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DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
2011 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Enclosed is the 2011 Annual Radiological Environmental Operating Report for the Kewaunee Power Station (KPS). This report was prepared by Environmental Inc. and satisfies the requirements of KPS Technical Specification 5.6.1.

The results of the 2011 Land Use Census, submitted in accordance with the KPS Radiological Environmental Monitoring Manual, Section 2.2.2/2.3.2, are also included in this report.

If you have questions or require additional information, please feel free to contact Mr. Jack Gadzala at 920-388-8604.

Very truly yours,

A. J. Jordan
Site Vice President, Kewaunee Power Station

Commitments made by this letter: NONE

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2011 Annual Environmental Monitoring Report

Kewaunee Power Station

Dominion Energy Kewaunee, Inc.

Dominion®

2011 Annual Environmental Monitoring Report

Kewaunee Power Station

Part I

Summary and Interpretation

Dominion Energy Kewaunee, Inc.

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REPORT TO

DOMINION NUCLEAR

RADIOLOGICAL MONITORING PROGRAM FOR THE KEWAUNEE POWER STATION KEWAUNEE, WISCONSIN

ANNUAL REPORT - PART I SUMMARY AND INTERPRETATION

January 1 to December 31, 2011

Prepared and submitted by:

ENVIRONMENTAL Inc.
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PREFACE

The staff of Environmental, Inc., Midwest Laboratory were responsible for the acquisition of data presented in this report. Assistance in sample collection was provided by Kewaunee Power Station personnel. The report was prepared by staff members of Environmental, Inc., Midwest Laboratory.

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1.0 INTRODUCTION

The Kewaunee Power Station is a 598 megawatt pressurized water reactor located on the Wisconsin shore of Lake Michigan in Kewaunee County. The Plant became critical on March 7, 1974. Initial power generation was achieved on April 8, 1974, and the Plant was declared commercial on June 16, 1974. This report summarizes the environmental operation data collected during the period January - December 2011.

Dominion Energy Kewaunee, operator and owner of the Kewaunee Power Station, assumes responsibility for the environmental program at the Plant. Any questions should be directed to Mr. J. Michael Hale, Radiation Protection / Chemistry Manager, at (920) 388-8103.

2.0 SUMMARY

Results of sample analyses during the period January - December 2011 are summarized in Table 4.5. Radionuclide concentrations measured at indicator locations are compared with levels measured at control locations and in preoperational studies. The comparisons indicate background-level radioactivities in all samples collected and in no instance were REMP threshold reporting levels exceeded.

From March 24 through May 8, 2011, positive isotopic activities that could result from the operation of the Kewaunee Power Station were identified in air particulates, air iodine and milk samples. The following facts support the belief that the detectable concentrations were not a result of plant operation:

1. The quantities of radioactive airborne effluents from the Kewaunee Power Station during 2011 did not increase significantly compared to year 2010.

2. Prior sample results have not detected the presence of these isotopes in environmental samples.

3. The concentrations being detected in the indicator samples were also identified in the control samples.

4. Concentrations and similar patterns of isotopic distribution were identified outside the influence of Plant operation, nationwide.

As such, detection of these radionuclides in both indicator and control samples is credibly attributed to the trans-Pacific transport of airborne releases from Dai-Ichi, Fukushima following the March 11, 2011 Tohoku earthquake and is not related to the operations of Kewaunee Power Station.

3.0 RADIOLOGICAL SURVEILLANCE PROGRAM

Following is a description of the Radiological Surveillance Program and its execution.

3.1 METHODOLOGY

The sampling locations are shown in Figure 4-1. Table 4.1 describes the locations, lists for each direction and distance from the reactor, and defines which indicators and control locations.

The sampling program monitors the air, terrestrial, and aquatic environments. The types of samples collected at each location and the frequency of collections are presented in Table 4.2, using sample codes defined in Table 4.3. The collections and analyses that comprise the program are described below. Finally, the execution of the program in the current reporting year is discussed.

3.1.1 The Air Program

Airborne Particulates

Airborne particulates are collected on 47 mm diameter, 1μm porosity glass fiber filters, at a volumetric rate of approx. one cubic foot per minute. The filters are collected weekly from six locations (K-1f, K-2, K-8, K-31, K-41 and K-43), and dispatched by mail to Environmental, Inc. for radiometric analysis. The particulate filters are counted for gross beta activity, a minimum of three days after the date of collection, to allow for the decay of naturally-occurring short-lived radionuclides.

Quarterly composites from each sampling location are analyzed for gamma-emitting isotopes on a high-purity germanium (HPGe) detector.

Airborne Iodine

Charcoal traps are located at locations K-1f, K-2, K-8, K-31, K-41 and K-43. The traps are changed weekly and analyzed for iodine-131 immediately after arrival at the laboratory.

Ambient Gamma Radiation – TLDs

Offsite ambient gamma radiation is monitored at the six air sampling locations (K-1f, K-2, K-8, K-31, K-41 and K-43), at three milk sampling locations (K-3, K-5, and K-39), and five additional sites (K-15, located 9.25 miles northwest of the plant; K-17, located 4.25 miles west of the plant; K-25, located 1.9 miles southwest of the plant; K-27, located 1.5 miles northwest of the plant and K-30, located 1.0 miles north of the plant) by thermoluminescent dosimetry (TLD). Two TLD cards, each having four main readout areas containing $CaSO_4$:Dy phosphor, are placed at each location (eight TLDs at each location). One card is exchanged quarterly, the other card is exchanged annually and read only on an emergency basis.

Dosimeters have also been placed at eight additional locations (K-1L through K-1S), to monitor an Independent Spent Fuel Storage Installation (ISFSI). They are replaced and measured quarterly.

Precipitation

Monthly composites of precipitation samples are collected at K-11 and analyzed for tritium.

3.1.2 The Terrestrial Program

Milk

Milk samples are collected from two herds grazing within three miles of the reactor site (K-34 and K-38); from four herds that graze between 3-7 miles of the reactor site (K-3, K-5, K-35, and K-39); and one from a dairy in Green Bay (K-42), 28.1 miles from the reactor site.

The samples are collected twice per month during the grazing period (May through October) and monthly for the rest of the year. The samples are analyzed for iodine-131, strontium-89 and strontium-90, calcium, stable potassium and gamma-emitting isotopes.

Well Water

One gallon of water is collected quarterly from the four off-site well locations K-10, K-11, K-13 and K-38 and from two on-site wells located at K-1g and K-1h.

Gamma spectroscopic analysis, tritium and gross beta on the total residue are performed for each water sample. The concentration of potassium-40 is calculated from total potassium. Samples of water from the two on-site wells (K-1g and K-1h) are analyzed for gross alpha. Water samples from K-1g are also tested for strontium-89 and strontium-90.

Domestic Meat

Domestic meat is collected annually (if available) during the third quarter, from three locations in the vicinity of the plant (K-24, K-29, and K-32). The flesh is separated from the bone and analyzed for gross alpha, gross beta and gamma emitting isotopes.

Eggs

Eggs are collected quarterly from locations K-24 and K-32. Samples are analyzed for gross beta, strontium-89, strontium-90 and gamma-emitting isotopes.

Vegetables

Annually, during the third quarter, five varieties of vegetables are collected from location K-26. Samples may also be obtained from other local sources to supplement the program. In addition, two varieties of grain or leafy vegetables are collected annually from farmland owned by Dominion Energy Kewaunee (K-23a and K-23b) and rented to a private individual for growing crops. The samples are analyzed for gross beta, strontium-89, strontium-90 and gamma emitting isotopes.

Grass and Cattle Feed

Grass is collected during the second, third and fourth quarters from two on-site locations (K-1b and K-1f) and from the dairy farm locations (K-3, K-5, K-34, K-35, K-38 and K-39. Cattle feed is collected during the first quarter from the same farms. The samples are analyzed for gross beta, strontium-89, strontium-90 and gamma emitting isotopes.

Soil

Soil samples are collected twice a year on-site at K-1f and from the dairy farm locations (K-3, K-5, K-34, K-35, K-38 and K-39). The samples are analyzed for gross alpha, gross beta, strontium-89, strontium-90 and gamma emitting isotopes.

3.1.3 The Aquatic Program

Surface Water

One-gallon water samples are taken monthly from three locations on Lake Michigan: 1) at the point where the condenser water is discharged into Lake Michigan (K-1d); 2) Two Creeks Park (K-14) located 2.6 miles south of the reactor site; and 3) at the main pumping station located approximately equidistant from Kewaunee and Green Bay, which pumps water from the Rostok water intake (K-9) located 11.5 miles NNE of the reactor site. Both raw and tap water are collected at K-9. One-gallon water samples are taken monthly from three creeks that pass through the site (K-1a, K-1b, and K-1e). Samples from North and Middle Creeks (K-1a, K-1b) are collected near the mouth of each creek. Samples from the South Creek (K-1e) are collected about ten feet downstream from the point where the outflow from the two drain pipes meets. Additionally, the drainage pond (K-1k), located approximately 0.6 miles southwest of the plant, is included in the sampling program. Water samples at K-14 are collected and analyzed in duplicate.

The water is analyzed for gamma emitting isotopes, gross beta activity in total residue, dissolved and suspended solids, and potassium-40. The concentration of potassium-40 is calculated from the total potassium concentration. In addition, quarterly composites of the monthly grab samples are analyzed for tritium, strontium-89 and strontium-90.

Fish

Fish samples are collected during the second, third and fourth quarters at location K-1d. The flesh is separated from the bones, gamma scanned and analyzed for gross beta activity. Ashed bone samples are analyzed for gross beta, strontium-89 and strontium-90.

Aquatic Slime

Periphyton (slime) or aquatic vegetation is collected during the second and third quarters from three Lake Michigan locations (K-1d, K-9 and K-14), from three creek locations (K-1a, K-1b and K-1e) and from the drainage pond (K-1k), if available. The samples are analyzed for gross beta activity. If the quantity is sufficient, analyses for gamma-emitting isotopes and strontium-89 and strontium-90 activities are performed.

Bottom Sediment

Bottom sediments are collected in May and November from five locations (K-1c, K-1d, K-1j, K-9 and K-14). The samples are analyzed for gross beta, strontium-89, strontium-90 and gamma emitting isotopes.

3.1.4 Program Execution

Program execution is summarized in Table 4.4. The program was executed for the year 2011 as described in the preceding sections, with the following exceptions:

Air Particulates / Air Iodine

(1) No airborne particulate / airborne iodine samples were collected from location K-31 for the week ending August 30, 2011. Power had been shut off to the sampler station. (CR440389)

(2) The airborne particulate / airborne iodine samples, collected from location K-41 for the week ending October 25, 2011 was invalid. The cartridge was found on the ground, disconnected from the sampler. Run-time and sample volume could not be determined. (CR449852)

Thermoluminescent Dosimetry

(1) The fourth quarter, 2011 TLD data at location K-30 was missing in the field.

Domestic Meat

(1) There was no poultry sample available from location K-29 in 2011.

Surface Water

(1) Surface water from location K-1k could not be sampled in January, February or March of 2011. The pond was frozen.

(2) Surface water from locations K-1a, K-1b, K1e could not be sampled in February, 2011. The creek was frozen.

(3) Surface water from locations K-14a and K-14b were not sampled in February, 2011. The lakefront was inaccessible.

3.1.5 Program Modifications

Rev. 17, 02/12/2011, of the Radiological Environmental Monitoring Manual (REMM) addressed changes to one air sampling station. In August, 2010 the sampling site, K-7, (airborne particulates, air iodine, TLDs) was moved approximately 0.2 miles SSW. The new location was renamed K-43. The revision also included reformatting changes.

Rev. 18, 04/26/2011, of the Radiological Environmental Monitoring Manual (REMM) updated Tables 2.21-B and 2.21-C to include the air sampling site changes.

Beginning with the May 3, 2011 collection, the airborne iodine sampling frequency was changed from a biweekly to a weekly collection.

An automatic sample compositor was installed at K-1d in May, 2011. Approximately 25ml of sample per day is collected and composited monthly.

3.2 RESULTS AND DISCUSSION

Results for the reporting period January to December, 2011 are presented in summary form in Table 4.5. For each type of analysis, of each sampled medium, the table shows the annual mean and range for all indicator and control locations. The location with the highest annual mean and the results for this location are also given.

The discussion of the results has been divided into three broad categories: the air, terrestrial, and aquatic environments. Within each category, samples will be discussed in the order listed in Table 4.4. Any discussion of previous environmental data for the Kewaunee Power Station refers to data collected by Environmental Inc., Midwest Laboratory.

Results of all measurements made in 2011 are not included in this section, although references to these results will be made in the discussion. A complete tabulation of results is provided in Part II of the 2011 annual report on the Radiological Monitoring Program for the Kewaunee Power Station.

3.2.1 Atmospheric Nuclear Detonations and Nuclear Accidents

The Fukushima Daiichi nuclear accident occurred on March 11, 2011, releasing large amounts of radioactive isotopes into the atmosphere and Pacific Ocean. Positive iodine-131, cesium-134 and cesium-137 activities were detected in environmental background samples from March through May. The accident, rated seven on the International Nuclear Event Scale (INES) compared with Chernobyl, rated level seven, and Three Mile Island rated level five.

There were no atmospheric nuclear tests in 2011.

3.2.2 The Air Environment

Airborne Particulates

The annual gross beta concentration in air particulates averaged 0.029 pCi/m^3 at both indicator and control locations. The averages were slightly higher than means observed from 2000 (and prior to) through 2010. Results are tabulated below.

Year	Average (Indicators)	Average (Controls)
	Concentration (pCi/m^3)	
2000	0.022	0.021
2001	0.024	0.023
2002	0.023	0.023
2003	0.022	0.022
2004	0.019	0.020
2005	0.023	0.023
2006	0.021	0.021
2007	0.022	0.021
2008	0.022	0.022
2009	0.023	0.023
2010	0.023	0.022
2011	0.029	0.029

Average annual gross beta concentrations in airborne particulates.

Gamma spectroscopic analysis of quarterly composites of air particulate filters yielded similar results for indicator and control locations. Beryllium-7, produced continuously in the upper atmosphere by cosmic radiation, was detected in all samples, with an average activity of 0.070 pCi/m^3. All other gamma-emitting isotopes were below their respective LLD limits.

Airborne Iodine

Between March 21 and April 5, 2011, iodine-131 activity was detected in air samples from all indicator and control locations and measured 0.10 and 0.12 pCi/m^3, respectively. From April 5 through April 19, activity had dropped below an LLD value of 0.025 pCi/m^3. Since both indicator and control locations measured almost identical activities, there is no indication of a plant effect (CR426732). I-131 activity was not detected during the remaining weeks of 2011.

Ambient Gamma Radiation – TLDs

Ambient gamma radiation was monitored by TLDs at fourteen off-site locations, eight indicators and six controls. Quarterly TLDs at the indicator locations measured a mean dose equivalent of (15.0 mR/91 days), in close agreement with the mean at the control locations (14.5 mR/91 days). The readings are similar to the averages obtained from 2000 (and prior to) through 2010. The averages are tabulated below.

For the eight TLDs monitoring the Independent Spent Fuel Storage Installation, (K-1L through K-1S), measurements averaged 13.2 mR/91 days.

No plant effect on ambient gamma radiation was indicated. These values are lower than the United States average value of 19.5 mR/91 days due to natural background radiation (National Council on Radiation Protection and Measurements, 1975). The highest annual mean was 18.1 mR/91 days, measured at indicator location K-5.

Year	Average (Indicators)	Average (Controls)
	Dose rate (mR/91 days)	
2000	18.7	18.2
2001	18.6	18.3
2002	16.1	15.1
2003	14.1	13.7
2004	14.8	14.0
2005	15.7	14.3
2006	16.4	15.0
2007	16.2	15.2
2008	15.6	14.2
2009	15.2	13.9
2010	15.2	14.3
2011	15.0	14.5

Ambient gamma radiation as measured by thermoluminescent dosimetry.
Average quarterly dose rates.

Precipitation

Monthly precipitation composites were monitored for tritium at the indicator location, K-11, approximately one mile north of the plant. In one sample tested, from April 5, 2011, tritium activity measured above the LLD level of 156 pCi/L, at a concentration of 424 pCi/L. All other samples measurements were below LLD.

3.2.3 The Terrestrial Environment

Milk

For the April 4, 2011 collection, positive iodine-131 activity, measuring 0.8 pCi/L, was detected in one sample from K-39 (3.46 mi. N). Milk from the other six sampling locations remained below the detection limit of 0.5 pCi/L. Dispersion models for KPS predict that a plant release should show at the highest D/Q west sector. The positive iodine detected in air samples for the same period further support the belief that the iodine source is not due to Plant operation. (CR 430148)

Potassium-40 measurements were almost identical at both the indicator and control locations (1392 and 1398 pCi/L, respectively), and are comparable to levels observed from 1990 through 2010. No other gamma-emitting isotopes were detected in any of the milk samples.

Strontium-89 concentrations measured below an LLD level of 1.1 pCi/L in all samples. Low levels of strontium-90 were found in thirty-one of the eighty-four samples tested. Mean values were almost identical at both the indicator and control locations (0.9 and 1.0 pCi/L, respectively), and are similar to or less than averages seen from 1990 through 2010.

Detection of strontium, iodine and potassium activity is consistent with findings of the National Center for Radiological Health (1968). Most radiocontaminants in cattlefeed do not find their way into milk, common exceptions are radioisotopes of potassium, cesium, strontium, barium, and iodine.

Due to chemical similarities between strontium and calcium, and cesium and potassium, organisms tend to deposit cesium-137 in the soft tissue and muscle and strontium-89 and strontium-90 in the bone. Consequently, ratios of strontium-90 activity to the weight of calcium in milk and cesium-137 activity to the weight of potassium in milk are monitored in order to detect potential environmental accumulation of these radionuclides. Measured concentrations of stable potassium and calcium are in agreement with previously determined values of 1.60 and 1.20 g/L, respectively (National Center for Radiological Health, 1968).

There was no indication of an environmental effect due to the operation of the Kewaunee Power Station.

Well Water

One of eight samples for gross alpha analysis, from the on-site wells K-1h, measured at 4.64 pCi/L, above the LLD value of 3.7 pCi/L. Gross beta activity, above 2.6 pCi/L was detected in five of twenty indicator samples tested. Concentrations ranged from 2.7 to 5.0 pCi/L. and averaged 4.2 pCi/L. No gross beta activity was detected in the four control samples above the LLD.

Levels of strontium-89 and strontium-90 were measured for the on-site well (K-1g). The concentrations measured below the LLD value of 0.8 and 0.5 pCi/L, respectively.

Samples were tested for tritium and gamma emitting isotopes. All tritium concentrations measured below a detection level of 149 pCi/L. Gamma-emitting isotopes measured below respective LLDs.

Potassium-40 averages are generally in proportion to gross beta measurements and in agreement with previously measured values. No plant effect was indicated.

Domestic Meat

In domestic meat samples, gross alpha concentrations averaged below LLD for both locations. Gross beta concentration averaged 3.07 pCi/g wet and 2.55 pCi/g wet for indicator and control locations, respectively. Gamma-spectroscopic analyses showed that almost all beta activity was due to naturally occurring potassium-40 (2.66 pCi/g wet and 2.36 pCi/g wet respectively). Other gamma-emitting isotopes were below their respective LLD limits.

Eggs

In egg samples, the gross beta concentrations averaged 1.60 pCi/g wet at the indicator location and 1.49 pCi/g wet for the control location, similar to observed concentrations of naturally-occurring potassium-40 (1.33 and 1.43 pCi/g wet respectively). Other gamma-emitting isotopes were below their respective LLDs.

Levels of strontium-89 measured below the LLD of 0.007 pCi/g wet in all samples. A low level of strontium-90 activity was detected in one control sample tested, at a concentration of 0.006 pCi /g dry.

Vegetables and Grain

In vegetables, gross beta concentrations averaged 4.01 pCi/g wet at two indicator locations and 2.75 for the control location K-26, due primarily to potassium-40 activity. All other gamma emitting isotopes measured below respective LLDs. Strontium-89 measured below the LLD level of 0.008 pCi/g wet and strontium-90 measured below 0.005 pCi/g wet.

In two samples (clover and wheat) from location K-23, gross beta concentration averaged 5.28 pCi/g wet, due primarily to activity from potassium-40 and beryllium-7. Strontium-89 measured below the LLD level of 0.023 pCi/g wet. Strontium-90 activity was detected in one sample, at a concentration of 0.019 pCi /g dry.

Grass and Cattle Feed

In grass, mean gross beta concentrations measured 8.60 and 8.06 pCi/g wet at indicator and control locations, respectively, In all cases the activity was predominantly due to naturally occurring potassium-40 and beryllium-7. Other gamma-emitting isotopes were below respective LLDs. Strontium-89 measured below the LLD level of 0.030 pCi/g wet, strontium-90 measured below the LLD of 0.017 pCi/g wet.

For cattlefeed, gross beta concentrations were similar at indicator and control locations (12.14 pCi/g and 10.89 pCi/g wet, respectively), and reflected the potassium-40 / beryllium-7 levels observed in the samples (10.04 and 8.31 pCi/gwet, respectively. Strontium-89 measured below the LLD level of 0.038 pCi/g wet and strontium-90 measured below 0.023 pCi/g,similar or lower than levels observed in 1996 through 2010.

With the exception of the naturally-occurring beryllium and potassium, gamma-emitting isotopes were below their respective LLD levels.

Soil

Gross alpha concentrations in soil averaged 6.12 pCi/g dry at five indicator locations and 5.43 pCi/g dry at the two control locations. Mean gross beta levels measured at indicator and control locations averaged 21.48 and 26.81 pCi/g dry, respectively, primarily due to potassium-40 activity. Strontium-89 was below an LLD level of 0.10 pCi/g dry in all samples. A low level of strontium-90 activity, above 0.028 pCi/g dry, was detected in six of the fourteen indicator and control locations, with respective means of 0.032 pCi/g and 0.049 pCi/g wet. The traces of radiostrontium in the environment can still be attributed to nuclear testing from previous decades.

Cesium-137 was detected in twelve of fourteen soil samples, similar at both indicator and control locations (0.090 and 0.15 pCi/g dry, respectively). Potassium-40 was detected in all samples and averaged 18.51 and 18.23 pCi/g dry for indicator and control locations, respectively. All other gamma-emitting isotopes were below their respective LLD's. These levels of detected activities are similar to those observed from 1990 through 2010. The data suggests no evidence of a plant effect on soil measurements.

3.2.4 The Aquatic Environment

Surface Water

Gross beta activity in surface water measured higher at the indicator locations (5.0 pCi/L) than at the control locations (1.5 pCi/L). A similar pattern of activity has been observed since 1978.

Year	Average (Indicators)	Average (Controls)
	Gross Beta (pCi/L)	
2000	7.0	2.4
2001	5.9	2.2
2002	5.7	2.2
2003	7.3	2.4
2004	6.2	2.3
2005	5.2	1.7
2006	5.5	1.8
2007	5.7	1.8
2008	4.7	1.5
2009	4.7	1.5
2010	4.7	1.4
2011	5.0	1.5

Average annual gross beta concentrations in surface water (DS).

The differences in activity are due in part to the indicator location (K-1k), a pond formed by drainage of surrounding fields to the southwest. The control sample is Lake Michigan water, which varies very little in gross beta concentration during the year, while indicator samples include the two creek locations (K-1a and K-1e) which are much higher in gross beta concentration and exhibit large month-to-month variations. The K-1a creek draws its water from the surrounding fields which are heavily fertilized; and the K-1e creek draws its water mainly from the Sewage Treatment Plant. In general, gross beta concentrations were high when potassium-40 levels were high and low when potassium-40 levels were low, indicating that the fluctuations in beta concentration were due to variations in potassium-40 concentrations and not to plant operations. The fact that similar fluctuations at these locations were observed in the pre-operational studies conducted prior to 1974 supports this assessment.

In four of twenty-seven indicator samples tested, (quarterly composites of monthly samples), tritium was detected above an LLD level of 156 pCi/L, at an average concentration of 688 pCi/L. All other samples measured below LLD.

Strontium-89 concentrations were below the LLD of 1.3 pCi/L. Strontium-90 measured below the LLD level of 0.8 pCi/L in all thirty-five indicator and control samples.

Gamma-emitting isotopes measured below their respective LLDs in all samples.

Fish

In fish, gross beta concentration averaged 2.54 pCi/g wet in muscle and 2.75 pCi/g wet in bone fractions. In muscle, the gross beta concentration was primarily due to potassium-40 activity.

Gamma-emitting isotopes measured below their respective LLDs in all samples.

The strontium-89 concentration in bones was below the LLD of 0.31 pCi/g wet in all samples. Strontium-90 was detected in all samples and averaged 0.27 pCi/g wet.

Periphyton (Slime) or Aquatic Vegetation

In periphyton (slime) and aquatic vegetation samples, mean gross beta concentrations for indicator and control locations measured 4.64 and 7.14 pCi/g wet, respectively, due primarily to combined potassium-40 and beryllium-7 activity (3.87 and 5.08 pCi/g wet, respectively).

Cesium-137 was measured in five of twelve indicator samples, at a level of 0.025 pCi/g wet. All other gamma-emitting isotopes, with the exception of naturally-occurring beryllium-7 and potassium-40, were below their respective LLDs.

Strontium-89 and strontium-90 concentrations were below detection limits of 0.082 and 0.042 pCi/g wet, respectively, in all samples.

Bottom Sediments

In bottom sediment samples, the mean gross beta concentrations measured 11.86 pCi/g dry at the indicator locations versus 17.73 pCi/g dry at the control location.

Cs-134 measured below the LLD level of 0.018 pCi/g dry in all samples. A low level of cesium-137 was observed in two of the eight indicator samples tested and averaged 0.025 pCi/g dry. On average, cesium-137 measurements are lower than or similar to levels observed from 1979 through 2010. Other gamma-emitting isotopes, with the exception of naturally-occurring potassium-40, were below their respective LLDs.

Strontium-89 concentrations were below detection limits of 0.058 pCi/g dry for all samples tested. Strontium-90 was detected above LLD in one indicator sample, at a concentration of 0.035 pCi /g dry.

3.3 LAND USE CENSUS

The Land Use Census satisfies the requirements of the KPS Radiological Environmental Monitoring Manual. Section 2.2.2 states:

"A land use census shall be conducted and shall identify within a distance of 8 km (5 mi.) the location, in each of the 10 meteorological sectors, of the nearest milk animal, the nearest residence and the nearest garden of greater than 50m^2 (500 ft^2) producing broad leaf vegetation."

The 2011 Land Use Census was completed to identify the presence of the nearest milk animals, gardens and farm crops of the Kewaunee Power Station. The Land Use Census was completed on September6, 2011. The census is conducted annually during the growing season per Health Physics Procedure HP 1.14.

Results of the 2011 census are summarized in Table 4.6. Changes from the 2010 census are listed by sector. In summary, the highest D/Q locations for nearest garden, nearest residence and nearest milk animal did not change from the 2010 census.

3.4 LABORATORY PROCEDURES

Analytical Procedures used by Environmental, Inc. are on file and are available for inspection. Procedures are based on those prescribed by the Health and Safety Laboratory of the U.S. Dep't of Energy, Edition 28, 1997, U.S. Environmental Protection Agency for Measurement of Radioactivity in Drinking Water, 1980, and the U.S. Environmental Protection Agency, EERF, Radiochemical Procedures Manual, 1984.

Environmental, Inc., Midwest Laboratory has a comprehensive quality control/quality assurance program designed to assure the reliability of data obtained. Details of the QA Program are presented elsewhere (Environmental, Inc., Midwest Laboratory, 2012). The QA Program includes participation in Interlaboratory Comparison (crosscheck) Programs. Results obtained are presented in Appendix A.

4.0 FIGURES AND TABLES

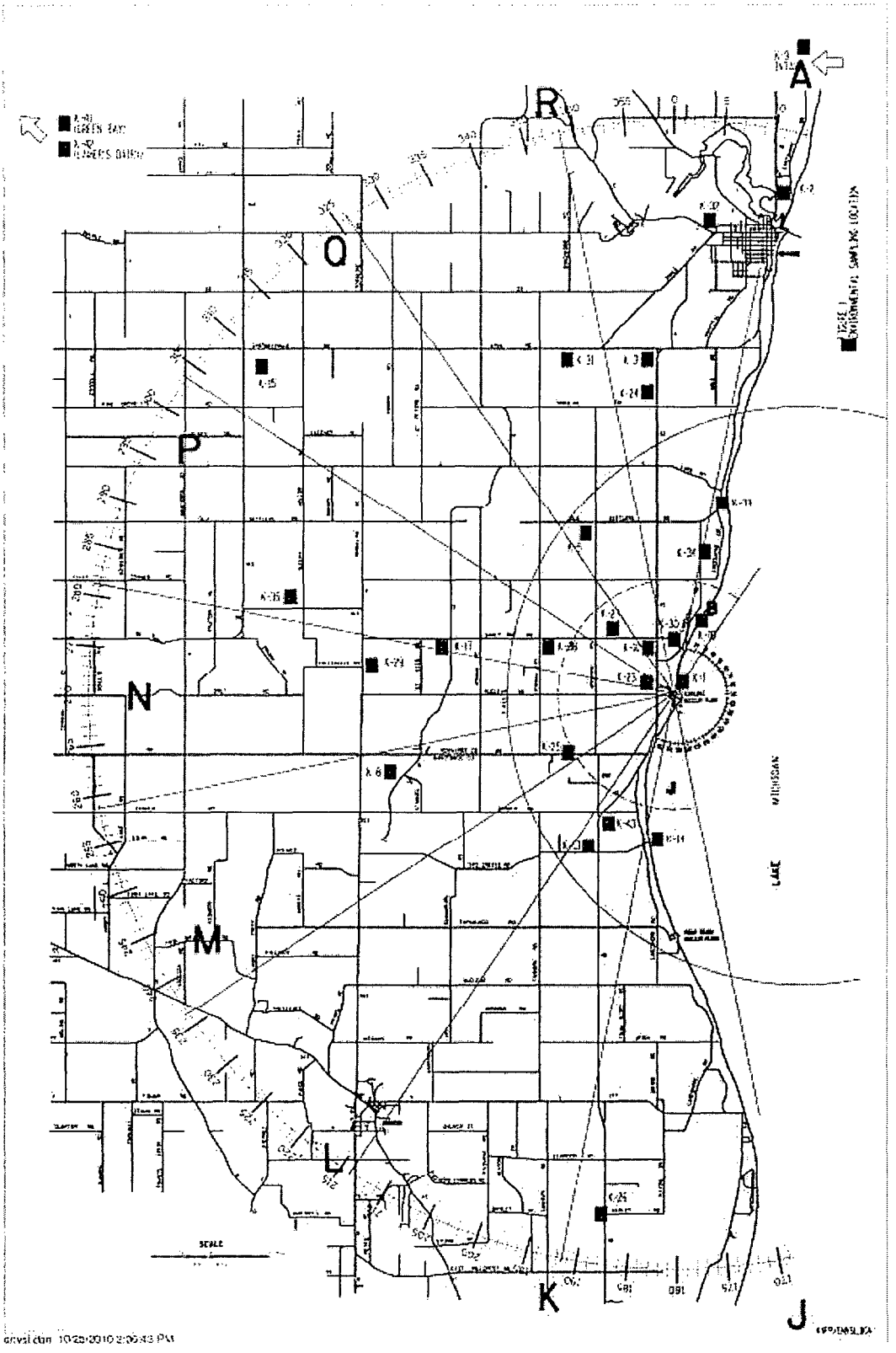
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Figure 4-1. Sampling locations, Kewaunee Power Station.

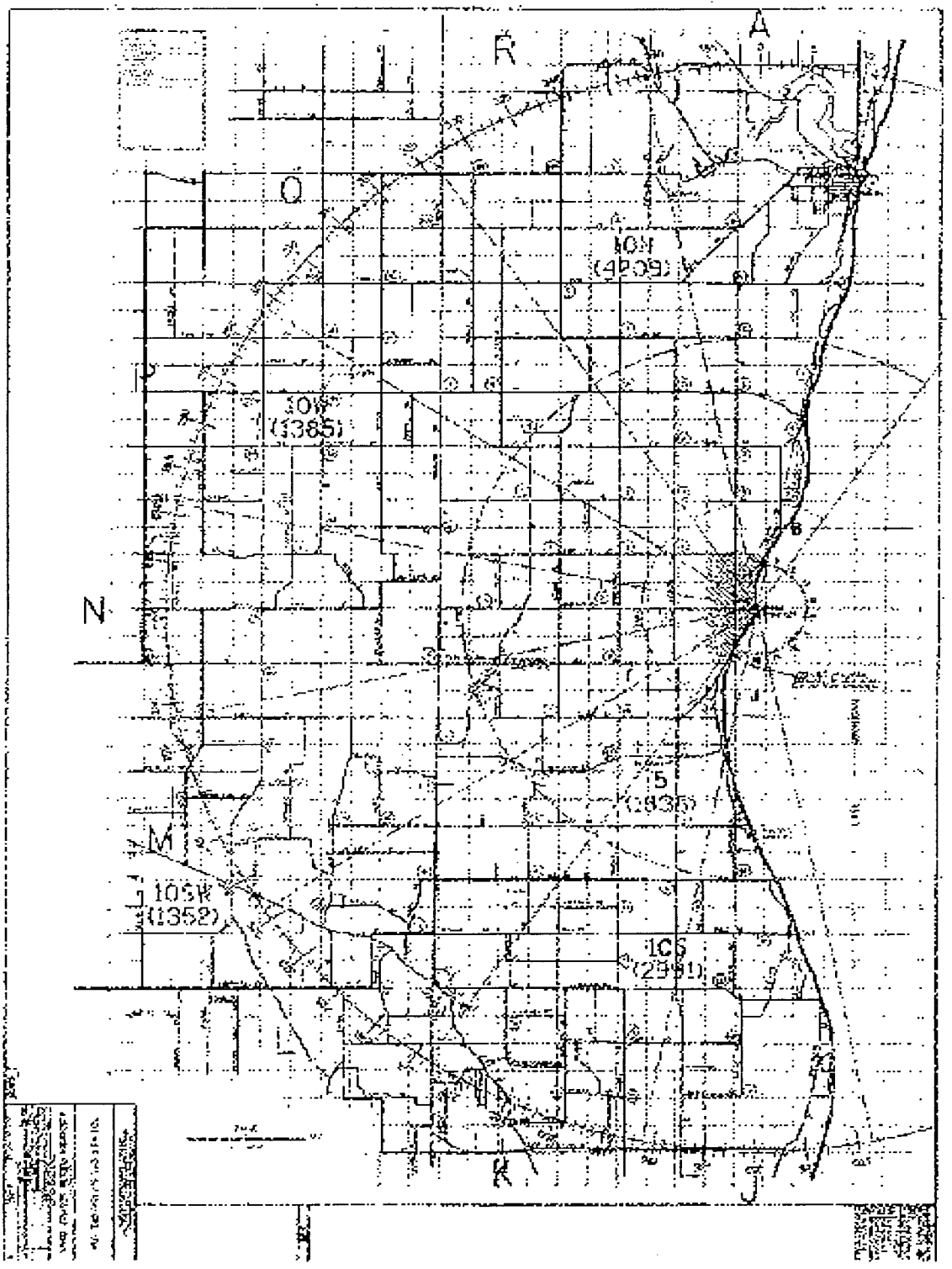

Figure 4-2. Emergency Plan Zone Map, Kewaunee Power Station.

Table 4.1. Sampling locations, Kewaunee Power Station.

Code	Type [a]	Distance (miles)[b] and Sector	Location
K-1	I		Onsite
K-1a	I	0.62 N	North Creek
K-1b	I	0.12 N	Middle Creek
K-1c	I	0.10 N	500' north of condenser discharge
K-1d	I	0.10 E	Condenser discharge
K-1e	I	0.12 S	South Creek
K-1f	I	0.12 S	Meteorological Tower
K-1g	I	0.06 W	South Well
K-1h	I	0.12 NW	North Well
K-1j	I	0.10 S	500' south of condenser discharge
K-1k	I	0.60 SW	Drainage Pond, south of plant
K-1l	I	0.13 N	ISFSI Southeast
K-1m	I	0.15 N	ISFSI East
K-1n	I	0.16 N	ISFSI Northwest
K-1o	I	0.16 N	ISFSI North
K-1p	I	0.17 N	ISFSI Northwest
K-1q	I	0.16 N	ISFSI West
K-1r	I	0.13 N	ISFSI West
K-1s	I	0.12 N	ISFSI Southwest
K-2	C	8.91 NNE	WPS Operations Building in Kewaunee
K-3	C	5.9 N	Lyle and John Siegmund Farm, N2815 Hy 42, Kewaunee
K-5	I	3.2 NNW	Ed Paplham Farm, E4160 Old Settlers Rd, Kewaunee
K-8	C	4.85 WSW	St. Isadore the Farmer Church, 18424 Tisch Mills Rd, Tisch Mills
K-9	C	11.5 NNE	Green Bay Municipal Pumping Station, six miles east of Green Bay (sample source is Lake Michigan from Rostok Intake two miles north of Kewaunee.
K-10	I	1.35 NNE	Turner Farm, Kewaunee site
K-11	I	0.96 NW	Harlan Ihlenfeld Farm, N879 Hy 42, Kewaunee
K-13	C	3.0 SSW	Rand's General Store, Two Creeks
K-14	I	2.6 S	Two Creeks Park, 2.6 miles south of site
K-15	C	9.25 NW	Gas Substation, 1.5 miles north of Stangelville
K-17	I	4.0 W	Jansky's Farm, N885 Tk B, Kewaunee
K-23a	I	0.5 W	0.5 miles west of plant, Kewaunee site
K-23b	I	0.6 N	0.6 miles north of plant, Kewaunee site
K-24	I	5.4 N	Fictum Farm, N2653 Hy 42, Kewaunee
K-25	I	1.9 SW	Wotachek Farm, 3968 E. Cty Tk BB, Two Rivers
K-26	C	9.1 SSW	Sandy's Vegetable Stand (8.0 miles south of "BB")
K-27	I	1.53 NW	Schleis Farm, E4298 Sandy Bay Rd, Kewaunee
K-29	I	5.34 W	Kunesh Farm, E3873 Cty Tk G, Kewaunee
K-30	I	0.8 N	End of site boundary
K-31	C	6.35 NNW	E. Krok Substation, Krok Road
K-32	C	7.8 N	Piggly Wiggly, 931 Marquette Dr., Kewaunee
K-34	I	2.7 N	Leon and Vicki Struck, N1549 Lakeshore Dr., Kewaunee
K-35	C	6.71 mi. WNW	Duane Ducat, N1215 Sleepy Hollow Rd., Kewaunee
K-36	I		Fiala's Fish market, 216 Milwaukee, Kewaunee
K-38	I	2.45 mi. WNW	Dave Sinkula Farm, N890 Town Hall Road, Kewaunee
K-39	I	3.46 mi. N	Francis Wojta, N1859 Lakeshore Dr., Kewaunee
K-41	C	22 NW	KPS-EOF, 3060 Voyager Dr. , Green Bay
K-42	C	28.1 NW	Lamers Dairy Products obtained from Green Bay Markets
K-43	I	2.71 SSW	Gary Maigatter Property, 17333 Hwy 42, Two Rivers

[a] I = indicator; C = control
[b] Distances are measured from reactor stack.

Table 4.2. Type and frequency of collection.

Location	Weekly	Monthly	Quarterly	Semiannually	Annually
K-1a		SW		SL [f]	
K-1b		SW	GR [a]	SL [f]	
K-1c				BS [b]	
K-1d		SW	FI [a]	SL [f] BS [b]	
K-1e		SW		SL [f]	
K-1f	AP [g], AI		GR [a] TLD	SO	
K-1g, K-1h			WW		
K-1j				BS [b]	
K-1k		SW		SL [f]	
K-1l through K-1s			TLD		
K-2	AP [g], AI		TLD		
K-3, K-5		MI [c]	GR [a] TLD	SO	CF [d]
K-8	AP [g], AI		TLD		
K-9		SW [i]		SL [f] BS [b]	
K-10, K-13			WW		
K-11		PR	WW		
K-14		SW [h]		SL [f] BS [b]	
K-15, K-17			TLD		
K-23a, b					GRN / GLV [e]
K-24			EG		DM
K-25			TLD		
K-26					VE / GLV [e]
K-27			TLD		
K-29					DM
K-30			TLD		
K-31	AP [g], AI		TLD		
K-32			EG		DM
K-34, K-35		MI [c]	GR [a]	SO	CF [d]
K-38		MI [c]	GR [a] WW	SO	CF [d]
K-39		MI [c]	GR [a] TLD	SO	CF [d]
K-41	AP [g], AI		TLD		
K-42		MI [c]			
K-43	AP [g], AI		TLD		

[a] Three times a year, second, third and fourth quarters.
[b] Collected in May and November.
[c] Monthly from November through April; semimonthly May through October.
[d] First quarter (January, February, March) only.
[e] Alternate, if milk is not available.
[f] Second and third quarters.
[g] The frequency may be increased dependent on the dust loading.
[h] Two samples are collected, North (K-14a) and South (K-14b) of Two Creeks Road.
[i] Two samples, raw and treated.

Table 4.3. Sample Codes:

Code	Description	Code	Description
AI	Airborne Iodine	GR	Grass
AP	Airborne particulates	MI	Milk
BS	Bottom sediments	PR	Precipitation
CF	Cattlefeed	SL	Slime
DM	Domestic Meat	SO	Soil
EG	Eggs	SW	Surface water
FI	Fish	TLD	Thermoluminescent Dosimeter
GLV	Green Leafy Vegetables	VE	Vegetables
GRN	Grain	WW	Well water

Table 4.4. Sampling Summary, January – December, 2011.

Sample Type	Collection Type and Frequency [a]	Number of Locations	Number of Samples Collected	Number of Samples Missed
Air Environment				
Airborne particulates	C/W	6	316	2
Airborne Iodine	C/BW	6	257	0
TLD's	C/Q	22	87	1
Precipitation	C/M	1	12	0
Terrestrial Environment				
Milk (May-Oct)	G/SM	7	84	0
(Nov-Apr)	G/M	7	42	0
Well water	G/Q	6	24	0
Domestic meat	G/A	3	2	1
Eggs	G/Q	2	8	0
Vegetables - 5 varieties	G/A	3	15	0
Grain - wheat	G/A	1	1	0
- clover	G/A	1	1	0
Grass	G/TA	8	24	0
Cattle feed	G/A	6	12	0
Soil	G/SA	7	14	0
Aquatic Environment				
Surface water	G/M	7	100	8
Fish	G/TA	1	3	0
Algae	G/SA	7	14	0
Bottom sediments	G/SA	5	10	0

[a] Type of collection is coded as follows: C = continuous; G = grab.
Frequency is coded as follows: W = weekly; BW = bi-weekly; SM = semimonthly; M = monthly; Q = quarterly; SA = semiannually; TA = three times per year; A = annually.

Table 4.5 Environmental Radiation Monitoring Program Summary.

Name of Facility	Kewaunee Nuclear Power Plant	Docket No.	50-305
Location of Facility	Kewaunee County, Wisconsin (County, State)	Reporting Period	January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[c] Range[c]	Location with Highest Annual Mean Location[d]	Location with Highest Annual Mean Mean (F)[c] Range[c]	Control Locations Mean (F)[c] Range[c]	Number Non-Routine Results[e]
TLDs (Quarterly) (mR/91days)	Gamma 55	3.0	15.0 (31/31) (10.7-19.0)	K-5, Paplham farm 3.2 NNW	18.1 (4/4) (17.5-19.0)	14.5 (24/24) (10.9-17.7)	0
TLDs, Quarterly (Protected Area) (mR/91days)	Gamma 32	3.0	13.2 (32/32) (9.3-32.3)	K-1-L, ISFSI SE 0.13 N	18.4 (4/4) (12.2-32.3)	none	0
Airborne Particulates (pCi/m3)	GB 316	0.002	0.029 (106/106) (0.014-0.055)	K-41, KPS-EOF 22 mi. NW	0.030 (52/52) (0.017-0.054)	0.029 (210/210) (0.010-0.054)	0
	GS 24						
	Be-7	0.020	0.075 (8/8) (0.059-0.086)	K-1f, Met. Tower 0.12 mi. S	0.079 (4/4) (0.071-0.086)	0.068 (16/16) (0.048-0.094)	0
	Nb-95	0.0020	< LLD	-	-	< LLD	0
	Zr-Nb-95	0.0021	< LLD	-	-	< LLD	0
	Ru-103	0.0015	< LLD	-	-	< LLD	0
	Ru-106	0.0096	< LLD	-	-	< LLD	0
	Cs-134	0.0011	< LLD	-	-	< LLD	0
	Cs-137	0.0016	< LLD	-	-	< LLD	0
	Ce-141	0.0026	< LLD	-	-	< LLD	0
	Ce-144	0.0072	< LLD	-	-	< LLD	0
Airborne Iodine (pCi/m3)	I-131 257	0.03	0.10 (2/86) (0.089-0.11)	K-31, Substation 6.35 mi. NNW	0.15 (1/52)	0.12 (4/171) (0.099-0.15)	0
Precipitation (pCi/L)	H-3 12	156	< LLD	K-11, Ihlenfeld Farm 0.96 mi. NW	424 (1/12)	< LLD	0
Milk (pCi/L)	I-131 126	0.5	0.8 (1/72)	K-39, Wojta Farm, 3.46 mi. N	0.8 (1/18)	< LLD	0
	Sr-89 84	1.1	< LLD	-	-	< LLD	0
	Sr-90 84	0.8	0.9 (16/48) (0.8-1.6)	K-38, Sinkula Farm 2.45 mi. WNW	1.1 (10/10) (0.8-1.6)	1.0 (15/36) (0.8-1.3)	0
	GS 126						
	K-40	50	1392 (72/72) (1238-1540)	K-34, Struck Farm 2.7 N	1457 (18/18) (1383-1540)	1398 (54/54) (1234-1561)	0
	Cs-134	10	< LLD	-	-	< LLD	0
	Cs-137	10	< LLD	-	-	< LLD	0
	Ba-La-140	15	< LLD	-	-	< LLD	0
(g/L)	K-stable 84	1.0	1.70 (48/48) (1.52-1.84)	K-34, Struck Farm 2.7 N	1.78 (12/12) (1.69-1.84)	1.70 (36/36) (1.56-1.88)	0
(g/L)	Ca 84	0.4	1.06 (48/48) (0.86-1.35)	K-39, Wojta Farm, 3.46 mi. N	1.10 (12/12) (0.90-1.33)	1.05 (36/36) (0.84-1.33)	0

Table 4.5 Environmental Radiation Monitoring Program Summary.

Name of Facility: Kewaunee Nuclear Power Plant — Docket No. 50-305
Location of Facility: Kewaunee County, Wisconsin (County, State) — Reporting Period: January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[c] Range[c]	Location with Highest Annual Mean Location[d]	Location with Highest Annual Mean Mean (F)[c] Range[c]	Control Locations Mean (F)[c] Range[c]	Number Non-Routine Results[e]
Well Water (pCi/L)	GA 8	3.7	4.6 (1/8)	K-1h, North Well 0.12 NW	4.6 (1/4)	None	0
	GB 24	2.6	4.2 (5/20) (2.7-5.0)	K-1g, South Well 0.06 W	4.7 (2/4) (4.4-5.0)	< LLD	0
	H-3 24	149	< LLD	-	-	None	0
	K-40 24	0.87	1.88 (20/20) (0.61-3.29)	K-10, Turner Farm 1.35 NNE	2.57 (4/4) (2.12-3.29)	0.96 (4/4) (0.92-1.01)	0
	Sr-89 4	0.8	< LLD	-	-	None	0
	Sr-90 4	0.5	< LLD	-	-	None	0
	GS 24						
	Mn-54	15	< LLD	-	-	< LLD	0
	Fe-59	30	< LLD	-	-	< LLD	0
	Co-58	15	< LLD	-	-	< LLD	0
	Co-60	15	< LLD	-	-	< LLD	0
	Zn-65	30	< LLD	-	-	< LLD	0
	Zr-Nb-95	15	< LLD	-	-	< LLD	0
	Cs-134	15	< LLD	-	-	< LLD	0
	Cs-137	18	< LLD	-	-	< LLD	0
	Ba-La-140	15	< LLD	-	-	< LLD	0
Domestic Meat (pCi/gwet)	GA 2	0.030	< LLD	-	-	< LLD	0
	GB 3	0.10	3.07 (1/1)	K-24, Fictum Farm 5.4 mi. N	2.55 (1/1) -	2.55 (1/1) -	0
	GS 3						
	Be-7	0.11	< LLD	-	-	< LLD	0
	K-40	0.50	2.66 (1/1)	K-24, Fictum Farm 5.45 mi. N	2.66 (1/1)	2.36 (1/1) -	0
	Nb-95	0.012	< LLD	-	-	< LLD	0
	Zr-95	0.025	< LLD	-	-	< LLD	0
	Ru-103	0.012	< LLD	-	-	< LLD	0
	Ru-106	0.093	< LLD	-	-	< LLD	0
	Cs-134	0.010	< LLD	-	-	< LLD	0
	Cs-137	0.010	< LLD	-	-	< LLD	0
	Ce-141	0.019	< LLD	-	-	< LLD	0
	Ce-144	0.105	< LLD	-	-	< LLD	0
Eggs (pCi/gwet)	GB 8	0.010	1.60 (4/4) (1.52-1.66)	K-24, Fictum Farm 5.45 mi. N	1.60 (4/4) (1.52-1.66)	1.49 (4/4) (1.45-1.55)	0
	Sr-89 8	0.007	< LLD	-	-	< LLD	0
	Sr-90 8	0.003	< LLD	K-32, Grocery 11.5 mi. N	0.006 (1/4)	0.006 (1/4)	0
	GS 8						
	Be-7	0.081	< LLD	-	-	< LLD	0
	K-40	0.50	1.33 (4/4) (1.26-1.38)	K-32, Grocery 11.5 mi. N	1.43 (4/4) (1.33-1.48)	1.43 (4/4) (1.33-1.48)	0
	Nb-95	0.013	< LLD	-	-	< LLD	0
	Zr-95	0.012	< LLD	-	-	< LLD	0
	Ru-103	0.012	< LLD	-	-	< LLD	0
	Ru-106	0.069	< LLD	-	-	< LLD	0
	Cs-134	0.006	< LLD	-	-	< LLD	0
	Cs-137	0.009	< LLD	-	-	< LLD	0
	Ce-141	0.030	< LLD	-	-	< LLD	0
	Ce-144	0.061	< LLD	-	-	< LLD	0

Table 4.5 Environmental Radiation Monitoring Program Summary.

Name of Facility: Kewaunee Nuclear Power Plant — Docket No. 50-305
Location of Facility: Kewaunee County, Wisconsin (County, State) — Reporting Period January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[f] Range[c]	Location with Highest Annual Mean Location[d]	Location with Highest Annual Mean Mean (F)[f] Range[c]	Control Locations Mean (F)[f] Range[c]	Number Non-Routine Results[e]
Vegetables (pCi/gwet)	GB 10	0.010	4.01 (9/9) (1.70-7.36)	K-24, Fictum Farm 5.45 mi. N	5.45 (3/3) (4.23-7.36)	2.75 (6/6) (1.94-3.78)	0
	Sr-89 10	0.023	< LLD	-	-	< LLD	0
	Sr-90 10	0.004	0.10 (4/9) (0.004-0.027)	K-24, Fictum Farm 5.45 mi. N	0.016 (2/3) (0.004-0.027)	0.005 (1/6)	0 0
	GS 10						
	Be-7	0.103	< LLD	-	-	< LLD	0
	K-40	0.50	3.38 (9/9) (1.34-6.29)	K-24, Fictum Farm 5.45 mi. N	5.45 (3/3) (4.23-7.36)	2.34 (6/6) (1.44-3.51)	0
	Nb-95	0.012	< LLD	-	-	< LLD	0
	Zr-95	0.021	< LLD	-	-	< LLD	0
	Ru-103	0.009	< LLD	-	-	< LLD	0
	Ru-106	0.10	< LLD	-	-	< LLD	0
	Cs-134	0.010	< LLD	-	-	< LLD	0
	Cs-137	0.014	< LLD	-	-	< LLD	0
	Ce-141	0.022	< LLD	-	-	< LLD	0
	Ce-144	0.08	< LLD	-	-	< LLD	0
Grain - (Oats, Clover, Corn) (pCi/gwet)	GB 2	0.010	5.28 (2/2) (4.38-6.18)	K-23, Kewaunee Site, 0.5 mi. W	5.28 (2/2) (4.38-6.18)	None	0
	Sr-89 2	0.023	< LLD	-	-	None	0
	Sr-90 2	0.003	0.019 (1/2)	K-23, Kewaunee Site, 0.5 mi. W	0.019 (1/2)	None	0
	GS 2						
	Be-7	0.050	1.66 (2/2) (1.22-2.20)	K-23, Kewaunee Site, 0.5 mi. W	1.66 (2/2) (1.22-2.20)	None	0
	K-40	0.50	4.38 (2/2) (3.96-4.80)	K-23, Kewaunee Site, 0.5 mi. W	4.38 (2/2) (3.96-4.80)	None	0
	Nb-95	0.016	< LLD	-	-	None	0
	Zr-95	0.020	< LLD	-	-	None	0
	Ru-103	0.014	< LLD	-	-	None	0
	Ru-106	0.13	< LLD	-	-	None	0
	Cs-134	0.019	< LLD	-	-	None	0
	Cs-137	0.021	< LLD	-	-	None	0
	Ce-141	0.033	< LLD	-	-	None	0
	Ce-144	0.12	< LLD	-	-	None	0
Cattlefeed (pCi/gwet)	GB 12	0.10	12.14 (8/8) (2.42-31.62)	K-5, Paplham Farm 3.2 NNW	18.14 (2/2) (4.65-31.62)	10.89 (4/4) (4.03-19.76)	0
	Sr-89 12	0.038	< LLD	-	-	< LLD	0
	Sr-90 12	0.023	<LLD	-	-	<LLD	0
	GS 12						
	Be-7	0.12	0.37 (6/8) (0.23-0.56)	K-38, Sinkula Farm 2.45 mi. WNW	0.52 (1/2)	0.40 (4/4) (0.29-0.59)	0
	K-40	0.10	9.67 (8/8) (2.69-28.04)	K-5, Paplham Farm 3.2 NNW	15.42 (2/2) (2.79-28.04)	7.91 (4/4) (2.77-13.69)	0

Table 4.5 Environmental Radiation Monitoring Program Summary.

Name of Facility: Kewaunee Nuclear Power Plant — Docket No. 50-305
Location of Facility: Kewaunee County, Wisconsin (County, State) — Reporting Period: January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[c] Range[c]	Location with Highest Annual Mean Location[d]	Location with Highest Annual Mean Mean (F)[c] Range[c]	Control Locations Mean (F)[c] Range[c]	Number Non-Routine Results[e]
Cattlefeed (continued)	Nb-95	0.021	< LLD	-	-	< LLD	0
	Zr-95	0.026	< LLD	-	-	< LLD	0
	Ru-103	0.022	< LLD	-	-	< LLD	0
	Ru-106	0.19	< LLD	-	-	< LLD	0
	Cs-134	0.020	< LLD	-	-	< LLD	0
	Cs-137	0.020	< LLD	-	-	< LLD	0
	Ce-141	0.031	< LLD	-	-	< LLD	0
	Ce-144	0.16	< LLD	-	-	< LLD	0
Grass (pCi/gwet)	GB 24	0.10	8.60 (18/18) (5.68-12.59)	K-38, Sinkula Farm 2.45 mi. WNW	10.05 (3/3) (7.73-11.37)	8.06 (6/6) (7.01-8.70)	0
	Sr-89 24	0.030	< LLD	-	-	< LLD	0
	Sr-90 24	0.017	< LLD	-	-	< LLD	0
	GS 24						
	Be-7	0.17	2.74 (17/18) (0.25-8.22)	K-1b, Middle Creek 0.12 N	3.63 (3/3) (0.32-8.22)	2.20 (6/6) (0.29-7.7)	0
	K-40	0.50	6.25 (18/18) (4.35-8.66)	K-35, Ducat 6.71 mi. WNW	7.09 (3/3) (5.62-7.91)	6.37 (6/6) (5.65-7.91)	0
	Nb-95	0.027	< LLD	-	-	< LLD	0
	Zr-95	0.036	< LLD	-	-	< LLD	0
	Ru-103	0.031	< LLD		-	< LLD	0
	Ru-106	0.29	< LLD	-	-	< LLD	0
	Cs-134	0.027	< LLD	-	-	< LLD	0
	Cs-137	0.024	< LLD	-	-	< LLD	0
	Ce-141	0.061	< LLD	-	-	< LLD	0
	Ce-144	0.21	< LLD	-	-	< LLD	0
Soil (pCi/gdry)	GA 14	1.0	6.12 (10/10) (2.57-10.85)	K-38, Sinkula Farm 2.45 mi. WNW	9.09 (2/2) (7.32-10.85)	5.43 (4/4) (3.37-7.09)	0
	GB 14	2.0	21.48 (10/10) (21.72-31.84)	K-3, Siegmund Farm 5.9 N	30.03 (2/2) (29.16-30.90)	26.81 (4/4) (23.19-30.90)	0
	Sr-89 14	0.100	< LLD	-	-	< LLD	0
	Sr-90 14	0.028	0.032 (3/10) (0.028-0.053)	K-3, Siegmund Farm 5.9 N	0.052 (2/2) (0.051-0.053)	0.049 (3/4) (0.043-0.053)	0
	GS 14						
	Be-7	0.52	0.88 (1/10)	K-38, Sinkula Farm 2.45 mi. WNW	0.88 (1/2)	<LLD	0
	K-40	1.4	18.51 (10/10) (12.16-21.83)	K-38, Sinkula Farm 2.45 mi. WNW	20.79 (2/2) (19.74-21.83)	18.23 (4/4) (16.14-20.39)	0
	Nb-95	0.095	< LLD	-	-	< LLD	0
	Zr-95	0.102	< LLD	-	-	< LLD	0
	Ru-103	0.054	< LLD		-	< LLD	0
	Ru-106	0.23	< LLD	-	-	< LLD	0
	Cs-134	0.033	< LLD	-	-	< LLD	0
	Cs-137	0.040	0.090 (8/10) (0.043-0.14)	K-3, Siegmund Farm 5.9 N	0.16 (2/2) (0.12-0.20)	0.15 (4/4) (0.12-0.20)	0
	Ce-141	0.138	< LLD	-	-	< LLD	0
	Ce-144	0.21	< LLD	-	-	< LLD	0

Table 4.5 Environmental Radiation Monitoring Program Summary.

Name of Facility: Kewaunee Nuclear Power Plant — Docket No. 50-305
Location of Facility: Kewaunee County, Wisconsin (County, State) — Reporting Period: January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[c] Range[c]	Location with Highest Annual Mean: Location[d]	Location with Highest Annual Mean: Mean (F)[c] Range[c]	Control Locations Mean (F)[c] Range[c]	Number Non-Routine Results[e]
Surface Water	GB (TR) 100	0.8	5.0 (76/76) (0.9-32.7)	K-1k, Drainage Pond 0.60 SW	11.1 (9/9) (1.8-32.7)	1.5 (22/24) (0.8-2.3)	0
(pCi/L)	GS 100						
	Mn-54	15	< LLD	-	-	< LLD	0
	Fe-59	30	< LLD	-	-	< LLD	0
	Co-58	15	< LLD	-	-	< LLD	0
	Co-60	15	< LLD	-	-	< LLD	0
	Zn-65	30	< LLD	-	-	< LLD	0
	Zr-Nb-95	15	< LLD	-	-	< LLD	0
	Cs-134	10	< LLD	-	-	< LLD	0
	Cs-137	10	< LLD	-	-	< LLD	0
	Ba-La-140	15	< LLD	-	-	< LLD	0
	H-3 35	156	688 (4/27)	K-14a, Two Creeks Park, 2.6 mi. S	764 (1/4)	< LLD	0
	Sr-89 35	1.3	< LLD	-	-	< LLD	0
	Sr-90 35	0.8	< LLD	-	-	< LLD	0
				-	-		
	K-40 100	0.87	3.6 (76/76) (1.0-13.9)	K-1a, North Creek 0.62 N	7.5 (11/11) (4.3-13.9)	1.2 (24/24) (1.0-1.4)	0
Fish (Muscle) (pCi/gwet)	GB 3	0.5	2.54 (3/3) (2.28-2.97)	K-1d, Cond. Discharge 0.10 mi. E	2.54 (3/3) (2.28-2.97)	None	0
	GS 3						
	K-40	0.5	2.22 (3/3) (2.08-2.38)	K-1d, Cond. Discharge 0.10 mi. E	2.22 (3/3) (2.08-2.38)	None	0
	Mn-54	0.014	< LLD	-	-	None	0
	Fe-59	0.059	< LLD	-	-	None	0
	Co-58	0.028	< LLD	-	-	None	0
	Co-60	0.015	< LLD	-	-	None	0
	Cs-134	0.015	< LLD	-	-	None	0
	Cs-137	0.019	0.027 (1/3)	K-1d, Cond. Discharge 0.10 mi. E	0.027 (1/3)	None	0
Fish (Bones) (pCi/gwet)	GB 3	0.5	2.75 (3/3) (2.38-3.42)	K-1d, Cond. Discharge 0.10 mi. E	2.75 (3/3) (2.38-3.42)	None	0
	Sr-89 3	0.31	< LLD	-	-	None	0
	Sr-90 3	0.10	0.27 (3/3) (0.15-0.39)	K-1d, Cond. Discharge 0.10 mi. E	0.27 (3/3) (0.15-0.39)	None	0 0

Environmental Radiation Monitoring Program Summary.

Name of Facility: Kewaunee Nuclear Power Plant
Location of Facility: Kewaunee County, Wisconsin (County, State)
Docket No. 50-305
Reporting Period January-December, 2011

Sample Type (Units)	Type and Number of Analyses[a]	LLD[b]	Indicator Locations Mean (F)[f] Range[c]	Location with Highest Annual Mean: Location[d]	Location with Highest Annual Mean: Mean (F)[f] Range[c]	Control Locations Mean (F)[f] Range[c]	Number Non-Routine Results[e]
Periphyton (Algae)	GB 14	0.10	4.64 (12/12) (3.08-7.48)	K-9, Rostok Intake 11.5 NNE	7.14 (2/2) (7.07-7.21)	7.14 (2/2) (7.07-7.21)	0
(pCi/gwet)	Sr-89 14	0.082	< LLD	-	-	< LLD	0
	Sr-90 14	0.042	< LLD	-	-	< LLD	0
	GS 14						
	Be-7	0.12	1.04 (10/12) (0.34-2.37)	K-1b, Middle Creek 0.12 N	1.65 (1/2)	0.86 (1/2)	0
	K-40	0.5	2.83 (12/12) (1.27-4.54)	K-1k, Drainage Pond 0.60 SW	4.49 (2/2) (4.43-4.54)	4.22 (2/2) (3.65-4.78)	0
	Mn-54	0.022	< LLD	-	-	< LLD	0
	Co-58	0.012	< LLD	-	-	< LLD	0
	Co-60	0.018	< LLD	-	-	< LLD	0
	Nb-95	0.021	< LLD	-	-	< LLD	0
	Zr-95	0.028	< LLD	-	-	< LLD	0
	Ru-103	0.017	< LLD	-	-	< LLD	0
	Ru-106	0.16	< LLD	-	-	< LLD	0
	Cs-134	0.014	< LLD	-	-	< LLD	0
	Cs-137	0.018	0.025 (5/12) (0.019-0.035)	K-14, Two Creeks Park, 2.6 S	0.035 (1/2)	< LLD	0
	Ce-141	0.027	< LLD	-	-	< LLD	0
	Ce-144	0.13	< LLD	-	-	< LLD	0
Bottom Sediments	GB 10	1.0	11.86 (8/8) (6.83-18.22)	K-9, Rostok Intake 11.5 NNE	17.73 (2/2) (11.47-23.98)	17.73 (2/2) (11.47-23.98)	0
(pCi/gdry)	Sr-89 10	0.058	< LLD	-	-	< LLD	0
	Sr-90 10	0.024	0.035 (1/8)	K-14, Two Creeks Park, 2.6 S	0.035 (1/2)	< LLD	0
	GS 10						
	K-40	0.5	7.98 (8/8) (5.75-9.53)	K-9, Rostok Intake 11.5 NNE	9.77 (2/2) (8.57-10.97)	9.77 (2/2) (8.57-10.97)	0
	Co-58	0.025	< LLD	-	-	< LLD	0
	Co-60	0.019	< LLD	-	-	< LLD	0
	Cs-134	0.018	< LLD	-	-	< LLD	0
	Cs-137	0.020	0.025 (2/8) (0.021-0.028)	K-1j, Cond. Discharge 0.10 S	0.028 (1/2)	< LLD	0

[a] GA = gross alpha, GB = gross beta, GS = gamma spectroscopy, TR = total residue.
[b] LLD = nominal lower limit of detection based on a 4.66 sigma counting error for background sample.
[c] Mean and range are based on detectable measurements only (i.e., >LLD) Fraction of detectable measurements at specified locations is indicated in parentheses (F).
[d] Locations are specified by station code (Table 4.1) and distance (miles) and direction relative to reactor site.
[e] Non-routine results are those which exceed ten times the control station value. If no control station value is available, the result is considered non-routine if it exceeds ten times the preoperational value for the location.

Table 4.6 Land Use Census

The following table lists an inventory of residence, gardens ≥ 500 ft^2 and milk animals found nearest to the plant in each of the 10 meteorological sectors within a five mile radius of the Kewaunee Power Station.

Sector	Township No.	Residence	Garden	Milk Animals	Distance From Plant (miles)	Location ID
A	12			X	3.23	
A	13		X		3.05	
A	24	X			**2.18**	
B	18			X	2.69	K-34
B	24	X			1.26	
B	24		X		1.47	
R	23			X	2.21	
R	23		X		1.84	
R	26	X			0.96	K-11
Q	23	X	X		1.37	
Q	23			X	1.53	K-27
P	22			X	3.69	
P	26	X			1.42	
P	26		X		**2.63**	
N	26		X		1.16	
N	34			X	2.53	
N	35	X			1.05	
M	34		X		1.58	
M	3			X	2.55	
M	35	X			1.42	
L	35	X			1.05	
L	35		X	X	1.30	
K	15			X	3.43	
K	35	X	X		0.96	
J	11	X	X	(Note 1)	2.68	

Note 1. Bold Type denotes change from previous census.
Note 2. There were no milk animals located in Sector J within five miles of the Kewaunee Power Station.

Land Use Census (continued)

The following is a sector by sector listing of those changes between the 2010 and 2011 census.

Sector A	Township 2	S. Paplham passed away.
Sector A	Township 11	K. Repitz passed away, sons Brian and Bruce run farm. No longer have milk animals, only young heifers.
Sector A	Township 24	D. Ihlenfeldt resides in nursing home, residence appeared vacant.
Sector B	No changes	
Sector J	No changes.	
Sector K	No changes.	
Sector L	Township 2	C. Johanek passed away, new resident not confirmed.
Sector L	Township 8	G. Novitski moved, residence appeared vacant. No milk cows.
Sector M	No changes	
Sector N	No changes	
Sector P	Township 26	E. Beranek resides in nursing home, residence appeared vacant.
Sector P	Township 30	M. Dworak passed away, new resident not confirmed.
Sector Q	Township 22	D. Jandrin has moved, could not confirm resident.
Sector R	Township 23	T. Augustain expanding operations.
Sector R	Township 26	L. Ihlenfeldt allows neighbors cows to graze on property.

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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 through December, 2011

Appendix A

Interlaboratory Comparison Program Results

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

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

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

Table A-2 lists results for thermoluminescent dosimeters (TLDs), via 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 ± 2 sigma.

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

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

LABORATORY PRECISION: ONE STANDARD DEVIATION VALUES FOR VARIOUS ANALYSES[a]

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

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

[b] Laboratory limit.

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

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result [b]	ERA Result [c]	Control Limits	Acceptance
STW-1243	04/04/11	Sr-89	68.2 ± 5.8	63.2	51.1 - 71.2	Pass
STW-1243	04/04/11	Sr-90	44.3 ± 2.4	42.5	31.3 - 48.8	Pass
STW-1244	04/04/11	Ba-133	69.8 ± 3.9	75.3	63.0 - 82.8	Pass
STW-1244	04/04/11	Co-60	87.9 ± 3.8	88.8	79.9 - 100.0	Pass
STW-1244	04/04/11	Cs-134	69.5 ± 3.7	72.9	59.5 - 80.2	Pass
STW-1244	04/04/11	Cs-137	77.9 ± 5.3	77.0	69.3 - 87.4	Pass
STW-1244	04/04/11	Zn-65	105.2 ± 8.4	98.9	89.0 - 118.0	Pass
STW-1245	04/04/11	Gr. Alpha	41.5 ± 2.3	50.1	26.1 - 62.9	Pass
STW-1245	04/04/11	Gr. Beta	48.9 ± 1.8	49.8	33.8 - 56.9	Pass
STW-1246	04/04/11	I-131	26.6 ± 1.7	27.5	22.9 - 32.3	Pass
STW-1247	04/04/11	Ra-226	13.2 ± 0.6	12.1	9.0 - 14.0	Pass
STW-1247	04/04/11	Ra-228	11.2 ± 0.6	11.6	7.6 - 14.3	Pass
STW-1247	04/04/11	Uranium	36.4 ± 0.6	39.8	32.2 - 44.4	Pass
STW-1248	04/04/11	H-3	10322 ± 285	10200.0	8870 - 11200	Pass
STW-1256	10/07/11	Sr-89	68.7 ± 6.0	69.7	56.9 - 77.9	Pass
STW-1256	10/07/11	Sr-90	36.9 ± 2.4	41.1	30.2 - 47.2	Pass
STW-1257	10/07/11	Ba-133	88.2 ± 7.8	96.9	81.8 - 106.0	Pass
STW-1257	10/07/11	Co-60	116.5 ± 7.1	119.0	107.0 - 133.0	Pass
STW-1257 [d]	10/07/11	Cs-134	38.8 ± 8.0	33.4	26.3 - 36.7	Fail
STW-1257	10/07/11	Cs-137	45.6 ± 7.3	44.3	39.4 - 51.7	Pass
STW-1257	10/07/11	Zn-65	84.9 ± 15.4	76.8	68.9 - 92.5	Pass
STW-1258	10/07/11	Gr. Alpha	35.7 ± 3.8	53.2	27.8 - 66.6	Pass
STW-1258	10/07/11	Gr. Beta	36.1 ± 3.3	45.9	30.9 - 53.1	Pass
STW-1259	10/07/11	I-131	25.0 ± 1.1	27.5	22.9 - 32.3	Pass
STW-1260	10/07/11	Ra-226	12.2 ± 0.6	11.6	8.7 - 13.4	Pass
STW-1260	10/07/11	Ra-228	11.5 ± 1.7	10.3	6.7 - 12.8	Pass
STW-1260	10/07/11	Uranium	46.6 ± 0.5	48.6	39.4 - 54.0	Pass
STW-1261	10/07/11	H-3	17435 ± 382	17400	15200 - 19100	Pass

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

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

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

[d] The sample was reanalyzed. Result of reanalysis was acceptable, 32.9 ± 7.4 pCi/L.

TABLE A-2. Thermoluminescent Dosimetry, (TLD, $CaSO_4$: Dy Cards).

Lab Code	Date	Description	mR Known Value	Lab Result ± 2 sigma	Control Limits	Acceptance
Environmental, Inc.						
2010-2	12/13/2010	100 cm.	4.94	4.65 ± 0.57	3.46 - 6.42	Pass
2010-2	12/13/2010	110 cm.	4.09	3.50 ± 0.74	2.86 - 5.32	Pass
2010-2	12/13/2010	120 cm.	3.43	2.68 ± 0.36	2.40 - 4.46	Pass
2010-2	12/13/2010	150 cm.	2.2	1.75 ± 0.42	1.54 - 2.86	Pass
2010-2	12/13/2010	180 cm.	1.53	1.32 ± 0.52	1.07 - 1.99	Pass
2010-2	12/13/2010	40 cm.	30.89	38.56 ± 2.11	21.62 - 40.16	Pass
2010-2	12/13/2010	50 cm.	19.77	23.35 ± 1.82	13.84 - 25.70	Pass
2010-2	12/13/2010	60 cm.	13.73	14.53 ± 1.24	9.61 - 17.85	Pass
2010-2	12/13/2010	60 cm.	13.73	15.84 ± 1.53	9.61 - 17.85	Pass
2010-2	12/13/2010	80 cm.	7.72	8.33 ± 0.74	5.40 - 10.04	Pass
2010-2	12/13/2010	90 cm.	6.1	5.93 ± 0.73	4.27 - 7.93	Pass
Environmental, Inc.						
2011-1	7/6/2011	100 cm.	6.71	5.64 ± 0.30	4.70 - 8.72	Pass
2011-1	7/6/2011	110 cm.	5.54	4.60 ± 0.46	3.88 - 7.20	Pass
2011-1	7/6/2011	120 cm.	4.66	4.68 ± 0.29	3.26 - 6.06	Pass
2011-1	7/6/2011	150 cm.	2.98	2.93 ± 0.66	2.09 - 3.87	Pass
2011-1	7/6/2011	180 cm.	2.07	2.05 ± 0.18	1.45 - 2.69	Pass
2011-1	7/6/2011	40 cm.	41.92	52.36 ± 3.08	29.34 - 54.50	Pass
2011-1	7/6/2011	45 cm.	33.12	41.83 ± 3.46	23.18 - 43.06	Pass
2011-1	7/6/2011	50 cm.	26.83	28.61 ± 2.63	18.78 - 34.88	Pass
2011-1	7/6/2011	60 cm.	18.63	21.00 ± 1.15	13.04 - 24.22	Pass
2011-1	7/6/2011	70 cm.	13.69	13.24 ± 1.76	9.58 - 17.80	Pass
2011-1	7/6/2011	80 cm.	10.48	12.18 ± 0.65	7.34 - 13.62	Pass
2011-1	7/6/2011	90 cm.	8.28	7.95 ± 0.82	5.80 - 10.76	Pass

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

Lab Code [b]	Date	Analysis	Concentration (pCi/L)[a] Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPW-202	1/17/2011	U-238	4.19 ± 0.19	4.17	0.00 - 16.17	Pass
W-20111	2/1/2011	Ra-226	16.32 ± 0.47	16.77	11.74 - 21.80	Pass
W-20711	2/7/2011	Gr. Alpha	23.02 ± 0.45	20.00	10.00 - 30.00	Pass
W-20711	2/7/2011	Gr. Beta	46.59 ± 0.41	45.20	35.20 - 55.20	Pass
XWW-331	2/11/2011	Ba-133	144.30 ± 8.50	144.40	129.96 - 158.84	Pass
XWW-331	2/11/2011	Cs-134	22.20 ± 3.70	21.50	11.50 - 31.50	Pass
XWW-331	2/11/2011	Cs-137	64.70 ± 7.40	61.00	51.00 - 71.00	Pass
XWW-331	2/11/2011	H-3	13399 ± 334	12538	10030 - 15046	Pass
SPAP-567	2/14/2011	Gr. Beta	46.90 ± 0.11	48.10	28.86 - 67.34	Pass
SPAP-569	2/14/2011	Cs-134	7.70 ± 1.70	7.49	0.00 - 17.49	Pass
SPAP-569	2/14/2011	Cs-137	102.47 ± 3.20	106.79	96.11 - 117.47	Pass
SPAP-571	2/14/2011	H-3	75815 ± 542	73230	58584 - 87876	Pass
SPW-581	2/15/2011	Cs-134	39.91 ± 1.38	37.45	27.45 - 47.45	Pass
SPW-581	2/15/2011	Cs-137	56.28 ± 2.28	53.39	43.39 - 63.39	Pass
SPW-581	2/15/2011	Sr-89	112.92 ± 5.61	121.42	97.14 - 145.70	Pass
SPW-581	2/15/2011	Sr-90	47.80 ± 2.02	42.07	33.66 - 50.48	Pass
SPMI-583	2/15/2011	Cs-137	57.04 ± 2.76	53.39	43.39 - 63.39	Pass
SPMI-583	2/15/2011	Sr-90	36.27 ± 1.47	42.07	33.66 - 50.48	Pass
SPW-602	2/17/2011	U-238	3.98 ± 0.19	4.17	0.00 - 16.17	Pass
SPW-686	2/25/2011	Ni-63	167.41 ± 3.05	208.11	145.68 - 270.54	Pass
SPF-1113	3/17/2011	Cs-137	2369 ± 22	2170	1953 - 2387	Pass
XWW-1602	3/21/2011	Ba-133	26.83 ± 6.35	28.58	18.58 - 38.58	Pass
XWW-1602	3/21/2011	Cs-134	18.90 ± 4.06	16.30	6.30 - 26.30	Pass
XWW-1602	3/21/2011	Cs-137	33.98 ± 5.88	30.50	20.50 - 40.50	Pass
XWW-1602	3/21/2011	H-3	7348 ± 248	7617	6094 - 9140	Pass
XWW-2537	4/4/2011	Ba-133	43.40 ± 4.26	42.70	32.70 - 52.70	Pass
XWW-2537	4/4/2011	Cs-134	13.50 ± 2.40	11.90	1.90 - 21.90	Pass
XWW-2537	4/4/2011	Cs-137	68.30 ± 5.90	60.70	50.70 - 70.70	Pass
XWW-2537	4/4/2011	H-3	7134 ± 257	7234	5787 - 8681	Pass
SPW-2877	5/3/2011	Ra-228	25.23 ± 2.48	31.62	22.13 - 41.11	Pass
SPMI-3167	5/24/2011	Cs-134	33.04 ± 8.25	34.19	24.19 - 44.19	Pass
SPMI-3167	5/24/2011	Cs-137	51.53 ± 8.63	53.06	43.06 - 63.06	Pass
SPMI-3167	5/24/2011	Sr-89	90.89 ± 4.30	93.47	74.78 - 112.16	Pass
SPMI-3167	5/24/2011	Sr-90	41.17 ± 1.53	41.80	33.44 - 50.16	Pass
W-52411	5/24/2011	Ra-226	17.90 ± 0.42	16.80	11.76 - 21.84	Pass
W-60711	6/7/2011	Gr. Alpha	23.00 ± 0.49	20.00	10.00 - 30.00	Pass
W-60711	6/7/2011	Gr. Beta	43.27 ± 0.42	45.20	35.20 - 55.20	Pass
SPAP-4167	7/7/2011	Cs-134	6.92 ± 1.45	6.57	0.00 - 16.57	Pass
SPAP-4167	7/7/2011	Cs-137	108.02 ± 2.84	105.80	95.22 - 116.38	Pass
SPW-4169	7/7/2011	Cs-134	34.52 ± 4.79	32.84	22.84 - 42.84	Pass
SPW-4169	7/7/2011	Cs-137	58.29 ± 6.19	52.92	42.92 - 62.92	Pass

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

Lab Code [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1	Known Activity	Control Limits[c]	Acceptance
SPW-4169	7/7/2011	Sr-89	66.12 ± 4.18	69.64	55.71 - 83.57	Pass
SPW-4169	7/7/2011	Sr-90	41.72 ± 1.79	41.68	33.34 - 50.02	Pass
SPW-4171	7/7/2011	H-3	70582 ± 767	71646	57317 - 85975	Pass
SPW-4180	7/7/2011	Tc-99	95.69 ± 1.65	97.02	67.91 - 126.13	Pass
SPW-41821	7/7/2011	Ra-228	32.57 ± 2.63	30.63	21.44 - 39.82	Pass
SPW-4241	7/7/2011	Ni-63	403.01 ± 4.66	415.20	290.64 - 539.76	Pass
SPW-4180	7/8/2011	Tc-99	100.30 ± 1.75	97.02	67.91 - 126.13	Pass
SPW-5029	7/29/2011	C-14	3991 ± 17	4739	2843 - 6634	Pass
SPW-5031	7/29/2011	Fe-55	13801 ± 331	14895	11916 - 17874	Pass
W-91411	9/14/2011	Gr. Alpha	21.58 ± 0.44	20.00	10.00 - 30.00	Pass
W-91411	9/14/2011	Gr. Beta	43.02 ± 0.40	45.20	35.20 - 55.20	Pass
SPW-91511	9/15/2011	Tc-99	29.92 ± 1.07	32.34	20.34 - 44.34	Pass
W-91911	9/19/2011	Ra-226	17.06 ± 0.42	16.80	11.76 - 21.84	Pass
W-100711	10/7/2011	Gr. Alpha	22.05 ± 0.45	20.00	10.00 - 30.00	Pass
W-100711	10/7/2011	Gr. Beta	45.51 ± 0.41	45.20	35.20 - 55.20	Pass
W-101111	10/11/2011	Ra-226	16.02 ± 0.40	16.80	11.76 - 21.84	Pass
XWW-7220	11/17/2011	Ba-133	25.11 ± 4.36	27.47	17.47 - 37.47	Pass
XWW-7220	11/17/2011	Cs-134	14.09 ± 3.11	16.60	6.60 - 26.60	Pass
XWW-7220	11/17/2011	Cs-137	35.59 ± 4.28	29.98	19.98 - 39.98	Pass
W-113011	11/30/2011	Ra-226	16.12 ± 0.39	16.80	11.76 - 21.84	Pass
W-120111	12/1/2011	Gr. Alpha	21.34 ± 0.43	20.00	10.00 - 30.00	Pass
W-120111	12/1/2011	Gr. Beta	45.55 ± 0.41	45.20	35.20 - 55.20	Pass
SPW-41823	12/9/2011	Ra-228	26.98 ± 2.38	29.40	20.58 - 38.22	Pass
SPMI-8906	12/22/2011	Cs-134	29.11 ± 3.52	28.14	18.14 - 38.14	Pass
SPMI-8906	12/22/2011	Cs-137	58.27 ± 7.62	52.36	42.36 - 62.36	Pass
SPW-8916	12/22/2011	Cs-134	31.74 ± 3.63	28.14	18.14 - 38.14	Pass
SPW-8916	12/22/2011	Cs-137	56.48 ± 6.12	52.36	42.36 - 62.36	Pass
SPAP-8902	12/23/2011	Gr. Beta	45.72 ± 0.11	47.11	28.27 - 65.95	Pass
SPAP-8904	12/23/2011	Cs-134	5.19 ± 0.63	5.63	0.00 - 15.63	Pass
SPAP-8904	12/23/2011	Cs-137	101.21 ± 2.55	104.71	94.24 - 115.18	Pass
SPW-8918	12/23/2011	H-3	136759 ± 1056	137638	110110 - 165166	Pass
SPW-8922	12/23/2011	Ni-63	202.21 ± 3.75	206.88	144.82 - 268.94	Pass
SPW-8924	12/23/2011	Tc-99	126.10 ± 1.86	129.36	90.55 - 168.17	Pass
SPF-8926	12/23/2011	Cs-134	0.34 ± 0.01	0.33	0.20 - 0.47	Pass
SPF-8926	12/23/2011	Cs-137	2.34 ± 0.02	2.09	1.25 - 2.93	Pass

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

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

[c] Results are based on single determinations.

[d] Control limits are established from the precision values listed in Attachment A of this report, adjusted to ± 2σ.

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

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

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-202	Water	1/17/2011	U-238	0.10	0.12 ± 0.12	1
W-20111	Water	2/1/2011	Ra-226	0.04	0.05 ± 0.03	1
W-20711	Water	2/7/2011	Gr. Alpha	0.44	-0.02 ± 0.29	1
W-20711	Water	2/7/2011	Gr. Beta	0.75	-0.03 ± 0.53	3.2
SPAP-566	Air Filter	2/14/2011	Gr. Beta	0.64	2.24 ± 0.61	3.2
SPAP-568	Air Filter	2/14/2011	Cs-134	2.34	-	100
SPAP-568	Air Filter	2/14/2011	Cs-137	1.56	-	100
SPAP-570	Air Filter	2/14/2011	H-3	103.20	-49.40 ± 52.50	200
SPW-580	Water	2/15/2011	Cs-134	2.68	-	10
SPW-580	Water	2/15/2011	Cs-137	2.84	-	10
SPW-580	Water	2/15/2011	Sr-89	0.73	0.24 ± 0.57	5
SPW-580	Water	2/15/2011	Sr-90	0.57	0.02 ± 0.27	1
SPMI-582	Milk	2/15/2011	Cs-134	3.49	-	10
SPMI-582	Milk	2/15/2011	Cs-137	3.54	-	10
SPMI-582	Milk	2/15/2011	I-131(G)	4.14	-	20
SPMI-582	Milk	2/15/2011	Sr-89	0.71	0.16 ± 0.67	5
SPMI-582	Milk	2/15/2011	Sr-90	0.55	0.59 ± 0.32	1
SPW-601	Water	2/17/2011	U-238	0.20	0.09 ± 0.17	1
SPW-685	Water	2/25/2011	Ni-63	1.61	0.05 ± 0.98	20
SPF-1112	Fish	3/17/2011	Cs-134	6.74	-	100
SPF-1112	Fish	3/17/2011	Cs-137	5.45	-	100
BKW-40111	Water	4/1/2011	I-131	4.16	-	10
BKW-40111	Water	4/1/2011	Co-60	3.11	-	10
BKW-40111	Water	4/1/2011	Cs-134	4.73	-	10
BKW-40111	Water	4/1/2011	Cs-137	5.04	-	10
SPW-2887	Water	5/3/2011	Ra-228	0.72	0.46 ± 0.39	2
W-52411	Water	5/24/2011	Ra-226	0.04	0.05 ± 0.03	1
W-60711	Water	6/7/2011	Gr. Alpha	0.51	0.00 ± 0.36	1
W-60711	Water	6/7/2011	Gr. Beta	1.58	0.38 ± 1.12	3.2
SPAP-4164	Air Filter	7/7/2011	Gr. Beta	0.72	1.04 ± 0.48	3.2
SPW-4168	Water	7/7/2011	Cs-134	3.41	-	10
SPW-4168	Water	7/7/2011	Cs-137	2.45	-	10
SPW-4168	Water	7/7/2011	Sr-89	0.72	0.40 ± 0.50	5
SPW-4168	Water	7/7/2011	Sr-90	0.51	-0.19 ± 0.21	1
SPW-4171	Water	7/7/2011	H-3	152.00	37.10 ± 81.80	200
SPW-41811	Water	7/7/2011	Ra-228	0.77	0.51 ± 0.42	2

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

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-4241	Water	7/7/2011	Ni-63	1.70	0.09 ± 1.03	20
SPW-4179	Water	7/8/2011	Tc-99	1.20	-0.96 ± 0.71	10
SPW-5028	Water	7/29/2011	C-14	109.80	61.90 ± 59.20	200
SPW-5031	Water	7/29/2011	Fe-55	140.60	0.00 ± 85.30	1000
W-91411	Water	9/14/2011	Gr. Alpha	0.48	-0.06 ± 0.33	1
W-91411	Water	9/14/2011	Gr. Beta	0.78	-0.43 ± 0.53	3.2
SPW-91511	Water	9/15/2011	Tc-99	1.11	-0.62 ± 0.66	10
W-91911	Water	9/19/2011	Ra-226	0.03	0.04 ± 0.02	1
W-100711	Water	10/7/2011	Gr. Alpha	0.44	-0.26 ± 0.28	1
W-100711	Water	10/7/2011	Gr. Beta	0.76	-0.43 ± 0.52	3.2
W-101111	Water	10/11/2011	Ra-226	0.04	0.05 ± 0.03	1
W-113011	Water	11/30/2011	Ra-226	0.03	0.04 ± 0.02	1
W-120111	Water	12/1/2011	Gr. Alpha	0.41	-0.20 ± 0.27	1
W-120111	Water	12/1/2011	Gr. Beta	0.75	-0.10 ± 0.53	3.2
SPW-41813	Water	12/9/2011	Ra-228	0.71	0.17 ± 0.35	2
SPMI-8905	Milk	12/22/2011	Cs-134	3.27	-	10
SPMI-8905	Milk	12/22/2011	Cs-137	3.38	-	10
SPMI-8905	Milk	12/22/2011	I-131(G)	2.17	-	20
SPW-8915	Water	12/22/2011	Cs-134	3.37	-	10
SPW-8915	Water	12/22/2011	Cs-137	3.45	-	10
SPW-8915	Water	12/22/2011	I-131(G)	3.38	-	20
SPAP-8901	Air Filter	12/23/2011	Gr. Beta	0.78	0.50 ± 0.46	3.2
SPAP-8903	Air Filter	12/23/2011	Cs-134	1.65	-	100
SPAP-8903	Air Filter	12/23/2011	Cs-137	2.41	-	100
SPW-8917	Water	12/23/2011	H-3	150.20	-3.04 ± 78.80	200
SPW-8921	Water	12/23/2011	Ni-63	16.92	-4.60 ± 10.16	20
SPW-8923	Water	12/23/2011	Tc-99	5.66	-5.45 ± 3.34	10
SPF-8925	Fish	12/23/2011	Cs-134	7.15	-	100
SPF-8925	Fish	12/23/2011	Cs-137	9.73	-	100

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

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

[c] Activity reported is a net activity result. For gamma spectroscopic analysis, activity detected below the LLD value is not reported.

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
CF-20, 21	1/3/2011	Be-7	0.24 ± 0.14	0.34 ± 0.17	0.29 ± 0.11	Pass
CF-20, 21	1/3/2011	K-40	10.37 ± 0.43	9.76 ± 0.68	10.07 ± 0.40	Pass
CF-20, 21	1/3/2011	Sr-90	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.00	Pass
WW-65, 66	1/6/2011	H-3	321.91 ± 97.19	345.76 ± 98.16	333.83 ± 69.06	Pass
BS-165, 166	1/11/2011	Cs-137	0.13 ± 0.02	0.15 ± 0.02	0.14 ± 0.01	Pass
BS-165, 166	1/11/2011	H-3	286.00 ± 80.00	284.00 ± 80.00	285.00 ± 56.57	Pass
BS-165, 166	1/11/2011	K-40	14.11 ± 0.52	13.79 ± 0.60	13.95 ± 0.40	Pass
BS-176, 177	1/11/2011	H-3	391.00 ± 92.00	332.00 ± 89.00	361.50 ± 64.00	Pass
BS-176, 177	1/11/2011	K-40	9.06 ± 0.44	8.28 ± 0.81	8.67 ± 0.46	Pass
BS-197, 198	1/11/2011	Cs-137	0.14 ± 0.03	0.15 ± 0.04	0.15 ± 0.03	Pass
BS-197, 198	1/11/2011	H-3	459.00 ± 103.00	283.00 ± 95.00	371.00 ± 70.06	Pass
BS-197, 198	1/11/2011	K-40	14.40 ± 0.77	14.16 ± 1.23	14.28 ± 0.73	Pass
WW-358, 359	1/17/2011	H-3	331.44 ± 93.05	407.65 ± 95.91	369.55 ± 66.81	Pass
DW-20009, 20010	1/19/2011	Ra-226	3.66 ± 0.57	2.74 ± 0.43	3.20 ± 0.36	Pass
DW-20009, 20010	1/19/2011	Ra-228	1.51 ± 0.64	1.36 ± 0.60	1.44 ± 0.44	Pass
WW-337, 338	1/25/2011	H-3	21986.00 ± 402.00	21896.00 ± 401.00	21941.00 ± 283.90	Pass
W-491, 492	1/27/2011	Ra-226	6.70 ± 0.50	6.10 ± 0.50	6.40 ± 0.35	Pass
W-491, 492	1/27/2011	Ra-228	6.60 ± 1.30	8.40 ± 1.40	7.50 ± 0.96	Pass
DW-20014, 20015	1/28/2011	Gr. Alpha	1.91 ± 0.71	2.34 ± 0.80	2.13 ± 0.53	Pass
SWU-447, 448	1/31/2011	Gr. Beta	7.42 ± 1.17	6.85 ± 1.11	7.14 ± 0.81	Pass
W-694, 695	2/7/2011	H-3	628.26 ± 104.30	692.37 ± 106.89	660.32 ± 74.67	Pass
DW-20022, 20023	2/9/2011	Ra-228	0.71 ± 0.47	1.13 ± 0.54	0.92 ± 0.36	Pass
SW-626, 627	2/16/2011	H-3	1268.17 ± 129.52	1144.65 ± 125.39	1206.41 ± 90.14	Pass
LW-825, 826	2/24/2011	Gr. Beta	2.65 ± 0.82	2.45 ± 0.74	2.55 ± 0.55	Pass
SWT-845, 846	3/1/2011	Gr. Beta	1.11 ± 0.39	0.80 ± 0.37	0.96 ± 0.27	Pass
MI-998, 999	3/7/2011	K-40	1760.10 ± 127.50	1708.50 ± 131.60	1734.30 ± 91.62	Pass
W-1024, 1025	3/7/2011	H-3	489.83 ± 101.09	581.39 ± 105.06	535.61 ± 72.90	Pass
WW-1156, 1157	3/16/2011	Gr. Beta	1.79 ± 0.78	0.47 ± 0.66	1.13 ± 0.51	Pass
P-1198, 1199	3/17/2011	H-3	504.00 ± 133.00	597.00 ± 136.00	550.50 ± 95.11	Pass
SW-1434, 1435	3/28/2011	H-3	15523.00 ± 359.00	15968.00 ± 364.00	15745.50 ± 255.63	Pass
WW-1588, 1589	3/28/2011	Gr. Beta	1.81 ± 1.23	2.81 ± 1.38	2.31 ± 0.92	Pass
SG-1714, 1715	3/28/2011	Gr. Alpha	8.82 ± 0.81	8.58 ± 0.74	8.70 ± 0.55	Pass
SG-1714, 1715	3/28/2011	Gr. Beta	13.78 ± 0.65	12.76 ± 0.58	13.27 ± 0.44	Pass
AP-1862, 1863	3/28/2011	Be-7	0.09 ± 0.02	0.08 ± 0.02	0.08 ± 0.01	Pass
W-2143, 2144	3/28/2011	H-3	536.40 ± 99.37	466.79 ± 96.46	501.59 ± 69.25	Pass
AP-2269, 2270	3/28/2011	Be-7	0.07 ± 0.01	0.08 ± 0.01	0.07 ± 0.01	Pass
DW-20061, 20062	3/28/2011	Gr. Alpha	2.82 ± 1.33	3.89 ± 1.26	3.36 ± 0.92	Pass
SWU-1455, 1456	3/29/2011	Gr. Beta	2.50 ± 0.75	2.75 ± 0.83	2.62 ± 0.56	Pass
SWU-1522, 1523	3/29/2011	Gr. Beta	1.36 ± 0.87	2.14 ± 0.96	1.75 ± 0.65	Pass
PM-1543, 1544	3/29/2011	Gr. Beta	13.81 ± 0.26	13.67 ± 0.27	13.74 ± 0.19	Pass
PM-1543, 1544	3/29/2011	Sr-90	8.12 ± 3.20	7.71 ± 3.25	7.91 ± 2.28	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
SWT-5885, 5886	3/29/2011	Gr. Beta	1.21 ± 0.54	0.77 ± 0.54	0.99 ± 0.38	Pass
AP-1883, 1884	3/30/2011	Be-7	0.07 ± 0.01	0.09 ± 0.02	0.08 ± 0.01	Pass
AP-2248, 2249	3/30/2011	Be-7	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	Pass
DW-20066, 20067	3/30/2011	Ra-226	2.14 ± 0.16	2.10 ± 0.16	2.12 ± 0.11	Pass
DW-20066, 20067	3/30/2011	Ra-228	2.55 ± 0.65	1.78 ± 0.62	2.17 ± 0.45	Pass
P-1567, 1568	4/1/2011	H-3	289.00 ± 103.00	296.00 ± 103.00	292.50 ± 72.83	Pass
MI-1609, 1610	4/4/2011	I-131	0.85 ± 0.17	0.91 ± 0.18	0.88 ± 0.13	Pass
MI-1609, 1610	4/4/2011	K-40	1323.80 ± 112.00	1323.20 ± 96.22	1323.50 ± 73.83	Pass
MI-1609, 1610	4/4/2011	Sr-90	0.85 ± 0.33	0.97 ± 0.34	0.91 ± 0.24	Pass
S-1651, 1652	4/4/2011	Ac-228	0.88 ± 0.08	1.03 ± 0.22	0.96 ± 0.12	Pass
S-1651, 1652	4/4/2011	Pb-214	1.09 ± 0.12	0.84 ± 0.16	0.97 ± 0.10	Pass
AP-1841, 1842	4/7/2011	Be-7	0.12 ± 0.02	0.12 ± 0.01	0.12 ± 0.01	Pass
AP-1841, 1842	4/7/2011	Cs-137	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00	Pass
AP-1841, 1842	4/7/2011	I-131(G)	0.02 ± 0.00	0.03 ± 0.00	0.03 ± 0.00	Pass
S-1990, 1991	4/7/2011	Ac-228	15.83 ± 0.39	16.12 ± 0.64	15.98 ± 0.37	Pass
S-1990, 1991	4/7/2011	Pb-214	11.21 ± 0.23	11.81 ± 1.22	11.51 ± 0.62	Pass
WW-2552, 2553	4/7/2011	H-3	761.09 ± 116.48	759.04 ± 116.41	760.07 ± 82.34	Pass
PM-1904, 1905	4/11/2011	K-40	13585.00 ± 611.00	14278.00 ± 648.00	13931.50 ± 445.32	Pass
PM-1904, 1905	4/11/2011	Sr-90	9.94 ± 3.05	5.62 ± 2.52	7.78 ± 1.98	Pass
P-2011, 2012	4/11/2011	H-3	670.00 ± 108.00	619.00 ± 106.00	644.50 ± 75.66	Pass
WW-2053, 2054	4/13/2011	H-3	220.20 ± 86.50	246.80 ± 87.80	233.50 ± 61.63	Pass
BS-2095, 2096	4/13/2011	K-40	12.88 ± 0.72	13.56 ± 1.08	13.22 ± 0.65	Pass
DW-20099, 20100	4/13/2011	U-233/4	1.64 ± 0.40	1.31 ± 0.34	1.48 ± 0.26	Pass
DW-20099, 20100	4/13/2011	U-238	1.49 ± 0.39	1.28 ± 0.33	1.39 ± 0.26	Pass
WW-2416, 2417	4/19/2011	H-3	217.10 ± 97.00	184.90 ± 95.60	201.00 ± 68.10	Pass
P-2185, 2186	4/20/2011	H-3	405.00 ± 93.00	504.00 ± 98.00	454.50 ± 67.55	Pass
WW-2353, 2354	4/20/2011	H-3	525.54 ± 119.74	399.41 ± 115.99	462.48 ± 83.35	Pass
DW-20115, 20116	4/26/2011	U-233/4	11.94 ± 2.34	10.71 ± 1.19	11.33 ± 1.31	Pass
DW-20115, 20116	4/26/2011	U-238	2.70 ± 1.15	3.89 ± 0.72	3.30 ± 0.68	Pass
SO-2960, 2961	4/27/2011	K-40	22.63 ± 1.36	22.90 ± 0.03	22.77 ± 0.68	Pass
MI-2657, 2658	5/2/2011	K-40	1319.30 ± 101.30	1403.20 ± 131.60	1361.25 ± 83.04	Pass
DW-20130, 20131	5/2/2011	U-233/4	7.59 ± 0.90	7.62 ± 0.83	7.61 ± 0.61	Pass
DW-20130, 20131	5/2/2011	U-238	4.67 ± 0.72	4.84 ± 0.66	4.76 ± 0.49	Pass
DW-20148, 20149	5/3/2011	U-233/4	6.64 ± 0.83	6.35 ± 0.81	6.50 ± 0.58	Pass
DW-20148, 20149	5/3/2011	U-238	6.11 ± 0.83	5.18 ± 0.73	5.65 ± 0.55	Pass
PM-2810, 2811	5/4/2011	Cs-134	18.64 ± 12.16	33.33 ± 11.86	25.99 ± 8.49	Pass
PM-2810, 2811	5/4/2011	Cs-137	28.99 ± 14.92	21.17 ± 12.16	25.08 ± 9.62	Pass
PM-2810, 2811	5/4/2011	K-40	14368.00 ± 720.00	14309.00 ± 638.00	14338.50 ± 481.00	Pass
WW-3065, 3066	5/16/2011	H-3	280.51 ± 86.98	179.46 ± 82.83	229.98 ± 60.05	Pass
WW-3086, 3087	5/16/2011	H-3	341.14 ± 85.94	377.97 ± 87.43	359.56 ± 61.30	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
SG-3134, 3135	5/16/2011	Ac-228	11.19 ± 0.82	12.50 ± 0.84	11.85 ± 0.59	Pass
SG-3134, 3135	5/16/2011	Pb-214	9.12 ± 0.17	9.37 ± 0.42	9.25 ± 0.23	Pass
F-3221, 3222	5/23/2011	K-40	2.73 ± 0.39	2.81 ± 0.42	2.77 ± 0.29	Pass
SS-3434, 3435	5/25/2011	K-40	11533.00 ± 563.70	11236.00 ± 566.10	11384.50 ± 399.45	Pass
AP-3329, 3330	5/26/2011	Be-7	0.24 ± 0.11	0.23 ± 0.13	0.24 ± 0.08	Pass
WW-3350, 3351	6/1/2011	H-3	235.37 ± 83.98	173.12 ± 81.05	204.25 ± 58.36	Pass
G-3413, 3414	6/1/2011	Be-7	0.28 ± 0.10	0.25 ± 0.09	0.27 ± 0.07	Pass
G-3413, 3414	6/1/2011	Gr. Beta	11.04 ± 0.31	10.85 ± 0.31	10.95 ± 0.22	Pass
G-3413, 3414	6/1/2011	K-40	6.80 ± 0.33	6.71 ± 0.38	6.76 ± 0.25	Pass
AP-3602, 3603	6/3/2011	Be-7	0.20 ± 0.08	0.25 ± 0.10	0.22 ± 0.07	Pass
SO-3797, 3798	6/8/2011	Ac-228	0.99 ± 0.05	1.00 ± 0.06	1.00 ± 0.04	Pass
SO-3797, 3798	6/8/2011	Bi-212	1.10 ± 0.12	1.08 ± 0.17	1.09 ± 0.10	Pass
SO-3797, 3798	6/8/2011	Bi-214	0.87 ± 0.02	0.86 ± 0.02	0.87 ± 0.01	Pass
SO-3797, 3798	6/8/2011	Cs-137	0.41 ± 0.01	0.39 ± 0.01	0.40 ± 0.01	Pass
SO-3797, 3798	6/8/2011	K-40	16.08 ± 0.26	16.27 ± 0.29	16.18 ± 0.19	Pass
SO-3797, 3798	6/8/2011	Pb-212	0.98 ± 0.10	0.93 ± 0.02	0.96 ± 0.05	Pass
SO-3797, 3798	6/8/2011	Pb-214	0.95 ± 0.02	0.91 ± 0.02	0.93 ± 0.01	Pass
SO-3797, 3798	6/8/2011	Th-232	0.47 ± 0.05	0.49 ± 0.04	0.48 ± 0.03	Pass
SO-3797, 3798	6/8/2011	U-233/4	0.16 ± 0.02	0.15 ± 0.02	0.16 ± 0.01	Pass
SO-3797, 3798	6/8/2011	U-238	0.16 ± 0.02	0.13 ± 0.02	0.15 ± 0.01	Pass
MI-3935, 3936	6/20/2011	K-40	1764.60 ± 119.40	1843.10 ± 136.50	1803.85 ± 90.68	Pass
BS-4172, 4173	6/21/2011	Cs-137	51.50 ± 23.78	48.57 ± 17.06	50.04 ± 14.63	Pass
BS-4172, 4173	6/21/2011	K-40	11730.00 ± 679.60	11120.00 ± 512.30	11425.00 ± 425.53	Pass
DW-20183, 20184	6/21/2011	U-233/4	10.00 ± 1.00	8.40 ± 0.90	9.20 ± 0.67	Pass
DW-20183, 20184	6/21/2011	U-238	6.70 ± 0.80	6.10 ± 0.80	6.40 ± 0.57	Pass
WW-4019, 4020	6/24/2011	Gr. Beta	3.56 ± 1.20	3.16 ± 1.21	3.36 ± 0.85	Pass
PM-4193, 4194	6/30/2011	K-40	14795.00 ± 759.00	14660.00 ± 750.00	14727.50 ± 533.52	Pass
LW-4235, 4236	6/30/2011	Gr. Beta	2.70 ± 0.72	2.11 ± 0.78	2.41 ± 0.53	Pass
AP-4367, 4368	7/7/2011	Be-7	0.17 ± 0.10	0.19 ± 0.11	0.18 ± 0.07	Pass
MI-4416, 4417	7/11/2011	K-40	1342.40 ± 91.49	1447.00 ± 114.80	1394.70 ± 73.40	Pass
W-4914, 4915	7/11/2011	H-3	576.36 ± 110.35	584.67 ± 110.67	580.52 ± 78.14	Pass
MI-4438, 4439	7/12/2011	K-40	1280.60 ± 107.50	1381.20 ± 112.70	1330.90 ± 77.87	Pass
VE-4481, 4482	7/13/2011	K-40	4452.60 ± 332.40	4767.90 ± 349.70	4610.25 ± 241.24	Pass
AP-4677, 4678	7/15/2011	Be-7	0.18 ± 0.08	0.23 ± 0.09	0.20 ± 0.06	Pass
W-5537, 5538	7/18/2011	H-3	650.13 ± 105.19	695.39 ± 106.94	672.76 ± 75.00	Pass
P-4764, 4765	7/19/2011	H-3	179.82 ± 84.81	138.72 ± 82.79	159.27 ± 59.26	Pass
WW-5211, 5212	7/24/2011	H-3	191.94 ± 85.50	136.22 ± 82.76	164.08 ± 59.50	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
VE-4998, 4999	7/25/2011	Be-7	543.90 ± 158.20	488.30 ± 163.80	516.10 ± 113.86	Pass
VE-4998, 4999	7/25/2011	K-40	2562.20 ± 319.80	2414.00 ± 350.00	2488.10 ± 237.05	Pass
DW-20258, 20259	7/25/2011	U-233/4	21.34 ± 1.52	24.93 ± 2.93	23.14 ± 1.65	Pass
DW-20258, 20259	7/25/2011	U-235	0.57 ± 0.26	0.69 ± 0.26	0.63 ± 0.18	Pass
DW-20258, 20259	7/25/2011	U-238	14.11 ± 1.24	15.81 ± 1.23	14.96 ± 0.87	Pass
DW-20269, 20270	7/25/2011	U-233/4	4.93 ± 0.73	4.65 ± 0.68	4.79 ± 0.50	Pass
DW-20269, 20270	7/25/2011	U-238	3.26 ± 0.60	2.53 ± 0.50	2.90 ± 0.39	Pass
DW-20280, 20281	7/25/2011	U-233/4	3.58 ± 0.58	3.33 ± 0.56	3.46 ± 0.40	Pass
DW-20280, 20281	7/25/2011	U-238	1.64 ± 0.40	2.11 ± 0.45	1.88 ± 0.30	Pass
MI-5019, 5020	7/26/2011	K-40	1348.50 ± 101.00	1347.40 ± 109.70	1347.95 ± 74.56	Pass
W-5447, 5448	7/26/2011	H-3	246.31 ± 99.19	241.99 ± 99.02	244.15 ± 70.08	Pass
G-5124, 5125	7/28/2011	Gr. Beta	7.48 ± 0.20	7.17 ± 0.19	7.33 ± 0.14	Pass
AP-5232, 5233	7/28/2011	Be-7	0.15 ± 0.08	0.22 ± 0.13	0.19 ± 0.08	Pass
SL-5169, 5170	8/1/2011	Be-7	2.37 ± 0.16	2.17 ± 0.17	2.27 ± 0.12	Pass
SL-5169, 5170	8/1/2011	Gr. Beta	4.74 ± 0.45	3.94 ± 0.39	4.34 ± 0.30	Pass
SL-5169, 5170	8/1/2011	K-40	3.12 ± 0.16	2.96 ± 0.21	3.04 ± 0.13	Pass
G-5190, 5191	8/1/2011	Be-7	3.14 ± 0.30	3.44 ± 0.27	3.29 ± 0.20	Pass
G-5190, 5191	8/1/2011	Gr. Beta	8.07 ± 0.28	7.86 ± 0.27	7.97 ± 0.19	Pass
G-5190, 5191	8/1/2011	K-40	5.51 ± 0.46	5.57 ± 0.44	5.54 ± 0.32	Pass
DW-20291, 20292	8/2/2011	U-233/4	3.24 ± 0.54	2.60 ± 0.50	2.92 ± 0.37	Pass
DW-20291, 20292	8/2/2011	U-238	1.59 ± 0.38	2.00 ± 0.43	1.80 ± 0.29	Pass
SG-5342, 5343	8/5/2011	Ac-228	14.41 ± 0.36	14.13 ± 0.48	14.27 ± 0.30	Pass
SG-5342, 5343	8/5/2011	Bi-212	4.14 ± 0.65	4.73 ± 1.21	4.44 ± 0.69	Pass
SG-5342, 5343	8/5/2011	K-40	7.67 ± 0.92	7.95 ± 1.21	7.81 ± 0.76	Pass
SG-5342, 5343	8/5/2011	Pb-214	10.72 ± 0.21	10.67 ± 0.28	10.70 ± 0.18	Pass
SG-5342, 5343	8/5/2011	Tl-208	0.96 ± 0.06	1.00 ± 0.06	0.98 ± 0.04	Pass
MI-5405, 5406	8/8/2011	K-40	1545.30 ± 116.00	1388.00 ± 98.20	1466.65 ± 75.99	Pass
DW-20301, 20302	8/9/2011	Gr. Alpha	6.36 ± 1.09	5.30 ± 1.08	5.83 ± 0.77	Pass
DW-20301, 20302	8/9/2011	Gr. Beta	14.36 ± 0.92	13.51 ± 0.89	13.94 ± 0.64	Pass
DW-5603, 5604	8/16/2011	Ra-228	1.68 ± 0.88	2.26 ± 0.91	1.97 ± 0.63	Pass
VE-5753, 5754	8/22/2011	Be-7	0.78 ± 0.20	0.75 ± 0.23	0.77 ± 0.15	Pass
VE-5753, 5754	8/22/2011	K-40	6.16 ± 0.51	6.63 ± 0.57	6.40 ± 0.38	Pass
S-5801, 5802	8/29/2011	Ac-228	0.43 ± 0.09	0.38 ± 0.07	0.41 ± 0.06	Pass
S-5801, 5802	8/29/2011	K-40	6.54 ± 0.51	5.96 ± 0.49	6.25 ± 0.35	Pass
S-5801, 5802	8/29/2011	Pb-212	0.31 ± 0.03	0.36 ± 0.03	0.34 ± 0.02	Pass
S-5801, 5802	8/29/2011	Pb-214	0.28 ± 0.04	0.25 ± 0.04	0.27 ± 0.03	Pass
S-5801, 5802	8/29/2011	Tl-208	0.14 ± 0.02	0.12 ± 0.02	0.13 ± 0.01	Pass
S-5801, 5802	8/29/2011	U-235	0.05 ± 0.02	0.04 ± 0.01	0.05 ± 0.01	Pass
ME-5996, 5997	9/1/2011	Gr. Alpha	0.03 ± 0.02	0.03 ± 0.02	0.03 ± 0.01	Pass
ME-5996, 5997	9/1/2011	Gr. Beta	2.55 ± 0.07	2.62 ± 0.07	2.58 ± 0.05	Pass
ME-5996, 5997	9/1/2011	K-40	2.66 ± 0.35	2.24 ± 0.58	2.45 ± 0.34	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
SL-6017, 6018	9/6/2011	Be-7	0.47 ± 0.17	0.51 ± 0.19	0.49 ± 0.13	Pass
SL-6017, 6018	9/6/2011	Gr. Beta	4.23 ± 0.16	3.94 ± 0.15	4.09 ± 0.11	Pass
SL-6017, 6018	9/6/2011	K-40	4.43 ± 0.55	4.24 ± 0.53	4.34 ± 0.38	Pass
VE-6038, 6039	9/7/2011	Sr-90	1.86 ± 0.98	2.30 ± 0.92	2.08 ± 0.67	Pass
SW-6059, 6060	9/8/2011	H-3	219.75 ± 97.52	177.41 ± 95.76	198.58 ± 68.34	Pass
VE-6302, 6303	9/13/2011	Be-7	0.76 ± 0.24	0.85 ± 0.20	0.81 ± 0.16	Pass
VE-6302, 6303	9/13/2011	Gr. Beta	27.00 ± 1.02	25.50 ± 0.95	26.25 ± 0.70	Pass
VE-6302, 6303	9/13/2011	H-3	6966.00 ± 249.00	6947.00 ± 249.00	6956.50 ± 176.07	Pass
VE-6302, 6303	9/13/2011	K-40	20.62 ± 0.68	20.63 ± 0.64	20.63 ± 0.47	Pass
W-7098, 7099	9/19/2011	H-3	586.61 ± 103.06	525.71 ± 100.63	556.16 ± 72.02	Pass
W-6407, 6408	9/20/2011	Ra-228	1.61 ± 0.94	0.79 ± 0.81	1.20 ± 0.62	Pass
MI-6479, 6480	9/27/2011	K-40	1384.10 ± 111.10	1411.40 ± 105.00	1397.75 ± 76.43	Pass
W-6579, 6580	9/27/2011	H-3	287.97 ± 99.68	285.95 ± 99.60	286.96 ± 70.45	Pass
AP-7015, 7016	9/27/2011	Be-7	0.08 ± 0.02	0.09 ± 0.02	0.08 ± 0.01	Pass
AP-6105, 6106	9/28/2011	Be-7	0.11 ± 0.02	0.09 ± 0.02	0.10 ± 0.01	Pass
LW-6603, 6604	9/28/2011	Gr. Beta	2.15 ± 1.04	1.65 ± 0.90	1.90 ± 0.69	Pass
AP-7056, 7057	9/29/2011	Be-7	0.08 ± 0.02	0.06 ± 0.01	0.07 ± 0.01	Pass
G-6730, 6731	10/3/2011	Be-7	4.24 ± 0.36	4.47 ± 0.37	4.36 ± 0.26	Pass
G-6730, 6731	10/3/2011	Gr. Beta	8.27 ± 0.33	7.93 ± 0.31	8.10 ± 0.23	Pass
G-6730, 6731	10/3/2011	K-40	6.46 ± 0.56	5.41 ± 0.50	5.94 ± 0.38	Pass
AP-7077, 7078	10/3/2011	Be-7	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
AP-7077, 7078	10/3/2011	Be-7	0.08 ± 0.01	0.07 ± 0.01	0.07 ± 0.01	Pass
VE-6798, 6799	10/4/2011	K-40	11.76 ± 0.65	11.91 ± 0.62	11.84 ± 0.45	Pass
AP-6820, 6821	10/6/2011	Be-7	0.22 ± 0.08	0.18 ± 0.10	0.20 ± 0.06	Pass
W-7755, 7756	10/9/2011	H-3	261.92 ± 96.52	221.92 ± 94.80	241.92 ± 67.65	Pass
BS-7944, 7945	10/10/2011	Cs-137	291.17 ± 34.00	330.68 ± 36.40	310.93 ± 24.90	Pass
BS-7944, 7945	10/10/2011	K-40	14237.00 ± 686.40	15359.00 ± 703.80	14798.00 ± 491.55	Pass
BS-7140, 7141	10/13/2011	K-40	2.59 ± 0.35	2.58 ± 0.52	2.59 ± 0.31	Pass
AP-7168, 7169	10/13/2011	Be-7	0.25 ± 0.09	0.25 ± 0.11	0.25 ± 0.07	Pass
DW-20349, 20350	10/13/2011	U-233/4	1.77 ± 0.41	2.25 ± 0.77	2.01 ± 0.44	Pass
DW-20349, 20350	10/13/2011	U-238	0.28 ± 0.19	0.31 ± 0.33	0.30 ± 0.19	Pass
WW-7667, 7668	10/19/2011	H-3	1049.11 ± 116.32	1071.39 ± 117.10	1060.25 ± 82.53	Pass
WW-7381, 7382	10/21/2011	H-3	1904.40 ± 145.45	1813.62 ± 142.91	1859.01 ± 101.95	Pass
SS-7495, 7496	10/26/2011	K-40	10.16 ± 0.55	9.56 ± 0.49	9.86 ± 0.37	Pass
W-7516, 7517	10/27/2011	H-3	191.46 ± 84.47	224.05 ± 86.03	207.76 ± 60.28	Pass
VE-7537, 7538	10/28/2011	K-40	2.08 ± 0.23	2.41 ± 0.21	2.24 ± 0.16	Pass
MI-7622, 7623	10/31/2011	K-40	1386.20 ± 116.80	1407.90 ± 116.50	1397.05 ± 82.48	Pass
DW-20399, 20400	10/31/2011	U-233/4	5.70 ± 0.70	5.70 ± 0.70	5.70 ± 0.49	Pass
DW-20399, 20400	10/31/2011	U-238	3.10 ± 0.50	3.70 ± 0.70	3.40 ± 0.43	Pass
BS-7600, 7601	11/1/2011	Gr. Beta	6.83 ± 1.44	5.31 ± 1.35	6.07 ± 0.98	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
SG-8471, 8472	11/1/2011	Gr. Alpha	13.63 ± 2.32	11.13 ± 2.00	12.38 ± 1.53	Pass
SG-8471, 8472	11/1/2011	Gr. Beta	20.30 ± 1.43	17.65 ± 1.42	18.98 ± 1.01	Pass
DW-20424, 20425	11/7/2011	U-233/4	5.90 ± 0.80	6.10 ± 0.80	6.00 ± 0.57	Pass
DW-20424, 20425	11/7/2011	U-235	0.10 ± 0.10	0.30 ± 0.20	0.20 ± 0.11	Pass
DW-20424, 20425	11/7/2011	U-238	4.30 ± 0.70	3.70 ± 0.60	4.00 ± 0.46	Pass
DW-20424, 20425	11/7/2011	U-238	10.30 ± 1.00	10.10 ± 1.00	10.20 ± 0.71	Pass
DW-20435, 20436	11/8/2011	U-233/4	11.00 ± 1.10	10.60 ± 0.80	10.80 ± 0.68	Pass
DW-20435, 20436	11/8/2011	U-238	5.90 ± 0.80	4.90 ± 0.60	5.40 ± 0.50	Pass
SG-7902, 7903	11/10/2011	Ac-228	21.38 ± 0.47	20.48 ± 0.52	20.93 ± 0.35	Pass
SG-7902, 7903	11/10/2011	K-40	9.72 ± 1.04	9.53 ± 0.92	9.63 ± 0.69	Pass
SG-7902, 7903	11/10/2011	Pb-212	3.99 ± 0.10	3.99 ± 0.10	3.99 ± 0.07	Pass
SG-7902, 7903	11/10/2011	Pb-214	9.15 ± 0.23	9.14 ± 0.21	9.15 ± 0.16	Pass
BS-8033, 8034	11/11/2011	Cs-137	0.03 ± 0.02	0.03 ± 0.02	0.03 ± 0.01	Pass
LW-8075, 8076	11/16/2011	Gr. Beta	1.93 ± 0.62	2.55 ± 0.64	2.24 ± 0.44	Pass
AP-8193, 8194	11/17/2011	Be-7	0.21 ± 0.11	0.26 ± 0.13	0.24 ± 0.08	Pass
F-8663, 8664	11/19/2011	Cs-137	0.03 ± 0.02	0.03 ± 0.02	0.03 ± 0.01	Pass
F-8663, 8664	11/19/2011	Gr. Beta	3.55 ± 0.10	3.71 ± 0.10	3.63 ± 0.07	Pass
F-8663, 8664	11/19/2011	K-40	3.04 ± 0.42	3.05 ± 0.35	3.05 ± 0.27	Pass
DW-20449, 20450	11/28/2011	U-233/4	0.70 ± 0.20	0.80 ± 0.20	0.75 ± 0.14	Pass
DW-20449, 20450	11/28/2011	U-238	0.60 ± 0.20	0.60 ± 0.20	0.60 ± 0.14	Pass
SWU-8388, 8389	11/29/2011	Gr. Beta	1.66 ± 0.57	1.65 ± 0.59	1.66 ± 0.41	Pass
AP-8841, 8842	12/15/2011	Be-7	0.23 ± 0.12	0.19 ± 0.09	0.21 ± 0.07	Pass
W-8886, 8887	12/15/2011	Gr. Alpha	0.83 ± 0.81	1.58 ± 0.99	1.21 ± 0.64	Pass
W-8886, 8887	12/15/2011	Gr. Beta	6.80 ± 1.25	5.94 ± 1.22	6.37 ± 0.87	Pass
W-8886, 8887	12/15/2011	Ra-226	0.23 ± 0.15	0.41 ± 0.16	0.32 ± 0.11	Pass
SO-8958, 8959	12/21/2011	K-40	14.58 ± 0.86	15.07 ± 0.87	14.83 ± 0.61	Pass
AP-8907, 8908	12/22/2011	Be-7	0.15 ± 0.06	0.11 ± 0.07	0.13 ± 0.05	Pass
AP-9196, 9197	12/28/2011	Be-7	0.06 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	Pass
LW-9091, 9092	12/29/2011	Gr. Beta	1.97 ± 0.63	1.74 ± 0.60	1.86 ± 0.44	Pass

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

[a] Results are reported in units of pCi/L, except for air filters (pCi/Filter), food products, VEgetation, SOil, sediment (pCi/g).

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

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STW-1237 [e]	02/01/11	Am-241	0.35 ± 0.10	0.53	0.37 - 0.69	Fail
STW-1237	02/01/11	Co-57	< 0.2	0.00	-	Pass
STW-1237	02/01/11	Co-60	24.10 ± 0.40	24.60	17.20 - 32.00	Pass
STW-1237	02/01/11	Cs-134	19.80 ± 0.40	21.50	15.10 - 28.00	Pass
STW-1237	02/01/11	Cs-137	29.40 ± 0.50	29.40	20.60 - 38.20	Pass
STW-1237	02/01/11	H-3	238.90 ± 8.80	243.00	170.00 - 316.00	Pass
STW-1237	02/01/11	K-40	95.40 ± 3.10	91.00	64.00 - 118.00	Pass
STW-1237	02/01/11	Mn-54	32.50 ± 0.60	31.60	22.10 - 41.10	Pass
STW-1237	02/01/11	Ni-63	16.30 ± 0.60	18.60	13.00 - 24.20	Pass
STW-1237	02/01/11	Pu-238	1.11 ± 0.12	1.06	0.75 - 1.38	Pass
STW-1237	02/01/11	Pu-239/40	0.88 ± 0.12	0.81	0.57 - 1.05	Pass
STW-1237	02/01/11	Sr-90	8.70 ± 0.70	8.72	6.10 - 11.34	Pass
STW-1237	02/01/11	Tc-99	7.60 ± 0.60	8.99	6.29 - 11.69	Pass
STW-1237	02/01/11	Zn-65	< 0.5	0.00	-	Pass
STW-1238	02/01/11	Gr. Alpha	0.82 ± 0.07	1.14	0.34 - 1.93	Pass
STW-1238	02/01/11	Gr. Beta	2.82 ± 0.07	2.96	1.48 - 4.44	Pass
STVE-1239	02/01/11	Co-57	11.27 ± 0.21	9.94	6.96 - 12.92	Pass
STVE-1239	02/01/11	Co-60	4.95 ± 0.16	4.91	3.44 - 6.38	Pass
STVE-1239	02/01/11	Cs-134	5.18 ± 0.19	5.50	3.85 - 7.15	Pass
STVE-1239	02/01/11	Cs-137	< 0.09	0.00	-	Pass
STVE-1239	02/01/11	Mn-54	6.91 ± 0.25	6.40	4.48 - 8.32	Pass
STVE-1239	02/01/11	Zn-65	3.10 ± 0.32	2.99	2.09 - 3.89	Pass
STSO-1240	02/01/11	Co-57	984.10 ± 4.10	927.00	649.00 - 1205.00	Pass
STSO-1240	02/01/11	Co-60	540.70 ± 3.00	482.00	337.00 - 627.00	Pass
STSO-1240	02/01/11	Cs-134	726.70 ± 5.92	680.00	476.00 - 884.00	Pass
STSO-1240	02/01/11	Cs-137	883.10 ± 4.70	758.00	531.00 - 985.00	Pass
STSO-1240	02/01/11	K-40	622.70 ± 16.70	540.00	378.00 - 702.00	Pass
STSO-1240	02/01/11	Mn-54	-0.30 ± 1.00	0.00	-	Pass
STSO-1240 [f]	02/01/11	Ni-63	384.00 ± 16.90	582.00	407.00 - 757.00	Fail
STSO-1240	02/01/11	U-233/4	166.60 ± 7.30	176.00	123.00 - 229.00	Pass
STSO-1240	02/01/11	U-238	172.00 ± 7.40	184.00	129.00 - 239.00	Pass
STSO-1240	02/01/11	Zn-65	1671.00 ± 13.10	1359.00	951.00 - 1767.00	Pass
STAP-1241	02/01/11	Am-241	0.00 ± 0.01	0.00	-0.10 - 0.10	Pass
STAP-1241	02/01/11	Co-57	3.48 ± 0.06	3.33	2.33 - 4.33	Pass
STAP-1241	02/01/11	Co-60	0.00 ± 0.02	0.00	-0.10 - 0.10	Pass
STAP-1241	02/01/11	Cs-134	3.44 ± 0.27	3.49	2.44 - 4.54	Pass
STAP-1241	02/01/11	Cs-137	2.46 ± 0.27	2.28	1.60 - 2.96	Pass

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

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STAP-1241	02/01/11	Gr. Alpha	0.39 ± 0.05	0.66	0.20 - 1.12	Pass
STAP-1241	02/01/11	Gr. Beta	1.54 ± 0.07	1.32	0.66 - 1.99	Pass
STAP-1241	02/01/11	Mn-54	2.90 ± 0.10	2.64	1.85 - 3.43	Pass
STAP-1241	02/01/11	Pu-238	0.07 ± 0.02	0.10	0.07 - 0.13	Pass
STAP-1241	02/01/11	Pu-239/40	0.06 ± 0.02	0.08	0.05 - 0.10	Pass
STAP-1241 [g]	02/01/11	Sr-90	1.89 ± 0.15	1.36	0.95 - 1.77	Fail
STAP-1241	02/01/11	U-233/4	0.13 ± 0.02	0.18	0.13 - 0.23	Pass
STAP-1241	02/01/11	U-238	0.14 ± 0.02	0.19	0.13 - 0.24	Pass
STAP-1241	02/01/11	Zn-65	3.80 ± 0.18	3.18	2.23 - 4.13	Pass
STW-1249	08/01/11	I-129	7.32 ± 0.30	9.50	6.70 - 12.40	Pass
STVE-1250	08/01/11	Co-57	0.01 ± 0.02	0.00	-	Pass
STVE-1250	08/01/11	Co-60	3.57 ± 0.13	3.38	2.37 - 4.39	Pass
STVE-1250	08/01/11	Cs-134	-0.02 ± 0.04	0.00	-0.10 - 0.10	Pass
STVE-1250	08/01/11	Cs-137	5.28 ± 0.20	4.71	3.30 - 6.12	Pass
STVE-1250	08/01/11	Mn-54	6.48 ± 0.22	5.71	4.00 - 7.42	Pass
STVE-1250	08/01/11	Zn-65	7.35 ± 0.34	6.39	4.47 - 8.31	Pass
STSO-1251	08/01/11	Co-57	1333.90 ± 4.20	1180.00	826.00 - 1534.00	Pass
STSO-1251	08/01/11	Co-60	701.30 ± 3.40	644.00	451.00 - 837.00	Pass
STSO-1251	08/01/11	Cs-134	0.71 ± 1.05	0.00	-	Pass
STSO-1251	08/01/11	Cs-137	1106.00 ± 5.60	979.00	685.00 - 1273.00	Pass
STSO-1251	08/01/11	K-40	749.20 ± 19.00	625.00	438.00 - 813.00	Pass
STSO-1251	08/01/11	Mn-54	984.30 ± 5.40	848.00	594.00 - 1102.00	Pass
STSO-1251	08/01/11	Ni-63	0.11 ± 1.21	0.00	-	Pass
STSO-1251	08/01/11	Pu-238	97.90 ± 7.40	93.60	65.50 - 121.70	Pass
STSO-1251	08/01/11	Pu-239/40	78.80 ± 6.40	77.40	54.20 - 100.60	Pass
STSO-1251 [h]	08/01/11	Sr-90	219.40 ± 16.70	320.00	224.00 - 416.00	Fail
STSO-1251 [i]	08/01/11	Tc-99	110.00 ± 8.00	182.00	127.00 - 237.00	Fail
STSO-1251	08/01/11	U-233/4	267.00 ± 10.20	263.00	184.00 - 342.00	Pass
STSO-1251	08/01/11	U-238	280.30 ± 10.40	274.00	192.00 - 356.00	Pass
STSO-1251	08/01/11	Zn-65	1639.90 ± 11.40	1560.00	1092.00 - 2028.00	Pass
STAP-1252	08/01/11	Co-57	5.06 ± 0.08	5.09	3.56 - 6.62	Pass
STAP-1252	08/01/11	Co-60	3.13 ± 0.09	3.20	2.24 - 4.16	Pass
STAP-1252	08/01/11	Cs-134	0.01 ± 0.03	0.00	-0.10 - 0.10	Pass
STAP-1252	08/01/11	Cs-137	2.61 ± 0.09	2.60	1.82 - 3.38	Pass
STAP-1252	08/01/11	Mn-54	0.01 ± 0.03	0.00	-0.10 - 0.10	Pass
STAP-1252	08/01/11	Pu-238	0.13 ± 0.02	0.12	0.08 - 0.15	Pass
STAP-1252	08/01/11	Pu-239/40	0.15 ± 0.02	0.14	0.10 - 0.18	Pass
STAP-1252	08/01/11	Sr-90	1.65 ± 0.16	1.67	1.17 - 2.17	Pass

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

			Concentration [b]			
Lab Code [c]	Date	Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STAP-1252	08/01/11	U-233/4	0.17 ± 0.02	0.16	0.11 - 0.21	Pass
STAP-1252	08/01/11	U-238	0.17 ± 0.02	0.17	0.12 - 0.22	Pass
STAP-1252	08/01/11	Zn-65	4.46 ± 0.23	4.11	2.88 - 5.34	Pass
STW-1254	08/01/11	Co-57	37.20 ± 0.50	36.60	25.60 - 47.60	Pass
STW-1254	08/01/11	Co-60	28.80 ± 0.40	29.30	20.50 - 38.10	Pass
STW-1254	08/01/11	Cs-134	18.00 ± 0.60	19.10	13.40 - 24.80	Pass
STW-1254	08/01/11	Cs-137	0.06 ± 0.13	0.00	-	Pass
STW-1254	08/01/11	H-3	1039.90 ± 17.90	1014.00	710.00 - 1318.00	Pass
STW-1254	08/01/11	K-40	161.40 ± 4.10	156.00	109.00 - 203.00	Pass
STW-1254	08/01/11	Mn-54	25.70 ± 0.50	25.00	17.50 - 32.50	Pass
STW-1254	08/01/11	Ni-63	0.60 ± 2.00	0.00	-	Pass
STW-1254	08/01/11	Pu-238	0.04 ± 0.02	0.02	0.00 - 1.00	Pass
STW-1254	08/01/11	Pu-239/40	2.27 ± 0.14	2.40	1.68 - 3.12	Pass
STW-1254	08/01/11	Sr-90	15.60 ± 1.80	14.20	9.90 - 18.50	Pass
STW-1254	08/01/11	Tc-99	-0.30 ± 0.50	0.00	-	Pass
STW-1254	08/01/11	U-233/4	2.78 ± 0.20	2.78	1.95 - 3.61	Pass
STW-1254	08/01/11	U-238	2.86 ± 0.21	2.89	2.02 - 3.76	Pass
STW-1254	08/01/11	Zn-65	30.20 ± 0.90	28.50	20.00 - 37.10	Pass
STW-1255	08/01/11	Gr. Alpha	0.72 ± 0.12	0.87	0.26 - 1.47	Pass
STW-1255	08/01/11	Gr. Beta	4.71 ± 0.15	4.81	2.41 - 7.22	Pass

[a] 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

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

[c] Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation).

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

[e] Result of a repeat analysis was still unacceptable. ERA crosschecks for Am-241 were acceptable, but biased low. Matrix spikes were prepared, (5.17 and 51.7 pCi/L), to verify method; results were acceptable, 4.4 and 47.5 pCi/L. Am-241 has been added to the internal spike and blank program for 2012.

[f] An error in percent recovery was found, result of recalculation, 427.3 ± 18.8 Bq/kg dry.

[g] No errors found in calculation or procedure, results of reanalysis; 1.73 Bq/filter.

[h] The analyses were repeated through a strontium column; mean result of triplicate analyses, 304.2 Bq/kg.

[i] The lab does not currently analyze soil for Tc-99, but is evaluating the procedure. After consultation with Eichrom, the analysis was repeated using a matrix spike correction. Mean result of triplicate reanalyses; 183.3 Bq/kg.

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code [b]	Date	Analysis	Concentration (pCi/L) [b] Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
STAP-1230	03/21/11	Am-241	46.0 ± 1.8	62.5	36.6 - 85.7	Pass
STAP-1230	03/21/11	Co-60	401.2 ± 12.1	390.0	302.0 - 487.0	Pass
STAP-1230	03/21/11	Cs-134	268.2 ± 24.8	279.0	182.0 - 345.0	Pass
STAP-1230	03/21/11	Cs-137	345.3 ± 24.9	312.0	234.0 - 410.0	Pass
STAP-1230	03/21/11	Mn-54	< 1.9	0.0	-	Pass
STAP-1230	03/21/11	Pu-238	76.1 ± 3.2	69.0	47.4 - 90.7	Pass
STAP-1230	03/21/11	Pu-239/40	70.50 ± 3.10	65.5	47.5 - 85	Pass
STAP-1230	03/21/11	Sr-90	208.40 ± 18.70	185.0	81.4 - 288	Pass
STAP-1230	03/21/11	U-233/4	56.10 ± 2.10	61.5	38.7 - 91	Pass
STAP-1230	03/21/11	U-238	58.90 ± 2.60	61.0	39.0 - 87	Pass
STAP-1230	03/21/11	Uranium	118.50 ± 5.52	125.0	63.9 - 199	Pass
STAP-1230	03/21/11	Zn-65	312.60 ± 23.40	279.0	193.0 - 386	Pass
STAP-1231	03/21/11	Gr. Alpha	88.40 ± 3.70	74.3	38.5 - 112	Pass
STAP-1231	03/21/11	Gr. Beta	85.10 ± 2.80	69.5	42.8 - 102	Pass
STSO-1232	03/21/11	Ac-228	1327.8 ± 97.5	1490.0	958.0 - 2100.0	Pass
STSO-1232	03/21/11	Am-241	662.8 ± 88.1	914.0	546.0 - 1170.0	Pass
STSO-1232	03/21/11	Bi-212	1396.2 ± 185.3	1400.0	368.0 - 2090.0	Pass
STSO-1232	03/21/11	Bi-214	841.1 ± 33.2	725.0	445.0 - 1040.0	Pass
STSO-1232	03/21/11	Co-60	2423.7 ± 27.1	2220.0	1620.0 - 2980.0	Pass
STSO-1232	03/21/11	Cs-134	2481.3 ± 42.2	2450.0	1580.0 - 2950.0	Pass
STSO-1232	03/21/11	Cs-137	2108.2 ± 30.2	1920.0	1470.0 - 2490.0	Pass
STSO-1232	03/21/11	K-40	11497.3 ± 276.6	11500.0	8320.0 - 15600.0	Pass
STSO-1232	03/21/11	Mn-54	< 17.4	0.0	-	Pass
STSO-1232	03/21/11	Pb-212	994.7 ± 30.0	1440.0	931.0 - 2030.0	Pass
STSO-1232	03/21/11	Pb-214	918.3 ± 42.6	805.0	482.0 - 1200.0	Pass
STSO-1232	03/21/11	Pu-238	1593.6 ± 156.7	1420.0	813.0 - 2000.0	Pass
STSO-1232	03/21/11	Pu-239/40	1428.9 ± 143.4	1400.0	956.0 - 1860.0	Pass
STSO-1232	03/21/11	Sr-90	8638.0 ± 442.8	7590.0	2740.0 - 12400.0	Pass
STSO-1232	03/21/11	Th-234	1350.1 ± 180.0	962.0	305.0 - 1830.0	Pass
STSO-1232	03/21/11	U-233/4	748.0 ± 94.4	972.0	616.0 - 1210.0	Pass
STSO-1232	03/21/11	U-238	909.0 ± 104.9	962.0	588.0 - 1220.0	Pass
STSO-1232	03/21/11	Uranium	1690.8 ± 104.9	1980.0	1130.0 - 2670.0	Pass
STSO-1232	03/21/11	Zn-65	2356.2 ± 57.1	1990.0	1580.0 - 2670.0	Pass

TABLE A-7. Interlaboratory Comparison Crosscheck program, Environmental Resource Associates (ERA)[a].

Lab Code [b]	Date	Analysis	Concentration (pCi/L) [b] Laboratory Result [c]	ERA Result [d]	Control Limits	Acceptance
STVE-1233	03/21/11	Am-241	2377.5 ± 83.2	3200.0	1820.0 - 4400.0	Pass
STVE-1233	03/21/11	Cm-244	602.9 ± 38.4	812.0	400.0 - 1260.0	Pass
STVE-1233	03/21/11	Co-60	810.2 ± 32.4	733.0	496.0 - 1050.0	Pass
STVE-1233	03/21/11	Cs-134	849.4 ± 54.5	770.0	441.0 - 1070.0	Pass
STVE-1233	03/21/11	Cs-137	889.9 ± 36.3	829.0	608.0 - 1150.0	Pass
STVE-1233	03/21/11	K-40	28146.70 ± 698.80	25800.0	18500.0 - 36500	Pass
STVE-1233	03/21/11	Mn-54	< 19.3	0.0	-	Pass
STVE-1233	03/21/11	Pu-238	3068.10 ± 170.70	2990.0	1610.0 - 4380	Pass
STVE-1233	03/21/11	Pu-239/40	3180.00 ± 88.90	3100.0	1920.0 - 4230	Pass
STVE-1233	03/21/11	Sr-90	8549.20 ± 675.00	7890.0	4410.0 - 10500	Pass
STVE-1233	03/21/11	U-233/4	2418.60 ± 142.50	2610.0	1790.0 - 3460	Pass
STVE-1233	03/21/11	U-238	2417.00 ± 142.50	2590.0	1820.0 - 3270	Pass
STVE-1233	03/21/11	Uranium	4929.80 ± 142.50	5320.0	3660.0 - 6860	Pass
STVE-1233	03/21/11	Zn-65	962.40 ± 62.50	799.0	577.0 - 1090	Pass
STW-1234	03/21/11	Am-241	100.0 ± 6.4	135.0	92.5 - 182.0	Pass
STW-1234	03/21/11	Co-60	401.6 ± 7.2	411.0	358.0 - 486.0	Pass
STW-1234	03/21/11	Cs-134	222.7 ± 12.3	231.0	171.0 - 265.0	Pass
STW-1234	03/21/11	Cs-137	410.3 ± 9.5	417.0	354.0 - 500.0	Pass
STW-1234	03/21/11	Mn-54	< 3.0	0.0	-	Pass
STW-1234	03/21/11	Pu-238	130.9 ± 5.5	131.0	99.1 - 162.0	Pass
STW-1234	03/21/11	Pu-239/40	113.0 ± 5.0	119.0	92.1 - 147.0	Pass
STW-1234	03/21/11	Sr-90	739.6 ± 13.0	773.0	491.0 - 1030.0	Pass
STW-1234	03/21/11	U-233/4	83.4 ± 3.8	94.3	71.1 - 122.0	Pass
STW-1234	03/21/11	U-238	85.5 ± 3.9	93.5	71.4 - 116.0	Pass
STW-1234	03/21/11	Uranium	172.0 ± 8.5	192.0	138.0 - 256.0	Pass
STW-1234	03/21/11	Zn-65	114.5 ± 10.8	111.0	94.1 - 138.0	Pass
STW-1235	03/21/11	Gr. Alpha	97.6 ± 2.9	112.0	49.7 - 166.0	Pass
STW-1235	03/21/11	Gr. Beta	99.6 ± 2.0	99.8	58.4 - 146.0	Pass
STW-1236	03/21/11	H-3	16307.0 ± 377.0	15200.0	9900.0 - 22500.0	Pass

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

[b] Laboratory codes as follows: STW (water), STAP (air filter), STSO (soil), STVE (vegetation). Results are reported in units of pCi/L, except for air filters (pCi/Filter), vegetation and soil (pCi/kg).

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

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

APPENDIX B

DATA REPORTING CONVENTIONS

Data Reporting Conventions

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

2.0. Single Measurements

Each single measurement is reported as follows: $x \pm s$

where: x = value of the measurement;

$s = 2\sigma$ counting uncertainty (corresponding to the 95% confidence level).

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

3.0. Duplicate analyses

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

3.1 Individual results: For two analysis results; $x_1 \pm s_1$ and $x_2 \pm s_2$

Reported result: $x \pm s$; where $x = (1/2)(x_1 + x_2)$ and $s = (1/2)\sqrt{s_1^2 + s_2^2}$

3.2. Individual results: $< L_1$, $< L_2$ Reported result: $< L$, where L = lower of L_1 and L_2

3.3. Individual results: $x \pm s$, $< L$ Reported result: $x \pm s$ if $x \geq L$; $< L$ otherwise.

4.0. Computation of Averages and Standard Deviations

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

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

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

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

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

4.5 In rounding off, the following rules are followed:

4.5.1. If the number following those to be retained is less than 5, the number is dropped, and the retained numbers are kept unchanged. As an example, 11.443 is rounded off to 11.44.

4.5.2. If the number following those to be retained is equal to or greater than 5, the number is dropped and the last retained number is raised by 1. As an example, 11.445 is rounded off to 11.45.

APPENDIX C

Maximum Permissible Concentrations

of Radioactivity in Air and Water

Above Background in Unrestricted Areas

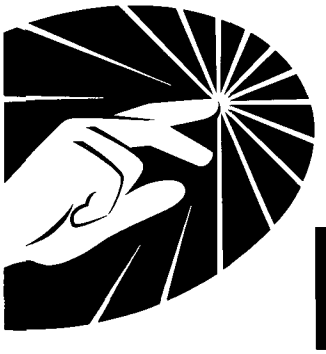
Table C-1. Maximum permissible concentrations of radioactivity in air and water above natural background in unrestricted areas[a].

	Air (pCi/m^3)		Water (pCi/L)
Gross alpha	1×10^{-3}	Strontium-89	8,000
Gross beta	1	Strontium-90	500
Iodine-131[b]	2.8×10^{-1}	Cesium-137	1,000
		Barium-140	8,000
		Iodine-131	1,000
		Potassium-40[c]	4,000
		Gross alpha	2
		Gross beta	10
		Tritium	1×10^6

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

[b] Value adjusted by a factor of 700 to reduce the dose resulting from the air-grass-cow-milk-child pathway.

[c] A natural radionuclide.



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Kewaunee Power Station
Part II, Data Tabulations, Graphs and Analyses

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REPORT TO

DOMINION NUCLEAR

RADIOLOGICAL MONITORING PROGRAM FOR THE KEWAUNEE POWER STATION KEWAUNEE, WISCONSIN

ANNUAL REPORT - PART II
DATA TABULATIONS AND ANALYSES

January 1 to December 31, 2011

Prepared and submitted by

ENVIRONMENTAL, Inc.
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Project No. 8002

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Radiation Protection /
Chemistry Mgr., KPS

4/26/12

PREFACE

The staff members of Environmental, Inc., Midwest Laboratory were responsible for the acquisition of data presented in this report. Samples were collected by the personnel of Environmental, Inc., Midwest Laboratory and the Kewaunee Power Station.

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1.0 INTRODUCTION

The following constitutes Part II of the final report for the 2011 Radiological Monitoring Program conducted at the Kewaunee Power Station (KPS), Kewaunee, Wisconsin.

Included are tabulations of data for all samples collected in 2011 along with graphs of data trends. A summary and interpretation of the data presented here are published in Part I of the 2011 Annual Report on the Radiological Monitoring Program for the Kewaunee Power Station.

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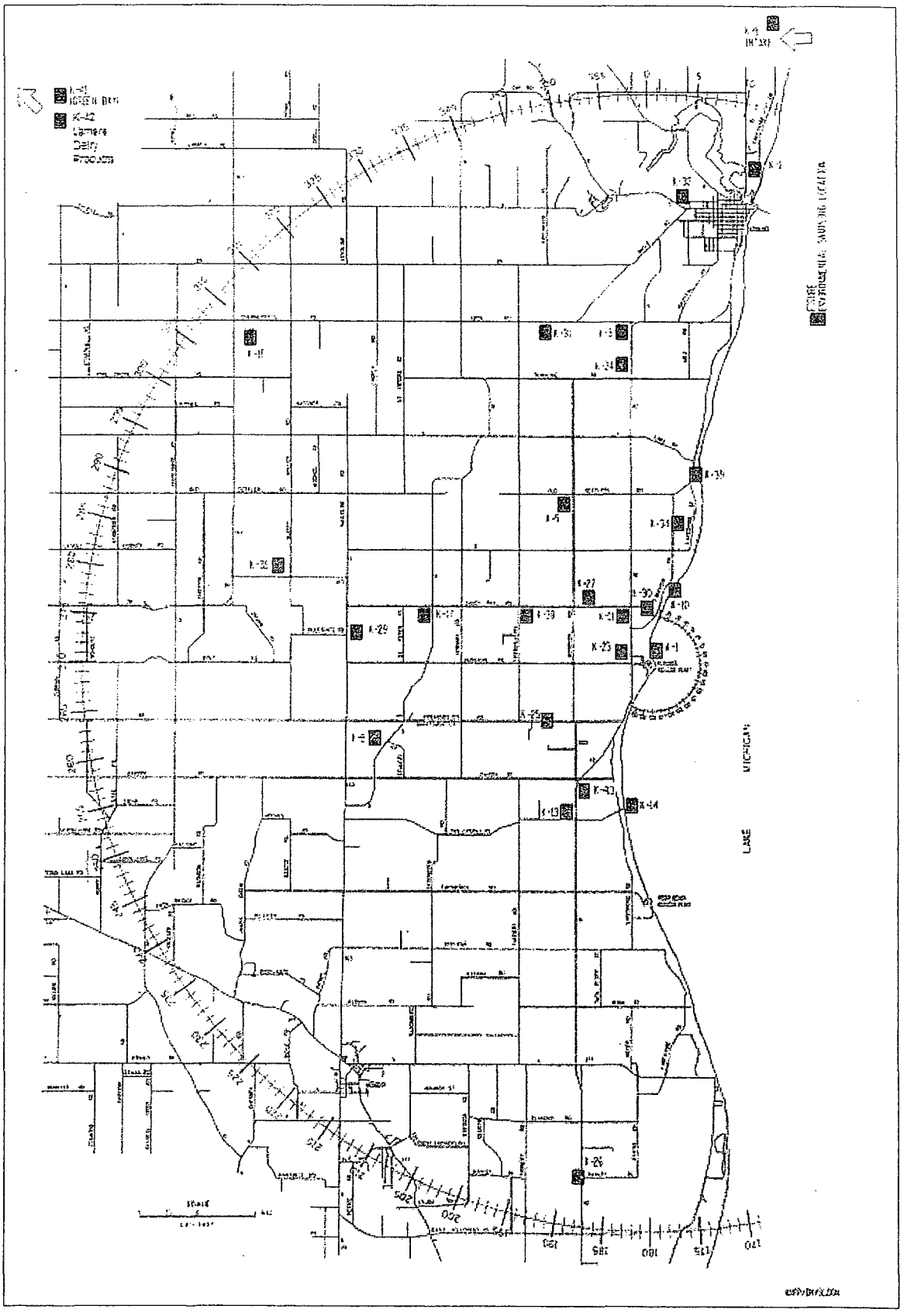

Figure 1. Sampling locations, Kewaunee Power Station

Table 1. Sampling locations, Kewaunee Power Station.

Code	Type[a]	Distance (miles)[b] and Sector	Location
K-1	I		Onsite
K-1a	I	0.62 N	North Creek
K-1b	I	0.12 N	Middle Creek
K-1c	I	0.10 N	500' north of condenser discharge
K-1d	I	0.10 E	Condenser discharge
K-1e	I	0.12 S	South Creek
K-1f	I	0.12 S	Meteorological Tower
K-1g	I	0.06 W	South Well
K-1h	I	0.12 NW	North Well
K-1j	I	0.10 S	500' south of condenser discharge
K-1k	I	0.60 SW	Drainage Pond, south of plant
K-1l	I	0.13 N	ISFSI Southeast
K-1m	I	0.15 N	ISFSI East
K-1n	I	0.16 N	ISFSI Northwest
K-1o	I	0.16 N	ISFSI North
K-1p	I	0.17 N	ISFSI Northwest
K-1q	I	0.16 N	ISFSI West
K-1r	I	0.13 N	ISFSI West
K-1s	I	0.12 N	ISFSI Southwest
K-2	C	8.91 NNE	WPS Operations Building in Kewaunee
K-3	C	5.9 N	Lyle and John Siegmund Farm, N2815 Hy 42, Kewaunee
K-5	I	3.2 NNW	Ed Paplham Farm, E4160 Old Settlers Rd, Kewaunee
K-8	C	4.85 WSW	St. Isadore the Farmer Church, 18424 Tisch Mills Rd, Tisch Mills
K-9	C	11.5 NNE	Green Bay Municipal Pumping Station, six miles east of Green Bay (sample source is Lake Michigan from Rostok Intake two miles north of Kewaunee.
K-10	I	1.35 NNE	Turner Farm, Kewaunee site
K-11	I	0.96 NW	Harlan Ihlenfeld Farm, N879 Hy 42, Kewaunee
K-13	C	3.0 SSW	Rand's General Store, Two Creeks
K-14	I	2.6 S	Two Creeks Park, 2.6 miles south of site
K-15	C	9.25 NW	Gas Substation, 1.5 miles north of Stangelville
K-17	I	4.0 W	Jansky's Farm, N885 Tk B, Kewaunee
K-23a	I	0.5 W	0.5 miles west of plant, Kewaunee site
K-23b	I	0.6 N	0.6 miles north of plant, Kewaunee site
K-24	I	5.4 N	Fictum Farm, N2653 Hy 42, Kewaunee
K-25	I	1.9 SW	Wotachek Farm, 3968 E. Cty Tk BB, Two Rivers
K-26	C	9.1 SSW	Sandy's Vegetable Stand (8.0 miles south of "BB")
K-27	I	1.53 NW	Schleis Farm, E4298 Sandy Bay Rd, Kewaunee
K-29	I	5.34 W	Kunesh Farm, E3873 Cty Tk G, Kewaunee
K-30	I	0.8 N	End of site boundary
K-31	C	6.35 NNW	E. Krok Substation, Krok Road
K-32	C	7.8 N	Piggly Wiggly, 931 Marquette Dr., Kewaunee
K-34	I	2.7 N	Leon and Vicki Struck, N1549 Lakeshore Dr., Kewaunee
K-35	C	6.71 mi. WNW	Duane Ducat, N1215 Sleepy Hollow Rd., Kewaunee
K-36	I		Fiala's Fish market, 216 Milwaukee, Kewaunee
K-38	I	2.45 mi. WNW	Dave Sinkula Farm, N890 Town Hall Road, Kewaunee
K-39	I	3.46 mi. N	Francis Wojta, N1859 Lakeshore Dr., Kewaunee
K-41	C	22 NW	KPS-EOF, 3060 Voyager Dr. , Green Bay
K-42	C	28.1 W	Lamers Dairy Products obtained from Green Bay markets.
K-43	I	2.71 SSW	Gary Maigatter Property, 17333 Hwy 42, Two Rivers

[a] I = indicator; C = control.

[b] Distances are measured from reactor stack.

Table 2. Type and frequency of collection.

Location	Weekly	Monthly	Quarterly	Semiannually	Annually
K-1a		SW		SL [f]	
K-1b		SW	GR [a]	SL [f]	
K-1c				BS [b]	
K-1d		SW	FI [a]	SL [f] BS [b]	
K-1e		SW		SL [f]	
K-1f	AP [g], AI		GR [a] TLD	SO	
K-1g, K-1h			WW		
K-1j				BS [b]	
K-1k		SW		SL [f]	
K-1l through K-1s			TLD		
K-2	AP [g], AI		TLD		
K-3, K-5		MI [c]	GR [a] TLD	SO	CF [d]
K-8	AP [g], AI		TLD		
K-9		SW [i]		SL [f] BS [b]	
K-10, K-13			WW		
K-11		PR	WW		
K-14		SW [h]		SL [f] BS [b]	
K-15, K-17			TLD		
K-23a, b					GRN / GLV [e]
K-24			EG		DM
K-25			TLD		
K-26					VE / GLV [e]
K-27			TLD		
K-29					DM
K-30			TLD		
K-31	AP [g], AI		TLD		
K-32			EG		DM
K-34, K-35		MI [c]	GR [a]	SO	CF [d]
K-38		MI [c]	GR [a] WW	SO	CF [d]
K-39		MI [c]	GR [a] TLD	SO	CF [d]
K-41	AP [g], AI		TLD		
K-42		MI [c]			
K-43	AP [g], AI		TLD		

[a] Three times a year, second, third and fourth quarters.
[b] Collected in May and November.
[c] Monthly from November through April; semimonthly May through October.
[d] First quarter (January, February, March) only.
[e] Alternate, if milk is not available.
[f] Second and third quarters.
[g] The frequency may be increased dependent on the dust loading.
[h] Two samples are collected, North (K-14a) and South (K-14b) of Two Creeks Road.
[i] Two samples, raw and treated.

Table 3. Sample Codes:

Code	Description	Code	Description
AI	Airborne Iodine	GR	Grass
AP	Airborne particulates	MI	Milk
BS	Bottom sediments	PR	Precipitation
CF	Cattlefeed	SL	Slime
DM	Domestic Meat	SO	Soil
EG	Eggs	SW	Surface water
FI	Fish	TLD	Thermoluminescent Dosimeter
GLV	Green Leafy Vegetables	VE	Vegetables
GRN	Grain	WW	Well water

Note: Page 6 is intentionally left out.

GRAPHS OF DATA TRENDS

Note: Conventions used in trending data.

The following conventions should be used in the interpretation of the graphs of data trends:

1. Both solid and open data points may be used in the graphs. A solid point indicates an activity, an open point, a lower limit of detection (LLD) value.
2. Data points are connected by a solid line. A break in the plot indicates missing data.

Kewaunee

Air Particulates - Gross Beta

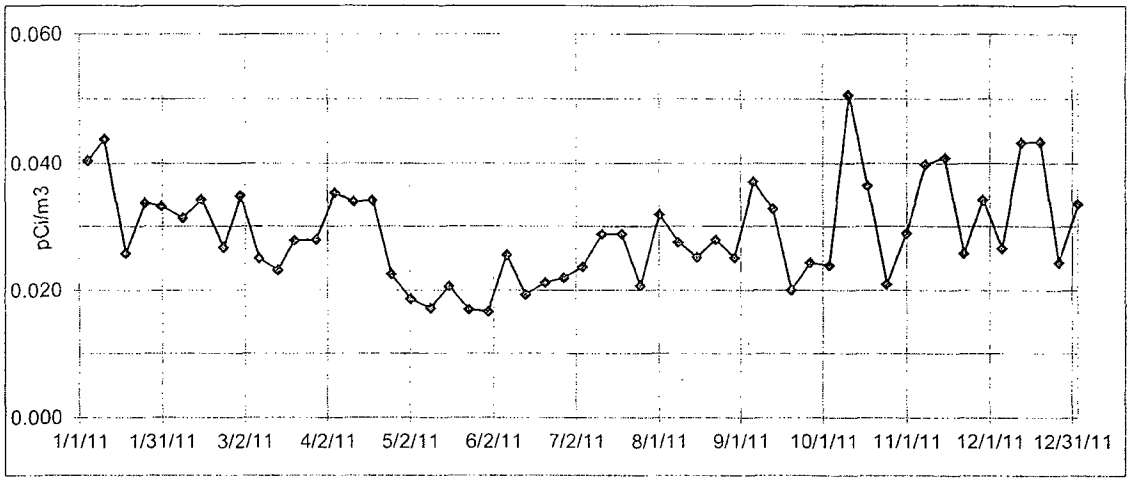

Figure 2. Location K-1f (weekly samples, 2011).

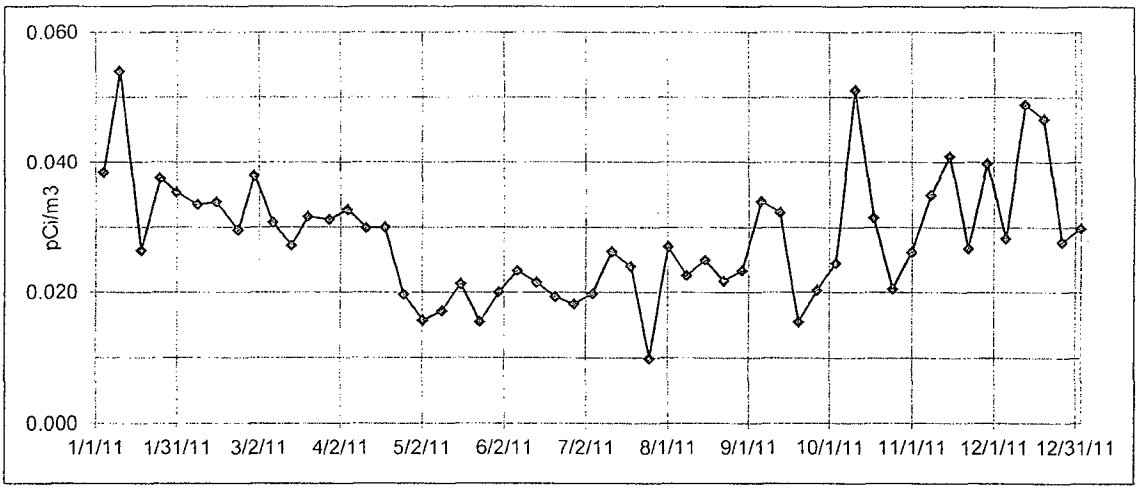

Figure 3. Location K-2 (weekly samples, 2011).

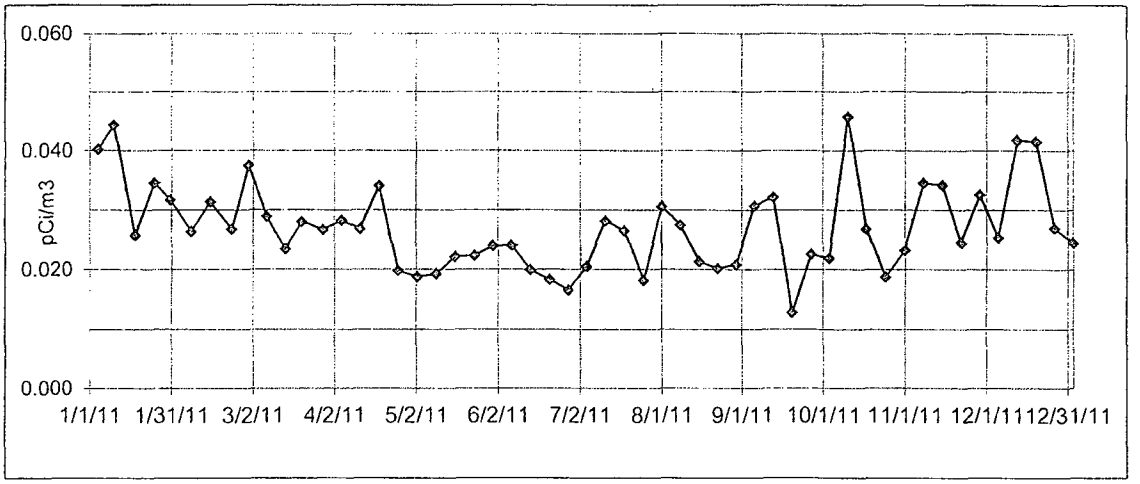

Figure 4. Location K-8 (weekly samples, 2011).

Kewaunee

Air Particulates - Gross Beta

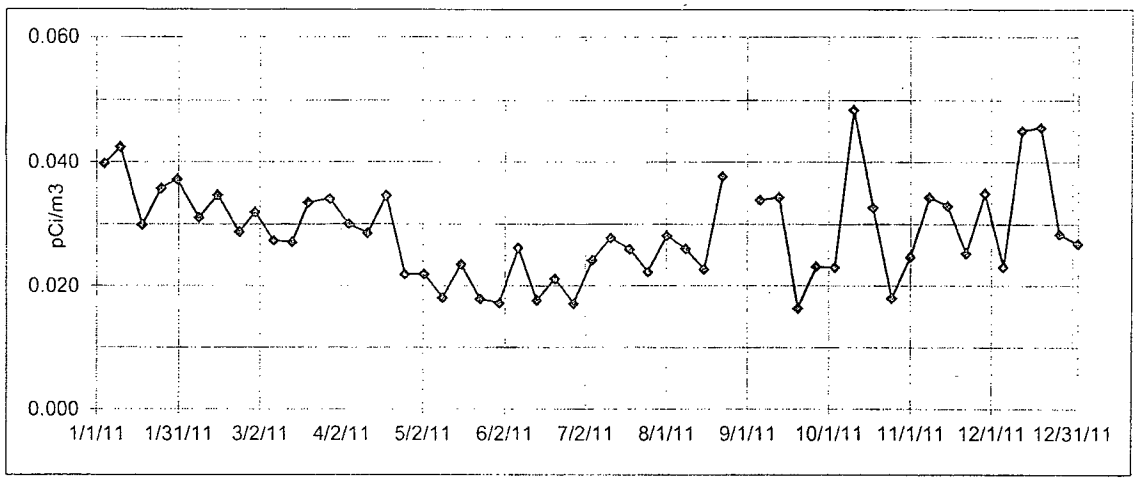

Figure 5. Location K-31 (weekly samples, 2011).

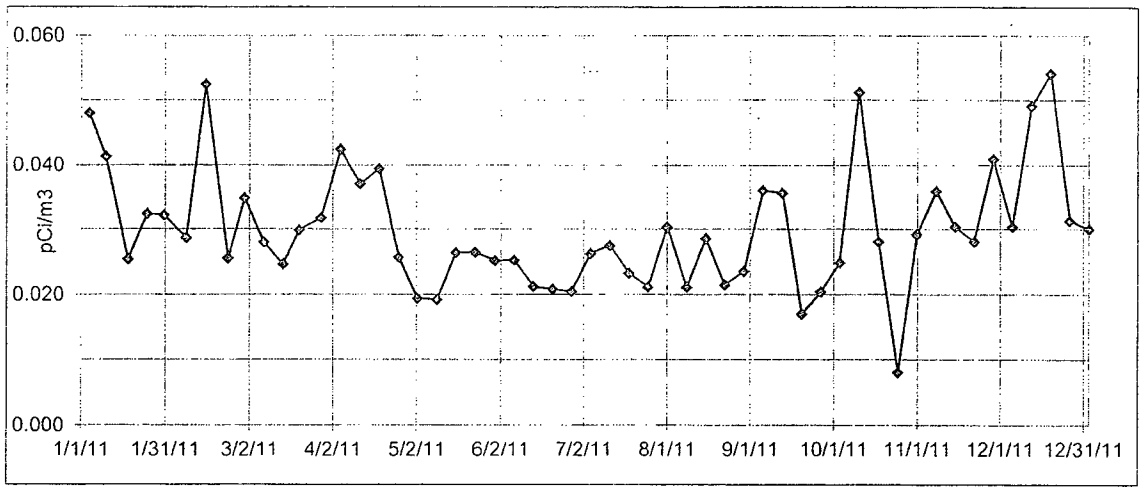

Figure 6. Location K-41 (weekly samples, 2011).

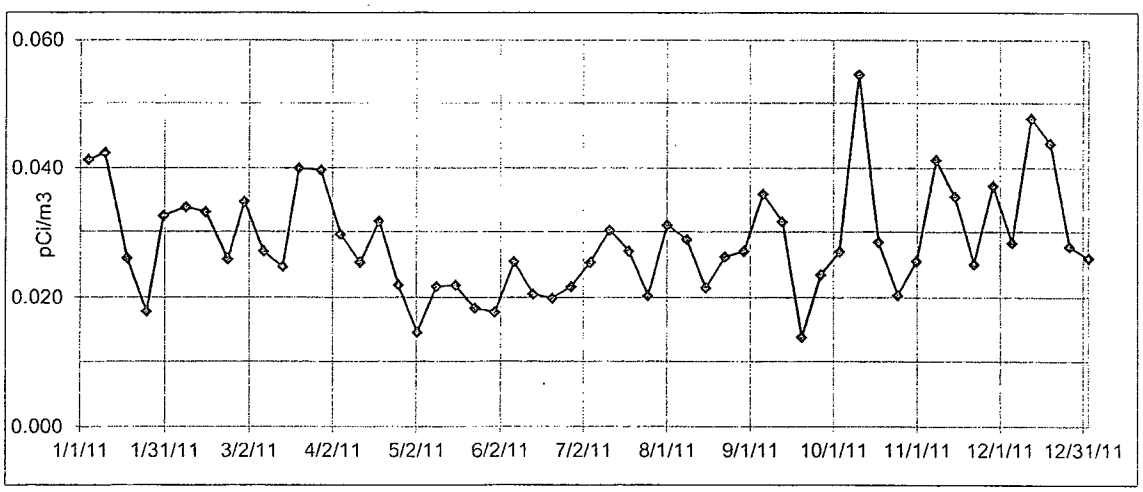

Figure 7. Location K-43 (weekly samples, 2011).

Kewaunee Power Station
Air Particulates - Gross Beta

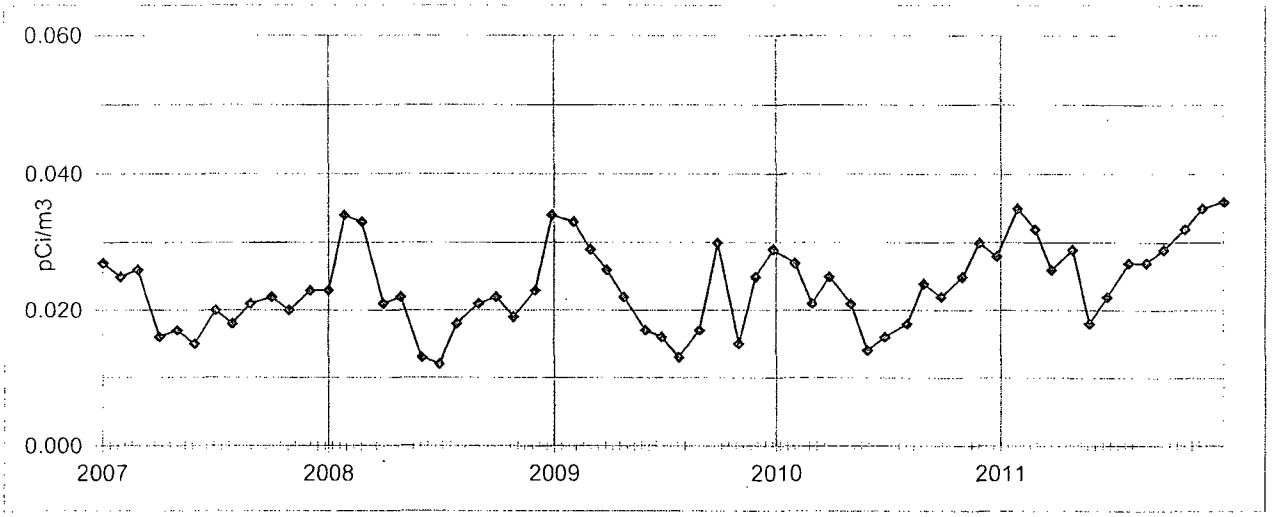

Figure 8. Location K-1f (monthly averages, 2007-2011).

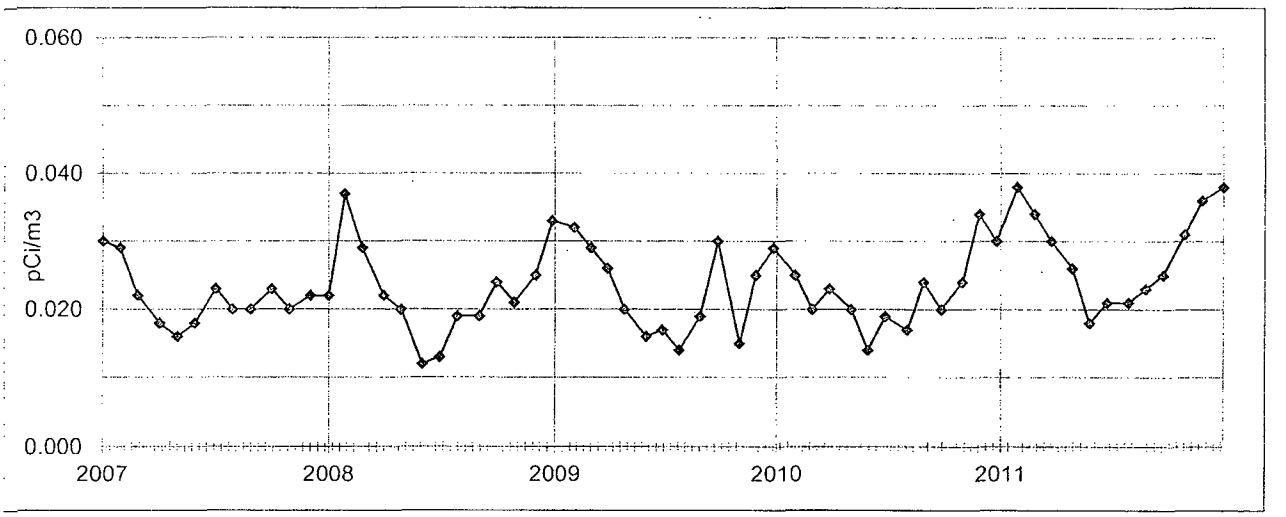

Figure 9. Location K-2 (monthly averages, 2007-2011).

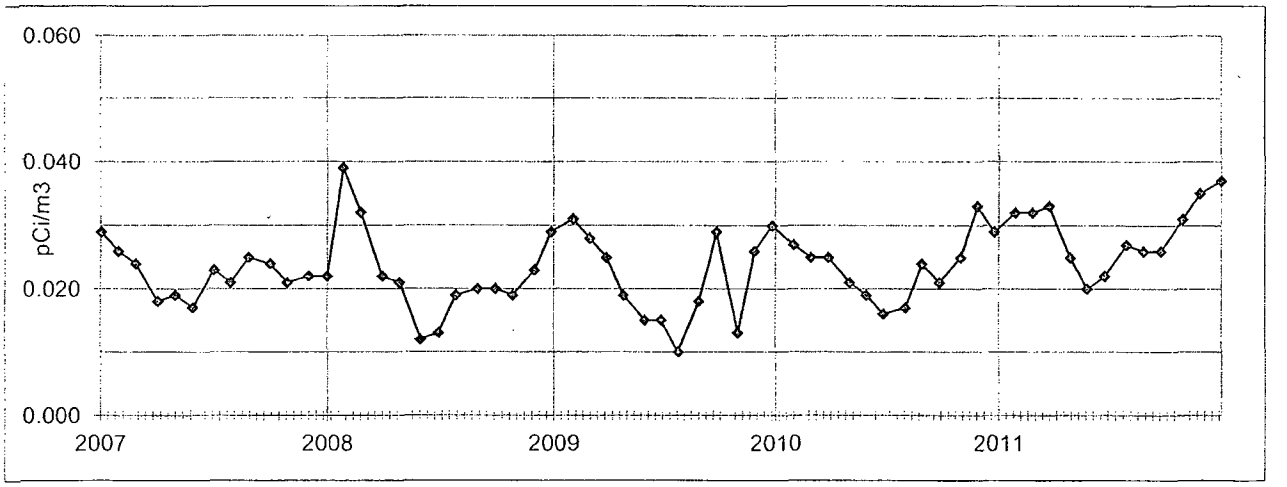

Figure 10. Location K-7/K-43 (monthly averages, 2007-2011).

Kewaunee Power Station
Air Particulates - Gross Beta

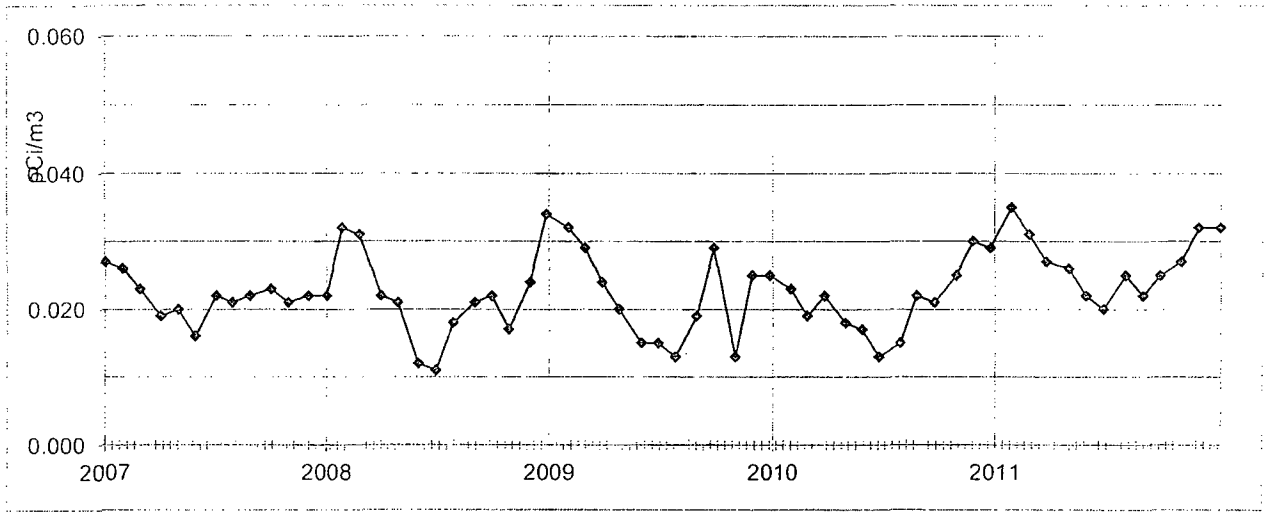

Figure 11. Location K-8 (monthly averages, 2007-2011).

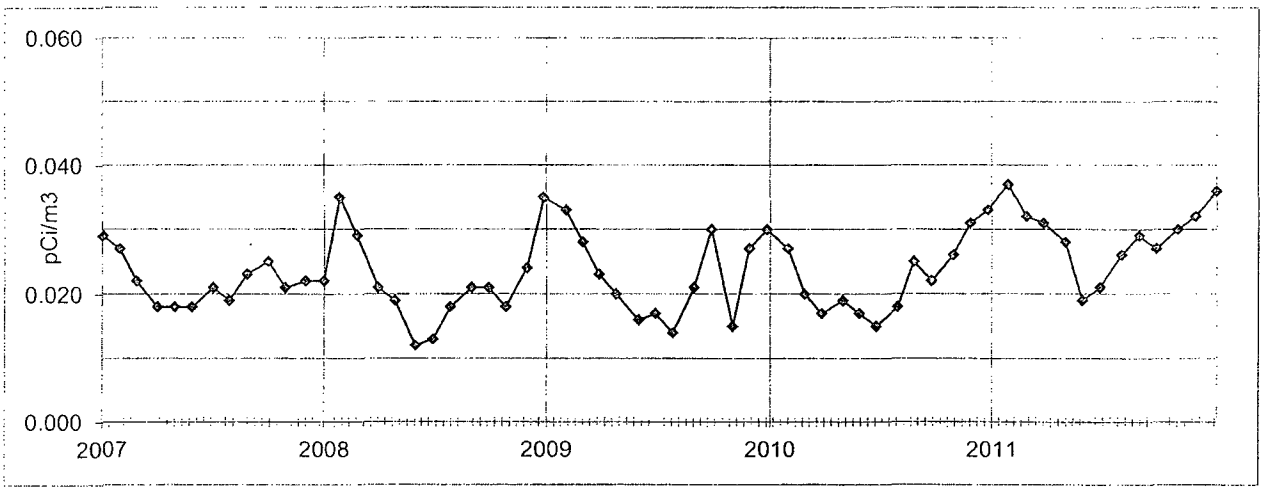

Figure 12. Location K-31 (monthly averages, 2007-2011).

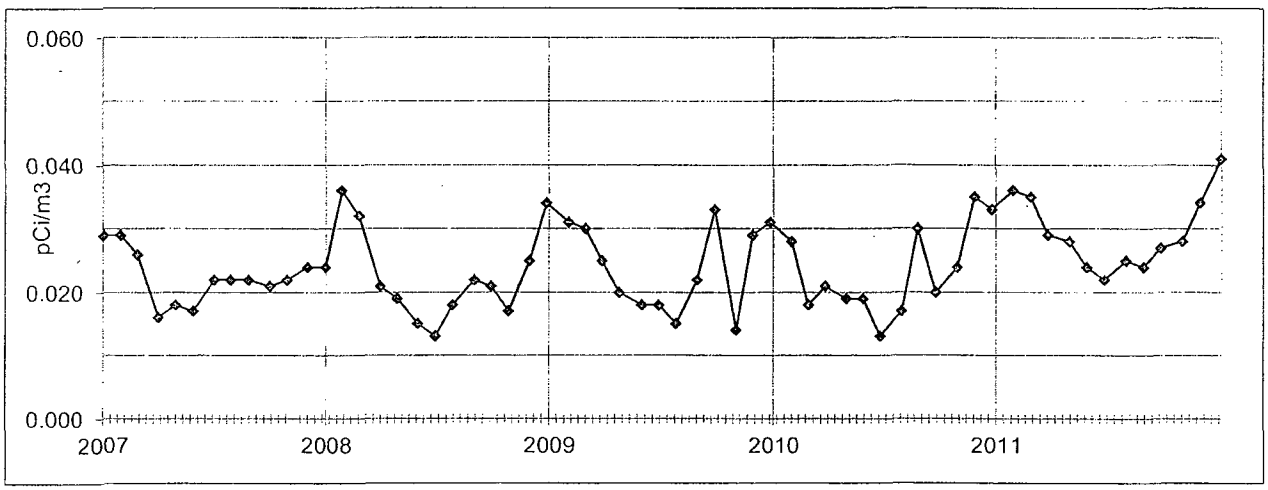

Figure 13. Location K-41 (monthly averages, 2007-2011).

Kewaunee

WELL WATER-GROSS ALPHA

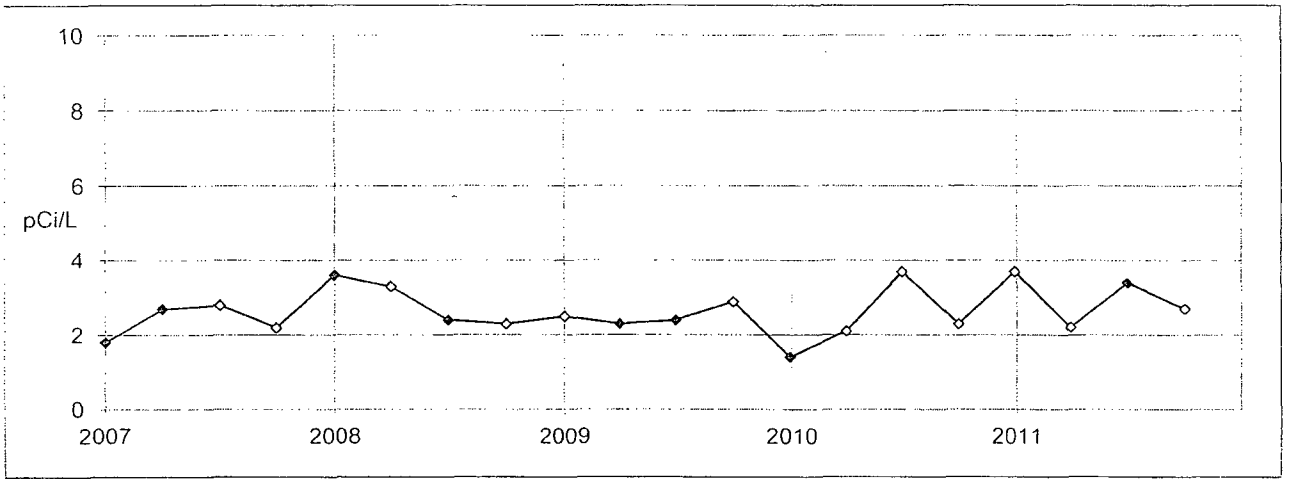

Figure 14. Location K-1g. Total Residue. Quarterly collection.

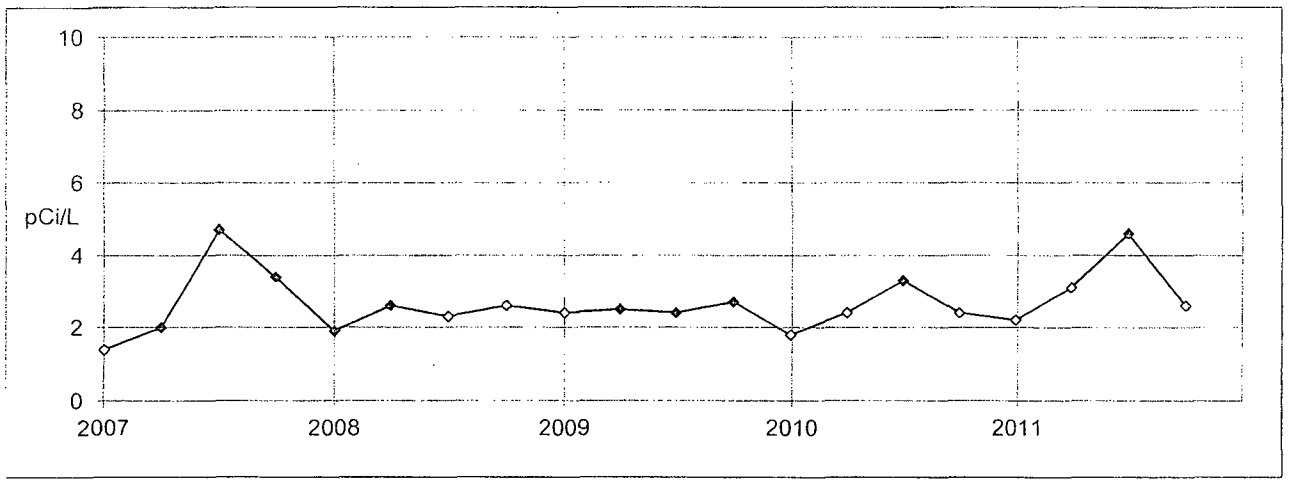

Figure 15. Location K-1h. Total Residue. Quarterly collection.

Kewaunee Power Station
WELL WATER-GROSS BETA

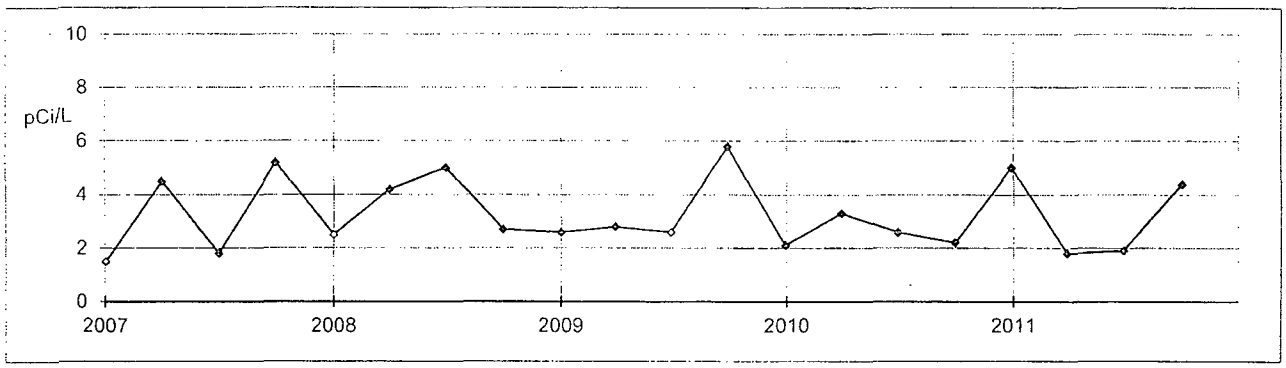

Figure 16. Location K-1g. Total Residue. Quarterly collection.

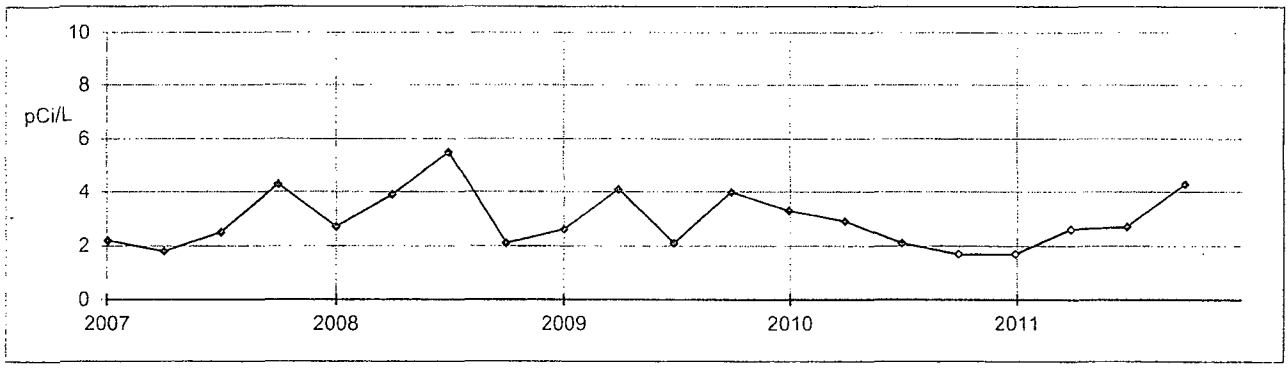

Figure 17. Location K-1h. Total Residue. Quarterly collection.

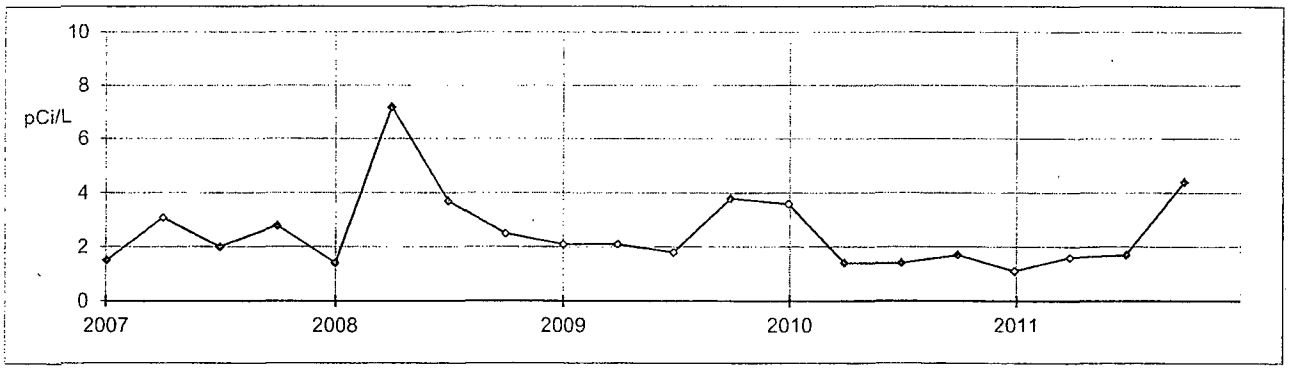

Figure 18. Location K-10. Total Residue. Quarterly collection.

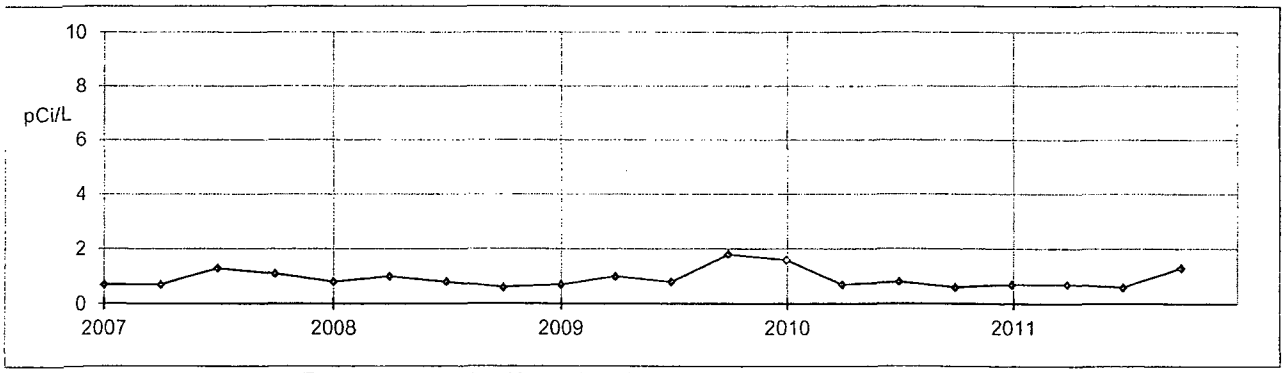

Figure 19. Location K-11. Total Residue. Quarterly collection.

Note: An open data point indicates activity less than the lower limit of detection (LLD).

Kewaunee Power Station
WELL WATER-GROSS BETA

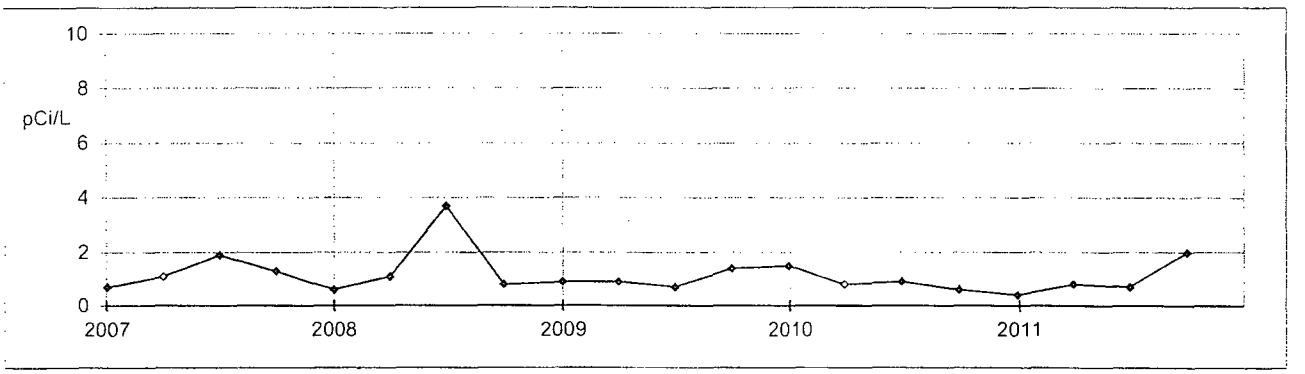

Figure 20. Location K-13. Total Residue. Quarterly collection.

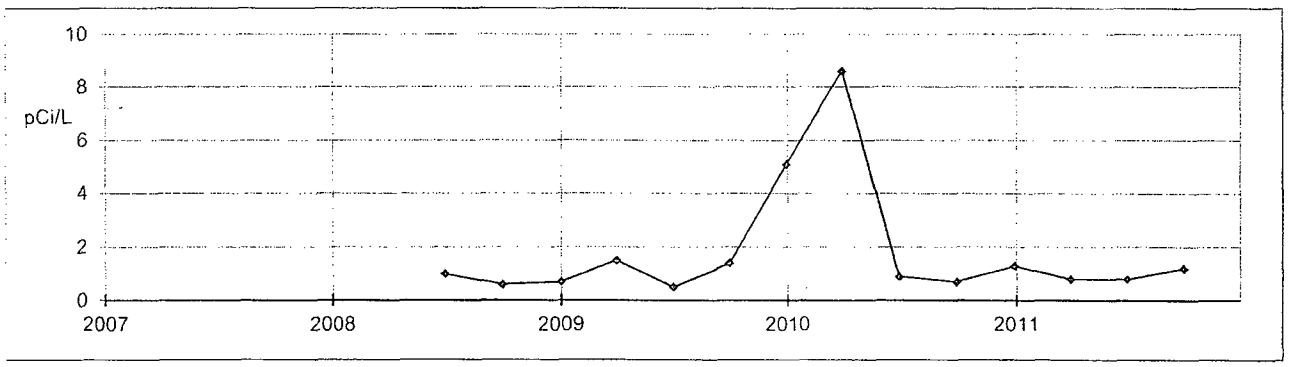

Figure 21. Location K-38. Total Residue. Quarterly collection.

Kewaunee Power Station
Milk - Strontium-90

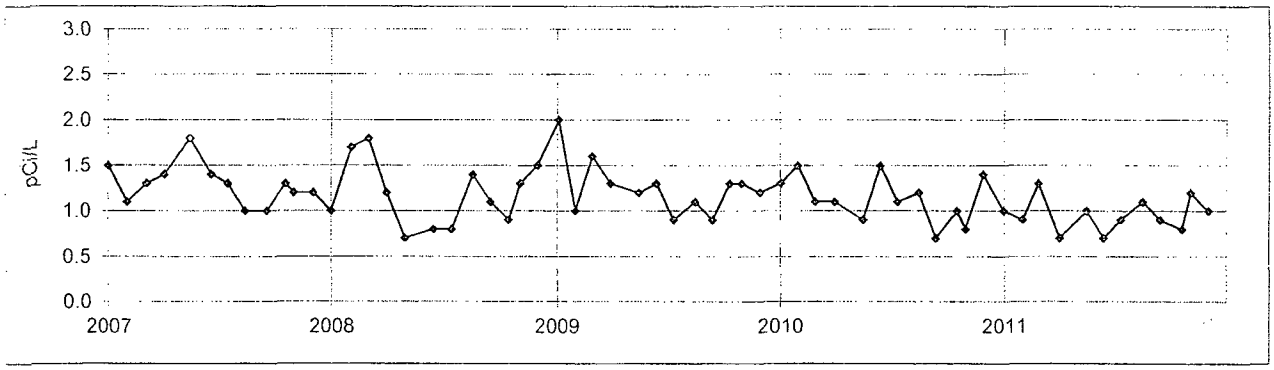

Figure 22. Milk samples. Location K-3.

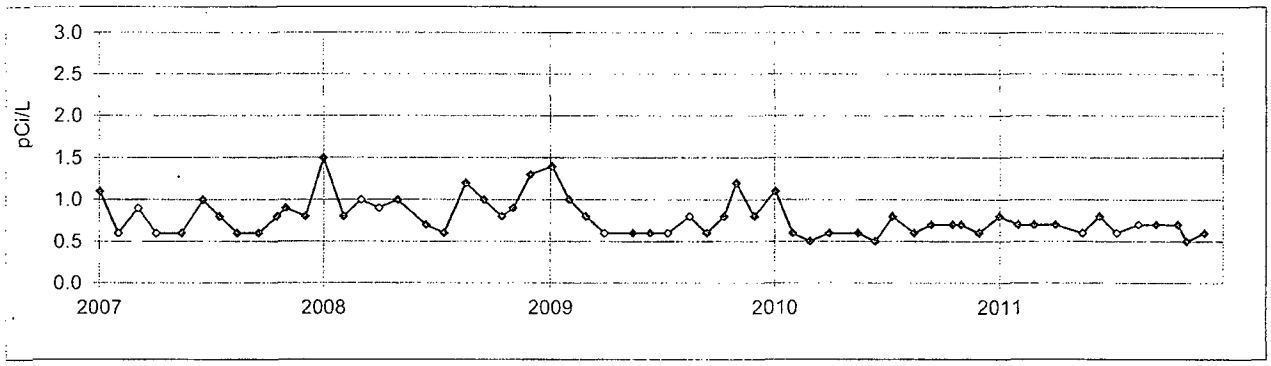

Figure 23. Milk samples. Location K-5.

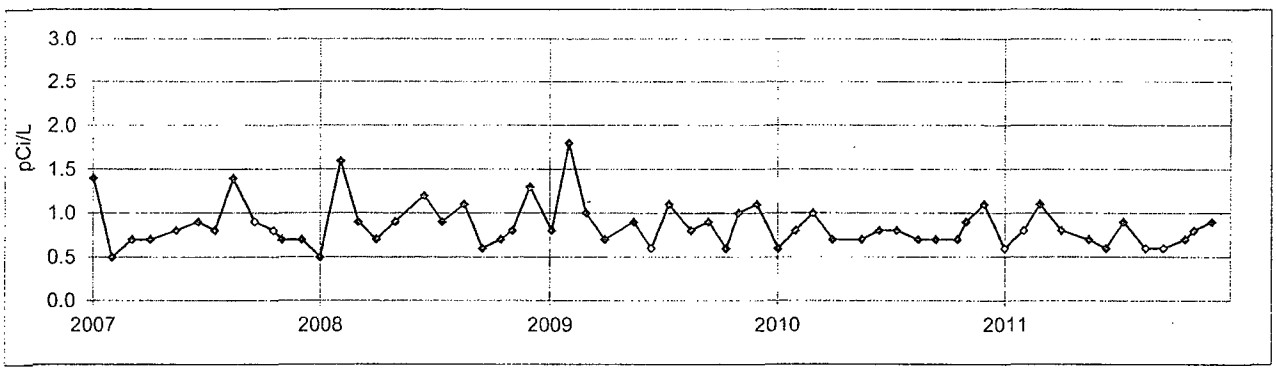

Figure 24. Milk samples. Location K-28 / K-42.

K-42 (Lamer's Dairy Products) replaced K-28 in March, 2010.

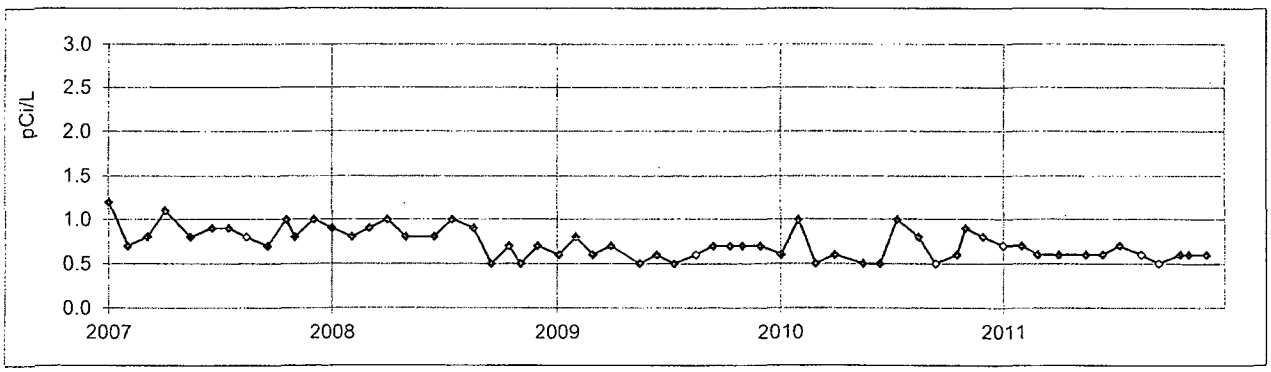

Figure 25. Milk samples. Location K-34.

Kewaunee Power Station
Milk - Strontium-90

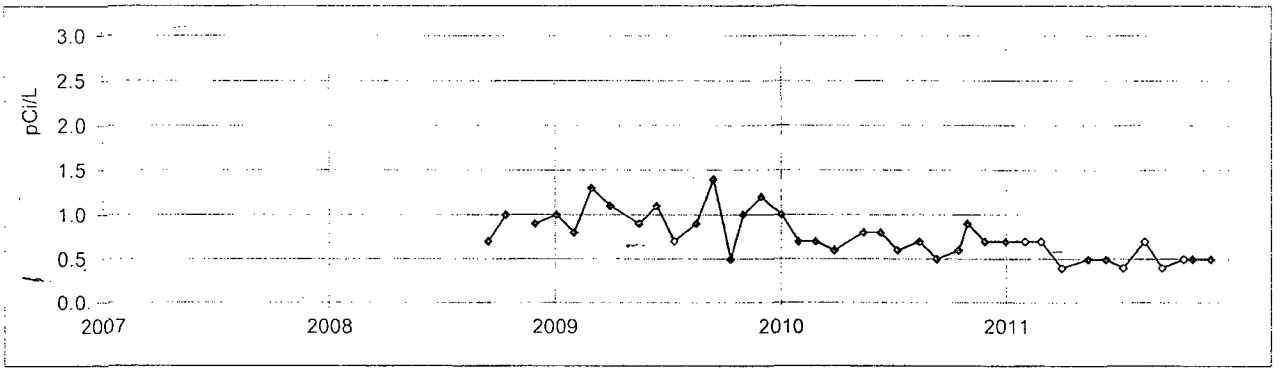

Figure 26. Milk samples. Location K-35.

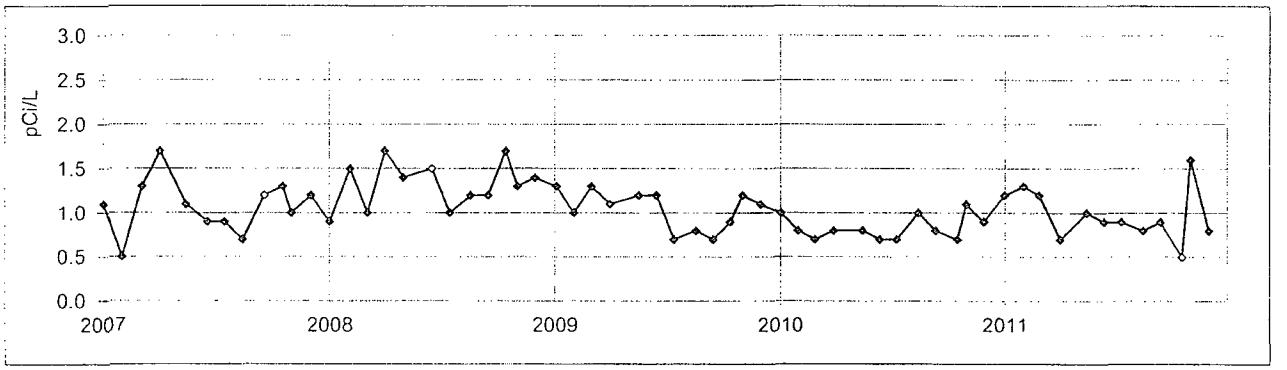

Figure 27. Milk samples. Location K-38.

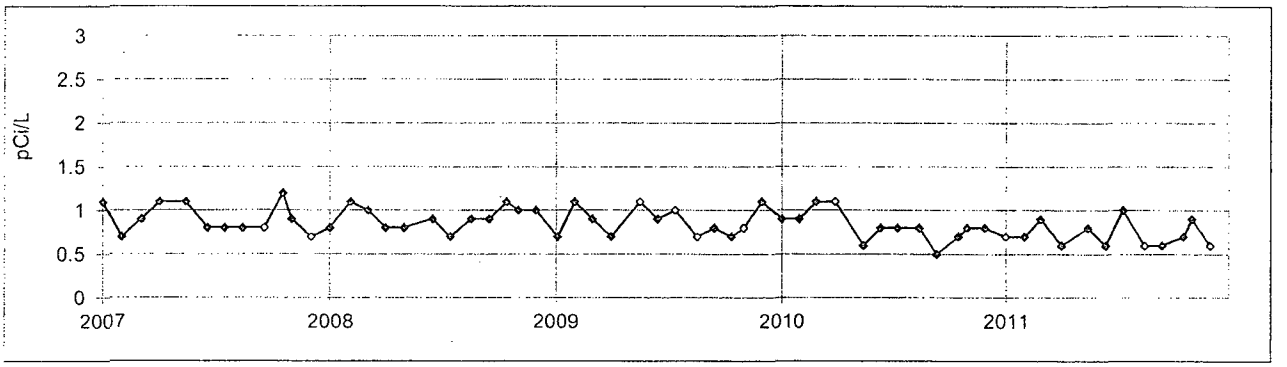

Figure 28. Milk samples. Location K-39.

Kewaunee Power Station
Surface Water - Gross Beta

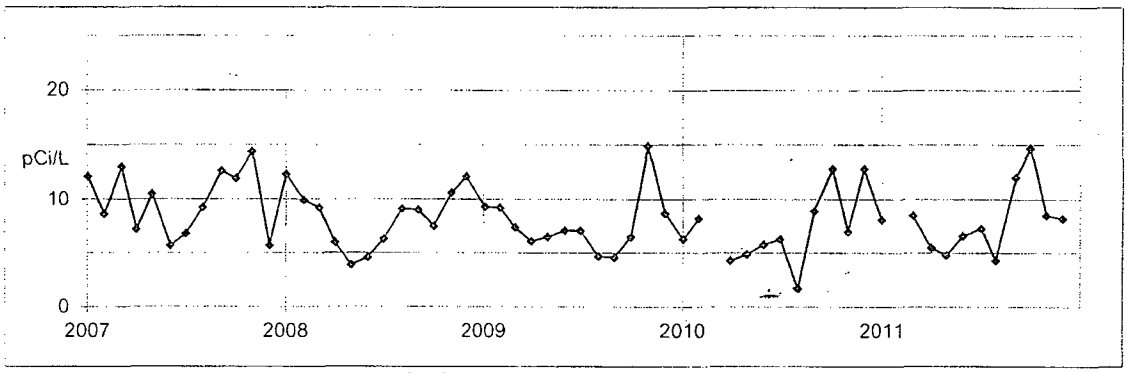

Figure 30. Surface water . North Creek, Onsite (K-1a).

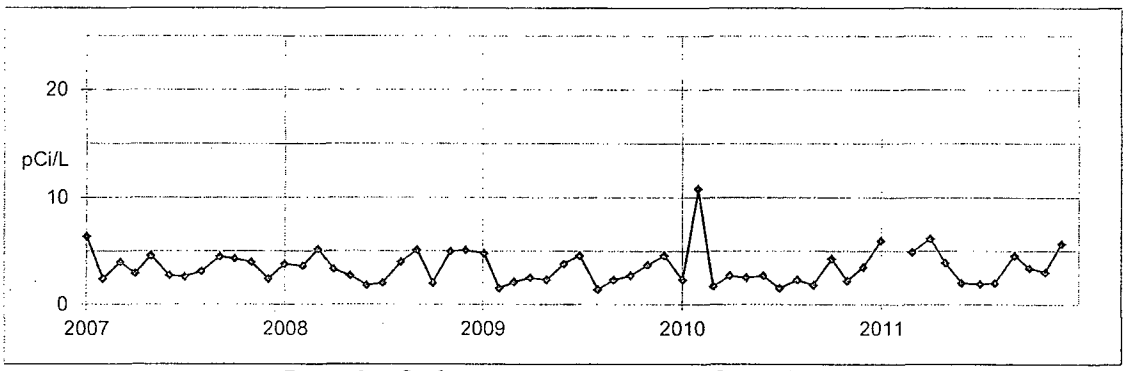

Figure 31. Surface water . Middle Creek, Onsite (K-1b).

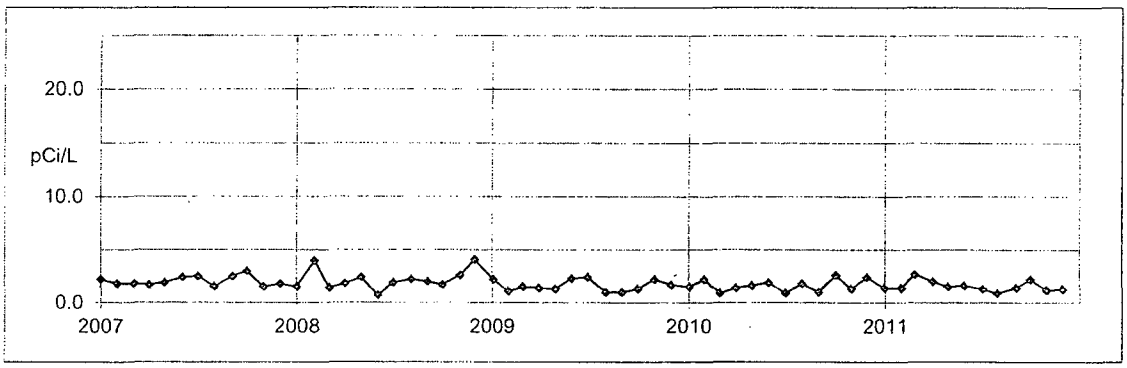

Figure 32. Surface water. Lake Michigan, condenser discharge, Onsite (K-1d).

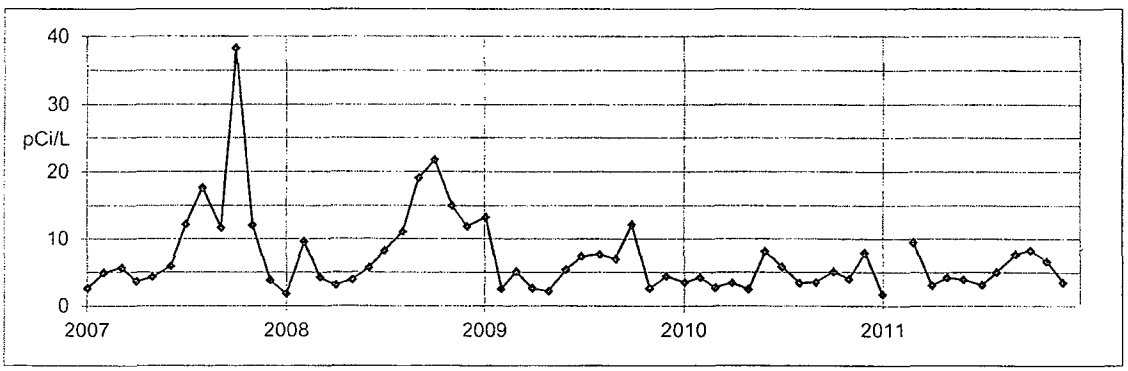

Figure 33. Surface water. South Creek, Onsite (K-1e).

Kewaunee Power Station
Surface Water - Gross Beta

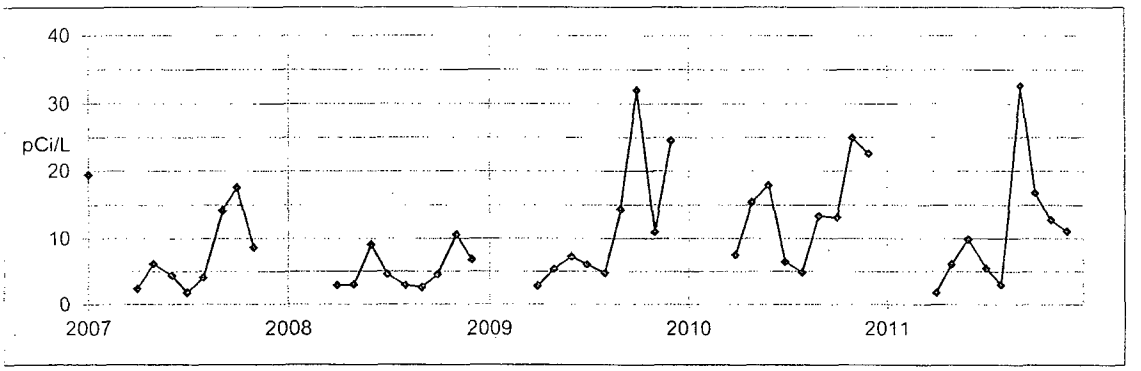

Figure 34. Surface water. School Forest Pond (K-1k).

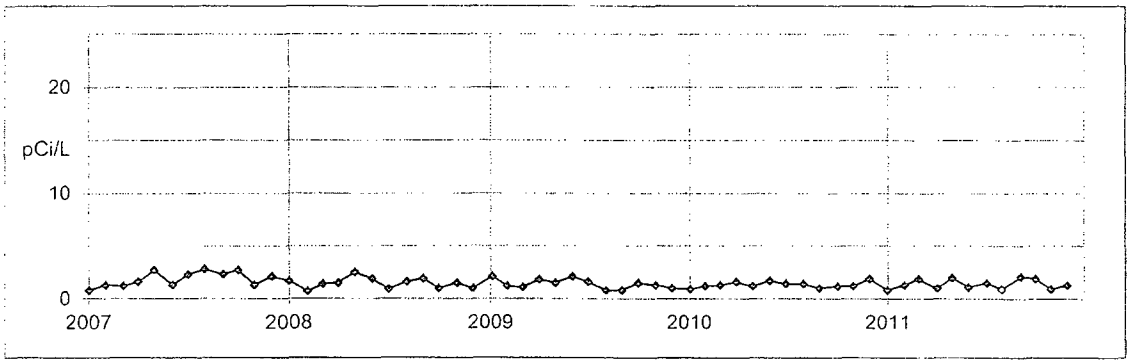

Figure 35. Surface water (raw). Lake Michigan, Rostok Intake (K-9)

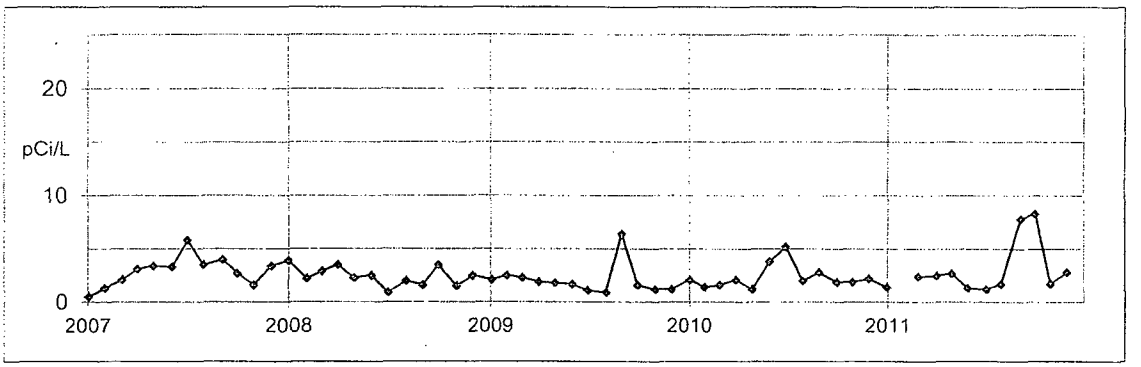

Figure 36. Surface water . Lake Michigan, Two Creeks Park (K-14a).

Kewaunee

Surface Water - Tritium

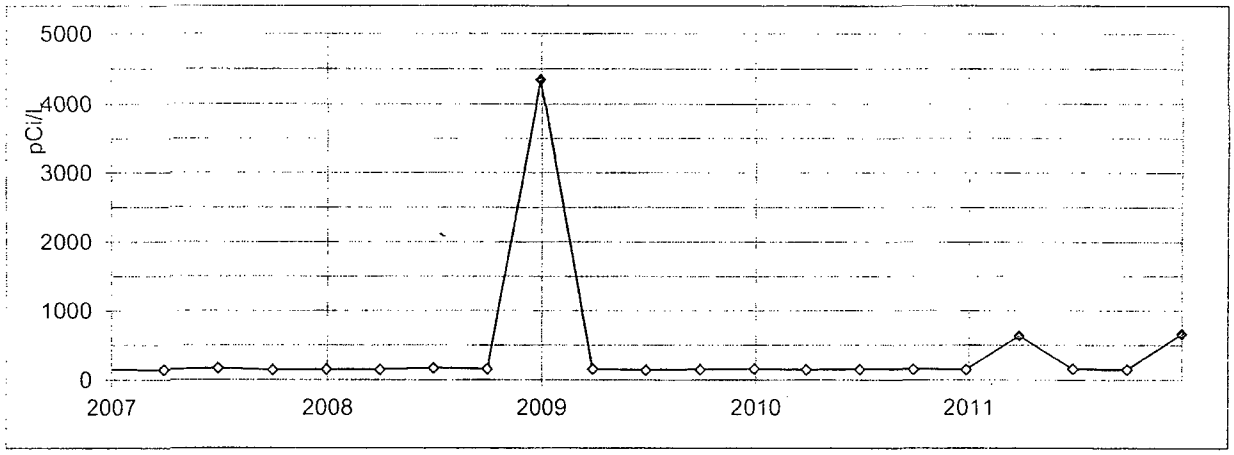

Figure 37. Surface water. Lake Michigan, condenser discharge, K-1d. Quarterly collection.

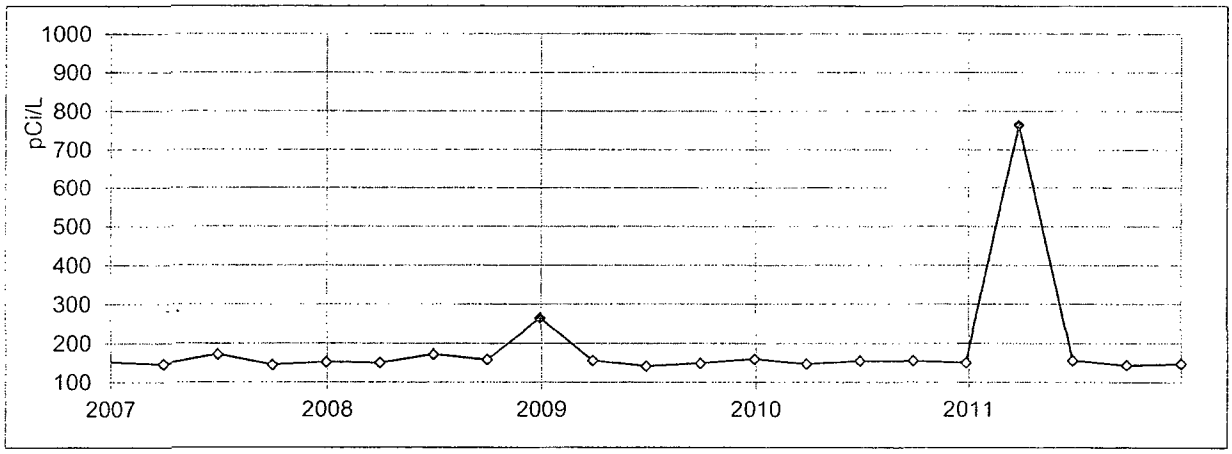

Figure 38. Surface water. Lake Michigan, Two Creeks Park, K-14a. Quarterly collection.

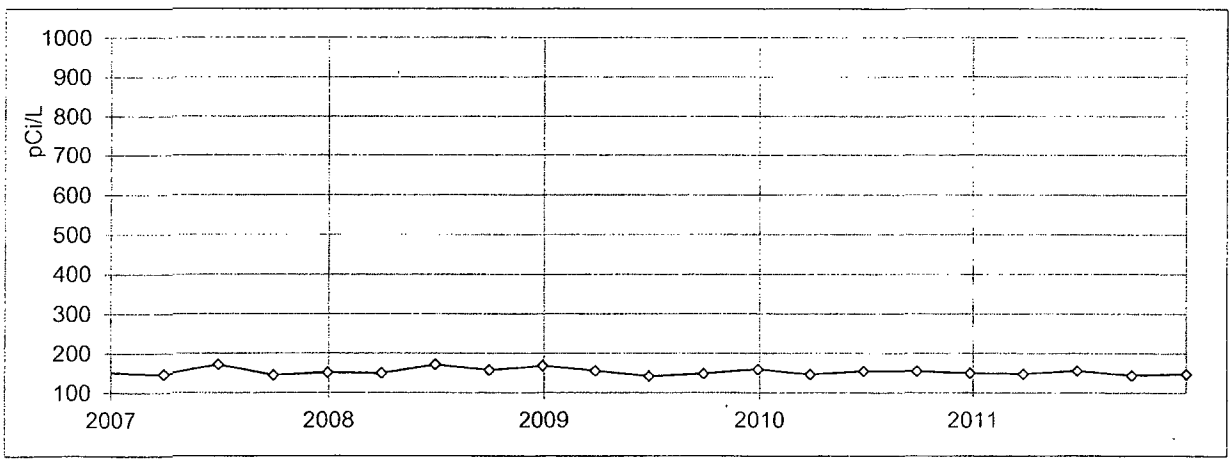

Figure 39. Surface water. Lake Michigan, Rostok Intake, K-9. Quarterly collection.

DATA TABULATIONS

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

Location: K-1f

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	284	0.040 ± 0.004	07-05-11	269	0.024 ± 0.003
01-10-11	242	0.044 ± 0.005	07-12-11	266	0.029 ± 0.004
01-18-11	330	0.026 ± 0.003	07-19-11	269	0.029 ± 0.004
01-25-11	282	0.034 ± 0.004	07-26-11	306	0.021 ± 0.003
01-31-11	238	0.033 ± 0.004	08-02-11	295	0.032 ± 0.004
02-08-11	321	0.031 ± 0.003	08-09-11	264	0.028 ± 0.004
02-15-11	269	0.034 ± 0.004	08-16-11	280	0.025 ± 0.003
02-23-11	319	0.027 ± 0.003	08-23-11	244	0.028 ± 0.004
03-01-11	237	0.035 ± 0.004	08-30-11	275	0.025 ± 0.003
03-08-11	288	0.025 ± 0.003	09-06-11	309	0.037 ± 0.004
03-15-11	261	0.023 ± 0.004	09-13-11	309	0.033 ± 0.003
03-21-11	238	0.028 ± 0.004	09-20-11	281	0.020 ± 0.004
03-29-11	307	0.028 ± 0.003	09-27-11	289	0.024 ± 0.003
1st Quarter Mean ± s.d.		0.031 ± 0.006	3rd Quarter Mean ± s.d.		0.027 ± 0.005
04-05-11	269	0.035 ± 0.004 [b]	10-04-11	302	0.024 ± 0.003
04-12-11	266	0.034 ± 0.004	10-11-11	315	0.051 ± 0.004
04-19-11	269	0.034 ± 0.004	10-18-11	286	0.036 ± 0.004
04-26-11	272	0.023 ± 0.003	10-25-11	296	0.021 ± 0.003
05-03-11	260	0.019 ± 0.003	11-01-11	301	0.029 ± 0.004
05-10-11	267	0.017 ± 0.003	11-08-11	286	0.040 ± 0.004
05-17-11	259	0.021 ± 0.003	11-15-11	271	0.041 ± 0.004
05-24-11	252	0.017 ± 0.003	11-22-11	298	0.026 ± 0.003
05-31-11	257	0.017 ± 0.003	11-29-11	302	0.034 ± 0.004
06-07-11	277	0.026 ± 0.004	12-06-11	309	0.027 ± 0.003
06-14-11	297	0.019 ± 0.003	12-13-11	296	0.043 ± 0.004
06-21-11	262	0.021 ± 0.003	12-20-11	302	0.043 ± 0.004
06-28-11	268	0.022 ± 0.003	12-27-11	303	0.024 ± 0.003
			01-03-12	303	0.034 ± 0.004
2nd Quarter Mean ± s.d.		0.023 ± 0.007	4th Quarter Mean ± s.d.		0.034 ± 0.009
			Cumulative Average		0.029

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.089 ± 0.017 pCi/m^3.

Table 5. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: K-2

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	304	0.038 ± 0.004	07-05-11	301	0.020 ± 0.003
01-10-11	255	0.054 ± 0.005	07-12-11	298	0.026 ± 0.003
01-18-11	340	0.026 ± 0.003	07-19-11	302	0.024 ± 0.003
01-25-11	293	0.038 ± 0.004	07-26-11	297	0.010 ± 0.003
01-31-11	255	0.035 ± 0.004	08-02-11	298	0.027 ± 0.003
02-08-11	340	0.034 ± 0.003	08-09-11	295	0.023 ± 0.003
02-15-11	283	0.034 ± 0.004	08-16-11	298	0.025 ± 0.003
02-23-11	341	0.030 ± 0.003	08-23-11	283	0.022 ± 0.003
03-01-11	253	0.038 ± 0.004	08-30-11	330	0.023 ± 0.003
03-08-11	298	0.031 ± 0.004	09-06-11	336	0.034 ± 0.003
03-15-11	288	0.027 ± 0.004	09-13-11	334	0.032 ± 0.003
03-21-11	252	0.032 ± 0.004	09-20-11	337	0.015 ± 0.003
03-29-11	315	0.031 ± 0.003	09-27-11	328	0.020 ± 0.003
1st Quarter Mean ± s.d.		0.034 ± 0.007	3rd Quarter Mean ± s.d.		0.023 ± 0.006
04-05-11	285	0.033 ± 0.004 [b]	10-04-11	331	0.024 ± 0.003
04-12-11	290	0.030 ± 0.004	10-11-11	335	0.051 ± 0.004
04-19-11	293	0.030 ± 0.004	10-18-11	318	0.032 ± 0.004
04-26-11	305	0.020 ± 0.003	10-25-11	303	0.021 ± 0.003
05-03-11	299	0.016 ± 0.003	11-01-11	301	0.026 ± 0.003
05-10-11	307	0.017 ± 0.003	11-08-11	336	0.035 ± 0.004
05-17-11	300	0.021 ± 0.003	11-15-11	316	0.041 ± 0.004
05-24-11	301	0.015 ± 0.003	11-22-11	298	0.027 ± 0.003
05-31-11	299	0.020 ± 0.003	11-29-11	302	0.040 ± 0.004
06-07-11	299	0.023 ± 0.003	12-06-11	303	0.028 ± 0.003
06-14-11	304	0.022 ± 0.003	12-13-11	301	0.049 ± 0.004
06-21-11	290	0.019 ± 0.003	12-20-11	303	0.047 ± 0.004
06-28-11	299	0.018 ± 0.003	12-27-11	303	0.028 ± 0.003
			01-03-12	303	0.030 ± 0.004
2nd Quarter Mean ± s.d.		0.022 ± 0.006	4th Quarter Mean ± s.d.		0.034 ± 0.010
			Cumulative Average		0.029

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.099 ± 0.018 pCi/m^3.

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

Location: K-8

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	283	0.040 ± 0.004	07-05-11	294	0.021 ± 0.003
01-10-11	237	0.044 ± 0.005	07-12-11	285	0.028 ± 0.004
01-18-11	328	0.026 ± 0.003	07-19-11	286	0.027 ± 0.003
01-25-11	290	0.035 ± 0.004	07-26-11	291	0.018 ± 0.003
01-31-11	248	0.032 ± 0.004	08-02-11	291	0.031 ± 0.004
02-08-11	323	0.026 ± 0.003	08-09-11	281	0.027 ± 0.004
02-15-11	306	0.031 ± 0.004	08-16-11	292	0.021 ± 0.003
02-23-11	321	0.027 ± 0.003	08-23-11	284	0.020 ± 0.003
03-01-11	240	0.038 ± 0.004	08-30-11	318	0.021 ± 0.003
03-08-11	289	0.029 ± 0.004	09-06-11	314	0.031 ± 0.003
03-15-11	280	0.023 ± 0.003	09-13-11	299	0.032 ± 0.003
03-21-11	247	0.028 ± 0.004	09-20-11	296	0.013 ± 0.003
03-29-11	317	0.027 ± 0.003	09-27-11	299	0.023 ± 0.003
1st Quarter Mean ± s.d.		0.031 ± 0.006	3rd Quarter Mean ± s.d.		0.024 ± 0.006
04-05-11	271	0.028 ± 0.004 [b]	10-04-11	307	0.022 ± 0.003
04-12-11	272	0.027 ± 0.004	10-11-11	304	0.046 ± 0.004
04-19-11	273	0.034 ± 0.004	10-18-11	286	0.027 ± 0.004
04-26-11	270	0.020 ± 0.003	10-25-11	302	0.019 ± 0.003
05-03-11	269	0.019 ± 0.003	11-01-11	302	0.023 ± 0.003
05-10-11	267	0.019 ± 0.003	11-08-11	292	0.035 ± 0.004
05-17-11	267	0.022 ± 0.003	11-15-11	279	0.034 ± 0.004
05-24-11	267	0.022 ± 0.003	11-22-11	303	0.025 ± 0.003
05-31-11	270	0.024 ± 0.003	11-29-11	298	0.033 ± 0.004
06-07-11	271	0.024 ± 0.004	12-06-11	291	0.025 ± 0.003
06-14-11	290	0.020 ± 0.003	12-13-11	299	0.042 ± 0.004
06-21-11	280	0.018 ± 0.003	12-20-11	302	0.042 ± 0.004
06-28-11	290	0.017 ± 0.003	12-27-11	303	0.027 ± 0.003
			01-03-12	305	0.025 ± 0.003
2nd Quarter Mean ± s.d.		0.023 ± 0.005	4th Quarter Mean ± s.d.		0.030 ± 0.008
			Cumulative Average		0.027

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.113 ± 0.019 pCi/m^3.

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

Location: K-31

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	288	0.040 ± 0.004	07-05-11	269	0.024 ± 0.003
01-10-11	237	0.042 ± 0.005	07-12-11	298	0.028 ± 0.003
01-18-11	329	0.030 ± 0.003	07-19-11	317	0.026 ± 0.003
01-25-11	280	0.036 ± 0.004	07-26-11	312	0.022 ± 0.003
01-31-11	242	0.037 ± 0.004	08-02-11	315	0.028 ± 0.003
02-08-11	324	0.031 ± 0.003	08-09-11	309	0.026 ± 0.003
02-15-11	275	0.035 ± 0.004	08-16-11	309	0.023 ± 0.003
02-23-11	321	0.029 ± 0.003	08-23-11	189	0.038 ± 0.005
03-01-11	243	0.032 ± 0.004	08-30-11		NS [c]
03-08-11	291	0.027 ± 0.003	09-06-11	306	0.034 ± 0.004
03-15-11	279	0.027 ± 0.004	09-13-11	298	0.034 ± 0.004
03-21-11	242	0.034 ± 0.004	09-20-11	299	0.016 ± 0.003
03-29-11	311	0.034 ± 0.004	09-27-11	296	0.023 ± 0.003
1st Quarter Mean ± s.d.		0.033 ± 0.005	3rd Quarter Mean ± s.d.		0.027 ± 0.006
04-05-11	269	0.030 ± 0.004 [b]	10-04-11	308	0.023 ± 0.003
04-12-11	261	0.029 ± 0.004	10-11-11	308	0.049 ± 0.004
04-19-11	271	0.035 ± 0.004	10-18-11	281	0.033 ± 0.004
04-26-11	270	0.022 ± 0.003	10-25-11	303	0.018 ± 0.003
05-03-11	263	0.022 ± 0.003	11-01-11	301	0.025 ± 0.003
05-10-11	270	0.018 ± 0.003	11-08-11	297	0.034 ± 0.004
05-17-11	267	0.023 ± 0.003	11-15-11	277	0.033 ± 0.004
05-24-11	269	0.018 ± 0.003	11-22-11	298	0.025 ± 0.003
05-31-11	270	0.017 ± 0.003	11-29-11	303	0.035 ± 0.004
06-07-11	266	0.026 ± 0.004	12-06-11	292	0.023 ± 0.003
06-14-11	271	0.018 ± 0.003	12-13-11	302	0.045 ± 0.004
06-21-11	263	0.021 ± 0.003	12-20-11	303	0.046 ± 0.004
06-28-11	264	0.017 ± 0.003	12-27-11	303	0.028 ± 0.003
			01-03-12	303	0.027 ± 0.003
2nd Quarter Mean ± s.d.		0.023 ± 0.006	4th Quarter Mean ± s.d.		0.032 ± 0.009
			Cumulative Average		0.029

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.153 ± 0.019 pCi/m^3.

[c] No sample, power loss at sampler station.

Table 8. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: K-41

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	289	0.048 ± 0.004	07-05-11	302	0.026 ± 0.003
01-10-11	233	0.041 ± 0.005	07-12-11	312	0.027 ± 0.003
01-18-11	345	0.025 ± 0.003	07-19-11	340	0.023 ± 0.003
01-25-11	312	0.032 ± 0.003	07-26-11	307	0.021 ± 0.003
01-31-11	257	0.032 ± 0.004	08-02-11	302	0.030 ± 0.003
02-08-11	352	0.029 ± 0.003	08-09-11	299	0.021 ± 0.003
02-15-11	270	0.052 ± 0.005	08-16-11	303	0.029 ± 0.003
02-23-11	368	0.025 ± 0.003	08-23-11	295	0.021 ± 0.003
03-01-11	252	0.035 ± 0.004	08-30-11	316	0.024 ± 0.003
03-08-11	298	0.028 ± 0.003	09-06-11	303	0.036 ± 0.004
03-15-11	300	0.025 ± 0.003	09-13-11	302	0.036 ± 0.004
03-21-11	251	0.030 ± 0.004	09-20-11	306	0.017 ± 0.003
03-29-11	326	0.032 ± 0.003	09-27-11	297	0.020 ± 0.003
1st Quarter Mean ± s.d.		0.033 ± 0.009	3rd Quarter Mean ± s.d.		0.025 ± 0.006
04-05-11	256	0.042 ± 0.005 [b]	10-04-11	302	0.025 ± 0.003
04-12-11	259	0.037 ± 0.004	10-11-11	303	0.051 ± 0.004
04-19-11	273	0.039 ± 0.004	10-18-11	304	0.028 ± 0.003
04-26-11	277	0.026 ± 0.004			
05-03-11	268	0.019 ± 0.003	11-01-11	302	0.029 ± 0.004
05-10-11	271	0.019 ± 0.003	11-08-11	305	0.036 ± 0.004
05-17-11	246	0.026 ± 0.004	11-15-11	302	0.030 ± 0.004
05-24-11	215	0.026 ± 0.004	11-22-11	299	0.028 ± 0.003
05-31-11	221	0.025 ± 0.004	11-29-11	302	0.041 ± 0.004
06-07-11	285	0.025 ± 0.003	12-06-11	303	0.030 ± 0.004
06-14-11	298	0.021 ± 0.003	12-13-11	302	0.049 ± 0.004
06-21-11	272	0.021 ± 0.003	12-20-11	302	0.054 ± 0.004
06-28-11	262	0.020 ± 0.003	12-27-11	303	0.031 ± 0.004
			01-03-12	302	0.030 ± 0.003
2nd Quarter Mean ± s.d.		0.027 ± 0.008	4th Quarter Mean ± s.d.		0.036 ± 0.010
			Cumulative Average		0.030

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.128 ± 0.020 pCi/m^3.

Table 9. Airborne particulates and charcoal canisters, analyses for gross beta and iodine-131[a].

Location: K-43

Units: pCi/m^3

Collection: Continuous, weekly exchange.

Date Collected	Volume (m^3)	Gross Beta	Date Collected	Volume (m^3)	Gross Beta
Required LLD		0.010	Required LLD		0.010
01-04-11	310	0.041 ± 0.004	07-05-11	297	0.025 ± 0.003
01-10-11	266	0.042 ± 0.004	07-12-11	265	0.030 ± 0.004
01-18-11	350	0.026 ± 0.003	07-19-11	292	0.027 ± 0.003
01-25-11	306	0.018 ± 0.003	07-26-11	292	0.020 ± 0.003
01-31-11	258	0.032 ± 0.004	08-02-11	295	0.031 ± 0.004
02-08-11	345	0.034 ± 0.003	08-09-11	281	0.029 ± 0.004
02-15-11	300	0.033 ± 0.004	08-16-11	291	0.022 ± 0.003
02-23-11	357	0.026 ± 0.003	08-23-11	278	0.026 ± 0.004
03-01-11	261	0.035 ± 0.004	08-30-11	268	0.027 ± 0.004
03-08-11	320	0.027 ± 0.003	09-06-11	308	0.036 ± 0.004
03-15-11	309	0.025 ± 0.003	09-13-11	304	0.032 ± 0.003
03-21-11	268	0.040 ± 0.004	09-20-11	299	0.014 ± 0.003
03-29-11	357	0.040 ± 0.004	09-27-11	299	0.023 ± 0.003
1st Quarter Mean ± s.d.		0.032 ± 0.007	3rd Quarter Mean ± s.d.		0.026 ± 0.006
04-05-11	293	0.030 ± 0.004 [b]	10-04-11	302	0.027 ± 0.003
04-12-11	299	0.025 ± 0.003	10-11-11	307	0.055 ± 0.004
04-19-11	296	0.032 ± 0.004	10-18-11	305	0.028 ± 0.003
04-26-11	291	0.022 ± 0.003	10-25-11	302	0.020 ± 0.003
05-03-11	299	0.014 ± 0.003	11-01-11	302	0.026 ± 0.003
05-10-11	279	0.022 ± 0.003	11-08-11	297	0.041 ± 0.004
05-17-11	286	0.022 ± 0.003	11-15-11	302	0.035 ± 0.004
05-24-11	285	0.018 ± 0.003	11-22-11	304	0.025 ± 0.003
05-31-11	291	0.018 ± 0.003	11-29-11	297	0.037 ± 0.004
06-07-11	293	0.025 ± 0.003	12-06-11	272	0.028 ± 0.004
06-14-11	292	0.021 ± 0.003	12-13-11	298	0.048 ± 0.004
06-21-11	284	0.020 ± 0.003	12-20-11	301	0.044 ± 0.004
06-28-11	290	0.022 ± 0.003	12-27-11	305	0.028 ± 0.003
			01-03-12	306	0.026 ± 0.003
2nd Quarter Mean ± s.d.		0.022 ± 0.005	4th Quarter Mean ± s.d.		0.033 ± 0.010
			Cumulative Average		0.029

[a] Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m^3 unless otherwise noted.

[b] Iodine-131 activity detected: 0.110 ± 0.015 pCi/m^3.

Table 10. Airborne particulate data, gross beta analyses, monthly averages, minima and maxima.

January

Location	Average	Minima	Maxima
Indicators	0.034	0.018	0.044
K-1f	0.035	0.026	0.044
K-43	0.032	0.018	0.042
Controls	0.037	0.025	0.054
K-2	0.038	0.026	0.054
K-8	0.035	0.026	0.044
K-31	0.037	0.030	0.042
K-41	0.036	0.025	0.048

February

Location	Average	Minima	Maxima
Indicators	0.031	0.023	0.052
K-1f	0.032	0.027	0.035
K-43	0.032	0.026	0.035
Controls	0.033	0.025	0.052
K-2	0.034	0.030	0.038
K-8	0.031	0.026	0.038
K-31	0.032	0.029	0.035
K-41	0.035	0.025	0.052

March

Location	Average	Minima	Maxima
Indicators	0.030	0.023	0.040
K-1f	0.026	0.023	0.028
K-43	0.033	0.025	0.040
Controls	0.029	0.023	0.034
K-2	0.030	0.027	0.032
K-8	0.027	0.023	0.029
K-31	0.031	0.027	0.034
K-41	0.029	0.025	0.032

April

Location	Average	Minima	Maxima
Indicators	0.027	0.014	0.035
K-1f	0.029	0.019	0.035
K-43	0.025	0.014	0.032
Controls	0.027	0.016	0.035
K-2	0.026	0.016	0.033
K-8	0.026	0.019	0.034
K-31	0.028	0.022	0.035
K-41	0.028	0.022	0.035

May

Location	Average	Minima	Maxima
Indicators	0.021	0.015	0.055
K-1f	0.018	0.017	0.021
K-43	0.020	0.018	0.022
Controls	0.021	0.015	0.026
K-2	0.018	0.015	0.021
K-8	0.022	0.019	0.024
K-31	0.019	0.017	0.023
K-41	0.024	0.019	0.026

June

Location	Average	Minima	Maxima
Indicators	0.022	0.019	0.026
K-1f	0.022	0.019	0.026
K-43	0.022	0.020	0.025
Controls	0.026	0.017	0.055
K-2	0.021	0.018	0.023
K-8	0.020	0.017	0.024
K-31	0.021	0.017	0.026
K-41	0.022	0.020	0.025

Note: Samples collected on the first, second or third day of the month are grouped with data of the previous month.

Table 10. Airborne particulate data, gross beta analyses, monthly averages, minima and maxima.

July			
Location	Average	Minima	Maxima
Indicators	0.027	0.020	0.032
K-1f	0.027	0.021	0.032
K-43	0.027	0.020	0.031
Controls	0.024	0.010	0.031
K-2	0.021	0.010	0.027
K-8	0.025	0.018	0.031
K-31	0.026	0.022	0.028
K-41	0.025	0.021	0.030

August			
Location	Average	Minima	Maxima
Indicators	0.027	0.022	0.029
K-1f	0.027	0.025	0.028
K-43	0.026	0.022	0.029
Controls	0.025	0.020	0.038
K-2	0.023	0.022	0.025
K-8	0.022	0.020	0.027
K-31	0.029	0.023	0.038
K-41	0.024	0.021	0.029

September			
Location	Average	Minima	Maxima
Indicators	0.028	0.014	0.037
K-1f	0.029	0.020	0.037
K-43	0.026	0.014	0.036
Controls	0.026	0.013	0.036
K-2	0.025	0.015	0.034
K-8	0.025	0.013	0.032
K-31	0.027	0.016	0.034
K-41	0.027	0.017	0.036

October			
Location	Average	Minima	Maxima
Indicators	0.032	0.020	0.055
K-1f	0.032	0.021	0.051
K-43	0.031	0.020	0.055
Controls	0.030	0.018	0.051
K-2	0.031	0.021	0.051
K-8	0.027	0.019	0.046
K-31	0.030	0.018	0.049
K-41	0.033	0.025	0.051

November			
Location	Average	Minima	Maxima
Indicators	0.035	0.025	0.041
K-1f	0.035	0.026	0.041
K-43	0.035	0.025	0.041
Controls	0.034	0.025	0.041
K-2	0.036	0.027	0.041
K-8	0.032	0.025	0.035
K-31	0.032	0.025	0.035
K-41	0.034	0.028	0.041

December			
Location	Average	Minima	Maxima
Indicators	0.036	0.024	0.048
K-1f	0.034	0.024	0.043
K-43	0.037	0.028	0.048
Controls	0.037	0.023	0.054
K-2	0.038	0.028	0.049
K-8	0.032	0.025	0.042
K-31	0.036	0.023	0.046
K-41	0.041	0.030	0.054

Note: Samples collected on the first, second or third day of the month are grouped with data of the previous month.

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Table 11. Airborne particulate samples, quarterly composites of weekly samples, analysis for gamma-emitting isotopes.

	Sample Description and Concentration (pCi/m^3)			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Indicator				
K-1f				
Lab Code	KAP- 2239	KAP- 4868	KAP- 7027	KAP- 9279
Volume (m^3)	3616	3475	3656	4170
Be-7	0.071 ± 0.017	0.086 ± 0.020	0.086 ± 0.017	0.071 ± 0.013
Nb-95	< 0.0005	< 0.0020	< 0.0008	< 0.0007
Zr-95	< 0.0015	< 0.0019	< 0.0021	< 0.0015
Ru-103	< 0.0012	< 0.0013	< 0.0014	< 0.0007
Ru-106	< 0.0065	< 0.0083	< 0.0052	< 0.0054
Cs-134	< 0.0005	< 0.0009	< 0.0009	< 0.0006
Cs-137	< 0.0004	< 0.0016	< 0.0012	< 0.0008
Ce-141	< 0.0017	< 0.0020	< 0.0013	< 0.0015
Ce-144	< 0.0024	< 0.0048	< 0.0055	< 0.0034
K-43				
Lab Code	KAP- 2244	KAP- 4874	KAP- 7032	KAP- 9284
Volume (m^3)	4007	3778	3769	4200
Be-7	0.065 ± 0.014	0.079 ± 0.016	0.077 ± 0.016	0.059 ± 0.012
Nb-95	< 0.0009	< 0.0016	< 0.0005	< 0.0010
Zr-95	< 0.0016	< 0.0021	< 0.0011	< 0.0006
Ru-103	< 0.0011	< 0.0014	< 0.0008	< 0.0010
Ru-106	< 0.0040	< 0.0080	< 0.0042	< 0.0066
Cs-134	< 0.0008	< 0.0009	< 0.0007	< 0.0005
Cs-137	< 0.0007	< 0.0011	< 0.0006	< 0.0004
Ce-141	< 0.0014	< 0.0025	< 0.0015	< 0.0012
Ce-144	< 0.0026	< 0.0064	< 0.0051	< 0.0030

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Table 11. Airborne particulate samples, quarterly composites of weekly samples, analysis for gamma-emitting isotopes, (continued).

	Sample Description and Concentration (pCi/m^3)			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Control				
K-2				
Lab Code	KAP- 2240	KAP- 4869	KAP- 7028	KAP- 9280
Volume (m^3)	3817	3871	4037	4353
Be-7	0.067 ± 0.018	0.083 ± 0.016	0.070 ± 0.013	0.050 ± 0.011
Nb-95	< 0.0013	< 0.0015	< 0.0004	< 0.0007
Zr-95	< 0.0011	< 0.0010	< 0.0006	< 0.0007
Ru-103	< 0.0010	< 0.0012	< 0.0009	< 0.0006
Ru-106	< 0.0059	< 0.0058	< 0.0059	< 0.0058
Cs-134	< 0.0011	< 0.0010	< 0.0006	< 0.0005
Cs-137	< 0.0008	< 0.0011	< 0.0007	< 0.0007
Ce-141	< 0.0026	< 0.0020	< 0.0016	< 0.0013
Ce-144	< 0.0061	< 0.0051	< 0.0034	< 0.0041
K-8				
Lab Code	KAP- 2241	KAP- 4870	KAP- 7029	KAP- 9281
Volume (m^3)	3709	3557	3830	4173
Be-7	0.048 ± 0.012	0.062 ± 0.016	0.066 ± 0.013	0.063 ± 0.012
Nb-95	< 0.0005	< 0.0011	< 0.0009	< 0.0007
Zr-95	< 0.0018	< 0.0015	< 0.0011	< 0.0006
Ru-103	< 0.0008	< 0.0014	< 0.0008	< 0.0007
Ru-106	< 0.0046	< 0.0075	< 0.0056	< 0.0067
Cs-134	< 0.0004	< 0.0009	< 0.0005	< 0.0007
Cs-137	< 0.0004	< 0.0009	< 0.0006	< 0.0006
Ce-141	< 0.0022	< 0.0010	< 0.0015	< 0.0013
Ce-144	< 0.0046	< 0.0053	< 0.0034	< 0.0034

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Table 11. Airborne particulate samples, quarterly composites of weekly samples, analysis for gamma-emitting isotopes, (continued).

	Sample Description and Concentration (pCi/m^3)			
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Control				
K-31				
Lab Code	KAP- 2242	KAP- 4871	KAP- 7030	KAP- 9282
Volume (m^3)	3662	3474	3517	4179
Be-7	0.073 ± 0.017	0.072 ± 0.017	0.071 ± 0.013	0.061 ± 0.012
Nb-95	< 0.0018	< 0.0014	< 0.0005	< 0.0006
Zr-95	< 0.0013	< 0.0016	< 0.0016	< 0.0011
Ru-103	< 0.0014	< 0.0014	< 0.0009	< 0.0008
Ru-106	< 0.0096	< 0.0045	< 0.0062	< 0.0065
Cs-134	< 0.0010	< 0.0010	< 0.0006	< 0.0008
Cs-137	< 0.0007	< 0.0010	< 0.0006	< 0.0008
Ce-141	< 0.0023	< 0.0020	< 0.0012	< 0.0016
Ce-144	< 0.0072	< 0.0048	< 0.0033	< 0.0038
K-41				
Lab Code	KAP- 2243	KAP- 4872	KAP- 7031	KAP- 9283
Volume (m^3)	3853	3403	3984	4233
Be-7	0.074 ± 0.017	0.094 ± 0.018	0.073 ± 0.015	0.057 ± 0.013
Nb-95	< 0.0006	< 0.0009	< 0.0013	< 0.0009
Zr-95	< 0.0013	< 0.0012	< 0.0010	< 0.0012
Ru-103	< 0.0009	< 0.0008	< 0.0015	< 0.0006
Ru-106	< 0.0046	< 0.0070	< 0.0083	< 0.0066
Cs-134	< 0.0005	< 0.0009	< 0.0007	< 0.0005
Cs-137	< 0.0008	0.0014 ± 0.0007 [a]	< 0.0012	< 0.0008
Ce-141	< 0.0021	< 0.0015	< 0.0019	< 0.0012
Ce-144	< 0.0037	< 0.0044	< 0.0036	< 0.0026

[a] Activity observed in second quarter air samples most likely attributable to Fukushima Daiichi accident.

Table 12. Ambient gamma radiation (TLD), quarterly exposure. Kev

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Date Placed	01-03-11	04-04-11	07-05-11	10-03-11	
Date Removed	04-04-11	07-05-11	10-03-11	01-03-12	
	mR/91 days				
Indicator					Mean±s.d.
K-1f	13.2 ± 0.7	11.2 ± 0.3	12.6 ± 0.6	12.7 ± 0.6	12.4 ± 0.9
K-5	18.1 ± 0.6	17.5 ± 0.7	17.7 ± 0.7	19.0 ± 0.7	18.1 ± 0.7
K-17	10.7 ± 0.3	12.7 ± 0.4	12.1 ± 0.3	13.6 ± 0.3	12.3 ± 1.2
K-25	13.7 ± 0.4	16.2 ± 0.4	13.7 ± 0.4	17.2 ± 0.6	15.2 ± 1.8
K-27	15.2 ± 0.3	16.7 ± 0.9	15.8 ± 0.3	18.1 ± 0.7	16.5 ± 1.3
K-30	15.9 ± 0.6	14.4 ± 0.8	15.0 ± 0.6	ND [a]	15.1 ± 0.8
K-39	16.5 ± 0.3	15.8 ± 0.6	14.8 ± 0.4	16.4 ± 0.6	15.9 ± 0.8
K-43	16.1 ± 0.8	14.5 ± 0.6	14.1 ± 0.6	15.3 ± 0.5	15.0 ± 0.9
Mean ± s.d.	14.9 ± 2.3	14.9 ± 2.1	14.5 ± 1.8	16.0 ± 2.3	15.1 ± 0.6
Control					
K-2	14.7 ± 0.4	14.6 ± 0.6	15.8 ± 0.5	16.0 ± 0.6	15.3 ± 0.7
K-3	17.7 ± 1.0	16.1 ± 0.9	17.1 ± 0.7	17.6 ± 0.8	17.1 ± 0.7
K-8	15.7 ± 0.8	14.5 ± 0.4	15.1 ± 0.8	15.2 ± 0.9	15.1 ± 0.5
K-15	12.8 ± 0.4	13.0 ± 0.4	13.0 ± 0.4	14.1 ± 0.2	13.2 ± 0.6
K-31	11.2 ± 0.4	12.1 ± 0.3	10.9 ± 0.4	12.8 ± 0.3	11.8 ± 0.9
K-41	14.8 ± 1.0	14.4 ± 0.7	13.0 ± 0.7	14.8 ± 0.6	14.3 ± 0.9
Mean ± s.d.	14.5 ± 2.3	14.1 ± 1.4	14.2 ± 2.3	15.1 ± 1.6	14.5 ± 0.5

Inside the Protected Area [b]

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	
Date Placed	12-23-10	03-28-11	06-20-11	09-29-11	
Date Removed	03-28-11	06-20-11	09-30-11	12-21-11	
K-1L	32.3 ± 1.4	16.4 ± 0.4	12.6 ± 0.8	12.2 ± 1.2	14.4 ± 2.3
K-1M	19.5 ± 0.6	14.2 ± 1.4	14.9 ± 0.6	16.3 ± 0.7	14.9 ± 1.0
K-1N	10.7 ± 0.5	11.1 ± 1.0	11.4 ± 0.6	13.3 ± 0.8	11.7 ± 1.1
K-1O	10.2 ± 0.3	10.8 ± 0.8	11.2 ± 0.4	12.5 ± 0.7	11.3 ± 0.8
K-1P	9.8 ± 0.3	11.2 ± 1.2	12.0 ± 0.5	14.7 ± 1.1	12.3 ± 1.7
K-1Q	9.5 ± 0.7	9.3 ± 0.7	11.4 ± 1.0	11.6 ± 0.6	10.4 ± 1.3
K-1R	11.9 ± 0.4	12.4 ± 0.4	13.8 ± 0.8	14.7 ± 0.5	13.3 ± 1.1
K-1S	11.7 ± 0.5	11.5 ± 0.5	13.4 ± 0.8	14.0 ± 0.8	12.6 ± 1.3
Mean ± s.d.	14.5 ± 7.9	12.1 ± 2.2	12.6 ± 1.3	13.7 ± 1.6	13.2 ± 1.1

[a] TLD lost in the field.

[b] Intransit exposure was not subtracted for the 1st, 2nd or 3rd quarters, 2011. Data was recalculated.

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Table 13. Precipitation samples collected at Location K-11; analysis for tritium.

Date Collected	Lab Code	H-3	
		pCi/L	T.U. (100 T.U. = 320 pCi/L)
01/04/11	KP- 82	< 144	< 45
02/08/11	KP- 629	< 150	< 47
03/01/11	KP- 953	< 148	< 46
04/05/11	KP- 1705	424 ± 96 [a]	133
05/03/11	KP- 2757	< 143	< 45
06/07/11	KP- 3672	< 156	< 49
07/05/11	KP- 4283	< 147	< 46
08/02/11	KP- 5274	< 149	< 47
08/30/11	KP- 5903	< 148	< 46
10/04/11	KP- 6722	< 149	< 47
11/01/11	KP- 7592	< 142	< 44
11/29/11	KP- 8456	< 137	< 43

[a] Analysis was repeated, result of reanalysis: 528 ± 100 pCi/L.

Table 14. Milk, analyses for iodine-131 and gamma-emitting isotopes.
Collection: Semimonthly during grazing season, monthly at other times.

Collection Date	Lab Code	Concentration (pCi/L) I-131	Cs-134	Cs-137	Ba-La-140	K-40
Indicators						
K-5						
01-04-11	KMI- 2	< 0.5	< 10	< 10	< 15	1444 ± 119
02-04-11	KMI- 455	< 0.5	< 10	< 10	< 15	1314 ± 111
03-02-11	KMI- 788	< 0.5	< 10	< 10	< 15	1439 ± 105
04-05-11	KMI- 1580	< 0.5	< 10	< 10	< 15	1394 ± 113
05-02-11	KMI- 2618	< 0.5	< 10	< 10	< 15	1401 ± 121
05-17-11	KMI- 3036	< 0.5	< 10	< 10	< 15	1368 ± 143
06-01-11	KMI- 3355	< 0.5	< 10	< 10	< 15	1349 ± 111
06-14-11	KMI- 3761	< 0.5	< 10	< 10	< 15	1347 ± 112
07-06-11	KMI- 4138	< 0.5	< 10	< 10	< 15	1380 ± 90
07-12-11	KMI- 4485	< 0.5	< 10	< 10	< 15	1341 ± 110
08-02-11	KMI- 5172	< 0.5	< 10	< 10	< 15	1344 ± 108
08-16-11	KMI- 5585	< 0.5	< 10	< 10	< 15	1443 ± 129
09-07-11	KMI- 5989	< 0.5	< 10	< 10	< 15	1460 ± 118
09-13-11	KMI- 6122	< 0.5	< 10	< 10	< 15	1456 ± 122
10-04-11	KMI- 6619	< 0.5	< 10	< 10	< 15	1380 ± 122
10-18-11	KMI- 7196	< 0.5	< 10	< 10	< 15	1451 ± 113
11-01-11	KMI- 7594	< 0.5	< 10	< 10	< 15	1341 ± 109
12-01-11	KMI- 8412	< 0.5	< 10	< 10	< 15	1324 ± 162
K-34						
01-04-11	KMI- 3	< 0.5	< 10	< 10	< 15	1451 ± 127
02-03-11	KMI- 456	< 0.5	< 10	< 10	< 15	1383 ± 114
03-01-11	KMI- 789	< 0.5	< 10	< 10	< 15	1401 ± 116
04-04-11	KMI- 1581	0.3 ± 0.1	< 10	< 10	< 15	1510 ± 119
05-02-11	KMI- 2619	< 0.5	< 10	< 10	< 15	1512 ± 130
05-17-11	KMI- 3037	< 0.5	< 10	< 10	< 15	1497 ± 116
06-01-11	KMI- 3356	< 0.5	< 10	< 10	< 15	1387 ± 117
06-14-11	KMI- 3762	< 0.5	< 10	< 10	< 15	1436 ± 109
07-05-11	KMI- 4139	< 0.5	< 10	< 10	< 15	1540 ± 98
07-12-11	KMI- 4486	< 0.5	< 10	< 10	< 15	1439 ± 104
08-02-11	KMI- 5173	< 0.5	< 10	< 10	< 15	1472 ± 113
08-16-11	KMI- 5586	< 0.5	< 10	< 10	< 15	1451 ± 120
09-07-11	KMI- 5990	< 0.5	< 10	< 10	< 15	1447 ± 115
09-13-11	KMI- 6123	< 0.5	< 10	< 10	< 15	1425 ± 102
10-03-11	KMI- 6620	< 0.5	< 10	< 10	< 15	1416 ± 118
10-18-11	KMI- 7197	< 0.5	< 10	< 10	< 15	1512 ± 120
11-01-11	KMI- 7595	< 0.5	< 10	< 10	< 15	1507 ± 114
12-01-11	KMI- 8413	< 0.5	< 10	< 10	< 15	1443 ± 108

Table 14. Milk, analyses for iodine-131 and gamma-emitting isotopes (continued).

Collection Date	Lab Code	Concentration (pCi/L) I-131	Cs-134	Cs-137	Ba-La-140	K-40
Indicators						
K-38						
01-03-11	KMI- 5	< 0.5	< 10	< 10	< 15	1343 ± 110
02-03-11	KMI- 458	< 0.5	< 10	< 10	< 15	1323 ± 113
03-01-11	KMI- 791	< 0.5	< 10	< 10	< 15	1327 ± 112
04-04-11	KMI- 1583	< 0.5	< 10	< 10	< 15	1397 ± 117
05-02-11	KMI- 2621	< 0.5	< 10	< 10	< 15	1488 ± 131
05-17-11	KMI- 3039	< 0.5	< 10	< 10	< 15	1348 ± 115
06-01-11	KMI- 3358	< 0.5	< 10	< 10	< 15	1415 ± 105
06-14-11	KMI- 3764	< 0.5	< 10	< 10	< 15	1369 ± 120
07-05-11	KMI- 4141	< 0.5	< 10	< 10	< 15	1356 ± 105
07-12-11	KMI- 4488	< 0.5	< 10	< 10	< 15	1252 ± 118
08-02-11	KMI- 5175	< 0.5	< 10	< 10	< 15	1321 ± 116
08-16-11	KMI- 5588	< 0.5	< 10	< 10	< 15	1467 ± 120
09-07-11	KMI- 5992	< 0.5	< 10	< 10	< 15	1372 ± 101
09-13-11	KMI- 6125	< 0.5	< 10	< 10	< 15	1372 ± 122
10-03-11	KMI- 6622	< 0.5	< 10	< 10	< 15	1419 ± 115
10-18-11	KMI- 7199	< 0.5	< 10	< 10	< 15	1390 ± 104
11-02-11	KMI- 7597	< 0.5	< 10	< 10	< 15	1316 ± 95
12-01-11	KMI- 8415	< 0.5	< 10	< 10	< 15	1419 ± 126
K-39						
01-04-11	KMI- 6	< 0.5	< 10	< 10	< 15	1260 ± 112
02-03-11	KMI- 459	< 0.5	< 10	< 10	< 15	1457 ± 119
03-01-11	KMI- 792	< 0.5	< 10	< 10	< 15	1340 ± 116
04-04-11	KMI- 1584	0.8 ± 0.1	< 10	< 10	< 15	1320 ± 116
05-02-11	KMI- 2622	< 0.5	< 10	< 10	< 15	1528 ± 122
05-17-11	KMI- 3040	< 0.5	< 10	< 10	< 15	1349 ± 114
06-01-11	KMI- 3359	< 0.5	< 10	< 10	< 15	1354 ± 107
06-14-11	KMI- 3765	< 0.5	< 10	< 10	< 15	1285 ± 185
07-05-11	KMI- 4142	< 0.5	< 10	< 10	< 15	1279 ± 107
07-12-11	KMI- 4489	< 0.5	< 10	< 10	< 15	1397 ± 122
08-02-11	KMI- 5176	< 0.5	< 10	< 10	< 15	1317 ± 103
08-16-11	KMI- 5589	< 0.5	< 10	< 10	< 15	1420 ± 111
09-07-11	KMI- 5993	< 0.5	< 10	< 10	< 15	1358 ± 113
09-13-11	KMI- 6126	< 0.5	< 10	< 10	< 15	1397 ± 117
10-03-11	KMI- 6623	< 0.5	< 10	< 10	< 15	1445 ± 122
10-18-11	KMI- 7200	< 0.5	< 10	< 10	< 15	1238 ± 119
11-02-11	KMI- 7598	< 0.5	< 10	< 10	< 15	1250 ± 98
12-02-11	KMI- 8416	< 0.5	< 10	< 10	< 15	1347 ± 123

Table 14. Milk, analyses for iodine-131 and gamma-emitting isotopes (continued).

Collection Date	Lab Code	Concentration (pCi/L) I-131	Cs-134	Cs-137	Ba-La-140	K-40
Control						
K-3						
01-04-11	KMI- 1	< 0.5	< 10	< 10	< 15	1306 ± 116
02-04-11	KMI- 454	< 0.5	< 10	< 10	< 15	1374 ± 117
03-02-11	KMI- 787	< 0.5	< 10	< 10	< 15	1340 ± 121
04-05-11	KMI- 1579	0.4 ± 0.1	< 10	< 10	< 15	1291 ± 114
05-03-11	KMI- 2617	< 0.5	< 10	< 10	< 15	1461 ± 117
05-17-11	KMI- 3035	< 0.5	< 10	< 10	< 15	1255 ± 118
06-02-11	KMI- 3354	< 0.5	< 10	< 10	< 15	1401 ± 115
06-14-11	KMI- 3760	< 0.5	< 10	< 10	< 15	1305 ± 108
07-06-11	KMI- 4137	< 0.5	< 10	< 10	< 15	1289 ± 109
07-12-11	KMI- 4484	< 0.5	< 10	< 10	< 15	1380 ± 109
08-02-11	KMI- 5171	< 0.5	< 10	< 10	< 15	1340 ± 113
08-16-11	KMI- 5584	< 0.5	< 10	< 10	< 15	1391 ± 114
09-07-11	KMI- 5988	< 0.5	< 10	< 10	< 15	1327 ± 101
09-13-11	KMI- 6121	< 0.5	< 10	< 10	< 15	1234 ± 109
10-04-11	KMI- 6618	< 0.5	< 10	< 10	< 15	1401 ± 113
10-18-11	KMI- 7195	< 0.5	< 10	< 10	< 15	1403 ± 119
11-02-11	KMI- 7593	< 0.5	< 10	< 10	< 15	1340 ± 114
12-01-11	KMI- 8411	< 0.5	< 10	< 10	< 15	1477 ± 115
K-35						
01-04-11	KMI- 4	< 0.5	< 10	< 10	< 15	1488 ± 117
02-04-11	KMI- 457	< 0.5	< 10	< 10	< 15	1456 ± 118
03-02-11	KMI- 790	< 0.5	< 10	< 10	< 15	1427 ± 124
04-05-11	KMI- 1582	< 0.5	< 10	< 10	< 15	1531 ± 128
05-03-11	KMI- 2620	< 0.5	< 10	< 10	< 15	1432 ± 128
05-17-11	KMI- 3038	< 0.5	< 10	< 10	< 15	1317 ± 119
06-02-11	KMI- 3357	< 0.5	< 10	< 10	< 15	1419 ± 97
06-14-11	KMI- 3763	< 0.5	< 10	< 10	< 15	1399 ± 109
07-06-11	KMI- 4140	< 0.5	< 10	< 10	< 15	1412 ± 103
07-12-11	KMI- 4487	< 0.5	< 10	< 10	< 15	1474 ± 130
08-02-11	KMI- 5174	< 0.5	< 10	< 10	< 15	1528 ± 111
08-16-11	KMI- 5587	< 0.5	< 10	< 10	< 15	1403 ± 123
09-07-11	KMI- 5991	< 0.5	< 10	< 10	< 15	1561 ± 116
09-13-11	KMI- 6124	< 0.5	< 10	< 10	< 15	1525 ± 127
10-04-11	KMI- 6621	< 0.5	< 10	< 10	< 15	1473 ± 122
10-18-11	KMI- 7198	< 0.5	< 10	< 10	< 15	1462 ± 109
11-02-11	KMI- 7596	< 0.5	< 10	< 10	< 15	1394 ± 117
12-02-11	KMI- 8414	< 0.5	< 10	< 10	< 15	1321 ± 163

Table 14. Milk, analyses for iodine-131 and gamma-emitting isotopes (continued).

Collection Date	Lab Code	Concentration (pCi/L) I-131	Cs-134	Cs-137	Ba-La-140	K-40
Control						
K-42						
01-03-11	KMI- 7	< 0.5	< 10	< 10	< 15	1509 ± 107
02-03-11	KMI- 460	< 0.5	< 10	< 10	< 15	1371 ± 112
03-01-11	KMI- 793	< 0.5	< 10	< 10	< 15	1381 ± 109
04-04-11	KMI- 1585	< 0.5	< 10	< 10	< 15	1478 ± 113
05-02-11	KMI- 2623	< 0.5	< 10	< 10	< 15	1340 ± 129
05-17-11	KMI- 3041	< 0.5	< 10	< 10	< 15	1413 ± 128
06-01-11	KMI- 3360	< 0.5	< 10	< 10	< 15	1403 ± 106
06-14-11	KMI- 3766	< 0.5	< 10	< 10	< 15	1335 ± 127
07-05-11	KMI- 4143	< 0.5	< 10	< 10	< 15	1385 ± 114
07-12-11	KMI- 4490	< 0.5	< 10	< 10	< 15	1441 ± 115
08-01-11	KMI- 5177	< 0.5	< 10	< 10	< 15	1344 ± 114
08-16-11	KMI- 5590	< 0.5	< 10	< 10	< 15	1378 ± 120
09-06-11	KMI- 5994	< 0.5	< 10	< 10	< 15	1356 ± 121
09-13-11	KMI- 6127	< 0.5	< 10	< 10	< 15	1376 ± 112
10-03-11	KMI- 6624	< 0.5	< 10	< 10	< 15	1352 ± 112
10-18-11	KMI- 7201	< 0.5	< 10	< 10	< 15	1440 ± 112
11-01-11	KMI- 7599	< 0.5	< 10	< 10	< 15	1468 ± 107
12-01-11	KMI- 8417	< 0.5	< 10	< 10	< 15	1387 ± 112

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Table 15. Milk, analyses for strontium-89, strontium-90, stable potassium, stable calcium, and ratios of strontium-90 per gram of calcium and cesium-137 per gram of potassium. Collection: Monthly composites.

Collection Period	Lab Code	Concentration Sr-89 (pCi/L)	Sr-90 (pCi/L)	K (g/L)	Ca (g/L)	Ratios Sr-90 per gram Ca	Cs-137 per gram K
Indicators							
				K-5			
January	KMI - 2	< 1.0	0.8 ± 0.3	1.76 ± 0.15	1.18	0.68	< 5.68
February	- 455	< 1.0	0.7 ± 0.3	1.60 ± 0.14	1.22	0.57	< 6.25
March	- 788	< 1.0	0.7 ± 0.3	1.75 ± 0.13	1.22	0.57	< 5.71
April	- 1580	< 0.9	0.7 ± 0.3	1.70 ± 0.14	1.27	0.55	< 5.88
May	- 3072	< 0.9	< 0.6	1.69 ± 0.16	1.08	< 0.56	< 5.92
June	- 4519	< 0.8	0.8 ± 0.4	1.64 ± 0.14	0.98	0.82	< 6.10
July	- 5111	< 1.0	< 0.6	1.66 ± 0.12	0.92	< 0.65	< 6.02
August	- 5958	< 1.0	< 0.7	1.70 ± 0.14	0.90	< 0.78	< 5.88
September	- 6285	< 1.0	0.7 ± 0.4	1.78 ± 0.15	0.96	0.73	< 5.62
October	- 7499	< 0.8	0.7 ± 0.3	1.73 ± 0.14	0.96	0.73	< 5.78
November	- 7594	< 1.0	0.5 ± 0.3	1.64 ± 0.13	1.05	0.48	< 6.10
December	- 8412	< 0.9	0.6 ± 0.3	1.61 ± 0.20	0.96	0.63	< 6.21
				K-34			
January	KMI - 3	< 0.9	0.7 ± 0.3	1.77 ± 0.15	1.14	0.61	< 5.65
February	- 456	< 0.8	0.7 ± 0.3	1.69 ± 0.14	1.29	0.54	< 5.92
March	- 789	< 0.8	0.6 ± 0.3	1.71 ± 0.14	1.22	0.49	< 5.85
April	- 1581	< 0.8	0.6 ± 0.3	1.84 ± 0.15	1.17	0.51	< 5.43
May	- 3073	< 0.7	0.6 ± 0.3	1.83 ± 0.15	1.10	0.55	< 5.46
June	- 4520	< 0.7	0.6 ± 0.3	1.72 ± 0.14	0.86	0.70	< 5.81
July	- 5112	< 0.9	0.7 ± 0.3	1.82 ± 0.12	0.90	0.78	< 5.49
August	- 5959	< 0.8	< 0.6	1.78 ± 0.14	0.91	< 0.66	< 5.62
September	- 6286	< 0.8	< 0.5	1.75 ± 0.13	0.91	< 0.55	< 5.71
October	- 7500	< 0.7	0.6 ± 0.3	1.79 ± 0.15	0.96	0.63	< 5.59
November	- 7595	< 1.0	0.6 ± 0.3	1.84 ± 0.14	1.19	0.50	< 5.43
December	- 8413	< 0.9	0.6 ± 0.3	1.76 ± 0.13	0.97	0.62	< 5.68

Table 15. Milk, analyses for strontium-89, strontium-90, stable potassium, stable calcium, and ratios of strontium-90 per gram of calcium and cesium-137 per gram of potassium (continued).

Collection Period	Lab Code	Concentration Sr-89 (pCi/L)	Sr-90 (pCi/L)	K (g/L)	Ca (g/L)	Ratios Sr-90 per gram Ca	Cs-137 per gram K
Indicators							
				K-38			
January	KMI - 5	< 0.9	1.2 ± 0.4	1.64 ± 0.13	1.35	0.89	< 6.10
February	- 458	< 0.9	1.3 ± 0.4	1.61 ± 0.14	1.19	1.09	< 6.21
March	- 791	< 0.8	1.2 ± 0.4	1.62 ± 0.14	1.12	1.07	< 6.17
April	- 1583	< 0.7	0.7 ± 0.3	1.70 ± 0.14	1.04	0.67	< 5.88
May	- 3075	< 0.7	1.0 ± 0.3	1.73 ± 0.15	1.09	0.92	< 5.78
June	- 4522	< 0.7	0.9 ± 0.3	1.70 ± 0.14	0.91	0.99	< 5.88
July	- 5114	< 0.7	0.9 ± 0.3	1.59 ± 0.14	0.88	1.02	< 6.29
August	- 5961	< 0.7	0.8 ± 0.3	1.70 ± 0.14	0.92	0.87	< 5.88
September	- 6288	< 0.7	0.9 ± 0.3	1.67 ± 0.14	0.90	1.00	< 5.99
October	- 7502	< 0.7	< 0.5	1.71 ± 0.13	0.90	< 0.56	< 5.85
November	- 7597	< 0.9	1.6 ± 0.4	1.60 ± 0.12	1.09	1.47	< 6.25
December	- 8415	< 1.0	0.8 ± 0.4	1.73 ± 0.15	0.97	0.82	< 5.78
				K-39			
January	KMI - 6	< 0.9	0.7 ± 0.3	1.54 ± 0.14	1.25	0.56	< 6.49
February	- 459	< 0.9	0.7 ± 0.4	1.78 ± 0.15	1.28	0.55	< 5.62
March	- 792	< 0.9	0.9 ± 0.4	1.63 ± 0.14	1.17	0.77	< 6.13
April	- 1584	< 0.9	0.6 ± 0.3	1.61 ± 0.14	1.33	0.45	< 6.21
May	- 3076	< 0.7	0.8 ± 0.3	1.75 ± 0.14	1.13	0.71	< 5.71
June	- 4523	< 0.8	0.6 ± 0.3	1.61 ± 0.18	1.00	0.60	< 6.21
July	- 5115	< 0.8	1.0 ± 0.3	1.63 ± 0.14	0.93	1.08	< 6.13
August	- 5962	< 0.8	< 0.6	1.67 ± 0.13	0.90	< 0.67	< 5.99
September	- 6289	< 0.8	0.6 ± 0.3	1.68 ± 0.14	1.00	0.60	< 5.95
October	- 7503	< 0.8	0.7 ± 0.4	1.64 ± 0.15	0.96	0.73	< 6.10
November	- 7598	< 0.9	0.9 ± 0.3	1.52 ± 0.12	1.24	0.73	< 6.58
December	- 8416	< 1.0	< 0.6	1.64 ± 0.15	0.99	0.61	< 6.10

Table 15. Milk, analyses for strontium-89, strontium-90, stable potassium, stable calcium, and ratios of strontium-90 per gram of calcium and cesium-137 per gram of potassium (continued).

Collection Period	Lab Code	Concentration Sr-89 (pCi/L)	Sr-90 (pCi/L)	K (g/L)	Ca (g/L)	Ratios Sr-90 per gram Ca	Cs-137 per gram K
Control				K-3			
January	KMI - 1	< 0.9	1.0 ± 0.4	1.59 ± 0.14	1.17	0.85	< 6.29
February	- 454	< 0.9	0.9 ± 0.4	1.68 ± 0.14	1.29	0.70	< 5.95
March	- 787	< 0.8	1.3 ± 0.4	1.63 ± 0.15	1.26	1.03	< 6.13
April	- 1579	< 0.9	0.7 ± 0.3	1.57 ± 0.14	1.23	0.57	< 6.37
May	- 3071	< 0.8	1.0 ± 0.4	1.66 ± 0.14	1.14	0.88	< 6.02
June	- 4518	< 0.7	0.7 ± 0.3	1.65 ± 0.14	0.96	0.73	< 6.06
July	- 5110	< 0.8	0.9 ± 0.3	1.63 ± 0.13	0.94	0.96	< 6.13
August	- 5957	< 0.7	1.1 ± 0.4	1.67 ± 0.14	0.92	1.20	< 5.99
September	- 6284	< 0.8	0.9 ± 0.3	1.56 ± 0.13	1.02	0.88	< 6.41
October	- 7498	< 0.8	0.8 ± 0.4	1.71 ± 0.14	1.01	0.79	< 5.85
November	- 7593	< 1.0	1.2 ± 0.3	1.63 ± 0.14	1.10	1.09	< 6.13
December	- 8411	< 1.0	1.0 ± 0.4	1.80 ± 0.14	1.01	0.99	< 5.56
				K-35			
January	KMI - 4	< 0.8	0.7 ± 0.3	1.81 ± 0.14	1.29	0.54	< 5.52
February	- 457	< 0.8	< 0.7	1.78 ± 0.14	1.33	< 0.53	< 5.62
March	- 790	< 1.1	< 0.7	1.74 ± 0.15	1.18	< 0.59	< 5.75
April	- 1582	< 0.7	< 0.4	1.87 ± 0.16	1.23	< 0.33	< 5.35
May	- 3074	< 0.6	0.5 ± 0.3	1.68 ± 0.15	1.11	0.45	< 5.95
June	- 4521	< 0.6	0.5 ± 0.3	1.72 ± 0.13	0.90	0.56	< 5.81
July	- 5113	< 0.8	< 0.4	1.76 ± 0.14	0.86	< 0.47	< 5.68
August	- 5960	< 1.0	< 0.7	1.79 ± 0.14	0.90	< 0.78	< 5.59
September	- 6287	< 0.7	< 0.4	1.88 ± 0.15	0.91	< 0.44	< 5.32
October	- 7501	< 0.7	< 0.5	1.79 ± 0.14	0.90	< 0.56	< 5.59
November	- 7596	< 0.9	0.5 ± 0.3	1.70 ± 0.14	1.19	0.42	< 5.88
December	- 8414	< 0.9	0.5 ± 0.3	1.61 ± 0.20	0.88	0.57	< 6.21
				K-42			
January	KMI - 7	< 1.1	< 0.6	1.84 ± 0.13	1.20	< 0.50	< 5.43
February	- 460	< 1.0	< 0.8	1.67 ± 0.14	1.11	< 0.72	< 5.99
March	- 793	< 1.0	1.1 ± 0.4	1.68 ± 0.13	1.13	0.97	< 5.95
April	- 1585	< 0.9	0.8 ± 0.4	1.80 ± 0.14	1.16	0.69	< 5.56
May	- 3077	< 0.8	0.7 ± 0.3	1.68 ± 0.16	1.12	0.63	< 5.95
June	- 4524	< 0.9	0.6 ± 0.3	1.67 ± 0.14	0.84	0.71	< 5.99
July	- 5116	< 0.9	0.9 ± 0.3	1.72 ± 0.14	0.93	0.97	< 5.81
August	- 5963	< 0.8	< 0.6	1.66 ± 0.14	0.86	< 0.70	< 6.02
September	- 6290	< 0.9	< 0.6	1.67 ± 0.14	0.91	< 0.66	< 5.99
October	- 7504	< 0.8	0.7 ± 0.4	1.70 ± 0.14	0.91	0.77	< 5.88
November	- 7599	< 1.0	0.8 ± 0.3	1.79 ± 0.13	0.99	0.81	< 5.59
December	- 8417	< 0.9	0.9 ± 0.4	1.69 ± 0.14	1.00	< 0.90	< 5.92

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Table 16. Well water, analyses for gross alpha, gross beta, tritium, strontium-89[a], strontium-90[a], potassium-40 and gamma-emitting isotopes.
Collection: Quarterly.

Sample Description and Concentration (pCi/L)				
Indicator				
K-1g				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 31	KWW- 1797	KWW- 4196	KWW- 6639
Gross alpha	< 3.7	< 2.2	3.4 ± 1.7	< 2.7
Gross beta	5.0 ± 2.7	1.8 ± 1.3	1.9 ± 1.2	4.4 ± 0.6
H-3	< 145	< 141	< 149	< 143
Sr-89	< 0.5	< 0.7	< 0.5	< 0.8
Sr-90	< 0.4	< 0.5	< 0.5	< 0.5
K-40 (ICP)	2.42	2.34	2.39	2.53
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15
K-1h				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 32	KWW- 1798	KWW- 4197	KWW- 6640
Gross alpha	< 2.2	< 3.1	4.6 ± 2.0	< 2.6
Gross beta	< 1.7	< 2.6	2.7 ± 1.2	4.3 ± 2.2
H-3	< 145	< 141	< 149	< 143
K-40 (ICP)	2.33	2.44	2.65	2.57
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15

[a] Strontium analyses required on samples from K-1g only.

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Table 17. Well water, analyses for gross beta, tritium, potassium-40, and gamma-emitting isotopes.

Collection: Quarterly.

Sample Description and Concentration (pCi/L)				
Indicator				
K-10				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 33	KWW- 1799	KWW- 4198	KWW- 6641
Gross beta	< 1.1	< 1.6	1.7 ± 0.8	4.4 ± 1.6
H-3	< 145	< 141	< 149	< 143
K-40 (ICP)	2.12	2.58	2.28	3.29
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15
K-11				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 34	KWW- 1800	KWW- 4199	KWW- 6642
Gross beta	0.7 ± 0.3	0.7 ± 0.4	0.6 ± 0.3	1.3 ± 0.5
H-3	< 145	< 141	< 149	< 143
K-40 (ICP)	0.79	0.89	0.83	0.88
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15

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Table 17. Well water, analyses for gross beta, tritium, potassium-40, and gamma-emitting isotopes.

Collection: Quarterly.

Sample Description and Concentration (pCi/L)				
Indicator				
K-38				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 36	KWW- 1802	KWW- 4201	KWW- 6644
Gross beta	1.3 ± 0.3	0.8 ± 0.5	0.8 ± 0.4	1.2 ± 0.6
H-3	< 145	< 141	< 149	< 143
K-40 (ICP)	1.78	0.64	0.61	1.39
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15
Control				
K-13				
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KWW- 35	KWW- 1801	KWW- 4200	KWW- 6643
Gross beta	< 0.4	0.8 ± 0.4	0.7 ± 0.3	2.0 ± 0.6
H-3	< 145	< 141	< 149	< 143
K-40 (ICP)	0.92	1.01	0.94	0.98
Mn-54	< 15	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30	< 30
Co-58	< 15	< 15	< 15	< 15
Co-60	< 15	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15	< 15

Table 18. Domestic meat samples (chickens), analyses of flesh for gross alpha, gross beta, and gamma-emitting isotopes. Annual collection.

Sample Description and Concentration (pCi/g wet)			
	Indicator		Control
Location	K-24	K-29	K-32
Date Collected	09-06-11		09-06-11
Lab Code	KME- 5995		KME- 5996
Gross Alpha	< 0.034		< 0.030
Gross Beta	3.07 ± 0.087		2.55 ± 0.07
Be-7	< 0.11		< 0.080
K-40	2.66 ± 0.35		2.36 ± 0.34
Nb-95	< 0.012		< 0.010
Zr-95	< 0.025		< 0.016
Ru-103	< 0.012		< 0.010
Ru-106	< 0.090		< 0.093
Cs-134	< 0.006		< 0.010
Cs-137	< 0.010		< 0.008
Ce-141	< 0.019		< 0.019
Ce-144	< 0.105		< 0.082

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Table 19. Eggs, analyses for gross beta, strontium-89, strontium-90 and gamma emitting isotopes. Collection: Quarterly

Sample Description and Concentration (pCi/g wet)

Location	K-24			
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KE- 16	KE- 1621	KE- 4145	KE- 6637
Gross beta	1.52 ± 0.06	1.63 ± 0.05	1.57 ± 0.05	1.66 ± 0.05
Sr-89	< 0.003	< 0.004	< 0.006	< 0.007
Sr-90	0.002 ± 0.001	< 0.002	< 0.003	< 0.003
Be-7	< 0.044	< 0.071	< 0.080	< 0.060
K-40	1.38 ± 0.16	1.33 ± 0.18	1.26 ± 0.15	1.35 ± 0.14
Nb-95	< 0.003	< 0.012	< 0.008	< 0.007
Zr-95	< 0.008	< 0.008	< 0.010	< 0.011
Ru-103	< 0.006	< 0.011	< 0.012	< 0.008
Ru-106	< 0.045	< 0.066	< 0.066	< 0.035
Cs-134	< 0.005	< 0.005	< 0.006	< 0.003
Cs-137	< 0.006	< 0.009	< 0.006	< 0.003
Ce-141	< 0.009	< 0.030	< 0.027	< 0.022
Ce-144	< 0.043	< 0.058	< 0.061	< 0.043

Location	K-32			
Date Collected	01-03-11	04-04-11	07-05-11	10-03-11
Lab Code	KE- 17	KE- 1622	KE- 4146	KE- 6638
Gross beta	1.46 ± 0.06	1.49 ± 0.04	1.55 ± 0.04	1.45 ± 0.04
Sr-89	< 0.005	< 0.005	< 0.004	< 0.007
Sr-90	0.006 ± 0.002	< 0.003	< 0.002	< 0.003
Be-7	< 0.063	< 0.081	< 0.052	< 0.059
K-40	1.43 ± 0.19	1.46 ± 0.18	1.48 ± 0.15	1.33 ± 0.14
Nb-95	< 0.005	< 0.013	< 0.013	< 0.013
Zr-95	< 0.010	< 0.012	< 0.012	< 0.011
Ru-103	< 0.004	< 0.008	< 0.008	< 0.008
Ru-106	< 0.057	< 0.062	< 0.069	< 0.044
Cs-134	< 0.006	< 0.006	< 0.006	< 0.005
Cs-137	< 0.005	< 0.006	< 0.006	< 0.005
Ce-141	< 0.012	< 0.022	< 0.019	< 0.024
Ce-144	< 0.034	< 0.052	< 0.034	< 0.050

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Table 20. Vegetable and grain samples, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes. Annual collection.

Sample Description and Concentration (pCi/g wet)					
	Indicator				
Location	K-23		K-24		
Date Collected	08-01-11	08-01-11	09-06-11	09-06-11	09-06-11
Lab Code	KVE- 5196	KVE- 5197	KVE- 6029	KVE- 6030	KVE- 6031
Type	Clover	Wheat	Cabbage	Zucchini	Lettuce
Gross beta	4.38 ± 0.10	6.18 ± 0.20	4.23 ± 0.15	4.75 ± 0.22	7.36 ± 0.19
Sr-89	< 0.005	< 0.023	< 0.006	< 0.015	< 0.006
Sr-90	< 0.003	0.019 ± 0.010	< 0.004	0.027 ± 0.006	0.004 ± 0.002
Be-7	1.12 ± 0.19	2.20 ± 0.278	0.40 ± 0.14	0.74 ± 0.14	0.52 ± 0.21
K-40	3.96 ± 0.39	4.80 ± 0.49	4.04 ± 0.35	4.24 ± 0.34	6.29 ± 0.47
Nb-95	< 0.016	< 0.016	< 0.010	< 0.008	< 0.010
Zr-95	< 0.018	< 0.020	< 0.014	< 0.017	< 0.026
Ru-103	< 0.014	< 0.014	< 0.012	< 0.009	< 0.014
Ru-106	< 0.126	< 0.111	< 0.090	< 0.075	< 0.098
Cs-134	< 0.015	< 0.019	< 0.012	< 0.008	< 0.010
Cs-137	< 0.014	< 0.021	< 0.009	< 0.009	< 0.015
Ce-141	< 0.025	< 0.033	< 0.017	< 0.018	< 0.017
Ce-144	< 0.108	< 0.116	< 0.08	< 0.065	< 0.086

Location	K-26 (control)				
Date Collected	09-08-11	09-08-11	09-06-11	09-08-11	09-06-11
Lab Code	KVE- 6032	KVE- 6033	KVE- 6034	KVE- 6035	KVE- 6036
Type	Cucumber	Kohlrabi	Corn	Cauliflower	Green Beans
Gross beta	2.15 ± 0.05	3.78 ± 0.03	2.73 ± 0.07	3.49 ± 0.09	2.38 ± 0.06
Sr-89	< 0.004	< 0.002	< 0.004	< 0.003	< 0.003
Sr-90	0.005 ± 0.001	< 0.001	< 0.002	< 0.002	0.002 ± 0.001
Be-7	< 0.053	< 0.070	< 0.092	< 0.103	< 0.079
K-40	1.88 ± 0.17	2.63 ± 0.20	2.63 ± 0.22	3.51 ± 0.30	1.93 ± 0.22
Nb-95	< 0.007	< 0.006	< 0.011	< 0.011	< 0.008
Zr-95	< 0.006	< 0.012	< 0.013	< 0.021	< 0.012
Ru-103	< 0.006	< 0.006	< 0.008	< 0.008	< 0.007
Ru-106	< 0.058	< 0.048	< 0.062	< 0.091	< 0.088
Cs-134	< 0.006	< 0.004	< 0.005	< 0.008	< 0.006
Cs-137	< 0.004	< 0.006	< 0.005	< 0.011	< 0.007
Ce-141	< 0.014	< 0.016	< 0.014	< 0.022	< 0.020
Ce-144	< 0.043	< 0.045	< 0.053	< 0.069	< 0.067

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Table 20. Vegetable and grain samples, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/g wet)

Location	K-26 (control)	K-38		
Date Collected	10-04-11	09-07-11	09-07-11	09-07-11
Lab Code	KVE- 6739	KVE- 6037	KVE- 6038	KVE- 6039
Type	Pumpkin	Broccoli	Zucchini	Zucchini
Gross beta	1.94 ± 0.05	4.84 ± 0.16	1.70 ± 0.03	1.76 ± 0.03
Sr-89	< 0.002	< 0.009	< 0.004	< 0.004
Sr-90	0.001 ± 0.001	0.006 ± 0.002	0.002 ± 0.001	0.002 ± 0.001
Be-7	< 0.046	0.35 ± 0.125	< 0.078	< 0.044
K-40	1.44 ± 0.14	3.59 ± 0.35	1.53 ± 0.19	1.34 ± 0.16
Nb-95	< 0.005	< 0.012	< 0.004	< 0.006
Zr-95	< 0.007	< 0.016	< 0.011	< 0.008
Ru-103	< 0.007	< 0.009	< 0.008	< 0.007
Ru-106	< 0.036	< 0.100	< 0.067	< 0.047
Cs-134	< 0.004	< 0.010	< 0.006	< 0.005
Cs-137	< 0.005	< 0.014	< 0.006	< 0.007
Ce-141	< 0.008	< 0.021	< 0.015	< 0.009
Ce-144	< 0.039	< 0.075	< 0.038	< 0.060

	K-38		
Date Collected	09-07-11	09-07-11	09-07-11
Lab Code	KVE- 6040	KVE- 6041	KVE- 6042
Type	Cucumber	Kohlrabi	Rutabaga
Gross beta	2.08 ± 0.02	4.86 ± 0.05	4.54 ± 0.15
Sr-89	< 0.002	< 0.007	< 0.008
Sr-90	0.001 ± 0.001	0.004 ± 0.002	< 0.003
Be-7	< 0.060	< 0.080	0.36 ± 0.081
K-40	1.85 ± 0.17	3.94 ± 0.28	3.64 ± 0.28
Nb-95	< 0.006	< 0.009	< 0.009
Zr-95	< 0.007	< 0.010	< 0.016
Ru-103	< 0.004	< 0.007	< 0.008
Ru-106	< 0.053	< 0.061	< 0.057
Cs-134	< 0.003	< 0.007	< 0.007
Cs-137	< 0.006	< 0.008	< 0.011
Ce-141	< 0.007	< 0.013	< 0.017
Ce-144	< 0.031	< 0.052	< 0.042

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Table 21. Cattlefeed, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.
Collection: First Quarter.

Sample Description and Concentration (pCi/g wet)

	Control			
Location	K-3	K-3	K-35	K-35
Date Collected	01-04-11	01-04-11	01-04-11	01-03-11
Lab Code	KCF- 18	KCF- 25	KCF- 22	KCF- 28
Type	Hay	Silage	Hay	Silage
Gross beta	13.59 ± 0.38	6.18 ± 0.21	19.76 ± 0.56	4.03 ± 0.14
Sr-89	< 0.012	< 0.017	< 0.016	< 0.011
Sr-90	0.008 ± 0.004	0.018 ± 0.006	< 0.010	< 0.006
Be-7	0.41 ± 0.15	0.59 ± 0.14	0.31 ± 0.13	0.29 ± 0.073
K-40	10.42 ± 0.56	4.75 ± 0.36	13.69 ± 0.59	2.77 ± 0.21
Nb-95	< 0.017	< 0.012	< 0.012	< 0.007
Zr-95	< 0.013	< 0.015	< 0.020	< 0.011
Ru-103	< 0.012	< 0.008	< 0.010	< 0.006
Ru-106	< 0.138	< 0.078	< 0.107	< 0.039
Cs-134	< 0.016	< 0.010	< 0.011	< 0.007
Cs-137	< 0.016	< 0.012	< 0.016	< 0.005
Ce-141	< 0.022	< 0.020	< 0.024	< 0.016
Ce-144	< 0.117	< 0.066	< 0.072	< 0.048
	Indicator			
Location	K-5	K-5	K-34	K-34
Date Collected	01-03-11	01-03-11	01-03-11	01-03-11
Lab Code	KCF- 19	KCF- 26	KCF- 20	KCF- 27
Type	Hay	Silage	Hay	Silage
Gross beta	31.62 ± 0.81	4.65 ± 0.17	14.18 ± 0.41	4.25 ± 0.16
Sr-89	< 0.033	< 0.008	< 0.016	< 0.009
Sr-90	< 0.023	< 0.004	0.010 ± 0.006	0.005 ± 0.003
Be-7	0.56 ± 0.19	0.25 ± 0.07	0.24 ± 0.14	< 0.082
K-40	28.04 ± 0.84	2.79 ± 0.20	10.37 ± 0.43	2.69 ± 0.25
Nb-95	< 0.021	< 0.004	< 0.010	< 0.011
Zr-95	< 0.020	< 0.009	< 0.009	< 0.007
Ru-103	< 0.012	< 0.005	< 0.007	< 0.007
Ru-106	< 0.190	< 0.063	< 0.063	< 0.066
Cs-134	< 0.020	< 0.006	< 0.010	< 0.008
Cs-137	< 0.020	< 0.006	< 0.011	< 0.007
Ce-141	< 0.029	< 0.014	< 0.012	< 0.014
Ce-144	< 0.126	< 0.063	< 0.089	< 0.064

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Table 21. Cattlefeed, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/g wet)				
	Indicator			
Location	K-38	K-38	K-39	K-39
Date Collected	01-04-11	01-03-11	01-03-11	01-03-11
Lab Code	KCF- 23	KCF- 29	KCF- 24	KCF- 30
Type	Hay	Silage	Hay	Silage
Gross beta	12.36 ± 0.38	2.42 ± 0.09	20.44 ± 0.58	7.13 ± 0.23
Sr-89	< 0.011	< 0.006	< 0.038	< 0.014
Sr-90	0.011 ± 0.004	< 0.004	< 0.022	< 0.007
Be-7	< 0.12	0.52 ± 0.12	0.41 ± 0.19	0.23 ± 0.125
K-40	10.27 ± 0.59	3.08 ± 0.27	14.33 ± 0.66	5.76 ± 0.34
Nb-95	< 0.015	< 0.011	< 0.014	< 0.010
Zr-95	< 0.014	< 0.009	< 0.026	< 0.011
Ru-103	< 0.013	< 0.009	< 0.022	< 0.009
Ru-106	< 0.081	< 0.046	< 0.149	< 0.058
Cs-134	< 0.012	< 0.008	< 0.017	< 0.009
Cs-137	< 0.015	< 0.007	< 0.018	< 0.011
Ce-141	< 0.012	< 0.017	< 0.031	< 0.018
Ce-144	< 0.089	< 0.057	< 0.157	< 0.056

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Table 22. Grass, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.
Collection: Quarterly, April through December
Units: pCi/g wet

Sample Description and Concentration				
	Indicator			
Location	K-1b	K-1f	K-5	K-34
Date Collected	06-01-11	06-01-11	06-01-11	06-01-11
Lab Code	KG- 3407	KG- 3408	KG- 3410	KG- 3411
Gross beta	8.75 ± 0.25	9.22 ± 0.25	9.05 ± 0.18	8.18 ± 0.16
Sr-89	< 0.006	< 0.008	< 0.006	< 0.006
Sr-90	< 0.004	< 0.005	< 0.003	< 0.004
Be-7	0.32 ± 0.14	0.40 ± 0.12	< 0.17	0.50 ± 0.15
K-40	5.68 ± 0.37	6.56 ± 0.36	6.38 ± 0.45	6.88 ± 0.42
Mn-54	< 0.011	< 0.008	< 0.014	< 0.012
Co-58	< 0.007	< 0.010	< 0.012	< 0.007
Co-60	< 0.008	< 0.005	< 0.009	< 0.012
Nb-95	< 0.013	< 0.010	< 0.011	< 0.013
Zr-95	< 0.019	< 0.014	< 0.024	< 0.019
Ru-103	< 0.011	< 0.010	< 0.017	< 0.011
Ru-106	< 0.097	< 0.108	< 0.111	< 0.128
Cs-134	< 0.008	< 0.010	< 0.012	< 0.012
Cs-137	< 0.014	< 0.010	< 0.014	< 0.014
Ce-141	< 0.023	< 0.015	< 0.020	< 0.026
Ce-144	< 0.108	< 0.061	< 0.115	< 0.099
	Indicator		Control	
Location	K-38	K-39	K-3	K-35
Date Collected	06-01-11	06-01-11	06-01-11	06-01-11
Lab Code	KG- 3413	KG- 3415	KG- 3409	KG- 3412
Gross beta	11.04 ± 0.31	7.16 ± 0.20	8.19 ± 0.22	7.01 ± 0.14
Sr-89	< 0.008	< 0.005	< 0.005	< 0.005
Sr-90	< 0.005	0.004 ± 0.002	0.004 ± 0.002	< 0.003
Be-7	0.25 ± 0.09	0.37 ± 0.11	0.32 ± 0.14	0.29 ± 0.13
K-40	6.71 ± 0.38	5.05 ± 0.34	5.72 ± 0.40	5.62 ± 0.40
Mn-54	< 0.009	< 0.011	< 0.010	< 0.009
Co-58	< 0.008	< 0.005	< 0.012	< 0.012
Co-60	< 0.007	< 0.006	< 0.015	< 0.010
Nb-95	< 0.008	< 0.008	< 0.008	< 0.015
Zr-95	< 0.011	< 0.012	< 0.023	< 0.021
Ru-103	< 0.009	< 0.007	< 0.013	< 0.013
Ru-106	< 0.081	< 0.070	< 0.118	< 0.119
Cs-134	< 0.011	< 0.010	< 0.013	< 0.007
Cs-137	< 0.010	< 0.011	< 0.013	< 0.012
Ce-141	< 0.014	< 0.014	< 0.024	< 0.025
Ce-144	< 0.097	< 0.050	< 0.111	< 0.108

Table 22. Grass samples, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration

	Indicator			
Location	K-1b	K-1f	K-5	K-34
Date Collected	08-01-11	08-01-11	08-01-11	08-01-11
Lab Code	KG- 5187	KG- 5188	KG- 5190	KG- 5192
Gross beta	6.43 ± 0.23	6.78 ± 0.22	8.07 ± 0.28	9.42 ± 0.27
Sr-89	< 0.020	< 0.012	< 0.023	< 0.008
Sr-90	< 0.014	< 0.008	< 0.016	< 0.005
Be-7	2.35 ± 0.26	1.56 ± 0.23	3.14 ± 0.30	2.17 ± 0.26
K-40	4.35 ± 0.42	5.55 ± 0.45	5.51 ± 0.46	6.68 ± 0.55
Mn-54	< 0.015	< 0.012	< 0.018	< 0.019
Co-58	< 0.013	< 0.014	< 0.012	< 0.014
Co-60	< 0.015	< 0.014	< 0.014	< 0.014
Nb-95	< 0.020	< 0.012	< 0.010	< 0.012
Zr-95	< 0.028	< 0.015	< 0.030	< 0.027
Ru-103	< 0.017	< 0.017	< 0.013	< 0.022
Ru-106	< 0.118	< 0.103	< 0.133	< 0.148
Cs-134	< 0.018	< 0.016	< 0.014	< 0.016
Cs-137	< 0.015	< 0.019	< 0.018	< 0.024
Ce-141	< 0.030	< 0.025	< 0.035	< 0.034
Ce-144	< 0.086	< 0.111	< 0.128	< 0.199

	Indicator		Control	
Location	K-38	K-39	K-3	K-35
Date Collected	08-01-11	08-01-11	08-01-11	08-01-11
Lab Code	KG- 5194	KG- 5195	KG- 5189	KG- 5193
Gross beta	7.73 ± 0.24	8.29 ± 0.27	8.57 ± 0.27	8.70 ± 0.24
Sr-89	< 0.019	< 0.019	< 0.018	< 0.009
Sr-90	< 0.013	< 0.013	< 0.012	0.008 ± 0.004
Be-7	2.63 ± 0.26	2.33 ± 0.30	2.23 ± 0.25	0.67 ± 0.15
K-40	7.01 ± 0.51	6.79 ± 0.54	6.27 ± 0.52	7.91 ± 0.48
Mn-54	< 0.016	< 0.020	< 0.011	< 0.014
Co-58	< 0.012	< 0.011	< 0.017	< 0.010
Co-60	< 0.015	< 0.013	< 0.009	< 0.013
Nb-95	< 0.015	< 0.014	< 0.017	< 0.015
Zr-95	< 0.026	< 0.027	< 0.018	< 0.014
Ru-103	< 0.013	< 0.009	< 0.016	< 0.009
Ru-106	< 0.138	< 0.125	< 0.106	< 0.060
Cs-134	< 0.013	< 0.013	< 0.013	< 0.013
Cs-137	< 0.012	< 0.015	< 0.010	< 0.011
Ce-141	< 0.027	< 0.033	< 0.026	< 0.018
Ce-144	< 0.068	< 0.072	< 0.136	< 0.061

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Table 22. Grass samples, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/g wet)

	Indicator			
Location	K-1b	K-1f	K-5	K-34
Date Collected	10-03-11	10-03-11	10-03-11	10-03-11
Lab Code	KG- 6723	KG- 6724	KG- 6726	KG- 6727
Gross beta	12.59 ± 0.31	6.99 ± 0.20	5.68 ± 0.12	9.82 ± 0.21
Sr-89	< 0.022	< 0.020	< 0.006	< 0.012
Sr-90	< 0.011	< 0.011	< 0.003	< 0.006
Be-7	8.22 ± 0.45	4.56 ± 0.34	3.59 ± 0.41	3.54 ± 0.35
K-40	8.66 ± 0.67	4.73 ± 0.45	7.34 ± 0.70	6.17 ± 0.57
Mn-54	< 0.009	< 0.014	< 0.022	< 0.022
Co-58	< 0.009	< 0.017	< 0.024	< 0.020
Co-60	< 0.014	< 0.014	< 0.013	< 0.020
Nb-95	< 0.018	< 0.012	< 0.027	< 0.018
Zr-95	< 0.012	< 0.029	< 0.031	< 0.034
Ru-103	< 0.015	< 0.016	< 0.031	< 0.017
Ru-106	< 0.095	< 0.122	< 0.289	< 0.108
Cs-134	< 0.012	< 0.014	< 0.027	< 0.016
Cs-137	< 0.014	< 0.017	< 0.022	< 0.013
Ce-141	< 0.035	< 0.022	< 0.055	< 0.055
Ce-144	< 0.124	< 0.100	< 0.200	< 0.127

	Indicator		Control	
Location	K-38	K-39	K-3	K-35
Date Collected	10-03-11	10-03-11	10-03-11	10-03-11
Lab Code	KG- 6729	KG- 6730	KG- 6725	KG- 6728
Gross beta	11.37 ± 0.24	8.27 ± 0.33	7.80 ± 0.21	8.08 ± 0.15
Sr-89	< 0.025	< 0.030	< 0.026	< 0.005
Sr-90	< 0.015	< 0.017	< 0.014	< 0.003
Be-7	5.49 ± 0.50	4.47 ± 0.37	7.70 ± 0.46	1.95 ± 0.27
K-40	5.93 ± 0.67	6.51 ± 0.57	4.96 ± 0.54	7.73 ± 0.60
Mn-54	< 0.016	< 0.019	< 0.011	< 0.013
Co-58	< 0.013	< 0.010	< 0.010	< 0.018
Co-60	< 0.024	< 0.018	< 0.010	< 0.005
Nb-95	< 0.021	< 0.020	< 0.022	< 0.014
Zr-95	< 0.035	< 0.036	< 0.025	< 0.033
Ru-103	< 0.028	< 0.020	< 0.014	< 0.014
Ru-106	< 0.208	< 0.118	< 0.162	< 0.146
Cs-134	< 0.018	< 0.018	< 0.010	< 0.013
Cs-137	< 0.022	< 0.019	< 0.019	< 0.019
Ce-141	< 0.061	< 0.024	< 0.036	< 0.022
Ce-144	< 0.207	< 0.126	< 0.114	< 0.106

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Table 23. Soil samples, analyses for gross alpha, gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.

Collection: Semiannually

Sample Description and Concentration (pCi/g dry)

	Indicator	
Location	K-1f	K-5
Date Collected	05-02-11	05-02-11
Lab Code	KSO- 2690	KSO- 2692
Gross alpha	8.11 ± 3.19	3.90 ± 2.27
Gross beta	28.74 ± 3.54	25.10 ± 2.87
Sr-89	< 0.050	< 0.048
Sr-90	< 0.023	< 0.021
Be-7	< 0.22	< 0.21
K-40	17.22 ± 0.81	19.58 ± 0.77
Nb-95	< 0.018	< 0.012
Zr-95	< 0.040	< 0.042
Ru-103	< 0.017	< 0.023
Ru-106	< 0.113	< 0.128
Cs-134	< 0.020	< 0.018
Cs-137	< 0.019	0.074 ± 0.024
Ce-141	< 0.049	< 0.040
Ce-144	< 0.130	< 0.091
Date Collected	10-03-11	10-03-11
Lab Code	KSO- 6732	KSO- 6734
Gross alpha	6.81 ± 2.11	5.88 ± 2.62
Gross beta	23.64 ± 2.00	26.05 ± 2.17
Sr-89	< 0.059	< 0.054
Sr-90	< 0.022	0.025 ± 0.012
Be-7	< 0.52	< 0.26
K-40	17.18 ± 1.15	12.16 ± 1.13
Nb-95	< 0.073	< 0.028
Zr-95	< 0.102	< 0.044
Ru-103	< 0.046	< 0.037
Ru-106	< 0.230	< 0.128
Cs-134	< 0.033	< 0.015
Cs-137	< 0.040	0.079 ± 0.023
Ce-141	< 0.137	< 0.082
Ce-144	< 0.117	< 0.096

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Table 23. Soil samples, analyses for gross alpha, gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/g dry)

	Indicator		
Location	K-34	K-38	K-39
Date Collected	05-02-11	05-02-11	05-02-11
Lab Code	KSO- 2693	KSO- 2695	KSO- 2696
Gross alpha	4.22 ± 2.53	10.85 ± 3.25	8.25 ± 2.79
Gross beta	24.62 ± 2.94	31.84 ± 3.20	26.73 ± 2.91
Sr-89	< 0.068	< 0.057	< 0.055
Sr-90	< 0.024	0.029 ± 0.013	< 0.019
Be-7	0.34 ± 0.20	0.88 ± 0.34	< 0.23
K-40	19.81 ± 0.78	19.74 ± 0.90	17.85 ± 0.80
Nb-95	< 0.013	< 0.022	< 0.022
Zr-95	< 0.032	< 0.054	< 0.039
Ru-103	< 0.010	< 0.024	< 0.020
Ru-106	< 0.175	< 0.164	< 0.165
Cs-134	< 0.016	< 0.018	< 0.017
Cs-137	0.10 ± 0.032	0.10 ± 0.031	0.11 ± 0.027
Ce-141	< 0.034	< 0.053	< 0.052
Ce-144	< 0.114	< 0.157	< 0.104
Location			
Date Collected	10-03-11	10-03-11	10-03-11
Lab Code	KSO- 6735	KSO- 6737	KSO- 6738
Gross alpha	2.57 ± 1.67	7.32 ± 2.74	3.27 ± 2.16
Gross beta	25.94 ± 2.15	23.39 ± 2.37	21.72 ± 2.25
Sr-89	< 0.057	< 0.061	< 0.074
Sr-90	0.028 ± 0.013	0.038 ± 0.015	< 0.028
Be-7	< 0.31	< 0.33	< 0.49
K-40	18.35 ± 0.94	21.83 ± 0.91	21.42 ± 0.96
Nb-95	< 0.071	< 0.095	< 0.065
Zr-95	< 0.074	< 0.082	< 0.078
Ru-103	< 0.048	< 0.038	< 0.054
Ru-106	< 0.182	< 0.157	< 0.224
Cs-134	< 0.025	< 0.023	< 0.027
Cs-137	0.105 ± 0.029	0.14 ± 0.027	0.043 ± 0.022
Ce-141	< 0.105	< 0.131	< 0.138
Ce-144	< 0.187	< 0.144	< 0.210

Table 23. Soil samples, analyses for gross alpha, gross beta, strontium-89, strontium-90, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/g dry)		
	Control	
Location	K-3	K-35
Date Collected	05-02-11	05-02-11
Lab Code	KSO- 2691	KSO- 2694
Gross alpha	5.24 ± 2.62	7.09 ± 3.16
Gross beta	30.90 ± 3.31	23.97 ± 2.97
Sr-89	< 0.068	< 0.064
Sr-90	0.053 ± 0.019	0.027 ± 0.012
Be-7	0.35 ± 0.20	< 0.25
K-40	19.15 ± 0.80	17.25 ± 0.87
Nb-95	< 0.020	< 0.026
Zr-95	< 0.016	< 0.039
Ru-103	< 0.017	< 0.024
Ru-106	< 0.142	< 0.161
Cs-134	< 0.016	< 0.016
Cs-137	0.20 ± 0.028	0.14 ± 0.035
Ce-141	< 0.041	< 0.051
Ce-144	< 0.109	< 0.074
Location		
Date Collected	10-03-11	10-03-11
Lab Code	KSO- 6733	KSO- 6736
Gross alpha	3.37 ± 1.87	6.02 ± 2.31
Gross beta	29.16 ± 2.31	23.19 ± 2.22
Sr-89	< 0.100	< 0.060
Sr-90	0.051 ± 0.022	0.043 ± 0.015
Be-7	< 0.40	< 0.38
K-40	20.39 ± 0.93	16.14 ± 0.89
Nb-95	< 0.063	< 0.059
Zr-95	< 0.039	< 0.033
Ru-103	< 0.038	< 0.040
Ru-106	< 0.149	< 0.176
Cs-134	< 0.022	< 0.024
Cs-137	0.12 ± 0.027	0.12 ± 0.035
Ce-141	< 0.082	< 0.103
Ce-144	< 0.142	< 0.131

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Table 24. Surface water samples, analyses for gross beta, potassium-40 and gamma-emitting isotopes.
Collection: Monthly

Sample Description and Concentration (pCi/L)			
Indicator			
K-1a			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 8	NS[a]	KSW- 794
Gross beta			
Suspended Solids	< 0.8	-	< 0.8
Dissolved Solids	8.1 ± 1.0	-	8.5 ± 1.3
Total Residue	8.1 ± 1.0	-	8.5 ± 1.3
K-40 (ICP)	6.18	-	5.94
Mn-54	< 15	-	< 15
Fe-59	< 30	-	< 30
Co-58	< 15	-	< 15
Co-60	< 15	-	< 15
Zn-65	< 30	-	< 30
Zr-Nb-95	< 15	-	< 15
Cs-134	< 10	-	< 10
Cs-137	< 10	-	< 10
Ba-La-140	< 15	-	< 15
K-1b			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 9	NS[a]	KSW- 795
Gross beta			
Suspended Solids	< 0.9	-	< 0.7
Dissolved Solids	6.0 ± 1.1	-	4.9 ± 0.9
Total Residue	6.0 ± 1.1	-	4.9 ± 0.9
K-40 (ICP)	4.72	-	2.12
Mn-54	< 15	-	< 15
Fe-59	< 30	-	< 30
Co-58	< 15	-	< 15
Co-60	< 15	-	< 15
Zn-65	< 30	-	< 30
Zr-Nb-95	< 15	-	< 15
Cs-134	< 10	-	< 10
Cs-137	< 10	-	< 10
Ba-La-140	< 15	-	< 15

[a] NS= No sample; water frozen.

Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1a			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1784	KSW- 2626	KSW- 3361
Gross beta			
Suspended Solids	< 0.4	< 0.8	< 0.9
Dissolved Solids	5.5 ± 1.5	4.8 ± 1.5	6.6 ± 1.6
Total Residue	5.5 ± 1.5	4.8 ± 1.5	6.6 ± 1.6
K-40 (ICP)	4.94	4.31	5.70
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1b			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1785	KSW- 2627	KSW- 3362
Gross beta			
Suspended Solids	< 0.4	< 0.8	< 0.9
Dissolved Solids	6.2 ± 1.2	3.9 ± 1.1	2.0 ± 1.0
Total Residue	6.2 ± 1.2	3.9 ± 1.1	2.0 ± 1.0
K-40 (ICP)	3.84	2.35	1.94
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1a			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4183	KSW- 5178	KSW- 6020
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.3
Dissolved Solids	7.3 ± 1.2	4.3 ± 1.0	12.0 ± 1.0
Total Residue	7.3 ± 1.2	4.3 ± 1.0	12.0 ± 1.0
K-40 (ICP)	8.28	4.36	9.27
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1b			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4184	KSW- 5179	KSW- 6021
Gross beta			
Suspended Solids	< 0.7	< 0.7	0.5 ± 0.2
Dissolved Solids	1.9 ± 0.6	2.0 ± 0.6	4.1 ± 1.1
Total Residue	1.9 ± 0.6	2.0 ± 0.6	4.6 ± 1.1
K-40 (ICP)	2.21	2.11	2.62
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1a			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6628	KSW- 7606	KSW- 8422
Gross beta			
Suspended Solids	< 0.8	< 0.8	< 0.8
Dissolved Solids	14.7 ± 1.5	8.5 ± 0.6	8.2 ± 1.2
Total Residue	14.7 ± 1.5	8.5 ± 0.6	8.2 ± 1.2
K-40 (ICP)	13.94	11.81	7.43
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1b			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6629	KSW- 7607	KSW- 8423
Gross beta			
Suspended Solids	< 0.7	< 0.7	3.2 ± 0.5
Dissolved Solids	3.4 ± 0.8	3.0 ± 0.4	2.5 ± 0.7
Total Residue	3.4 ± 0.8	3.0 ± 0.4	5.7 ± 0.9
K-40 (ICP)	2.80	2.67	1.94
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water samples, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1d			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 10	KSW- 461	KSW- 796
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.7
Dissolved Solids	1.4 ± 0.3	1.4 ± 0.3	2.7 ± 0.6
Total Residue	1.4 ± 0.3	1.4 ± 0.3	2.7 ± 0.6
K-40 (ICP)	1.21	1.25	1.17
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1e			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 11	NS[a]	KSW- 797
Gross beta			
Suspended Solids	< 0.8	-	< 0.7
Dissolved Solids	1.7 ± 0.6	-	9.5 ± 1.4
Total Residue	1.7 ± 0.6	-	9.5 ± 1.4
K-40 (ICP)	2.71	-	6.30
Mn-54	< 15	-	< 15
Fe-59	< 30	-	< 30
Co-58	< 15	-	< 15
Co-60	< 15	-	< 15
Zn-65	< 30	-	< 30
Zr-Nb-95	< 15	-	< 15
Cs-134	< 10	-	< 10
Cs-137	< 10	-	< 10
Ba-La-140	< 15	-	< 15

[a] NS= No sample; water frozen.

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Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1d			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1786	KSW- 2628	KSW- 3363
Gross beta			
Suspended Solids	< 0.4	< 0.8	< 0.8
Dissolved Solids	2.0 ± 0.7	1.5 ± 0.7	1.6 ± 0.7
Total Residue	2.0 ± 0.7	1.5 ± 0.7	1.6 ± 0.7
K-40 (ICP)	1.08	1.34	1.30
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1e			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1787	KSW- 2629	KSW- 3364
Gross beta			
Suspended Solids	1.1 ± 0.3	< 0.8	< 0.9
Dissolved Solids	1.9 ± 0.8	4.2 ± 1.4	3.9 ± 1.0
Total Residue	3.0 ± 0.9	4.2 ± 1.4	3.9 ± 1.0
K-40 (ICP)	2.54	2.51	5.00
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1d			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4185	KSW- 5180	KSW- 6022
Gross beta			
Suspended Solids	< 0.7	< 0.7	< 0.3
Dissolved Solids	1.3 ± 0.4	0.9 ± 0.4	1.4 ± 0.7
Total Residue	1.3 ± 0.4	0.9 ± 0.4	1.4 ± 0.7
K-40 (ICP)	1.15	1.03	1.20
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1e			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4186	KSW- 5181	KSW- 6023
Gross beta			
Suspended Solids	< 0.7	< 0.7	0.4 ± 0.2
Dissolved Solids	3.1 ± 0.9	5.0 ± 1.1	7.3 ± 0.9
Total Residue	3.1 ± 0.9	5.0 ± 1.1	7.7 ± 0.9
K-40 (ICP)	4.01	5.72	5.64
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1d			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6630	KSW- 7608	KSW- 8424
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.7
Dissolved Solids	2.2 ± 0.6	1.2 ± 0.3	1.3 ± 0.4
Total Residue	2.2 ± 0.6	1.2 ± 0.3	1.3 ± 0.4
K-40 (ICP)	1.18	1.05	1.20
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-1e			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6631	KSW- 7609	KSW- 8425
Gross beta			
Suspended Solids	< 0.7	< 0.7	< 0.7
Dissolved Solids	8.3 ± 1.2	6.6 ± 0.7	3.5 ± 0.9
Total Residue	8.3 ± 1.2	6.6 ± 0.7	3.5 ± 0.9
K-40 (ICP)	6.24	7.09	3.02
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water samples, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1k			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	NS[a]	NS[a]	NS[a]
Gross beta			
Suspended Solids	-	-	-
Dissolved Solids	-	-	-
Total Residue	-	-	-
K-40 (ICP)	-	-	-
Mn-54	-	-	-
Fe-59	-	-	-
Co-58	-	-	-
Co-60	-	-	-
Zn-65	-	-	-
Zr-Nb-95	-	-	-
Cs-134	-	-	-
Cs-137	-	-	-
Ba-La-140	-	-	-
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1788	KSW- 2630	KSW- 3365
Gross beta			
Suspended Solids	< 0.4	< 0.8	2.4 ± 1.2
Dissolved Solids	1.8 ± 0.5	6.1 ± 1.0	7.5 ± 0.8
Total Residue	1.8 ± 0.5	6.1 ± 1.0	9.9 ± 1.4
K-40 (ICP)	1.89	5.17	8.04
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

[a] NS= No sample; water frozen.

Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-1k			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4187	KSW- 5182	KSW- 6024
Gross beta			
Suspended Solids	< 0.8	< 0.7	< 0.8
Dissolved Solids	5.5 ± 0.7	3.0 ± 0.5	32.7 ± 2.3
Total Residue	5.5 ± 0.7	3.0 ± 0.5	32.7 ± 2.3
K-40 (ICP)	5.66	3.30	11.07
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6632	KSW- 7610	KSW- 8426
Gross beta			
Suspended Solids	< 1.2	1.9 ± 0.5	< 0.8
Dissolved Solids	16.9 ± 1.0	10.9 ± 0.7	11.1 ± 1.0
Total Residue	16.9 ± 1.0	12.8 ± 0.9	11.1 ± 1.0
K-40 (ICP)	11.48	12.05	3.49
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 24. Surface water samples, analyses for gross beta, potassium-40 and gamma-emitting isotopes.
Collection: Monthly

Sample Description and Concentration (pCi/L)			
Indicator			
K-9 (Raw)			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 12	KSW- 462	KSW- 798
Gross beta			
Suspended Solids	< 0.8	< 0.7	< 0.8
Dissolved Solids	0.8 ± 0.3	1.3 ± 0.3	1.9 ± 0.5
Total Residue	0.8 ± 0.3	1.3 ± 0.3	1.9 ± 0.5
K-40 (ICP)	1.04	1.20	1.05
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-9 (Tap)			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 13	KSW- 463	KSW- 799
Gross beta			
Suspended Solids	< 0.9	< 0.7	< 0.9
Dissolved Solids	0.6 ± 0.3	1.2 ± 0.3	2.0 ± 0.6
Total Residue	0.6 ± 0.3	1.2 ± 0.3	2.0 ± 0.6
K-40 (ICP)	1.10	1.23	0.99
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-9 (Raw)			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1789	KSW- 2631	KSW- 3366
Gross beta			
Suspended Solids	< 0.4	< 0.8	< 0.8
Dissolved Solids	1.0 ± 0.4	2.0 ± 0.8	< 0.6
Total Residue	1.0 ± 0.4	2.0 ± 0.8	< 0.8
K-40 (ICP)	1.06	1.40	1.27
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-9 (Tap)			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1790	KSW- 2632	KSW- 3367
Gross beta			
Suspended Solids	< 0.8	< 0.8	< 0.9
Dissolved Solids	1.3 ± 0.4	1.7 ± 0.7	1.1 ± 0.4
Total Residue	1.3 ± 0.4	1.7 ± 0.7	1.1 ± 0.4
K-40 (ICP)	1.04	1.40	1.25
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-9 (Raw)			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4188	KSW- 5183	KSW- 6025
Gross beta			
Suspended Solids	< 0.8	< 0.8	< 0.3
Dissolved Solids	1.5 ± 0.4	0.9 ± 0.4	2.1 ± 0.7
Total Residue	1.5 ± 0.4	0.9 ± 0.4	2.1 ± 0.7
K-40 (ICP)	1.10	1.07	1.15
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-9 (Tap)			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4189	KSW- 5184	KSW- 6026
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.3
Dissolved Solids	0.8 ± 0.4	2.3 ± 0.7	0.8 ± 0.4
Total Residue	0.8 ± 0.4	2.3 ± 0.7	0.8 ± 0.4
K-40 (ICP)	1.12	1.09	1.20
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water samples, analyses for gross beta, potassium-40, and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-9 (Raw)			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6633	KSW- 7611	KSW- 8427
Gross beta			
Suspended Solids	< 0.8	< 0.8	< 0.5
Dissolved Solids	1.9 ± 0.5	0.9 ± 0.3	1.3 ± 0.4
Total Residue	1.9 ± 0.5	0.9 ± 0.3	1.3 ± 0.4
K-40 (ICP)	1.19	1.15	1.13
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-9 (Tap)			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6634	KSW- 7612	KSW- 8428
Gross beta			
Suspended Solids	< 0.8	< 0.7	< 0.5
Dissolved Solids	2.3 ± 0.6	1.0 ± 0.3	2.3 ± 0.8
Total Residue	2.3 ± 0.6	1.0 ± 0.3	2.3 ± 0.8
K-40 (ICP)	1.21	1.21	1.16
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-14a			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 14	NS[a]	KSW- 800
Gross beta			
Suspended Solids	< 0.8	-	< 0.8
Dissolved Solids	1.4 ± 0.4	-	2.4 ± 0.5
Total Residue	1.4 ± 0.4	-	2.4 ± 0.5
K-40 (ICP)	1.64	-	1.19
Mn-54	< 15	-	< 15
Fe-59	< 30	-	< 30
Co-58	< 15	-	< 15
Co-60	< 15	-	< 15
Zn-65	< 30	-	< 30
Zr-Nb-95	< 15	-	< 15
Cs-134	< 10	-	< 10
Cs-137	< 10	-	< 10
Ba-La-140	< 15	-	< 15
K-14b			
Date Collected	01-03-11	02-03-11	03-01-11
Lab Code	KSW- 15	NS[a]	KSW- 801
Gross beta			
Suspended Solids	< 0.8	-	< 0.8
Dissolved Solids	0.9 ± 0.3	-	6.3 ± 0.7
Total Residue	0.9 ± 0.3	-	6.3 ± 0.7
K-40 (ICP)	1.57	-	1.16
Mn-54	< 15	-	< 15
Fe-59	< 30	-	< 30
Co-58	< 15	-	< 15
Co-60	< 15	-	< 15
Zn-65	< 30	-	< 30
Zr-Nb-95	< 15	-	< 15
Cs-134	< 10	-	< 10
Cs-137	< 10	-	< 10
Ba-La-140	< 15	-	< 15

[a] NS= No sample; water frozen.

Table 24. Surface water, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-14a			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1791	KSW- 2633	KSW- 3368
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.8
Dissolved Solids	2.5 ± 0.5	2.7 ± 0.8	1.1 ± 0.4
Total Residue	2.5 ± 0.5	2.7 ± 0.8	1.1 ± 0.4
K-40 (ICP)	1.88	1.88	1.26
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-14b			
Date Collected	04-04-11	05-02-11	06-01-11
Lab Code	KSW- 1792	KSW- 2634	KSW- 3369
Gross beta			
Suspended Solids	< 0.8	< 0.8	< 0.8
Dissolved Solids	2.5 ± 0.5	2.7 ± 0.7	1.3 ± 0.4
Total Residue	2.5 ± 0.5	2.7 ± 0.7	1.3 ± 0.4
K-40 (ICP)	1.96	1.89	1.30
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-14a			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4190	KSW- 5185	KSW- 6027
Gross beta			
Suspended Solids	< 0.7	< 0.7	< 0.3
Dissolved Solids	1.2 ± 0.4	1.7 ± 0.6	7.8 ± 0.8
Total Residue	1.2 ± 0.4	1.7 ± 0.6	7.8 ± 0.8
K-40 (ICP)	1.32	1.07	2.42
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-14b			
Date Collected	07-05-11	08-01-11	09-06-11
Lab Code	KSW- 4191	KSW- 5186	KSW- 6028
Gross beta			
Suspended Solids	< 0.7	< 0.7	< 0.3
Dissolved Solids	1.5 ± 0.4	1.8 ± 0.7	9.1 ± 0.9
Total Residue	1.5 ± 0.4	1.8 ± 0.7	9.1 ± 0.9
K-40 (ICP)	1.33	1.07	2.65
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

Table 24. Surface water, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

Sample Description and Concentration (pCi/L)			
Indicator			
K-14a			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6635	KSW- 7613	KSW- 8429
Gross beta			
Suspended Solids	< 0.7	< 0.7	< 0.5
Dissolved Solids	8.3 ± 0.7	1.7 ± 0.3	2.8 ± 0.7
Total Residue	8.3 ± 0.7	1.7 ± 0.3	2.8 ± 0.7
K-40 (ICP)	1.98	1.30	1.48
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15
K-14b			
Date Collected	10-03-11	11-01-11	12-01-11
Lab Code	KSW- 6636	KSW- 7614	KSW- 8430
Gross beta			
Suspended Solids	< 0.7	< 0.8	< 0.5
Dissolved Solids	10.8 ± 0.9	2.4 ± 0.4	4.1 ± 0.9
Total Residue	10.8 ± 0.9	2.4 ± 0.4	4.1 ± 0.9
K-40 (ICP)	2.95	1.28	1.53
Mn-54	< 15	< 15	< 15
Fe-59	< 30	< 30	< 30
Co-58	< 15	< 15	< 15
Co-60	< 15	< 15	< 15
Zn-65	< 30	< 30	< 30
Zr-Nb-95	< 15	< 15	< 15
Cs-134	< 10	< 10	< 10
Cs-137	< 10	< 10	< 10
Ba-La-140	< 15	< 15	< 15

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Table 25. Surface water, analyses for tritium, strontium-89 and strontium-90.
Collection: Quarterly composites of monthly samples.

Location and Collection Period	Lab Code	Concentration pCi/L H-3	Sr-89	Sr-90
Indicator				
K-1a				
1st Quarter [a]	KSW -982	< 148	< 0.6	< 0.5
2nd Quarter	-3679	< 156	< 1.2	< 0.6
3rd Quarter	-6482	< 144	< 1.3	< 0.5
4th Quarter	-8672	< 148	< 0.9	< 0.4
K-1b				
1st Quarter [a]	KSW -983	< 148	< 0.7	< 0.5
2nd Quarter	-3680	< 156	< 0.8	0.5 ± 0.3
3rd Quarter	-6483	< 144	< 1.3	< 0.5
4th Quarter	-8673	< 148	< 1.0	< 0.5
K-1d				
1st Quarter [b]	KSW -984	636 ± 116	< 0.6	< 0.5
2nd Quarter	-3681	< 156	< 0.9	< 0.4
3rd Quarter	-6484	< 150	< 1.1	< 0.5
4th Quarter [c]	-8674	662 ± 104	< 0.9	< 0.5
K-1e				
1st Quarter [a]	KSW -985	< 148	< 0.5	< 0.4
2nd Quarter	-3682	< 156	< 1.2	< 0.6
3rd Quarter	-6485	< 144	< 1.1	< 0.5
4th Quarter	-8675	< 148	< 0.9	< 0.5

[a] The composite consisted of January and March collections, no sample was available for the February collection.

[b] The individual months of the composite were analyzed for tritium.

Results of the analyses (pCi/L):		
KSW-10	1/3/2011	< 156
KSW-461	2/3/2011	1551 ± 142
KSW-796	3/1/2011	< 155

[c] The analysis for tritium was repeated, result of reanalysis: 628 ± 108 pCI/L.

Table 25. Surface water, analyses for tritium, strontium-89 and strontium-90 (continued).

Location and Collection Period		Concentration pCi/L H-3	Sr-89	Sr-90
Indicator				
K-14a				
1st Quarter [a, c]	KSW -988	764 ± 121	< 0.7	< 0.6
2nd Quarter	-3686	< 156	< 0.8	< 0.4
3rd Quarter	-6489	< 144	< 1.1	0.6 ± 0.3
4th Quarter	-8679	< 148	< 1.1	< 0.6
K-14b				
1st Quarter [a, d]	KSW -989	688 ± 118	< 0.5	< 0.5
2nd Quarter	-3687	< 156	< 1.0	< 0.5
3rd Quarter	-6490	< 144	< 1.2	< 0.5
4th Quarter	-8680	< 148	< 1.0	< 0.5
K-1k				
1st Quarter	NS [e]	-	-	-
2nd Quarter	-3683	< 156	< 0.9	< 0.5
3rd Quarter	-6486	< 144	< 1.3	< 0.5
4th Quarter	-8676	< 148	< 1.0	0.5 ± 0.3
Control				
K-9				
1st Quarter	KSW -986 (Raw)	< 148	< 0.6	< 0.5
	-987 (Tap)	< 148	< 0.6	< 0.8
2nd Quarter	-3684 (Raw)	< 156	< 1.1	< 0.6
	-3685 (Tap)	< 156	< 0.8	< 0.4
3rd Quarter	-6487 (Raw)	< 144	< 1.2	< 0.6
	-6488 (Tap)	< 144	< 1.3	< 0.5
4th Quarter	-8677 (Raw)	< 148	< 0.9	< 0.4
	-8678 (Tap)	< 148	< 1.0	< 0.5

[a] The composite consisted of January and March collections, no sample was available for the February collection.

[c] The individual months of the composite were analyzed for tritium.

Results of the analyses (pCi/L):	KSW-14	1/3/2011	823 ± 118
	KSW-800	3/1/2011	391 ± 100

[d] The individual months of the composite were analyzed for tritium.

Results of the analyses (pCi/L):	KSW-15	1/3/2011	936 ± 122
	KSW-801	3/1/2011	330 ± 97

[e] No data; water frozen.

Table 26. Fish, collected at K-1d, analyses for gross beta, strontium-89, strontium-90 and gamma-emitting isotopes.
Collection: Three times a year

Sample Description and Concentration (pCi/g wet)				
Collected	04-08-11		07-08-11	
Lab Code	KF- 2611		KF- 5168	
Type	Whitefish		Suckers	
Portion	Flesh	Bones	Flesh	Bones
Gross beta	2.38 ± 0.05	2.38 ± 0.57	2.28 ± 0.05	3.42 ± 0.85
Sr-89	NA[a]	< 0.099	NA[a]	< 0.31
Sr-90	NA	0.15 ± 0.040	NA	0.39 ± 0.11
K-40	2.38 ± 0.36	NA[a]	2.08 ± 0.35	NA[a]
Mn-54	< 0.014	NA	< 0.012	NA
Fe-59	< 0.040	NA	< 0.026	NA
Co-58	< 0.028	NA	< 0.012	NA
Co-60	< 0.015	NA	< 0.008	NA
Cs-134	< 0.015	NA	< 0.009	NA
Cs-137	< 0.019	NA	< 0.009	NA

Collected	10-19-11	
Lab Code	KF- 7986	
Type	Lake Trout	
Portion	Flesh	Bones
Gross beta	2.97 ± 0.06	2.46 ± 0.67
Sr-89	NA[a]	< 0.220
Sr-90	NA	< 0.099
K-40	2.19 ± 0.32	NA[a]
Mn-54	< 0.013	NA
Fe-59	< 0.059	NA
Co-58	< 0.020	NA
Co-60	< 0.013	NA
Cs-134	< 0.011	NA
Cs-137	0.027 ± 0.012	NA

[a] NA = Not analyzed; analyses not required.

Table 27. Slime or aquatic vegetation, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.
Collection: Semiannually

Sample Description and Concentration

	Indicators			Control
Location	K-1a	K-1b	K-1d	K-9
Date Collected	06-01-11	06-01-11	06-01-11	06-01-11
Lab Code	KSL- 3402	KSL- 3403	KSL- 3404	KSL- 3406
Gross beta	5.33 ± 0.15	5.18 ± 0.16	3.13 ± 0.34	7.21 ± 0.20
Sr-89	< 0.004	< 0.007	< 0.060	< 0.008
Sr-90	< 0.002	< 0.004	0.030 ± 0.012	< 0.004
Be-7	0.34 ± 0.11	< 0.074	0.85 ± 0.09	< 0.12
K-40	3.50 ± 0.24	3.32 ± 0.21	1.74 ± 0.13	4.78 ± 0.31
Mn-54	< 0.008	< 0.007	< 0.005	< 0.007
Co-58	< 0.008	< 0.006	< 0.006	< 0.011
Co-60	< 0.007	< 0.008	< 0.004	< 0.008
Nb-95	< 0.009	< 0.008	< 0.008	< 0.010
Zr-95	< 0.008	< 0.013	< 0.009	< 0.014
Ru-103	< 0.009	< 0.005	< 0.006	< 0.008
Ru-106	< 0.065	< 0.073	< 0.047	< 0.051
Cs-134	< 0.008	< 0.005	< 0.004	< 0.009
Cs-137	< 0.005	< 0.006	0.019 ± 0.006	< 0.009
Ce-141	< 0.023	< 0.010	< 0.022	< 0.016
Ce-144	< 0.097	< 0.038	< 0.034	< 0.075

Location	K-1e	K-1k	K-14
Date Collected	05-02-11	06-01-11	04-04-11
Lab Code	KSL- 2650	KSL- 3405	KSL- 1623
Gross beta	3.28 ± 0.32	7.48 ± 0.26	3.30 ± 0.24
Sr-89	< 0.033	< 0.010	< 0.014
Sr-90	< 0.011	< 0.005	0.017 ± 0.005
Be-7	0.88 ± 0.08	< 0.12	0.43 ± 0.07
K-40	1.34 ± 0.12	4.54 ± 0.29	1.27 ± 0.12
Mn-54	< 0.003	< 0.009	< 0.003
Co-58	< 0.004	< 0.010	< 0.007
Co-60	< 0.003	< 0.007	< 0.006
Nb-95	< 0.007	< 0.013	< 0.007
Zr-95	< 0.009	< 0.019	< 0.007
Ru-103	< 0.006	< 0.008	< 0.008
Ru-106	< 0.035	< 0.079	< 0.037
Cs-134	< 0.004	< 0.007	< 0.005
Cs-137	0.013 ± 0.004	< 0.011	< 0.006
Ce-141	< 0.013	< 0.015	< 0.015
Ce-144	< 0.039	< 0.071	< 0.038

Table 27. Slime or aquatic vegetation, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.
Collection: Semiannually

Sample Description and Concentration

	Indicators			Control
Location	K-1a	K-1b	K-1d	K-9
Date Collected	09-06-11	09-06-11	09-06-11	09-06-11
Lab Code	KSL- 6014	KSL- 6015	KSL- 6016	KSL- 6019
Gross beta	3.66 ± 0.41	3.08 ± 0.08	3.75 ± 0.40	7.07 ± 0.20
Sr-89	< 0.071	< 0.011	< 0.050	< 0.015
Sr-90	< 0.025	< 0.004	< 0.019	0.011 ± 0.004
Be-7	1.11 ± 0.13	1.65 ± 0.21	1.31 ± 0.11	0.86 ± 0.25
K-40	1.96 ± 0.16	2.44 ± 0.31	2.07 ± 0.15	3.65 ± 0.46
Mn-54	< 0.005	< 0.014	< 0.004	< 0.022
Co-58	< 0.009	< 0.012	< 0.006	< 0.011
Co-60	< 0.005	< 0.006	< 0.004	< 0.018
Nb-95	< 0.011	< 0.015	< 0.007	< 0.021
Zr-95	< 0.013	< 0.028	< 0.012	< 0.025
Ru-103	< 0.006	< 0.017	< 0.006	< 0.010
Ru-106	< 0.045	< 0.124	< 0.037	< 0.101
Cs-134	< 0.007	< 0.013	< 0.004	< 0.014
Cs-137	0.024 ± 0.007	< 0.008	0.023 ± 0.006	< 0.015
Ce-141	< 0.018	< 0.023	< 0.011	< 0.027
Ce-144	< 0.062	< 0.104	< 0.032	< 0.119

Location	K-1e	K-1k	K-14
Date Collected	07-05-11	09-06-11	08-01-11
Lab Code	KSL- 4144	KSL- 6017	KSL- 5169
Gross beta	3.50 ± 0.22	4.30 ± 0.17	4.74 ± 0.45
Sr-89	< 0.082	< 0.017	< 0.073
Sr-90	< 0.029	< 0.006	< 0.042
Be-7	1.12 ± 0.06	0.47 ± 0.17	2.37 ± 0.12
K-40	1.39 ± 0.06	4.43 ± 0.55	3.12 ± 0.16
Mn-54	< 0.002	< 0.016	< 0.006
Co-58	< 0.004	< 0.012	< 0.007
Co-60	< 0.002	< 0.007	< 0.007
Nb-95	< 0.007	< 0.018	< 0.009
Zr-95	< 0.007	< 0.028	< 0.013
Ru-103	< 0.005	< 0.014	< 0.009
Ru-106	< 0.021	< 0.159	< 0.058
Cs-134	< 0.004	< 0.012	< 0.006
Cs-137	0.022 ± 0.002	< 0.018	0.035 ± 0.009
Ce-141	< 0.013	< 0.026	< 0.021
Ce-144	< 0.022	< 0.129	< 0.055

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Table 28. Bottom sediment samples, analyses for gross beta, strontium-89, strontium-90, and gamma-emitting isotopes.
Collection: May and November

Sample Description and Concentration (pCi/g dry)					
	Indicator				Control
Location	K-1c	K-1d	K-1j	K-14	K-9
Collection Date	05-02-11	05-02-11	05-02-11	05-02-11	05-02-11
Lab Code	KBS- 2685	KBS- 2686	KBS- 2687	KBS- 2689	KBS- 2688
Gross beta	18.03 ± 2.44	12.97 ± 2.03	18.22 ± 2.24	16.39 ± 2.16	23.98 ± 2.69
Sr-89	< 0.042	< 0.058	< 0.047	< 0.043	< 0.046
Sr-90	< 0.019	< 0.024	< 0.021	0.035 ± 0.013	< 0.019
K-40	8.00 ± 0.40	6.08 ± 0.39	8.30 ± 0.47	9.53 ± 0.50	10.97 ± 0.73
Co-58	< 0.022	< 0.012	< 0.016	< 0.012	< 0.025
Co-60	< 0.010	< 0.009	< 0.010	< 0.012	< 0.010
Cs-134	< 0.012	< 0.009	< 0.008	< 0.010	< 0.018
Cs-137	0.021 ± 0.012	< 0.013	0.028 ± 0.014	< 0.013	< 0.021
Collection Date	11-01-11	11-01-11	11-01-11	11-01-11	11-01-11
Lab Code	KBS- 7600	KBS- 7602	KBS- 7603	KBS- 7605	KBS- 7604
Gross beta	6.83 ± 1.44	8.82 ± 1.65	10.14 ± 1.54	12.69 ± 1.84	11.47 ± 1.71
Sr-89	< 0.037	< 0.041	< 0.025	< 0.036	< 0.041
Sr-90	< 0.022	< 0.021	< 0.012	< 0.020	< 0.020
K-40	7.70 ± 0.53	5.75 ± 0.38	7.22 ± 0.44	8.62 ± 0.53	8.57 ± 0.53
Co-58	< 0.015	< 0.013	< 0.009	< 0.015	< 0.023
Co-60	< 0.019	< 0.012	< 0.006	< 0.018	< 0.015
Cs-134	< 0.010	< 0.010	< 0.008	< 0.013	< 0.015
Cs-137	< 0.020	< 0.013	< 0.013	< 0.018	< 0.016

Dominion®

2011 Annual Environmental Monitoring Report

Kewaunee Power Station
Part III, Corrective Actions written during reporting period

Dominion Energy Kewaunee, Inc.

State Change History

Submit	Draft	Submit	Supervisor Review	Complete	O/R Review	Complete	CRT Review
by SIMON, PAUL A	8/30/2011 13:27:45 Owner : SIMON, PAUL A	by SIMON, PAUL A	8/30/2011 13:27:51 Owner : BERNSDORF, MIKE A	by BERNSDORF, MIKE A	8/30/2011 13:54:09 Owner : FICTUM, HOLLY C	by BROWN, DAN	8/31/2011 2:58:48 Owner : FICTUM, HOLLY C

Complete	Trend Review	Trend Review Complete	All Assignments Complete
by OWENS, CYRENA JEAN	9/2/2011 10:39:42 Owner : FICTUM, HOLLY C	by FICTUM, HOLLY C	9/8/2011 7:37:18 Owner : (None)

Section 1

Applicable to site:	KEWA
Record #:	CR440389
Revision Number:	0
Submitter:	SIMON, PAUL A
Submitter Dept.:	KEWA - Chemistry
Submitter Phone Number:	8214
Submitter Pager Number:	7666
One-Line Description:	Environmental Air Sample location K-31 East Krok substation loss of power
Description:	Environmental Air Sample location K-31 East Krok substation loss of power . while collecting samples Per SP-63-164(Environmental Sample Collection) found air sampler K-31 had NO power . After an investigation, the power was turned off by Wisconsin Public Service personal , by opening a breaker while checking the substation shortly after the weekly filter change on 8-23-11. Power was restored at approximately 11:00 on 8/30/2011 and the sampler is operating normally . Therefore the K-31 filter sample was unavailable for the week 8-23-11-to 8-30-11. No further action is required . Recommend closing to tracking and trending.
Discovery Date:	8/30/2011
Discovery Time:	10:00:00
Method of Discovery:	SELR (Self-revealing issue)
Literal 1:	**If this CR is associated with the BACC Program, please ensure that the CR Description contains sufficient information to ensure the ability to quickly locate the component, which will ensure ALARA.**
Associated with Boric Acid?:	No
Applicable to unit:	None
Associated w/ Equipment Location?:	No
System(s):	63-MET--METEOROLOGICAL/ENV
Equipment Location Display:	**Equipment Location - Critical Component - PRA Flag - Quality Classification - Component Description**
Equipment Location Links:	
Initial Actions:	investigation of why the power was turned off. Reason identified in description of problem.
Additional C/A processes req'd?:	N/A
Text Question 1:	**Provide details for any Additional C/A processes needed:**

Text Answer 1:	none
C/As Initiated (REA, WR, ETC):	
Tag Hung:	No
Tag Number:	
Additional Contacts:	
Supervisor - CR Review:	BERNSDORF, MIKE A
Question G:	**Is this CR an Operability/Reportability Issue Requiring O/R Review?**
Yes/No G:	Yes
Question H:	**Does this CR affect personnel safety?**
Yes/No H:	No
Question I:	**Does this CR affect plant safety?**
Yes/No I:	No
Question J:	**Does this CR involve plant equipment?**
Yes/No J:	Yes
Question K:	**Is this CR an environmental concern?**
Yes/No K:	Yes
Literal 2:	**Unit Conditions:**
Unit 1% Pwr:	100
Unit 2% Pwr:	NA
Unit 3% Pwr:	NA
Unit 1 Mode:	1 - OPERATING
Unit 2 Mode:	NA
Unit 3 Mode:	NA
OP-AA-102 Review Req'd?:	Yes
Is a TS SSC Affected?:	No
TS SSC Operability Assessment:	N/A
Text Question 2:	**Basis for operability:**
Text Answer 2:	NON-FUNCTIONAL. K-31 Environmental Air Sampler is NON-FUNCTIONAL from 8/23/2011 through 8/30/2011. The K-31 Environmental Air Sampler is required per Table 2.2.1-A, Radiological Environmental Monitoring Manual. Per Table 2.2.1-A if specimens are unobtainable due to sampling equipment malfunction, reasonable efforts shall be made to correct the problem prior to the end of the next sampling period. Per Table 2.2.1-B of the REMM, samples for Airborne Particulate are required weekly. Power was restored to K-31 Environmental Air Sampler at approximately 1100 on 8/30/2011, therefore K-31 Environmental Air Sampler is FUNCTIONAL to support the Radiological Environmental Monitoring Program (REMP).
Question L:	**Is an Operability Assessment req'd for an SSC, which is Functional for its TRM function, to demonstrate operability for its TS function?**
Yes / No L:	No
Literal 4:	**The basis for establishing IOD can be documented in the "Basis for Operability" field. An IOD assignment does not necessarily need to be created.**
Is an IOD Assignment Required?:	No
LCO entered:	No
Applicable LCO:	
Non-TS SSC Functionality Assessment.:	Non-Functional

Literal 5:	NOTE: If a RAS is to be assigned to determine the answer to the next question, select "TBD" (to be determined) for the answer to the next question.
Does it impact a TS SSC?:	No
Literal 6:	The basis for establishing Non-TS SSC Functionality may be documented in the "Basis for Operability" field. A RAS assignment does not necessarily need to be created in these instances.
Is a RAS Assignment Needed?:	No
Literal 7:	If this Condition Report is addressing an SSC, document the qualification status of the SSC in the following field. Otherwise select N/A. NOTE: An SSC can be Operable or Functional and still not be Fully Qualified.
SSC Qualification Status:	Not Fully Qualified
Reportable condition?:	No
Text Question 3:	Reportability Comments:
Text Answer 3:	N/A
Can IOD be established?:	(None)
Literal 3:	If this CR is associated with any system leakage, provide answers to the following:
Leak Classification:	(None)
Leakage Severity:	(None)
O/R Comments:	
Significance:	4
Deficiency Type:	Equipment
Potential Repeat:	Yes
Previous Issues (PIs, CRs):	Search for 'K-31' and filter power loss: CR350028 KEWA - K-7 Environmental Air Sampler discovered not running. (Inactive) CR367505 KEWA - K-31 air sampler found not on (Inactive) CR374322 KEWA - K-31 air sampler found off during filter changeout (Inactive)
CR FLAGS:	zz - reviewed / none selected
CRT Report Section(s):	2
Screening Date:	9/1/2011
License Renewal Flags:	(None)
Affected Department:	(None)
CRT Comments:	*HI LEVEL* Required sample was able to be taken as required. A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Radiological Environmental Operating Report are included) to ensure this situation was included and discussed/resolved as necessary in the 2011 report. Close to issue being added to that CA.
Comments:	
Old Record #:	

Section 2

Trend Review Complete?:	No		
Process Code:	(None)	Activity Codes:	(None)
Human Error Types:	(None)	Process Related Failure:	(None)

Org. & Mgmt Failure mode:	(None)	HU Failure modes:	(None)
Equipment Failure Modes:	(None)	Primary INPO criteria:	(None)
Secondary INPO criteria:	(None)	Operations Hot Buttons:	(None)
Engineering Hot Buttons:	(None)	Maintenance Hot Buttons:	(None)
RP Hot Buttons:	(None)	Chemistry Hot Buttons:	(None)
EP Hot Buttons:	(None)	Training Hot Buttons:	(None)
Security Hot Buttons:	(None)	OR Hot Buttons:	(None)
O&P Hot Buttons:	(None)	NSS Hot Buttons:	(None)
Supply Chain Hot Buttons:	(None)	Procedures Hot Buttons:	(None)
Reactivity Mgmt Hot Buttons:	(None)	Other Hot Buttons:	(None)

Section 3

Work Order Number(s):

Status Description:

Status Date:

Actual Finish Date:

Work Performed Description:

Section 5

CR Completed Date: 9/8/2011 8:37:18 **CR Printed Date:**

CR Validated Date: **CR Who Validated:** (None)

RM Attachment Links:

Change History

8/30/2011 13:27:51 by SIMON, PAUL A
Owner Changed From SIMON, PAUL A To BERNSDORF, MIKE A
Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BERTSCHE, BRYAN JOHN, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R
Last Modified Date Changed From 8/30/2011 13:27:45 To 8/30/2011 13:27:51
Last State Change Date Changed From 8/30/2011 13:27:45 To 8/30/2011 13:27:51
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR440389: KEWA - Environmental Air Sample location K-31 East Krok substation loss of power (Inactive)

8/30/2011 13:54:09 by BERNSDORF, MIKE A
Description Changed From '[...] the power was turned off by Wisconsin Public Service personal while checking the substation shortly after the weekly filter change on 8-23-11 .power was restored at approximately 11:00 and the sampler is operating normally . therefore the K-31 [more diffs...]' To '[...], the power was turned off by Wisconsin Public Service personal , by opening a breaker while checking the substation shortly after the weekly filter change on 8-23-11. Power was restored at approximately 11:00 on 8/30/2011 and the sampler is op[more diffs...]'
Method of Discovery Changed From SEFI (Self Identified) To SELR (Self-revealing issue)
System(s) Changed From 45-RM--RADIATION MONITORING To 63-MET--METEOROLOGICAL/ENV
Initial Actions Changed From 'investigation of why the power was turned off' To 'investigation of why the power was turned off. Reason identified in description of problem.'
Text Answer 1 Changed From '' To 'none'
Tag Hung Changed From (None) To No
Yes/No H Changed From Yes To No
Yes/No I Changed From Yes To No
Owner Changed From BERNSDORF, MIKE A To FICTUM, HOLLY C

Secondary Owner Changed From AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BERTSCHE, BRYAN JOHN, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE,

ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R To ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 8/30/2011 13:27:51 To 8/30/2011 13:54:09
Last Modifier Changed From SIMON, PAUL A To BERNSDORF, MIKE A
Last State Change Date Changed From 8/30/2011 13:27:51 To 8/30/2011 13:54:09
Last State Changer Changed From SIMON, PAUL A To BERNSDORF, MIKE A
State Changed From Supervisor Review To O/R Review Via Transition: Complete
NewCR Changed From Yes To No

8/30/2011 16:38:22 by BUSH, CHRISTOPHER S
Unit 1% Pwr Changed From '' To '100'
Unit 1 Mode Changed From (None) To 1 - OPERATING
OP-AA-102 Review Req'd? Changed From (None) To No
Is a TS SSC Affected? Changed From (None) To No
TS SSC Operability Assessment Changed From (None) To N/A
Text Answer 2 Changed From '' To 'N/A'
Yes / No L Changed From (None) To No
Is an IOD Assignment Required? Changed From (None) To No
LCO entered Changed From (None) To No
Non-TS SSC Functionality Assessment. Changed From (None) To N/A
Does it impact a TS SSC? Changed From (None) To N/A
Is a RAS Assignment Needed? Changed From (None) To No
SSC Qualification Status Changed From (None) To N/A
Reportable condition? Changed From (None) To No
Last Modified Date Changed From 8/30/2011 13:54:09 To 8/30/2011 16:38:22
Last Modifier Changed From BERNSDORF, MIKE A To BUSH, CHRISTOPHER S

8/30/2011 21:29:36 by LESTER, GEORGE L
OP-AA-102 Review Req'd? Changed From No To Yes
Is a TS SSC Affected? Changed From No To (None)
TS SSC Operability Assessment Changed From N/A To (None)
Text Answer 2 Changed From 'N/A' To '[...]NON-FUNCTIONAL. K-31 Environmental Air Sampler is NON-FUNCTIONAL from 8/23/2011 through 8/30/2011. The K-31 Environmental Air Sampler is required per Table 2.2.1-A, Radiological Environmental Monitoring Manual. Per Table 2.2.1-A if specimens a[more diffs...]'
Yes / No L Changed From No To (None)
Is an IOD Assignment Required? Changed From No To (None)
Non-TS SSC Functionality Assessment. Changed From N/A To (None)
Does it impact a TS SSC? Changed From N/A To (None)
Is a RAS Assignment Needed? Changed From No To (None)
SSC Qualification Status Changed From N/A To (None)
Last Modified Date Changed From 8/30/2011 16:38:22 To 8/30/2011 21:29:36
Last Modifier Changed From BUSH, CHRISTOPHER S To LESTER, GEORGE L

8/30/2011 21:48:16 by LESTER, GEORGE L
Yes / No L Changed From (None) To No
Is an IOD Assignment Required? Changed From (None) To No
Non-TS SSC Functionality Assessment. Changed From (None) To Non-Functional
Does it impact a TS SSC? Changed From (None) To No
Is a RAS Assignment Needed? Changed From (None) To No
SSC Qualification Status Changed From (None) To Not Fully Qualified
Text Answer 3 Changed From '' To 'N/A'
Last Modified Date Changed From 8/30/2011 21:29:36 To 8/30/2011 21:48:16

8/31/2011 2:58:48 by BROWN, DAN
Is a TS SSC Affected? Changed From (None) To No
TS SSC Operability Assessment Changed From (None) To N/A
Last Modified Date Changed From 8/30/2011 21:48:16 To 8/31/2011 2:58:48
Last Modifier Changed From LESTER, GEORGE L To BROWN, DAN
Last State Change Date Changed From 8/30/2011 13:54:09 To 8/31/2011 2:58:48
Last State Changer Changed From BERNSDORF, MIKE A To BROWN, DAN
State Changed From O/R Review To CRT Review Via Transition: Complete

8/31/2011 6:02:57 by LANGER JR, JAMES E
CRT Comments Changed From '' To '*HI LEVEL*'

Last Modified Date Changed From 8/31/2011 2:58:48 To 8/31/2011 6:02:57

Last Modifier Changed From BROWN, DAN To LANGER JR, JAMES E

9/1/2011 6:13:40 by GAUTHIER, HEIDI
Significance Changed From (None) To 3
Deficiency Type Changed From (None) To Equipment
Potential Repeat Changed From (None) To Yes
CRT Report Section(s) Changed From (None) To 1
Screening Date Changed From Unassigned To 9/1/2011
Last Modified Date Changed From 8/31/2011 6:02:57 To 9/1/2011 6:13:40
Last Modifier Changed From LANGER JR, JAMES E To GAUTHIER, HEIDI

9/1/2011 6:17:03 by GAUTHIER, HEIDI
Previous Issues (PIs, CRs) Changed From " To '[Appended:]Search for 'K-31' and filter power loss: CR350028 KEWA - K-7 Environmental Air Sampler discovered not running. (Inactive) CR367505 KEWA - K-31 air sampler found not on (Inactive) CR374322 KEWA - K-31 air sampler found off during filter ch[...]'
CRT Comments Changed From '*HI LEVEL*' To '*HI LEVEL* Required sample was able to be taken as required. Close to track and trend.'
Last Modified Date Changed From 9/1/2011 6:13:40 To 9/1/2011 6:17:03

9/2/2011 7:01:56 by ADAMS, RICHARD W
CRT Comments Changed From '*HI LEVEL* Required sample was able to be taken as required. Close to track and trend.' To '[...]A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Radiological Environmental Operating Report are included) to ensure this situation was included and discussed/resolved as necessary in the 20[more diffs...]'
Last Modified Date Changed From 9/1/2011 6:17:03 To 9/2/2011 7:01:56
Last Modifier Changed From GAUTHIER, HEIDI To ADAMS, RICHARD W

9/2/2011 10:39:39 by OWENS, CYRENA JEAN
Significance Changed From 3 To 4
CR FLAGS Changed From (None) To zz - reviewed / none selected
CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 9/2/2011 7:01:56 To 9/2/2011 10:39:39
Last Modifier Changed From ADAMS, RICHARD W To OWENS, CYRENA JEAN

9/2/2011 10:39:42 by OWENS, CYRENA JEAN
Secondary Owner Changed From ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K To AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 9/2/2011 10:39:39 To 9/2/2011 10:39:42
Last State Change Date Changed From 8/31/2011 2:58:48 To 9/2/2011 10:39:42
Last State Changer Changed From BROWN, DAN To OWENS, CYRENA JEAN
State Changed From CRT Review To Trend Review Via Transition: Complete

9/8/2011 7:37:18 by FICTUM, HOLLY C
CR Completed Date Changed From Unassigned To 9/8/2011 8:37:18
RM Attachment Links Changed From " To '<table width=100% border=1 cellspacing=2 cellpadding=2></table>'
Owner Changed From FICTUM, HOLLY C To (None)
Secondary Owner Changed From AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K To KASSNER, KIM M, LACROSSE, TARA LYNN, LEANNA, LORI L, MIJAL, SHELLEY A, OTTO, KATHLEEN A., RECORDS MGMT, SCHULTZ, SANDRA J, SMIDEL, SARAH A., Teamtrackuser, WHITE, DARYN A, WILSON, MICHAEL J, ZICH, CHRISTY L
Last Modified Date Changed From 9/2/2011 10:39:42 To 9/8/2011 7:37:18
Last Modifier Changed From OWENS, CYRENA JEAN To FICTUM, HOLLY C
Close Date Changed From Unassigned To 9/8/2011 7:37:18
Last State Change Date Changed From 9/2/2011 10:39:42 To 9/8/2011 7:37:18
Last State Changer Changed From OWENS, CYRENA JEAN To FICTUM, HOLLY C

State Change History

Submit	Draft	Submit	Supervisor Review	Complete	O/R Review	Complete	CRT Review
by BRANTMEIER, MICHELLE L	10/26/2011 8:33:21 Owner : BRANTMEIER, MICHELLE L	by BRANTMEIER, MICHELLE L	10/26/2011 8:34:49 Owner : BERNSDORF, MIKE A	by BERNSDORF, MIKE A	10/26/2011 9:55:07 Owner : FICTUM, HOLLY C	by TREPTOW, ETHAN A	10/26/2011 16:11:15 Owner : FICTUM, HOLLY C

Complete	Trend Review	Trend Review Complete	All Assignments Complete
by OWENS, CYRENA JEAN	10/28/2011 12:04:23 Owner : FICTUM, HOLLY C	by FICTUM, HOLLY C	11/3/2011 14:01:42 Owner : (None)

Section 1

Applicable to site:	KEWA
Record #:	CR449852
Revision Number:	0
Submitter:	BRANTMEIER, MICHELLE L
Submitter Dept.:	KEWA - Chemistry
Submitter Phone Number:	920-388-8215
Submitter Pager Number:	000-000-0000
One-Line Description:	K-41 (EOF) Air Sampler Cartridge Found Disconnected from Air Sampler
Description:	K-41 (EOF) Air Sampler Cartridge Found Disconnected from Air Sampler K-41 air sampler cartridge was found disconnected from sampler and lying on the ground. K-41 Air sampler is located at EOF in Green Bay. Discoloration on filter indicated the filter had been connected for some time, but time of disconnection in undeterminable. The filter cartridge was also subjected to heavy rains prior to being discovered. New cartridge verified securely inserted in Air Sampler snap connector. The filter cartridge is accessible by the public. Tampering is a possibility. K-41 Located at EOF in Green Bay is a control site and is not critical to the environmental monitoring for the week. The sample will be processed but is not valid. CA to RP in order for them to include this issue in the Annual Environmental Monitoring Report for 2011.
Discovery Date:	10/25/2011
Discovery Time:	10:20:00
Method of Discovery:	SEFI (Self Identified)
Literal 1:	**If this CR is associated with the BACC Program, please ensure that the CR Description contains sufficient information to ensure the ability to quickly locate the component, which will ensure ALARA.**
Associated with Boric Acid?:	No
Applicable to unit:	None
Associated w/ Equipment Location?:	No
System(s):	63-MET--METEOROLOGICAL/ENV
Equipment Location Display:	**Equipment Location - Critical Component - PRA Flag - Quality Classification - Component Description**
Equipment Location Links:	

Initial Actions:	Notified Supervision and wrote CR
Additional C/A processes req'd?:	Other
Text Question 1:	**Provide details for any Additional C/A processes needed:**
Text Answer 1:	CA- to track reporting in annual report
C/As Initiated (REA, WR, ETC):	
Tag Hung:	No
Tag Number:	
Additional Contacts:	Darryl Holschbach
Supervisor - CR Review:	BERNSDORF, MIKE A
Question G:	**Is this CR an Operability/Reportability Issue Requiring O/R Review?**
Yes/No G:	Yes
Question H:	**Does this CR affect personnel safety?**
Yes/No H:	No
Question I:	**Does this CR affect plant safety?**
Yes/No I:	No
Question J:	**Does this CR involve plant equipment?**
Yes/No J:	Yes
Question K:	**Is this CR an environmental concern?**
Yes/No K:	Yes
Literal 2:	**Unit Conditions:**
Unit 1% Pwr:	100
Unit 2% Pwr:	NA
Unit 3% Pwr:	NA
Unit 1 Mode:	1 - OPERATING
Unit 2 Mode:	NA
Unit 3 Mode:	NA
OP-AA-102 Review Req'd?:	Yes
Is a TS SSC Affected?:	No
TS SSC Operability Assessment:	N/A
Text Question 2:	**Basis for operability:**
Text Answer 2:	NON-FUNCTIONAL. K-41 Environmental Air Sampler is NON-FUNCTIONAL based the disconnected cartridge. In this configuration, the air sampler was not capable of collecting a proper sample for analysis. The Environmental Air Samplers are required per Table 2.2.1-A, Radiological Environmental Monitoring Program. Per REMM Table 2.2.1-A and Table 2.2.1-B, K-41 is used as a control sample for Airborne Radioiodine and Particulates. New cartridge verified securely inserted in Air Sampler snap connector.
Question L:	**Is an Operability Assessment req'd for an SSC, which is Functional for its TRM function, to demonstrate operability for its TS function?**
Yes / No L:	No
Literal 4:	**The basis for establishing IOD can be documented in the "Basis for Operability" field. An IOD assignment does not necessarily need to be created.**
Is an IOD Assignment Required?:	No
LCO entered:	No
Applicable LCO:	
Non-TS SSC Functionality Assessment.:	Non-Functional

Literal 5:	NOTE: If a RAS is to be assigned to determine the answer to the next question, select "TBD" (to be determined) for the answer to the next question.
Does it impact a TS SSC?:	No
Literal 6:	The basis for establishing Non-TS SSC Functionality may be documented in the "Basis for Operability" field. A RAS assignment does not necessarily need to be created in these instances.
Is a RAS Assignment Needed?:	No
Literal 7:	If this Condition Report is addressing an SSC, document the qualification status of the SSC in the following field. Otherwise select N/A. NOTE: An SSC can be Operable or Functional and still not be Fully Qualified.
SSC Qualification Status:	Not Fully Qualified
Reportable condition?:	No
Text Question 3:	Reportability Comments:
Text Answer 3:	
Can IOD be established?:	(None)
Literal 3:	If this CR is associated with any system leakage, provide answers to the following:
Leak Classification:	(None)
Leakage Severity:	(None)
O/R Comments:	Security has been informed of potential tampering issue.
Significance:	4
Deficiency Type:	Equipment
Potential Repeat:	No
Previous Issues (PIs, CRs):	No history search required however, the following search for issues back to 10/1/08 using search criterion "environmental air sample": CR116348 K-7 air sampler found not running. CR325344 K-41 (EOF) Air Sampling System suspected leaking quick disconnect CR329094 State air sampler found not on when performing SP-63-164 CR342128 K-7 Environmental sample (air filter) electrical power off 1 hour per WPS CR342776 K-7 power found off CR345943 K-8 Env. Air Sampler complaint from local residence - too loud CR348011 Environmental Radiation Air Monitor found not running CR349152 Environmental air sampler not running CR350028 K-7 Environmental Air Sampler discovered not running. CR352454 K-7 Environmental Air Sampler Found Off CR353663 K-7 Environmental Air Sampler Found Off CR367505 K-31 air sampler found not on CR369046 K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection CR370747 k-8 air sampler hours not equal to time sample being taken CR374322 K-31 air sampler found off during filter changeout CR395885 Low air flow on K-2 air sampler. CR400655 k-41 air sampler digital readout and calculated total reading zero CR400661 k-2 air sampler digital readout lower than calculated indicated total flow CR405614 Environmental Air Sampler not indicating proper flow value CR406655 Environmental Air Sampler indicated air flow outside the range of 27-33 LPM CR408777 Environmental air sampler indicated flow does not match Rotometer Flow Rate CR409358 Environmental air sampler indicated flow rate does not match rotometer flow rate

CR411007 Enviromental Air sampler K-41 indicated air flow not within 27-33 LPM .
CR411513 Environmental air sampler K-2 and K-41 reading outside 27-33 LPM
CR422958 K-2 air sampler reading 40 lpm when found.
CR430801 R-18 abnormal alarms received
CR433298 Air sampler K-41 is outside range of 27-33 LPM.
CR433302 Air sampler K-31 was outside range of 27-33 LPM after filter changeout.
CR433401 Weekly Environmental Sample Collection air flow continually out-of-spec
CR435700 K-1f Air Sampler Totalizer Display not working
CR436515 K-41 air sampler digital flow indication flashing zero
CR440389 Environmental Air Sample location K-31 East Krok substation loss of power
CR442747 K-41 air sampler digital display flashing 0 (zero).
CR442749 K-43 air sampler reading outside range of 27-33 lpm.

CR FLAGS: Self-Identified

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

CRT Comments: *HI LEVEL*

A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Radiological Environmental Operating Report are included) to ensure this situation was included and discussed/resolved as necessary in the 2011 report. Close to issue being added to that CA.

Comments:

Old Record #:

Section 2

Trend Review Complete?:	No		
Process Code:	(None)	**Activity Codes:**	(None)
Human Error Types:	(None)	**Process Related Failure:**	(None)
Org. & Mgmt Failure mode:	(None)	**HU Failure modes:**	(None)
Equipment Failure Modes:	(None)	**Primary INPO criteria:**	(None)
Secondary INPO criteria:	(None)	**Operations Hot Buttons:**	(None)
Engineering Hot Buttons:	(None)	**Maintenance Hot Buttons:**	(None)
RP Hot Buttons:	(None)	**Chemistry Hot Buttons:**	(None)
EP Hot Buttons:	(None)	**Training Hot Buttons:**	(None)
Security Hot Buttons:	(None)	**OR Hot Buttons:**	(None)
O&P Hot Buttons:	(None)	**NSS Hot Buttons:**	(None)
Supply Chain Hot Buttons:	(None)	**Procedures Hot Buttons:**	(None)
Reactivity Mgmt Hot Buttons:	(None)	**Other Hot Buttons:**	(None)

Section 3

Work Order Number(s):

Status Description:

Status Date:

Actual Finish Date:

Work Performed Description:

Section 5

CR Completed Date: 11/3/2011 15:01:42 **CR Printed Date:**

CR Validated Date: **CR Who Validated:** (None)

RM Attachment Links:

Change History

10/26/2011 8:34:49 by BRANTMEIER, MICHELLE L
System(s) Changed From (None) To N/A
Owner Changed From BRANTMEIER, MICHELLE L To BERNSDORF, MIKE A
Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GRAU, JOHN R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R
Last Modified Date Changed From 10/26/2011 8:33:21 To 10/26/2011 8:34:49
Last State Change Date Changed From 10/26/2011 8:33:21 To 10/26/2011 8:34:49
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR449852: KEWA - K-41 (EOF) Air Sampler Cartridge Found Disconnected from Air Sampler (Inactive)

10/26/2011 9:55:07 by BERNSDORF, MIKE A
Applicable to unit Changed From Unit 1 To None
System(s) Changed From N/A To 63-MET--METEOROLOGICAL/ENV
Initial Actions Changed From 'Notifed Supervision and wrote CR' To 'Notified Supervision and wrote CR'
Additional C/A processes req'd? Changed From N/A To Other
Text Answer 1 Changed From '' To 'CA- to track reporting in annual report'
Additional Contacts Changed From 'Darryl Holshbach' To 'Darryl Holschbach'
Yes/No H Changed From Yes To No
Yes/No I Changed From Yes To No
Owner Changed From BERNSDORF, MIKE A To FICTUM, HOLLY C
Secondary Owner Changed From AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GRAU, JOHN R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R To BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, EVERITT, CHAD A, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GRAU, JOHN R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 10/26/2011 8:34:49 To 10/26/2011 9:55:07
Last Modifier Changed From BRANTMEIER, MICHELLE L To BERNSDORF, MIKE A
Last State Change Date Changed From 10/26/2011 8:34:49 To 10/26/2011 9:55:07
Last State Changer Changed From BRANTMEIER, MICHELLE L To BERNSDORF, MIKE A
State Changed From Supervisor Review To O/R Review Via Transition: Complete
NewCR Changed From Yes To No

10/26/2011 11:43:24 by MILLER, LOGAN D
Unit 1% Pwr Changed From '' To '100'
Unit 1 Mode Changed From (None) To 1 - OPERATING
OP-AA-102 Review Req'd? Changed From (None) To Yes
Is a TS SSC Affected? Changed From (None) To No
TS SSC Operability Assessment Changed From (None) To N/A
Text Answer 2 Changed From '' To '[Appended:]NON-FUNCTIONAL. K-41 Environmental Air Sampler is NON-FUNCTIONAL based the disconnected cartridge. In this configuration, the air sampler was not capable of collecting a proper sample for analysis. The Environmental Air Samplers are required [...]'
Yes / No L Changed From (None) To No
Is an IOD Assignment Required? Changed From (None) To No
LCO entered Changed From (None) To No

Non-TS SSC Functionality Assessment. Changed From (None) To Non-Functional
Does it impact a TS SSC? Changed From (None) To No
Is a RAS Assignment Needed? Changed From (None) To No
SSC Qualification Status Changed From (None) To Not Fully Qualified
Reportable condition? Changed From (None) To No
O/R Comments Changed From " To 'Security has been informed of potential tampering issue.'
Last Modified Date Changed From 10/26/2011 9:55:07 To 10/26/2011 11:43:24
Last Modifier Changed From BERNSDORF, MIKE A To MILLER, LOGAN D

10/26/2011 16:11:15 by TREPTOW, ETHAN A
Text Answer 2 Changed From '[Original Text]' To '[Appended:] New cartridge verified securely inserted in Air Sampler snap connector.'
Last Modified Date Changed From 10/26/2011 11:43:24 To 10/26/2011 16:11:15
Last Modifier Changed From MILLER, LOGAN D To TREPTOW, ETHAN A
Last State Change Date Changed From 10/26/2011 9:55:07 To 10/26/2011 16:11:15
Last State Changer Changed From BERNSDORF, MIKE A To TREPTOW, ETHAN A
State Changed From O/R Review To CRT Review Via Transition: Complete

10/27/2011 6:07:35 by LANGER JR, JAMES E
CRT Comments Changed From " To "*HI LEVEL*"
Last Modified Date Changed From 10/26/2011 16:11:15 To 10/27/2011 6:07:35
Last Modifier Changed From TREPTOW, ETHAN A To LANGER JR, JAMES E

10/27/2011 6:30:46 by ADAMS, RICHARD W
Significance Changed From (None) To 4
Deficiency Type Changed From (None) To Equipment
Potential Repeat Changed From (None) To No
Previous Issues (PIs, CRs) Changed From " To 'No history found for sample heads not being connected.'
CR FLAGS Changed From (None) To Self-Identified
CRT Comments Changed From '[Original Text]' To '[Appended:] A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Radiological Environmental Operating Report are included) to ensure this situation was included and discussed/resolved as necessary in t[...]'
Last Modified Date Changed From 10/27/2011 6:07:35 To 10/27/2011 6:30:46
Last Modifier Changed From LANGER JR, JAMES E To ADAMS, RICHARD W

10/27/2011 8:33:28 by ADAMS, RICHARD W
CRT Report Section(s) Changed From (None) To 1
Last Modified Date Changed From 10/27/2011 6:30:46 To 10/27/2011 8:33:28

10/27/2011 8:56:10 by ADAMS, RICHARD W
Previous Issues (PIs, CRs) Changed From 'No history found for sample heads not being connected.' To '[...]search required however, the following search for issues back to 10/1/08 using search criterion "environmental air sample": CR116348 K-7 air sampler found not running. CR325344 K-41 (EOF) Air Sampling System suspected leaking quick disconne[more diffs...]'
Last Modified Date Changed From 10/27/2011 8:33:28 To 10/27/2011 8:56:10

10/28/2011 12:04:18 by OWENS, CYRENA JEAN
CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 10/27/2011 8:56:10 To 10/28/2011 12:04:18
Last Modifier Changed From ADAMS, RICHARD W To OWENS, CYRENA JEAN

10/28/2011 12:04:23 by OWENS, CYRENA JEAN
Secondary Owner Changed From BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, EVERITT, CHAD A, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GRAU, JOHN R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WINKS III, GEORGE F, YEARGIN, BARRY K To AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GRAU, JOHN R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 10/28/2011 12:04:18 To 10/28/2011 12:04:23
Last State Change Date Changed From 10/26/2011 16:11:15 To 10/28/2011 12:04:23
Last State Changer Changed From TREPTOW, ETHAN A To OWENS, CYRENA JEAN
State Changed From CRT Review To Trend Review Via Transition: Complete

11/3/2011 14:01:42 by FICTUM, HOLLY C
CR Completed Date Changed From Unassigned To 11/3/2011 15:01:42
RM Attachment Links Changed From " To '<table width=100% border=1 cellspacing=2 cellpadding=2></table>'
Owner Changed From FICTUM, HOLLY C To (None)

Secondary Owner Changed From AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R,

(13)

CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GRAU, JOHN R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WINKS III, GEORGE F, YEARGIN, BARRY K To KASSNER, KIM M, KRCMA, MELISSA MARIE, LACROSSE, TARA LYNN, LEANNA, LORI L, MIJAL, SHELLEY A, OTTO, KATHLEEN A., RECORDS MGMT, SCHULTZ, SANDRA J, SMIDEL, SARAH A., STAFFORD, JEFFREY T, STEWART, DIANNE J, Teamtrackuser, WILSON, MICHAEL J, ZICH, CHRISTY L
Last Modified Date Changed From 10/28/2011 12:04:23 To 11/3/2011 14:01:42
Last Modifier Changed From OWENS, CYRENA JEAN To FICTUM, HOLLY C
Close Date Changed From Unassigned To 11/3/2011 14:01:42
Last State Change Date Changed From 10/28/2011 12:04:23 To 11/3/2011 14:01:42
Last State Changer Changed From OWENS, CYRENA JEAN To FICTUM, HOLLY C
Active/Inactive Changed From Active To Inactive
State Changed From Trend Review To All Assignments Complete Via Transition: Trend Review Complete

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State Change History

Submit	Draft	Submit	Supervisor Review	O/R Review	O/R Review	Complete	CRT Review
by MALY, AZIZ A	5/11/2011 9:55:18 Owner : MALY, AZIZ A	by MALY, AZIZ A	5/11/2011 10:12:12 Owner : OLSON, CHERYL L	by AUTO ESCALATE	5/11/2011 16:20:17 Owner : FICTUM, HOLLY C	by TREPTOW, ETHAN A	5/11/2011 17:51:47 Owner : FICTUM, HOLLY C

CA	CRT Assignment Creation	Complete	Assignments Pending
by OWENS, CYRENA JEAN	5/13/2011 9:36:29 Owner : FICTUM, HOLLY C	by OWENS, CYRENA JEAN	5/13/2011 9:37:08 Owner : FICTUM, HOLLY C

Section 1

Applicable to site: KEWA

Record #: CR426732

Revision Number: 0

Submitter: MALY, AZIZ A

Submitter Dept.: KEWA - Rad Protection

Submitter Phone Number: 8731

Submitter Pager Number: 7741

One-Line Description: Environmental Samples showing higher Iodine Activity than normal

Description: No impact to the public health or safety. Not Reportable

The Vender has reported that the Iodine activities in the Environmental samples collected as part of REMM program for the March 21 to April 5, 2011,were .

Location	Vol.	I-131 (pCi/m3)
K-1	576	0.089 ± 0.017
K-2	600	0.099 ± 0.018
K-8	588	0.113 ± 0.019
K-31	580	0.153 ± 0.019
K-41	582	0.128 ± 0.020
K-43	649	0.110 ± 0.015

Samples taken April 5 through April 19, 2011showed less than detectable activity as follows

K-1	536	< 0.016
K-2	583	< 0.016
K-8	546	< 0.020
K-31	532	< 0.025
K-41	532	< 0.019
K-43	595	< 0.017

These results shows that the activity is almost the same in locations around the plant and areas further away in Green Bay and Kewaunee.

Slight positive iodine activity was detected at several locations for the April 5, 2011, Milk collection.

Loc.	Lab Code	I-131 (pCi/L)
K-3	KMI-1579	0.38 ± 0.12
K-5	KMI-1580	< 0.40
K-34	KMI-1581	0.28 ± 0.11
K-35	KMI-1582	< 0.32
K-38	KMI-1583	< 0.35
K-39	KMI-1584	0.80 ± 0.13
K-42	KMI-1585	< 0.16

	Most of the iodine activity in milk that we observed occurred if the cows were on pasture. This indicates that the Iodine activity is from a source other than the operation of Kewaunee Power Station . This CR only document results. No condition adverse to quality was discovered. Close to follow on CA to track this and other issues to be included in the 2011 Annual Environmental Report .
Discovery Date:	5/11/2011
Discovery Time:	9:30:00
Method of Discovery:	SEFI (Self Identified)
Literal 1:	**If this CR is associated with the BACC Program, please ensure that the CR Description contains sufficient information to ensure the ability to quickly locate the component, which will ensure ALARA.**
Associated with Boric Acid?:	No
Applicable to unit:	None
Associated w/ Equipment Location?:	No
System(s):	N/A
Equipment Location Display:	**Equipment Location - Critical Component - PRA Flag - Quality Classification - Component Description**
Equipment Location Links:	
Initial Actions:	CR
Additional C/A processes req'd?:	N/A
Text Question 1:	**Provide details for any Additional C/A processes needed:**
Text Answer 1:	
C/As Initiated (REA, WR, ETC):	
Tag Hung:	(None)
Tag Number:	
Additional Contacts:	
Supervisor - CR Review:	OLSON, CHERYL L
Question G:	**Is this CR an Operability/Reportability Issue Requiring O/R Review?**
Yes/No G:	Yes
Question H:	**Does this CR affect personnel safety?**
Yes/No H:	No
Question I:	**Does this CR affect plant safety?**
Yes/No I:	No
Question J:	**Does this CR involve plant equipment?**
Yes/No J:	No
Question K:	**Is this CR an environmental concern?**
Yes/No K:	No
Literal 2:	**Unit Conditions:**
Unit 1% Pwr:	100
Unit 2% Pwr:	NA
Unit 3% Pwr:	NA
Unit 1 Mode:	1 - OPERATING

Unit 2 Mode:	NA
Unit 3 Mode:	NA
OP-AA-102 Review Req'd?:	No
Is a TS SSC Affected?:	No
TS SSC Operability Assessment:	N/A
Text Question 2:	Basis for operability:
Text Answer 2:	N/A
Question L:	Is an Operability Assessment req'd for an SSC, which is Functional for its TRM function, to demonstrate operability for its TS function?
Yes / No L:	No
Literal 4:	The basis for establishing IOD can be documented in the "Basis for Operability" field. An IOD assignment does not necessarily need to be created.
Is an IOD Assignment Required?:	No
LCO entered:	No
Applicable LCO:	
Non-TS SSC Functionality Assessment.:	N/A
Literal 5:	NOTE: If a RAS is to be assigned to determine the answer to the next question, select "TBD" (to be determined) for the answer to the next question.
Does it impact a TS SSC?:	N/A
Literal 6:	The basis for establishing Non-TS SSC Functionality may be documented in the "Basis for Operability" field. A RAS assignment does not necessarily need to be created in these instances.
Is a RAS Assignment Needed?:	No
Literal 7:	If this Condition Report is addressing an SSC, document the qualification status of the SSC in the following field. Otherwise select N/A. NOTE: An SSC can be Operable or Functional and still not be Fully Qualified.
SSC Qualification Status:	N/A
Reportable condition?:	No
Text Question 3:	Reportability Comments:
Text Answer 3:	
Can IOD be established?:	(None)
Literal 3:	If this CR is associated with any system leakage, provide answers to the following:
Leak Classification:	(None)
Leakage Severity:	(None)
O/R Comments:	
Significance:	4
Deficiency Type:	Non-Equipment
Potential Repeat:	No
Previous Issues (PIs, CRs):	No history search required for Sig 4 items.
CR FLAGS:	Self-Revealing Event
CRT Report Section(s):	2
Screening Date:	
License Renewal Flags:	(None)

Affected Department: (None)

CRT Comments: CA to RP to document these findings in the 2011 Annual Environmental Monitoring Report.

Comments:

Old Record #:

Section 2

Trend Review Complete?:	No		
Process Code:	(None)	**Activity Codes:**	(None)
Human Error Types:	(None)	**Process Related Failure:**	(None)
Org. & Mgmt Failure mode:	(None)	**HU Failure modes:**	(None)
Equipment Failure Modes:	(None)	**Primary INPO criteria:**	(None)
Secondary INPO criteria:	(None)	**Operations Hot Buttons:**	(None)
Engineering Hot Buttons:	(None)	**Maintenance Hot Buttons:**	(None)
RP Hot Buttons:	Environmental Monitoring (REMP)	**Chemistry Hot Buttons:**	(None)
EP Hot Buttons:	(None)	**Training Hot Buttons:**	(None)
Security Hot Buttons:	(None)	**OR Hot Buttons:**	(None)
O&P Hot Buttons:	(None)	**NSS Hot Buttons:**	(None)
Supply Chain Hot Buttons:	(None)	**Procedures Hot Buttons:**	(None)
Reactivity Mgmt Hot Buttons:	(None)	**Other Hot Buttons:**	(None)

Section 3

Work Order Number(s):

Status Description:

Status Date:

Actual Finish Date:

Work Performed Description:

Section 5

CR Completed Date: **CR Printed Date:**

CR Validated Date: **CR Who Validated:** (None)

RM Attachment Links:

Subtasks

Show Subtasks

Expand All

Attachments

Principal to: CA201084: KEWA - Document these findings in the 2011 Annual Environmental Monitoring Report. by **OWENS, CYRENA JEAN** (5/13/2011 9:36:50)

Change History

5/11/2011 10:02:18 by MALY, AZIZ A

Description Changed From '[...]These results shows that the activity is higher in both Control and Indicator Samples (Background) and its almost the same in locations around the plant and farther areas in green bay and Kewaunee. this indicate that the Iodine activity could [more diffs...]' To '[...]the later samples (April 5 through April 19, 2011)showed no activity as follows K-1 536 < 0.016 K-2 583 [more diffs...]'

Last Modified Date Changed From 5/11/2011 9:55:18 To 5/11/2011 10:02:18

5/11/2011 10:10:33 by MALY, AZIZ A

Description Changed From '[...]the later samples (April 5 through April 19, 2011)showed no activity as follows K-1 536 < 0.016 K-2 583 [more diffs...]' To '[...] Samples taken April 5 through April 19, 2011showed less than detectable activity as follows K-1 536 < 0.016 K-2

583 [more diffs...]'
Last Modified Date Changed From 5/11/2011 10:02:18 To 5/11/2011 10:10:33

5/11/2011 10:11:07 by MALY, AZIZ A
Description Changed From '[...]ts shows that the activity is almost the same in locations around the plant and farther areas in green bay and Kewaunee. this indicate that the Iodine activity could be from a source other than the operation of Kewaunee Power Station . This CR [...]' To '[...]ts shows that the activity is almost the same in locations around the plant and farther areas in green bay and Kewaunee. This indicate that the Iodine activity could be from a source other than the operation of Kewaunee Power Station . This C[...]'
Last Modified Date Changed From 5/11/2011 10:10:33 To 5/11/2011 10:11:07

5/11/2011 10:12:12 by MALY, AZIZ A
Method of Discovery Changed From (None) To SEFI (Self Identified)
Associated w/ Equipment Location? Changed From (None) To No
System(s) Changed From (None) To N/A
Initial Actions Changed From '' To 'CR'
Additional C/A processes req'd? Changed From (None) To N/A
Owner Changed From MALY, AZIZ A To OLSON, CHERYL L
Secondary Owner Changed From OLSON, CHERYL L To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R
Last Modified Date Changed From 5/11/2011 10:11:07 To 5/11/2011 10:12:12
Last State Change Date Changed From 5/11/2011 9:55:18 To 5/11/2011 10:12:12
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR426732: KEWA - Environmental Samples showing higher Iodine Activity than normal

5/11/2011 10:46:17 by OLSON, CHERYL L
Description Changed From '[...]The Vender has reported that the Iodine activities in the Environmental samples collected as part of REMM program for the March 21 to April 5, 2011,were . Location Vol. [more diffs...]' To '[...]No impact to the public health or safety. Not Reportable The Vender has reported that the Iodine activities in the Environmental samples collected as part of REMM program for the March 21 to April 5, 2011,were . Location [more diffs...]'
Yes/No H Changed From Yes To No
Yes/No I Changed From Yes To No
Yes/No J Changed From Yes To No
Yes/No K Changed From Yes To No
Last Modified Date Changed From 5/11/2011 10:12:12 To 5/11/2011 10:46:17
Last Modifier Changed From MALY, AZIZ A To OLSON, CHERYL L

5/11/2011 12:30:51 by ADAMS, RICHARD W
Description Changed From '[...]This indicates that the Iodine activity is from a source other than the operation of Kewaunee Power Station . This CR is document results. Close to follow on CA to track this and other issues to be included in the 2011 Annual Environmental [...]' To '[...] Slight positive iodine activity was detected at several locations for the April 5, 2011, Milk collection. [more diffs...]'
Last Modified Date Changed From 5/11/2011 10:46:17 To 5/11/2011 12:30:51
Last Modifier Changed From OLSON, CHERYL L To ADAMS, RICHARD W

5/11/2011 12:31:47 by ADAMS, RICHARD W
Description Changed From '[...] Loc. Lab Code [more diffs...]' To '[...]Loc. Lab Code I-131 (pCi/L) K-3 KMI-1579 0.38 ± 0.12 K-5 [more diffs...]'
Last Modified Date Changed From 5/11/2011 12:30:51 To 5/11/2011 12:31:47

5/11/2011 16:20:17 by AUTO ESCALATE
Owner Changed From OLSON, CHERYL L To FICTUM, HOLLY C

Secondary Owner Changed From AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R To ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F,

YEARGIN, BARRY K
Last Modified Date Changed From 5/11/2011 12:31:47 To 5/11/2011 16:20:17
Last Modifier Changed From ADAMS, RICHARD W To AUTO ESCALATE
Last State Change Date Changed From 5/11/2011 10:12:12 To 5/11/2011 16:20:17
Last State Changer Changed From MALY, AZIZ A To AUTO ESCALATE
State Changed From Supervisor Review To O/R Review Via Transition: O/R Review
NewCR Changed From Yes To No

5/11/2011 16:50:29 by AHRENS, GARY M
Unit 1% Pwr Changed From " To '100'
Unit 1 Mode Changed From (None) To 1 - OPERATING
OP-AA-102 Review Req'd? Changed From (None) To No
Is a TS SSC Affected? Changed From (None) To No
TS SSC Operability Assessment Changed From (None) To N/A
Text Answer 2 Changed From " To 'N/A'
Yes / No L Changed From (None) To No
Is an IOD Assignment Required? Changed From (None) To No
LCO entered Changed From (None) To No
Non-TS SSC Functionality Assessment. Changed From (None) To N/A
Does it impact a TS SSC? Changed From (None) To N/A
Is a RAS Assignment Needed? Changed From (None) To No
SSC Qualification Status Changed From (None) To N/A
Reportable condition? Changed From (None) To No
Last Modified Date Changed From 5/11/2011 16:20:17 To 5/11/2011 16:50:29
Last Modifier Changed From AUTO ESCALATE To AHRENS, GARY M

5/11/2011 17:51:47 by TREPTOW, ETHAN A
Last Modified Date Changed From 5/11/2011 16:50:29 To 5/11/2011 17:51:47
Last Modifier Changed From AHRENS, GARY M To TREPTOW, ETHAN A
Last State Change Date Changed From 5/11/2011 16:20:17 To 5/11/2011 17:51:47
Last State Changer Changed From AUTO ESCALATE To TREPTOW, ETHAN A
State Changed From O/R Review To CRT Review Via Transition: Complete

5/12/2011 8:10:16 by ADAMS, RICHARD W
Significance Changed From (None) To 4
Deficiency Type Changed From (None) To Non-Equipment
Potential Repeat Changed From (None) To No
Previous Issues (PIs, CRs) Changed From " To 'No history search required for Sig 4 items.'
CR FLAGS Changed From (None) To Self-Revealing Event
CRT Report Section(s) Changed From (None) To 1
CRT Comments Changed From " To 'CA to RP to document these findings in the 2011 Annual Environmental Monitoring Report.'
Last Modified Date Changed From 5/11/2011 17:51:47 To 5/12/2011 8:10:16
Last Modifier Changed From TREPTOW, ETHAN A To ADAMS, RICHARD W

5/12/2011 8:10:30 by ADAMS, RICHARD W
RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)
Last Modified Date Changed From 5/12/2011 8:10:16 To 5/12/2011 8:10:30

5/13/2011 9:36:18 by OWENS, CYRENA JEAN
CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 5/12/2011 8:10:30 To 5/13/2011 9:36:18
Last Modifier Changed From ADAMS, RICHARD W To OWENS, CYRENA JEAN

5/13/2011 9:36:29 by OWENS, CYRENA JEAN
Last Modified Date Changed From 5/13/2011 9:36:18 To 5/13/2011 9:36:29
Last State Change Date Changed From 5/11/2011 17:51:47 To 5/13/2011 9:36:29
Last State Changer Changed From TREPTOW, ETHAN A To OWENS, CYRENA JEAN
State Changed From CRT Review To CRT Assignment Creation Via Transition: CA

5/13/2011 9:36:50 by OWENS, CYRENA JEAN
Last Modified Date Changed From 5/13/2011 9:36:29 To 5/13/2011 9:36:50
Attachment Added: CA201084: (None) - Document these findings in the 2011 Annual Environmental Monitoring Report.

5/13/2011 9:37:08 by OWENS, CYRENA JEAN

Secondary Owner Changed From ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K To AHRENS, GARY M, ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL,

HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 5/13/2011 9:36:50 To 5/13/2011 9:37:08
Last State Change Date Changed From 5/13/2011 9:36:29 To 5/13/2011 9:37:08
State Changed From CRT Assignment Creation To Assignments Pending Via Transition: Complete

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State Change History

Submit	Draft	Submit	Supervisor Review	Complete	O/R Review	Complete	CRT Review
by MALY, AZIZ A	6/8/2011 7:41:24 Owner : MALY, AZIZ A	by MALY, AZIZ A	6/8/2011 8:44:29 Owner : OLSON, CHERYL L	by OLSON, CHERYL L	6/8/2011 9:00:47 Owner : FICTUM, HOLLY C	by NEUSER, CRAIG J	6/8/2011 10:19:10 Owner : FICTUM, HOLLY C

Complete	Trend Review	Trend Review Complete	All Assignments Complete
by FICTUM, HOLLY C	6/10/2011 10:22:45 Owner : FICTUM, HOLLY C	by FICTUM, HOLLY C	6/16/2011 13:11:38 Owner : (None)

Section 1

Applicable to site:	KEWA
Record #:	CR430148
Revision Number:	0
Submitter:	MALY, AZIZ A
Submitter Dept.:	KEWA - Rad Protection
Submitter Phone Number:	8731
Submitter Pager Number:	7741
One-Line Description:	Positive Iodine concentration in Milk sample
Description:	*No reportability or public health and safety Issue.* April Environmental Monitoring Report shows 0.8 pCi/L Iodine result from a Milk sample taken on 4/4/2011 from a location at 3.5 Miles North of the plant. Other six sampling locations did not show any positive result for radioiodine. The reporting level for Radioiodine in Milk is 3 pCi/L and the LLD is 1 pCi/L. It is believed that the Iodine source is not from plant operation. Any plant release would show at the highest D/Q west sector as predicted by dispersion model for KPS. Annual Environmental Monitoring Report should include this results and discussion about the potential sources.
Discovery Date:	6/8/2011
Discovery Time:	7:00:00
Method of Discovery:	TEST (Surveillance / Performance Test)
Literal 1:	**If this CR is associated with the BACC Program, please ensure that the CR Description contains sufficient information to ensure the ability to quickly locate the component, which will ensure ALARA.**
Associated with Boric Acid?:	No
Applicable to unit:	None
Associated w/ Equipment Location?:	No
System(s):	N/A
Equipment Location Display:	**Equipment Location - Critical Component - PRA Flag - Quality Classification - Component Description**
Equipment Location Links:	
Initial Actions:	Write CR
Additional C/A processes req'd?:	N/A
Text Question 1:	**Provide details for any Additional C/A processes needed:**
Text Answer 1:	

(24)

C/As Initiated (REA, WR, ETC):	
Tag Hung:	(None)
Tag Number:	
Additional Contacts:	
Supervisor - CR Review:	OLSON, CHERYL L
Question G:	**Is this CR an Operability/Reportability Issue Requiring O/R Review?**
Yes/No G:	Yes
Question H:	**Does this CR affect personnel safety?**
Yes/No H:	No
Question I:	**Does this CR affect plant safety?**
Yes/No I:	No
Question J:	**Does this CR involve plant equipment?**
Yes/No J:	No
Question K:	**Is this CR an environmental concern?**
Yes/No K:	No
Literal 2:	**Unit Conditions:**
Unit 1% Pwr:	100
Unit 2% Pwr:	NA
Unit 3% Pwr:	NA
Unit 1 Mode:	1 - OPERATING
Unit 2 Mode:	NA
Unit 3 Mode:	NA
OP-AA-102 Review Req'd?:	No
Is a TS SSC Affected?:	No
TS SSC Operability Assessment:	N/A
Text Question 2:	**Basis for operability:**
Text Answer 2:	N/A
Question L:	**Is an Operability Assessment req'd for an SSC, which is Functional for its TRM function, to demonstrate operability for its TS function?**
Yes / No L:	No
Literal 4:	**The basis for establishing IOD can be documented in the "Basis for Operability" field. An IOD assignment does not necessarily need to be created.**
Is an IOD Assignment Required?:	No
LCO entered:	No
Applicable LCO:	N/A
Non-TS SSC Functionality Assessment.:	N/A
Literal 5:	**NOTE: If a RAS is to be assigned to determine the answer to the next question, select "TBD" (to be determined) for the answer to the next question.**
Does it impact a TS SSC?:	N/A
Literal 6:	**The basis for establishing Non-TS SSC Functionality may be documented in the "Basis for Operability" field. A RAS assignment does not necessarily need to be created in these instances.**
Is a RAS Assignment Needed?:	No
Literal 7:	**If this Condition Report is addressing an SSC, document the**

qualification status of the SSC in the following field. Otherwise select N/A. NOTE: An SSC can be Operable or Functional and still not be Fully Qualified.

SSC Qualification Status:	N/A
Reportable condition?:	No
Text Question 3:	Reportability Comments:
Text Answer 3:	N/A
Can IOD be established?:	(None)
Literal 3:	If this CR is associated with any system leakage, provide answers to the following:
Leak Classification:	(None)
Leakage Severity:	(None)
O/R Comments:	
Significance:	4
Deficiency Type:	Non-Equipment
Potential Repeat:	No
Previous Issues (PIs, CRs):	No history search required for Sig 4 items.
CR FLAGS:	zz - reviewed / none selected
CRT Report Section(s):	2
Screening Date:	
License Renewal Flags:	(None)
Affected Department:	(None)
CRT Comments:	A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Environmental Monitoring Report are included) to ensure this situation was included and discussed/resolved as necessary in the 2011 report. Close to issue being added to that CA.
Comments:	
Old Record #:	

Section 2

Trend Review Complete?:	No		
Process Code:	(None)	Activity Codes:	(None)
Human Error Types:	(None)	Process Related Failure:	(None)
Org. & Mgmt Failure mode:	(None)	HU Failure modes:	(None)
Equipment Failure Modes:	(None)	Primary INPO criteria:	(None)
Secondary INPO criteria:	(None)	Operations Hot Buttons:	(None)
Engineering Hot Buttons:	(None)	Maintenance Hot Buttons:	(None)
RP Hot Buttons:	(None)	Chemistry Hot Buttons:	(None)
EP Hot Buttons:	(None)	Training Hot Buttons:	(None)
Security Hot Buttons:	(None)	OR Hot Buttons:	(None)
O&P Hot Buttons:	(None)	NSS Hot Buttons:	(None)
Supply Chain Hot Buttons:	(None)	Procedures Hot Buttons:	(None)
Reactivity Mgmt Hot Buttons:	(None)	Other Hot Buttons:	(None)

Section 3

Work Order Number(s):	
Status Description:	

(26)

Status Date:

Actual Finish Date:

Work Performed Description:

Section 5

CR Completed Date: 6/16/2011 14:11:38 **CR Printed Date:**

CR Validated Date: **CR Who Validated:** (None)

RM Attachment Links:

Change History

6/8/2011 7:42:45 by MALY, AZIZ A
Description Changed From 'April Environmental Monitoring Report shows 0.8 pCi/L Iodine result from a Milk sample taken a location at 3.5 Miles North of the plant. Other six sampling locations did not show any positive result for radioiodine. The reporting level for Radioiodin[...]' To 'April Environmental Monitoring Report shows 0.8 pCi/L Iodine result from a Milk sample taken on 4/4/2011 from a location at 3.5 Miles North of the plant. Other six sampling locations did not show any positive result for radioiodine. The reporting lev[...]'
Last Modified Date Changed From 6/8/2011 7:41:24 To 6/8/2011 7:42:45

6/8/2011 8:44:23 by MALY, AZIZ A
Description Changed From '[...]April Environmental Monitoring Report shows 0.8 pCi/L Iodine result from a Milk sample taken on 4/4/2011 from a location at 3.5 Miles North of the plant. Other six sampling locations did not show any positive result for radioiodine. The reportin [more diffs...]' To '[...]No reportability or public health and safety Issue. April Environmental Monitoring Report shows 0.8 pCi/L Iodine result from a Milk sample taken on 4/4/2011 from a location at 3.5 Miles North of the plant. Other six sampling locations did not [more diffs...]'
Last Modified Date Changed From 6/8/2011 7:42:45 To 6/8/2011 8:44:23

6/8/2011 8:44:29 by MALY, AZIZ A
Owner Changed From MALY, AZIZ A To OLSON, CHERYL L
Secondary Owner Changed From OLSON, CHERYL L To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R
Last Modified Date Changed From 6/8/2011 8:44:23 To 6/8/2011 8:44:29
Last State Change Date Changed From 6/8/2011 7:41:24 To 6/8/2011 8:44:29
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR430148: KEWA - Positive Iodine concentration in Milk sample (Inactive)

6/8/2011 9:00:47 by OLSON, CHERYL L
Yes/No H Changed From Yes To No
Yes/No I Changed From Yes To No
Yes/No J Changed From Yes To No
Yes/No K Changed From Yes To No
Owner Changed From OLSON, CHERYL L To FICTUM, HOLLY C
Secondary Owner Changed From AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MATHEWS, BRIAN M, MCMAHON, BRADLY J, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNER, THOMAS R, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIMMONS JR, ROY L, SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VOMASTEK, ANDREW J, WALLEN, CLIFFORD S, WILSON, MICHAEL J, YEARGIN, BARRY K, ZEPNICK, BRIAN THOMAS, ZUERCHER, RICHARD R To ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 6/8/2011 8:44:29 To 6/8/2011 9:00:47
Last Modifier Changed From MALY, AZIZ A To OLSON, CHERYL L
Last State Change Date Changed From 6/8/2011 8:44:29 To 6/8/2011 9:00:47

Last State Changer Changed From MALY, AZIZ A To OLSON, CHERYL L
State Changed From Supervisor Review To O/R Review Via Transition: Complete
NewCR Changed From Yes To No

6/8/2011 10:19:10 by NEUSER, CRAIG J
Unit 1% Pwr Changed From " To '100'
Unit 1 Mode Changed From (None) To 1 - OPERATING
OP-AA-102 Review Req'd? Changed From (None) To No
Is a TS SSC Affected? Changed From (None) To No
TS SSC Operability Assessment Changed From (None) To N/A
Text Answer 2 Changed From " To 'N/A'
Yes / No L Changed From (None) To No
Is an IOD Assignment Required? Changed From (None) To No
LCO entered Changed From (None) To No
Applicable LCO Changed From " To 'N/A'
Non-TS SSC Functionality Assessment. Changed From (None) To N/A
Does it impact a TS SSC? Changed From (None) To N/A
Is a RAS Assignment Needed? Changed From (None) To No
SSC Qualification Status Changed From (None) To N/A
Reportable condition? Changed From (None) To No
Text Answer 3 Changed From " To 'N/A'
Last Modified Date Changed From 6/8/2011 9:00:47 To 6/8/2011 10:19:10
Last Modifier Changed From OLSON, CHERYL L To NEUSER, CRAIG J
Last State Change Date Changed From 6/8/2011 9:00:47 To 6/8/2011 10:19:10
Last State Changer Changed From OLSON, CHERYL L To NEUSER, CRAIG J
State Changed From O/R Review To CRT Review Via Transition: Complete

6/9/2011 10:27:56 by ADAMS, RICHARD W
Significance Changed From (None) To 4
Deficiency Type Changed From (None) To Non-Equipment
Potential Repeat Changed From (None) To No
Previous Issues (PIs, CRs) Changed From " To 'No history search required for Sig 4 items.'
CR FLAGS Changed From (None) To zz - reviewed / none selected
CRT Report Section(s) Changed From (None) To 1
CRT Comments Changed From " To '[Appended:]A note was added to CA 201084 (established to keep all items that need to be included in the 2011 Annual Environmental Monitoring Report are included) to ensure this situation was included and discussed/resolved as necessary in the 2011 report. [...]'
Last Modified Date Changed From 6/8/2011 10:19:10 To 6/9/2011 10:27:56
Last Modifier Changed From NEUSER, CRAIG J To ADAMS, RICHARD W

6/10/2011 10:22:41 by FICTUM, HOLLY C
CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 6/9/2011 10:27:56 To 6/10/2011 10:22:41
Last Modifier Changed From ADAMS, RICHARD W To FICTUM, HOLLY C

6/10/2011 10:22:45 by FICTUM, HOLLY C
Secondary Owner Changed From ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, BUSH, CHRISTOPHER S, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K To AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K
Last Modified Date Changed From 6/10/2011 10:22:41 To 6/10/2011 10:22:45
Last State Change Date Changed From 6/8/2011 10:19:10 To 6/10/2011 10:22:45
Last State Changer Changed From NEUSER, CRAIG J To FICTUM, HOLLY C
State Changed From CRT Review To Trend Review Via Transition: Complete

6/16/2011 13:11:38 by FICTUM, HOLLY C
CR Completed Date Changed From Unassigned To 6/16/2011 14:11:38
RM Attachment Links Changed From " To '<table width=100% border=1 cellspacing=2 cellpadding=2></table>'
Owner Changed From FICTUM, HOLLY C To (None)

Secondary Owner Changed From AHRENS, GARY M, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, ERICSON, JANICE L, EVANS, WENDY L, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, GWYNN, GLENN ROXY, HALE, JAMES M.,

HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, MATHEWS, BRIAN M, MCMAHON, DARRYL D, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL L, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K To KASSNER, KIM M, LACROSSE, TARA LYNN, LEANNA, LORI L, MIJAL, SHELLEY A, OTTO, KATHLEEN A., RECORDS MGMT, SCHULTZ, SANDRA J, SMIDEL, SARAH A., Teamtrackuser, WHITE, DARYN A, WILSON, MICHAEL J, ZICH, CHRISTY L
Last Modified Date Changed From 6/10/2011 10:22:45 To 6/16/2011 13:11:38
Close Date Changed From Unassigned To 6/16/2011 13:11:38
Last State Change Date Changed From 6/10/2011 10:22:45 To 6/16/2011 13:11:38
Active/Inactive Changed From Active To Inactive
State Changed From Trend Review To All Assignments Complete Via Transition: Trend Review Complete