< 2.5	< 1.6	< 2.0	< 2.0	< 1.9	4.0 +- 2.0
gross beta-sol	< 1.8	1.4 +- 0.8	< 2.6	< 2.6	3.0 +- 2.0	4.0 +- 2.0
gross alpha-insol	< 1.5	< 1.6	< 1.2	< 1.2	< 1.2	< 1.2
gross beta-insol	< 1.6	< 1.7	< 2.4	< 2.4	< 2.3	< 2.3
I-131	< 0.2			< 0.7	< 0.2	< 0.3
H-3 *			< 180			< 190
Sr-89 *			< 0.5			< 0.6
Sr-90 *			< 0.3			< 0.3
gamma isotopic						
Mn-54	< 5	< 7	< 8	< 7	< 7	< 7
Co-58	< 5	< 6	< 7	< 6	< 7	< 6
Fe-59	< 10	< 12	< 14	< 11	< 13	< 15
Co-60	< 6	< 6	< 8	< 6	< 8	< 7
Zn-65	< 14	< 16	< 23	< 13	< 14	< 16
Nb-95	< 6	< 6	< 8	< 6	< 8	< 6
Zr-95	< 9	< 11	< 14	< 10	< 11	< 10
I-131	< 7	< 7	< 9	< 6	< 7	< 6
Cs-134	< 6	< 7	< 9	< 6	< 7	< 7
Cs-137	< 5	< 6	< 9	< 7	< 6	< 5
Ba-140	< 22	< 24	< 31	< 20	< 26	< 23
La-140	< 7	< 8	< 11	< 8	< 8	< 10

* - Analysis is performed on a quarterly composite.

Radioisotopes other than those reported were not detected.

Table 11. WI DHS analysis results for surface water samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

	PBK-5	PBK-25	PBK-5	PBK-25
Collection date:	05/28/08	05/28/08	09/03/08	09/03/08
gross alpha-sol	< 1.9	< 1.9	< 3.0	< 2.0
gross beta-sol	3.0 +- 2.0	< 3.0	< 3.0	< 3.0
gross alpha-insol	< 1.7	< 1.1	< 1.7	< 1.4
gross beta-insol	3.0 +- 2.0	< 2.4	3.0 +- 2.0	< 2.5
H-3	< 180	< 180	< 180	< 180
Sr-89	< 0.9	< 0.8	0.7 +- 0.4	< 0.5
Sr-90	< 0.4	< 0.1	< 0.4	< 0.3
gamma isotopic				
Mn-54	< 10	< 8	< 8	< 7
Co-58	< 8	< 7	< 7	< 8
Fe-59	< 18	< 17	< 15	< 14
Co-60	< 9	< 6	< 8	< 10
Zn-65	< 22	< 20	< 17	< 23
Nb-95	< 9	< 8	< 6	< 8
Zr-95	< 15	< 14	< 10	< 14
I-131	< 14	< 15	< 6	< 11
Cs-134	< 9	< 8	< 7	< 9
Cs-137	< 8	< 8	< 6	< 9
Ba-140	< 37	< 39	< 21	< 35
La-140	< 13	< 15	< 10	< 14

Radioisotopes other than those reported were not detected.

Table 12. WI DHS analysis results for well water samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

	PBK-3	PBK-10	PBK-11	PBK-12d N	PBK-12d S
Collection date:	05/27/08	04/11/08	05/28/08	05/28/08	05/28/08
gross alpha	< 2.0	5.0 +- 2.0	< 3.0	< 4.0	6.0 +- 2.0
gross beta	< 2.6	1.3 +- 0.6	< 1.1	1.7 +- 0.7	3.0 +- 0.7
H-3	< 180	< 180	< 180	< 180	< 180
Collection date:	09/02/08	10/15/08	09/03/08	09/03/08	09/03/08
gross alpha	< 2.1	< 2.6	< 2.4	6.0 +- 2.0	< 3.0
gross beta	< 1.4	< 3.0	1.1 +- 0.6	2.2 +- 0.7	2.4 +- 0.7
H-3	< 180	< 190	< 180	< 180	< 180

Table 13. WI DHS analysis results for milk samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-19; Funk farm

Collection date:	01/09/08	02/13/08	03/12/08	04/09/08	05/14/08	06/11/08
I-131	< 0.4	< 0.2		< 0.2	< 0.4	
Sr-90	0.8 +- 0.2	< 0.4	< 0.4	< 0.4	0.6 +- 0.3	0.4 +- 0.2
gamma isotopic						
K-40	1530 +- 90	1340 +- 80	1380 +- 50	1410 +- 50	1430 +- 50	1360 +- 50
Mn-54	< 10	< 10	< 5	< 6	< 7	< 7
Co-58	< 12	< 7	< 6	< 5	< 5	< 6
Fe-59	< 22	< 26	< 11	< 13	< 14	< 16
Co-60	< 10	< 11	< 5	< 8	< 6	< 9
Zn-65	< 31	< 24	< 13	< 14	< 15	< 17
Nb-95	< 13	< 10	< 5	< 5	< 6	< 8
Zr-95	< 17	< 17	< 8	< 9	< 10	< 11
I-131	< 9	< 8	< 5	< 5	< 8	< 9
Cs-134	< 11	< 8	< 5	< 5	< 6	< 7
Cs-137	< 10	< 10	< 5	< 5	< 6	< 6
Ba-140	< 35	< 26	< 17	< 17	< 23	< 27
La-140	< 14	< 13	< 8	< 8	< 9	< 13
Collection date:	07/09/08	08/13/08	09/10/08	10/08/08	11/12/08	12/10/08
I-131	< 0.5			< 1.1	< 0.2	< 0.3
Sr-90	0.4 +- 0.2	0.7 +- 0.3	< 0.4	0.8 +- 0.3	0.6 +- 0.2	< 0.5
gamma isotopic						
K-40	1380 +- 60	1540 +- 60	1390 +- 60	1390 +- 50	1250 +- 130	1810 +- 150
Mn-54	< 7	< 4	< 7	< 5	< 12	< 11
Co-58	< 7	< 4	< 7	< 5	< 11	< 12
Fe-59	< 17	< 8	< 16	< 12	< 21	< 24
Co-60	< 8	< 4	< 9	< 5	< 13	< 15
Zn-65	< 21	< 10	< 17	< 11	< 29	< 24
Nb-95	< 8	< 4	< 6	< 5	< 11	< 13
Zr-95	< 11	< 6	< 12	< 8	< 17	< 19
I-131	< 10	< 5	< 8	< 13	< 14	< 12
Cs-134	< 7	< 4	< 6	< 4	< 10	< 10
Cs-137	< 7	< 4	< 7	< 4	< 12	< 11
Ba-140	< 28	< 14	< 24	< 29	< 39	< 35
La-140	< 13	< 5	< 11	< 13	< 15	< 9

Radioisotopes other than those reported were not detected.

Table 13. WI DHS analysis results for milk samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-24; Struck farm

Collection date:	01/09/08	02/13/08	03/12/08	04/09/08	05/14/08	06/11/08
I-131	< 0.4	< 0.2		< 0.2	< 0.4	
Sr-90	< 0.3	< 0.4	0.6 +- 0.3	< 0.4	< 0.5	0.6 +- 0.3
gamma isotopic						
K-40	1450 +- 60	1260 +- 60	1410 +- 60	1420 +- 50	1420 +- 50	870 +- 40
Mn-54	< 6	< 6	< 7	< 6	< 5	< 5
Co-58	< 7	< 7	< 6	< 6	< 5	< 5
Fe-59	< 16	< 16	< 12	< 13	< 12	< 12
Co-60	< 9	< 10	< 7	< 6	< 6	< 6
Zn-65	< 17	< 17	< 18	< 16	< 15	< 16
Nb-95	< 7	< 7	< 6	< 6	< 6	< 6
Zr-95	< 12	< 10	< 11	< 10	< 9	< 9
I-131	< 6	< 6	< 5	< 7	< 7	< 7
Cs-134	< 6	< 7	< 6	< 7	< 6	< 6
Cs-137	< 7	< 6	< 6	< 6	< 5	< 5
Ba-140	< 22	< 22	< 19	< 23	< 22	< 25
La-140	< 11	< 11	< 9	< 8	< 7	< 9
Collection date:	07/09/08	08/13/08	09/10/08	10/08/08	11/12/08	12/10/08
I-131	< 0.5			< 1.3	< 0.2	< 0.3
Sr-90	0.4 +- 0.2	0.5 +- 0.2	< 0.4	0.6 +- 0.3	0.6 +- 0.2	< 0.5
gamma isotopic						
K-40	1300 +- 70	1490 +- 80	1320 +- 60	1730 +- 146	1530 +- 150	1410 +- 140
Mn-54	< 9	< 9	< 7	< 12	< 11	< 12
Co-58	< 9	< 11	< 7	< 12	< 12	< 12
Fe-59	< 24	< 24	< 15	< 29	< 23	< 21
Co-60	< 11	< 13	< 7	< 11	< 11	< 13
Zn-65	< 26	< 24	< 19	< 32	< 28	< 34
Nb-95	< 10	< 10	< 7	< 13	< 14	< 12
Zr-95	< 17	< 18	< 12	< 20	< 23	< 15
I-131	< 15	< 15	< 8	< 13	< 12	< 11
Cs-134	< 9	< 10	< 7	< 7	< 10	< 10
Cs-137	< 11	< 9	< 7	< 7	< 10	< 11
Ba-140	< 43	< 40	< 25	< 44	< 28	< 38
La-140	< 12	< 12	< 10	< 15	< 14	< 14

Radioisotopes other than those reported were not detected.

Table 13. WI DHS analysis results for milk samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/liter

PBK-27; R. Barta farm

Collection date:	01/09/08	02/13/08	03/12/08	04/09/08	05/14/08	06/11/08
I-131	0.5 +- 0.2	< 0.2		< 0.2	< 0.4	
Sr-90	0.5 +- 0.2	0.5 +- 0.2	0.8 +- 0.2	0.6 +- 0.2	< 0.4	0.6 +- 0.3
gamma isotopic						
K-40	1420 +- 60	1490 +- 60	1710 +- 100	1420 +- 80	1450 +- 50	1460 +- 50
Mn-54	< 7	< 7	< 11	< 10	< 6	< 5
Co-58	< 6	< 6	< 12	< 10	< 5	< 6
Fe-59	< 14	< 14	< 22	< 19	< 14	< 13
Co-60	< 8	< 8	< 13	< 10	< 6	< 8
Zn-65	< 18	< 16	< 32	< 27	< 15	< 15
Nb-95	< 6	< 7	< 14	< 9	< 6	< 7
Zr-95	< 12	< 12	< 13	< 17	< 10	< 10
I-131	< 7	< 7	< 11	< 9	< 6	< 14
Cs-134	< 8	< 7	< 13	< 8	< 6	< 6
Cs-137	< 7	< 7	< 11	< 8	< 5	< 5
Ba-140	< 23	< 24	< 42	< 34	< 19	< 29
La-140	< 8	< 7	< 14	< 13	< 10	< 15

Collection date:	07/09/08	08/13/08	09/10/08	10/08/08	11/12/08	12/10/08
I-131	< 0.5			< 1.1	< 0.2	< 0.3
Sr-90	0.6 +- 0.2	0.8 +- 0.3	0.5 +- 0.3	0.7 +- 0.3	0.9 +- 0.3	0.6 +- 0.3
gamma isotopic						
K-40	1410 +- 60	1510 +- 70	1500 +- 60	1560 +- 70	1600 +- 130	1480 +- 128
Mn-54	< 6	< 7	< 6	< 8	< 12	< 11
Co-58	< 8	< 7	< 6	< 7	< 11	< 8
Fe-59	< 17	< 15	< 14	< 16	< 28	< 21
Co-60	< 8	< 8	< 7	< 8	< 12	< 11
Zn-65	< 19	< 17	< 17	< 18	< 22	< 24
Nb-95	< 7	< 7	< 5	< 6	< 10	< 10
Zr-95	< 12	< 12	< 10	< 11	< 18	< 16
I-131	< 9	< 10	< 7	< 7	< 14	< 13
Cs-134	< 6	< 7	< 5	< 6	< 12	< 9
Cs-137	< 6	< 6	< 6	< 7	< 12	< 11
Ba-140	< 27	< 27	< 23	< 22	< 49	< 33
La-140	< 15	< 10	< 10	< 11	< 14	< 11

Radioisotopes other than those reported were not detected.

Table 14. WI DHS analysis results for vegetation samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/kilogram (wet)

Site:	PBK-1	PBK-2	PBK-3	PBK-4	PBK-5
Collection date:	05/27/08	05/27/08	05/27/08	05/27/08	05/28/08
gross alpha	< 2500	< 2400	< 2300	< 2000	< 2200
gross beta	6300 +- 1300	7100 +- 1300	5900 +- 1200	5900 +- 1100	6500 +- 1200
gamma isotopic					
Be-7	590 +- 90	< 340	890 +- 110	< 390	< 320
K-40	4500 +- 300	6600 +- 400	4900 +- 300	5200 +- 400	6100 +- 400
Mn-54	< 41	< 39	< 49	< 54	< 49
Co-58	< 38	< 44	< 37	< 52	< 44
Fe-59	< 90	< 110	< 120	< 120	< 110
Co-60	< 54	< 41	< 52	< 51	< 55
Zn-65	< 120	< 90	< 130	< 110	< 110
Nb-95	< 50	< 47	< 46	< 60	< 50
Zr-95	< 70	< 80	< 80	< 90	< 100
I-131	< 80	< 80	< 80	< 80	< 80
Cs-134	< 49	< 48	< 49	< 46	< 52
Cs-137	< 38	< 44	< 46	< 39	< 36
Ba-140	< 220	< 190	< 220	< 240	< 200
La-140	< 60	< 80	< 100	< 80	< 60

Site:	PBK-7	PBK-8	PBK-14	PBK-17	PBK-25
Collection date:	05/27/08	05/27/08	05/28/08	05/28/08	05/28/08
gross alpha	< 3000	< 1900	< 2200	< 3000	< 3000
gross beta	8700 +- 1400	6800 +- 1100	5900 +- 1200	7000 +- 1300	5100 +- 1500
gamma isotopic					
Be-7	520 +- 120	< 350	500 +- 90	310 +- 90	600 +- 100
K-40	6100 +- 400	6500 +- 300	6100 +- 300	6300 +- 400	3900 +- 300
Mn-54	< 53	< 39	< 37	< 41	< 41
Co-58	< 47	< 40	< 22	< 34	< 42
Fe-59	< 130	< 80	< 70	< 100	< 90
Co-60	< 47	< 55	< 40	< 70	< 42
Zn-65	< 150	< 110	< 100	< 90	< 110
Nb-95	< 41	< 48	< 27	< 55	< 36
Zr-95	< 80	< 60	< 70	< 60	< 80
I-131	< 80	< 70	< 55	< 70	< 80
Cs-134	< 44	< 42	< 31	< 41	< 46
Cs-137	< 37	< 33	< 37	< 42	< 36
Ba-140	< 200	< 200	< 100	< 210	< 200
La-140	< 90	< 70	< 90	< 100	< 70

Radioisotopes other than those reported were not detected.

Table 14. WI DHS analysis results for vegetation samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/kilogram (wet)

Site:	PBK-1	PBK-2	PBK-3	PBK-4	PBK-5
Collection date:	09/02/08	09/02/08	09/02/08	09/02/08	09/03/08
gross alpha	< 4000	< 4000	< 3000	< 4000	< 3000
gross beta	10000 +- 2000	6000 +- 2000	5200 +- 1300	7000 +- 2000	6800 +- 1500
gamma isotopic					
Be-7	1600 +- 200	1050 +- 60	520 +- 120	1600 +- 200	600 +- 200
K-40	5200 +- 500	5300 +- 200	5100 +- 500	6000 +- 500	7700 +- 600
Mn-54	< 70	< 19	< 47	< 44	< 60
Co-58	< 56	< 17	< 60	< 80	< 90
Fe-59	< 150	< 45	< 120	< 190	< 180
Co-60	< 43	< 24	< 80	< 46	< 90
Zn-65	< 120	< 50	< 130	< 190	< 190
Nb-95	< 60	< 21	< 51	< 70	< 80
Zr-95	< 120	< 36	< 110	< 120	< 110
I-131	< 70	< 21	< 54	< 70	< 70
Cs-134	< 70	< 19	< 45	< 46	< 60
Cs-137	< 60	< 19	< 60	< 45	< 60
Ba-140	< 210	< 80	< 190	< 260	< 210
La-140	< 49	< 29	< 90	< 90	< 90

Site:	PBK-7	PBK-8	PBK-14	PBK-17	PBK-25
Collection date:	09/02/08	09/03/08	09/02/08	09/03/08	09/03/08
gross alpha	< 4000	< 2000	< 4000	< 4000	< 5000
gross beta	7000 +- 2000	9100 +- 1400	7000 +- 2000	5000 +- 2000	4000 +- 2000
gamma isotopic					
Be-7	1900 +- 200	460 +- 150	1800 +- 200	1470 +- 100	< 600
K-40	5700 +- 400	6700 +- 600	5900 +- 500	4400 +- 300	4600 +- 400
Mn-54	< 50	< 54	< 70	< 29	< 60
Co-58	< 60	< 60	< 70	< 33	< 50
Fe-59	< 100	< 140	< 140	< 70	< 150
Co-60	< 100	< 60	< 90	< 38	< 70
Zn-65	< 150	< 170	< 170	< 100	< 190
Nb-95	< 58	< 60	< 60	< 30	< 60
Zr-95	< 110	< 60	< 60	< 60	< 130
I-131	< 52	< 60	< 70	< 30	< 70
Cs-134	< 60	< 60	< 53	< 34	< 70
Cs-137	< 60	< 70	< 60	< 32	< 60
Ba-140	< 170	< 210	< 240	< 120	< 220
La-140	< 60	< 80	< 80	< 44	< 100

Radioisotopes other than those reported were not detected.

Table 15. WI DHS analysis results for soil samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/kilogram (dry)

Site:	PBK-1	PBK-2	PBK-3	PBK-4	PBK-5
Collection date:	05/27/08	05/27/08	05/27/08	05/27/08	05/28/08
gross alpha	< 8000	13000 +- 8000	14000 +- 8000	11000 +- 8000	9000 +- 7000
gross beta	21000 +- 4000	30000 +- 5000	26000 +- 5000	27000 +- 5000	29000 +- 5000
gamma isotopic					
K-40	14100 +- 600	20900 +- 600	22200 +- 600	19000 +- 700	19700 +- 700
Mn-54	< 30	< 14	< 19	< 31	< 41
Co-58	< 29	< 12	< 17	< 29	< 45
Fe-59	< 70	< 41	< 60	< 90	< 120
Co-60	< 18	< 15	< 21	< 32	< 60
Zn-65	< 80	< 38	< 52	< 80	< 180
Nb-95	< 38	< 21	< 28	< 42	< 49
Zr-95	< 50	< 23	< 35	< 43	< 70
Cs-134	< 27	< 13	< 19	< 26	< 51
Cs-137	202 +- 16	144 +- 7	176 +- 10	150 +- 10	140 +- 20
Site:	PBK-7	PBK-8	PBK-14	PBK-17	PBK-25
Collection date:	05/27/08	05/27/08	05/28/08	05/28/08	05/28/08
gross alpha	< 8000	< 8000	< 8000	13000 +- 8000	12000 +- 8000
gross beta	26000 +- 5000	23000 +- 4000	27000 +- 5000	21000 +- 4000	16000 +- 4000
gamma isotopic					
K-40	24400 +- 800	21600 +- 800	21400 +- 800	14200 +- 600	12900 +- 400
Mn-54	< 54	< 60	< 51	< 26	< 14
Co-58	< 54	< 60	< 60	< 33	< 14
Fe-59	< 150	< 160	< 130	< 100	< 38
Co-60	< 80	< 60	< 70	< 32	< 17
Zn-65	< 250	< 270	< 240	< 80	< 42
Nb-95	< 70	< 70	< 60	< 44	< 22
Zr-95	< 100	< 100	< 110	< 44	< 27
Cs-134	< 80	< 80	< 80	< 31	< 13
Cs-137	180 +- 20	210 +- 20	190 +- 20	290 +- 20	405 +- 14

Naturally occurring radioisotopes such as radium-226 (²²⁶Ra), bismuth-214 (²¹⁴Bi), lead-214 (²¹⁴Pb), actinium-228 (²²⁸Ac), bismuth-212 (²¹²Bi), lead-212 (²¹²Pb) from the naturally occurring uranium-238 (²³⁸U) and thorium-232 (²³²Th) decay series are commonly detected but have not been quantified or reported.

Radioisotopes other than those reported were not detected.

Table 15. WI DHS analysis results for soil samples collected for the Point Beach – Kewaunee environmental monitoring program.

Measurements in units of pCi/kilogram (dry)

Site:	PBK-1	PBK-2	PBK-3	PBK-4	PBK-5
Collection date:	09/02/08	09/02/08	09/02/08	09/02/08	09/03/08
gross alpha	9000 +- 7000	16000 +- 9000	10000 +- 8000	9000 +- 7000	14000 +- 8000
gross beta	18000 +- 4000	27000 +- 5000	28000 +- 5000	20000 +- 4000	24000 +- 4000
gamma isotopic					
K-40	15700 +- 600	22200 +- 600	22300 +- 700	18900 +- 500	19000 +- 500
Mn-54	< 41	< 16	< 41	< 6	< 14
Co-58	< 48	< 15	< 47	< 6	< 14
Fe-59	< 120	< 41	< 140	< 15	< 36
Co-60	< 60	< 17	< 48	< 7	< 18
Zn-65	< 190	< 70	< 160	< 18	< 43
Nb-95	< 60	< 16	< 54	< 8	< 18
Zr-95	< 70	< 25	< 60	< 11	< 27
Cs-134	< 42	< 17	< 46	< 5	< 13
Cs-137	240 +- 20	215 +- 7	140 +- 20	151 +- 4	157 +- 8
Site:	PBK-7	PBK-8	PBK-14	PBK-17	PBK-25
Collection date:	09/02/08	09/03/08	09/02/08	09/03/08	09/03/08
gross alpha	16000 +- 9000	10000 +- 8000	9000 +- 7000	14000 +- 8000	< 8000
gross beta	27000 +- 5000	28000 +- 5000	27000 +- 5000	24000 +- 5000	12000 +- 4000
gamma isotopic					
K-40	23100 +- 700	20200 +- 600	19200 +- 500	14400 +- 500	9700 +- 300
Mn-54	< 42	< 14	< 7	< 41	< 23
Co-58	< 32	< 13	< 7	< 39	< 24
Fe-59	< 110	< 30	< 18	< 120	< 80
Co-60	< 36	< 16	< 8	< 45	< 25
Zn-65	< 150	< 41	< 22	< 170	< 110
Nb-95	< 42	< 16	< 9	< 47	< 27
Zr-95	< 80	< 24	< 14	< 70	< 46
Cs-134	< 45	< 12	< 7	< 50	< 29
Cs-137	150 +- 20	231 +- 9	173 +- 5	450 +- 20	390 +- 16

Naturally occurring radioisotopes such as radium-226 (^{226}Ra), bismuth-214 (^{214}Bi), lead-214 (^{214}Pb), actinium-228 (^{228}Ac), bismuth-212 (^{212}Bi), lead-212 (^{212}Pb) from the naturally occurring uranium-238 (^{238}U) and thorium-232 (^{232}Th) decay series are commonly detected but have not been quantified or reported.

Radioisotopes other than those reported were not detected.