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DOMINION ENERGY KEWAUNEE, INC.
KEWAUNEE POWER STATION
2010 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Enclosed is the 2010 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 2010 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 handwritten signature in black ink, appearing to read "m. wilson".

Michael J. Wilson
Director Safety and Licensing

Commitments made by this letter: NONE

JEDS
NRR

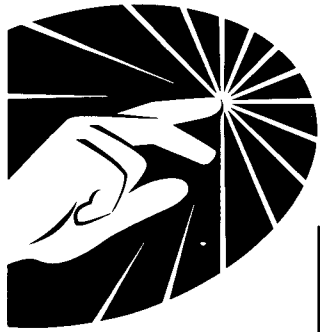
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**2010
Annual
Environmental
Monitoring
Report**
Kewaunee Power Station

Dominion Energy Kewaunee, Inc.



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**2010
Annual
Environmental
Monitoring
Report**

Kewaunee Power Station

Part I

Summary and

Interpretation

Dominion Energy Kewaunee, Inc.



REPORT TO
DOMINION NUCLEAR

RADIOLOGICAL MONITORING PROGRAM FOR
THE KEWAUNEE POWER STATION
KEWAUNEE, WISCONSIN

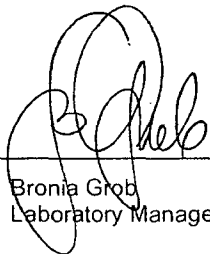
ANNUAL REPORT - PART I
SUMMARY AND INTERPRETATION

January 1 to December 31, 2010

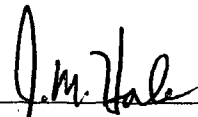
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PREFACE

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 2010.

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 2010 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.

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 indicates which are indicators and which are 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 a 47 mm diameter, 1 μ m porosity glass fiber filter, 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 filters are located at locations K-1f, K-2, K-8, K-31, K-41 and K-43. The filters are changed bi-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 CaSO₄: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 samples are obtained annually (third quarter) at locations K-24, K-29 and K-32 and if available at locations K-27 and K-34. 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, K-27 (if available) and K-32. Samples are analyzed for gross beta, strontium-89, strontium-90 and gamma-emitting isotopes.

Vegetables

Vegetable samples (6 varieties) are collected at locations K-17 (if available) and K-26, and two varieties of grain, if available, from location K-23. 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 meet. 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.

Algae

Algae 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 2010 as described in the preceding sections, with the following exceptions:

Air Particulates / Air Iodine

- (1) The run-time meter at air sampling location K-7 was inoperative for part of the week ending February 16, 2010. The meter recorded only 128.5 hours. (CR369046)
- (2) K-8 air sampler hours were off by 3.73 hours due to a possible power outage. No problems were found with the sampler. (CR370747)
- (3) A partial airborne particulate / airborne iodine sample was collected from location K-31 for the week ending March 30, 2010. The sampler recorded only 22 hours of run-time. (CR374322)
- (4) Six new environmental Air Sampling systems were installed in August, 2010 to replace older equipment at locations K-1f, K-2, K-7, K-8, K-31 and K-41. Condition reports have since been written for observed discrepancies in flow rates for the week ending 09/21/10 at K-2 and K-41 (CR395885, CR395889), the week ending 12/07/10 at K-1 and K-2 (CR406655), and K-41 for the week ending 12/28/10 (CR408777).

Surface Water

- (5) Surface water from location K-1a could not be sampled in March of 2010. The creek was frozen.
- (6) Surface water from location K-1k could not be sampled in January, February or March of 2010. The pond was frozen.

3.1.5 Program Modifications

Rev. 16, 04/13/2010, of the Radiological Environmental Monitoring Manual (REMM) addressed changes to one control milk location. Hansen's Dairy K-28) went out of business in March, 2010 and was replaced by Lamar's Dairy Products (K-42). A copy of the REMM is included as Appendix D.

Six new environmental Air Sampling systems were acquired in August, 2010, to replace the older equipment in use at locations K-1f, K-2, K-7, K-8, K-31 and K-41. The installations included new weather houses for all six units and one Remote Telemetry System for installation at K-7.

In August, 2010 the sampling site, K-07, (airborne particulates, air iodine, TLDs) was moved approximately 0.2 miles SSW. The new location was renamed K-43. CR 400075 was written to address the changes, while the REMM was in the revision process.

3.2 Results and Discussion

The results for the reporting period January to December 2010 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.

The tabulated results of all measurements made in 2010 are not included in this section, although references to these results will be made in the discussion. A complete tabulation of results is contained in Part II of the 2010 annual report on the Radiological Monitoring Program for the Kewaunee Power Station.

3.2.1 Atmospheric Nuclear Detonations and Nuclear Accidents

There were no atmospheric nuclear tests or accidents reported in 2010. The last reported test was conducted by the People's Republic of China on October 16, 1980.

3.2.2 The Air Environment

Airborne Particulates

The annual gross beta concentration in air particulates averaged 0.023 pCi/m³ at the indicator locations and 0.022 pCi/m³ for control locations. These averages were similar to the means observed from 1999 (and prior to) through 2009. Results are tabulated below.

| Year | Average of Indicators | Average of Controls |
|-------------------------------------|-----------------------|---------------------|
| Concentration (pCi/m ³) | | |
| 1999 | 0.022 | 0.023 |
| 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 |

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, which is produced continuously in the upper atmosphere by cosmic radiation (Arnold and Al-Salih, 1955) was detected in all samples, with an average activity of 0.071 pCi/m³ for all locations. All other gamma-emitting isotopes were below their respective LLD limits.

Airborne Iodine

Bi-monthly levels of airborne iodine-131 were below the lower limit of detection (LLD) of 0.030 pCi/m³ at all locations. There is no indication of an effect of plant operation on the local air environment.

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 (15.2 mR/91 days), in close agreement with the mean at the control locations (14.3 mR/91 days). The readings are similar to the averages obtained from 1999 (and prior to) through 2009. The averages are tabulated below.

For the eight TLDs monitoring the Independent Spent Fuel Storage Installation, (K-1L through K-1S), measurements averaged 14.1 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 17.7 mR/91 days, measured at indicator location K-5.

| Year | Average (Indicators) | Average (Controls) |
|------------------------|----------------------|--------------------|
| Dose rate (mR/91 days) | | |
| 1999 | 17.4 | 16.9 |
| 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 |

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 1 mile north of the plant. The tritium concentration measured below the LLD level of 164 pCi/L for all samples.

3.2.3 The Terrestrial Environment

Milk

Of 126 analyses for iodine-131 in milk, all were below the LLD level of 0.5 pCi/L.

Strontium-89 concentrations measured below an LLD level of 1.3 pCi/L in all samples. Low levels of strontium-90 were found in fifty-eight of the eighty-four samples tested. Mean values were identical for indicator and control locations (0.9 pCi/L) and are similar to or less than averages seen from 1990 through 2009.

Barium-lanthanum-140 concentrations were below 15 pCi/L and cesium-134 and cesium-137 concentrations were below 10 pCi/L in all samples. Potassium-40 results were almost identical at both the indicator and control locations (1382 and 1370 pCi/L, respectively), and are comparable to levels observed from 1990 through 2009. There was no indication of any effect due to the operation of the Kewaunee Power Station.

Due to the 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 were 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).

Well Water

Two of eight samples for gross alpha analysis, from the two on-site wells (K-1g and K-1h), tested above an LLD value of 2.4 pCi/L. Measurements ranged from 3.3 to 3.7 pCi/L. Gross beta activity, above 1.7 pCi/L was detected in eleven of twenty indicator samples tested. Concentrations ranged from 1.7 to 7.2 pCi/L and averaged 3.3 pCi/L. No gross beta activity was detected in the four control samples above the LLD concentration of 1.7 pCi/L.

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 190 pCi/L. Gamma-emitting isotopes measured below respective LLDs.

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

Domestic Meat

In domestic meat samples, gross alpha concentrations averaged 0.082 pCi/g wet for all locations. Gross beta concentration averaged 2.85 pCi/g wet for indicator locations and 2.83 pCi/g wet for the control location. Gamma-spectroscopic analyses showed that almost all beta activity was due to naturally occurring potassium-40 (2.81 pCi/g wet and 2.73 pCi/g wet respectively). The differences are not significant. All other gamma-emitting isotopes were below their respective LLD limits.

Eggs

In egg samples, the gross beta concentrations averaged 1.88 pCi/g wet at the indicator location and 1.63 pCi/g wet for the control location, similar to observed concentrations of naturally-occurring potassium-40 (1.27 and 1.28 pCi/g wet respectively). Other gamma-emitting isotopes were below their respective LLDs.

Levels of strontium-89 measured below the LLD of 0.012 pCi/g wet in all samples, strontium-90 measured below the LLD level of 0.005 pCi/g wet.

Vegetables and Grain

In vegetables, gross beta concentrations averaged 2.99 pCi/g wet at two indicator locations and 3.69 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 three samples (clover, corn and oats) from location K-23, gross beta concentrations averaged 5.37 pCi/g wet, due primarily to potassium-40 and beryllium-7 activity (3.42 and 1.84 pCi/g wet, respectively). Strontium-89 measured below the LLD level of 0.029 pCi/g wet, strontium-90 measured below the LLD of 0.013 pCi/g wet.

Grass and Cattle Feed

In grass, mean gross beta concentrations measured 8.78 and 11.14 pCi/g wet at indicator and control locations, respectively, and in all cases was predominantly due to naturally occurring potassium-40 and beryllium-7. All other gamma-emitting isotopes were below respective LLDs. Strontium-89 measured below the LLD level of 0.034 pCi/g wet, strontium-90 measured below the LLD of 0.014 pCi/g wet.

In cattlefeed, the gross beta concentrations were slightly higher at the indicator versus control locations (10.68 pCi/g and 9.21 pCi/g wet, respectively), and reflected the potassium-40 / beryllium-7 levels observed in the samples (9.20 and 7.04 pCi/g wet, respectively). A similar pattern has been observed in previous years. Strontium-89 levels were below the LLD level of 0.037 pCi/g wet in all samples. Strontium-90 activity, above an LLD of 0.020 pCi/g wet, was detected in three of twelve samples collected, at an average concentration of 0.020 pCi/g wet, similar or lower than levels observed in 1996 through 2009. The presence of trace radiostrontium in the environment can still be attributed to fallout from nuclear testing in previous decades.

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 samples averaged 7.45 pCi/g dry at five indicator locations and 5.45 pCi/g dry at the two control locations. Mean gross beta levels measured at indicator and control locations averaged 30.84 and 24.43 pCi/g dry, respectively, primarily due to the potassium-40 activity. Strontium-89 was below the LLD level of 0.091 pCi/g dry in all samples. A low level of strontium-90 activity above an LLD value of 0.045 pCi/g dry was detected in one of the four control samples tested, at a concentration of 0.049 pCi/g dry.

Trace levels of cesium-137 were detected in eleven of fourteen soil samples, similar at both indicator and control locations (0.10 and 0.12 pCi/g dry, respectively). Potassium-40 was detected in all samples and averaged 20.26 and 15.14 pCi/g dry at 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 2009. The data suggests no evidence of a plant effect on soil measurements.

3.2.3 The Aquatic Environment

Surface Water

In surface water, the gross beta activity measured higher at the indicator locations (4.7 pCi/L) than at the control locations (1.4 pCi/L). The pattern is similar to activity distribution observed from 1978 through 2009.

| Year | Average (Indicators) | Average (Controls) |
|--------------------|----------------------|--------------------|
| Gross Beta (pCi/L) | | |
| 1999 | 5.6 | 2.2 |
| 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 |

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

The difference in levels 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 one of twenty-seven indicator samples tested, (quarterly composites of monthly samples), tritium activity was detected above an LLD level of 155 pCi/L, at a concentration of 163 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 3.08 pCi/g wet in muscle and 2.34 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 0.38 pCi/g wet in all samples. Strontium-90 was detected in all samples and averaged 0.20 pCi/g wet.

Periphyton (Slime) or Aquatic Vegetation

In periphyton (slime) and aquatic vegetation samples, mean gross beta concentrations were similar at indicator and control locations (5.02 and 4.23 pCi/g wet, respectively), due primarily to combined potassium-40 and beryllium-7 activity (4.95 and 4.48 pCi/g wet, respectively).

In one of two samples collected from location K-1e (South Creek), a trace level of cobalt-58 (0.039 pCi/g wet) was detected. Cesium-137 was measured in one of twelve indicator samples, at a level of 0.041 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 0.16 and 0.061 pCi/g wet, respectively, in all samples.

Bottom Sediments

In bottom sediment samples, the mean gross beta concentrations measured 9.47 pCi/g dry at the indicator locations and 13.85 pCi/g dry at the control location.

Cs-134 measured below the LLD level of 0.019 pCi/g dry in all samples. A low level of cesium-137 was observed in two of the eight indicator samples tested and averaged 0.028 pCi/g dry. On average, cesium-137 measurements are lower than or similar to levels observed from 1979 through 2009. Other gamma-emitting isotopes, with the exception of naturally-occurring potassium-40, were below their respective LLDs.

Strontium-89 and strontium-90 concentrations were below detection limits of 0.029 and 0.025 pCi/g dry, respectively, in all samples.

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 50m² (500 ft²) producing broad leaf vegetation."

The 2010 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 September 2, 2010. The census is conducted annually during the growing season per Health Physics Procedure HP 1.14.

Results of the 2010 census are summarized in Table 4.6. Changes from the 2009 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 2009 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, 2011). The QA Program includes participation in Interlaboratory Comparison (crosscheck) Programs. Results obtained are presented in Appendix A.

4.0 FIGURES AND TABLES

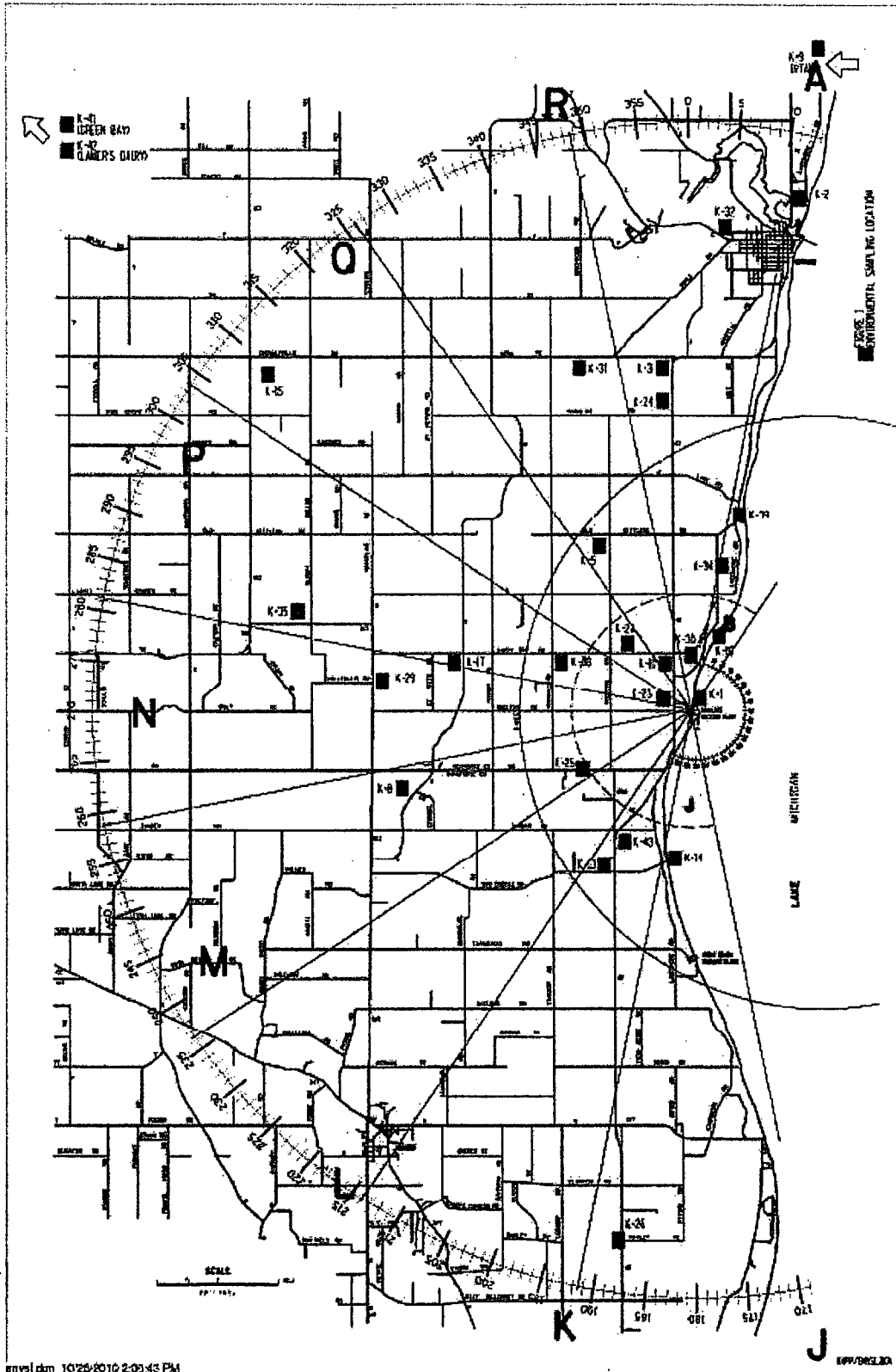


Figure 4-1. Sampling locations, Kewaunee Power Station.

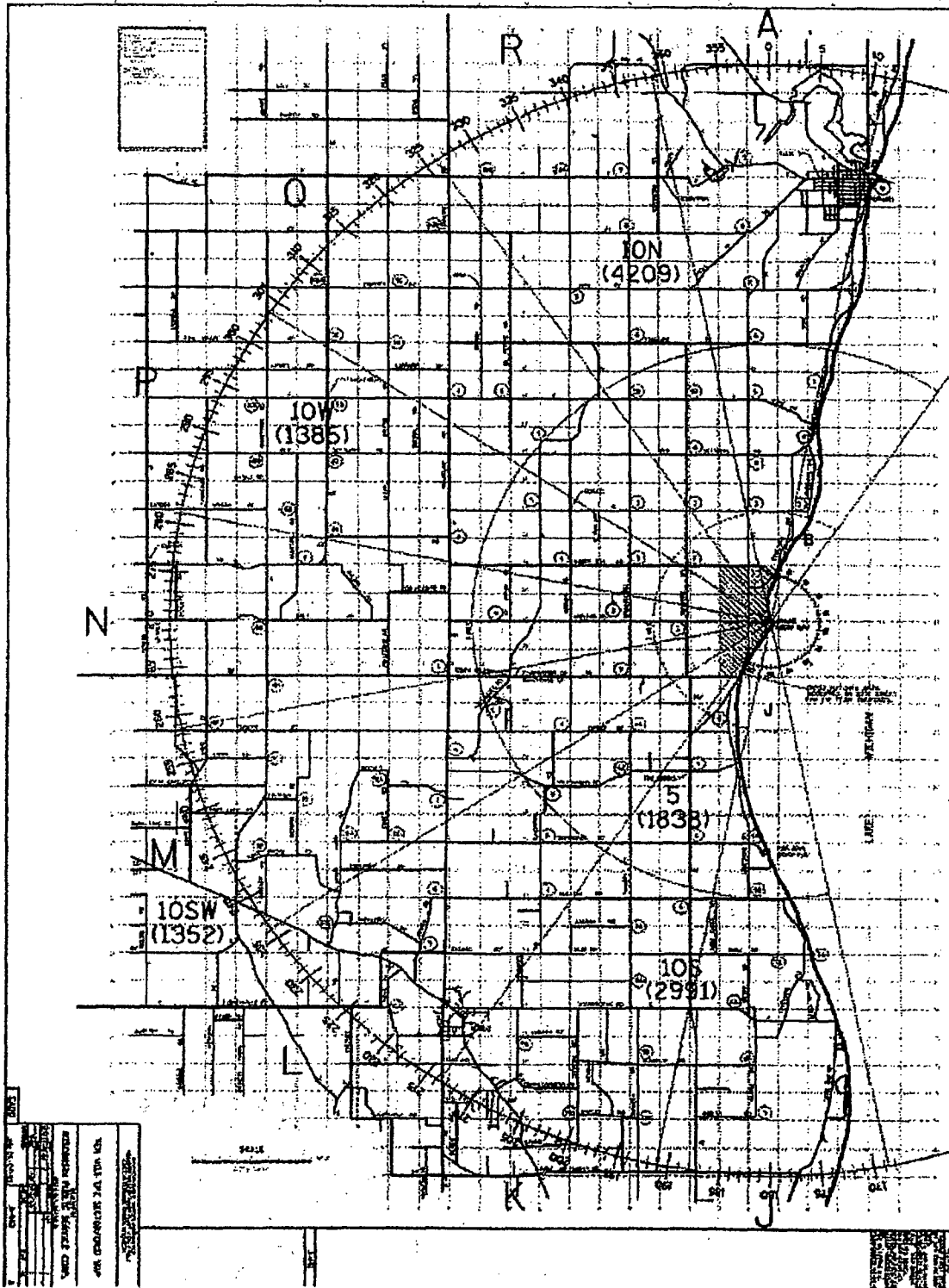


Figure 4-2. Emergency Plan Zone Map, Kewaunee Power Station.

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 Papham Farm, E4160 Old Settlers Rd, Kewaunee |
| K-7 | I | 2.51 SSW | Ron Zimmerman Farm, 17620 Nero Road, Two Rivers |
| K-8 | C | 4.85 WSW | St. Isadore the Farmer Church, 18424 Tisch Mills Rd, Tisch Mills |
| K-9 | C | 11.5 NNE | Rostok Water Intake for Green Bay, Wisconsin, 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 | 10.7 SSW | Sandy's Vegetable Stand (8.0 miles south of "BB") |
| K-27 | I | 1.53 NW | Schlies Farm, E4298 Sandy Bay Rd, Kewaunee |
| K-28 | C | 26 NW | Hansen Dairy, 1742 University Ave., Green Bay, Wisconsin |
| 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 |
| 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 and Sue 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 | Biweekly | Monthly | Quarterly | Semiannually | Annually |
|-------------------|--------|----------|-----------------|---------------------|--------------------|-----------------|
| K-1a | | | SW | | SL | |
| K-1b | | | SW | GR ^a | SL | |
| K-1c | | | | | BS ^b | |
| K-1d | | | SW | FI ^a | SL BS ^b | |
| K-1e | | | SW | | SL | |
| K-1f | AP | AI | | TLD GR ^a | SO | |
| K-1g, K-1h | | | | WW | | |
| K-1j | | | | | BS ^b | |
| K-1k | | | SW | | SL | |
| K-1l through K-1s | | | | TLD | | |
| K-2 | AP | AI | | TLD | | |
| K-3, K-5 | | | MI ^c | TLD GR ^a | SO | CF ^d |
| K-7, K-8 | AP | AI | | TLD | | |
| K-9 | | | SW | | SL BS ^b | |
| K-10, K-13 | | | | WW | | |
| K-11 | | | PR | WW | | |
| K-14 | | | SW | | SL BS ^b | |
| K-15, K-17 | | | | TLD | | |
| K-23a, b | | | | | | GRN / GLV |
| K-24 | | | | EG | | DM |
| K-25 | | | | TLD | | |
| K-26 | | | | | | VE |
| K-27 | | | | TLD | | |
| K-28 | | | MI ^c | | | |
| K-29 | | | | | | DM |
| K-30 | | | | TLD | | |
| K-31 | AP | 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 | TLD GR ^a | SO | CF ^d |
| K-41 | AP | AI | | TLD | | |
| K-42 ^e | | | MI ^c | | | |
| K-43 ^f | AP | 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

^f K-7 replaced by K-43, August/September, 2010. New location within 0.2 miles.

^d First quarter (January, February, March) only.

^e Replaced K-28 in March, 2010.

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 | |
| GLV | Green Leafy Vegetables | VE | Vegetables |
| GRN | Grain | WW | Well water |

Table 4.4. Sampling Summary, January – December, 2010.

| Sample Type | Collection Type and Frequency ^a | Number of Locations | Number of Samples Collected | Number of Samples Missed |
|--------------------------------|--|---------------------|-----------------------------|--------------------------|
| <u>Air Environment</u> | | | | |
| Airborne particulates | C/W | 6 | 317 | 1 |
| Airborne Iodine | C/BW | 6 | 156 | 0 |
| TLD's | C/Q | 22 | 90 | 0 |
| Precipitation | C/M | 1 | 12 | 0 |
| <u>Terrestrial Environment</u> | | | | |
| 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 | 3 | 0 |
| Eggs | G/Q | 2 | 8 | 0 |
| Vegetables - 5 varieties | G/A | 1 | 7 | 0 |
| Grain - oats | G/A | 1 | 1 | 0 |
| - clover | G/A | 1 | 1 | 0 |
| - corn | G/A | 1 | 1 | 0 |
| Grass | G/TA | 8 | 24 | 0 |
| Cattle feed | G/A | 6 | 12 | 0 |
| Soil | G/SA | 7 | 14 | 0 |
| <u>Aquatic Environment</u> | | | | |
| Surface water | G/M | 7 | 104 | 4 |
| 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 Reporting Period January-December, 2010
 (County, State)

| Sample Type (Units) | Type and Number of Analyses ^a | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^e |
|--|--|------------------|--|-----------------------------------|--|--|---|
| | | | | Location ^d | Mean (F) ^c Range ^c | | |
| TLDs (Quarterly) (mR/91days) | Gamma 56 | 3.0 | 15.2 (32/32) (10.8-19.6) | K-5, Papham farm 3.2 NNW | 17.7 (4/4) (16.1-19.6) | 14.3 (24/24) (10.2-17.8) | 0 |
| TLDs, Quarterly (Protected Area) (mR/91days) | Gamma 32 | 3.0 | 14.1 (32/32) (11.3-16.2) | K-1-M, ISFSI E 0.15 N | 15.5 (4/4) (13.8-16.2) | none | 0 |
| Airborne Particulates (pCi/m3) | GB 312 | 0.002 | 0.023 (104/104) (0.012-0.040) | K-7 / K-43, 2.51 SSW | 0.023 (52/52) (0.012-0.040) | 0.022 (207/208) (0.009-0.057) | 0 |
| | GS 24 | 0.020 | 0.072 (8/8) (0.054-0.090) | K-7 / K-43 2.51 SSW | 0.074 (4/4) (0.054-0.090) | 0.071 (16/16) (0.055-0.079) | 0 |
| | Nb-95 | 0.0013 | < LLD | - | - | < LLD | 0 |
| | Zr-Nb-95 | 0.0017 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | 0.0013 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | 0.0082 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | 0.0010 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | 0.0010 | < LLD | - | - | < LLD | 0 |
| | Ce-141 | 0.0022 | < LLD | - | - | < LLD | 0 |
| Ce-144 | 0.0054 | < LLD | < LLD | - | - | < LLD | 0 |
| Airborne Iodine (pCi/m3) | I-131 156 | 0.03 | < LLD | - | - | < LLD | 0 |
| Precipitation (pCi/L) | H-3 12 | 164 | < LLD | - | - | < LLD | 0 |
| Milk (pCi/L) | I-131 126 | 0.5 | < LLD | - | - | < LLD | 0 |
| | Sr-89 84 | 1.3 | < LLD | - | - | < LLD | 0 |
| | Sr-90 84 | 0.7 | 0.9 (31/48) (0.7-1.1) | K-3, Siegmund Farm 5.9 N | 1.1 (12/12) (0.7-1.5) | 0.9 (27/36) (0.7-1.5) | 0 |
| | GS 126 | 50 | 1382 (72/72) (1210-1536) | K-34, Struck Farm 2.7 N | 1449 (18/18) (1367-1536) | 1370 (54/54) (1061-1632) | 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 | 1.60 (48/48) (1.46-1.81) | K-34, Struck Farm 2.7 N | 1.72 (12/12) (1.61-1.81) | 1.60 (36/36) (1.32-1.88) | 0 |
| (g/L) | Ca 84 | 0.4 | 1.06 (48/48) (0.88-1.23) | K-3, Siegmund Farm 5.9 N | 1.16 (12/12) (0.99-1.31) | 1.10 (36/36) (0.87-1.31) | 0 |

Table 4.5 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, 2010

| Sample Type (Units) | Type and Number of Analyses ^a | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^d |
|--------------------------|--|------------------|--|-----------------------------------|--|--|---|
| | | | | Location ^d | Mean (F) ^c Range ^c | | |
| Well Water (pCi/L) | GA 8 | 2.4 | 3.5 (2/8) (3.3-3.7) | K-1g, South Well 0.06 W | 3.7 (1/4) | None | 0 |
| | GB 24 | 1.7 | 3.3 (11/20) (1.7-7.2) | K-38, Sinkula 2.45 mi. WNW | 6.2 (2/4) (5.1-7.2) | < LLD | 0 |
| | H-3 24 | 190 | < LLD | - | - | None | 0 |
| | K-40(fp) 24 | 0.87 | 2.65 (20/20) (0.78-10.73) | K-38, Sinkula 2.45 mi. WNW | 4.30 (4/4) (0.78-10.73) | 0.99 (4/4) (0.92-1.06) | 0 |
| | Sr-89 0 | 0.8 | < LLD | - | - | None | 0 |
| | Sr-90 0 | 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 5 | 0.010 | 0.075 (2/2) (0.071-0.078) | K-32, Grocery 7.8 mi. N | 0.096 (1/1) | 0.096 (1/1) | 0 |
| | GB 5 | 0.10 | 2.85 (2/2) (2.54-3.16) | K-29, Kunesh Farm 5.75 mi. W | 3.16 (1/1) | 2.83 (1/1) | 0 |
| | GS 5 | | | | | | |
| | Be-7 | 0.15 | < LLD | - | - | < LLD | 0 |
| | K-40 | 0.50 | 2.81 (2/2) (2.64-2.97) | K-24, Fictum Farm 5.45 mi. N | 2.97 (1/1) | 2.73 (1/1) | 0 |
| | Nb-95 | 0.027 | < LLD | - | - | < LLD | 0 |
| | Zr-95 | 0.039 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | 0.015 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | 0.19 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | 0.019 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | 0.018 | < LLD | - | - | < LLD | 0 |
| | Ce-141 | 0.037 | < LLD | - | - | < LLD | 0 |
| | Ce-144 | 0.095 | < LLD | - | - | < LLD | 0 |
| | Eggs (pCi/gwet) | GB 8 | 0.010 | 1.88 (4/4) (1.85-1.91) | K-24, Fictum Farm 5.45 mi. N | 1.88 (4/4) (1.85-1.91) | 1.63 (4/4) (1.53-1.74) |
| Sr-89 8 | | 0.012 | < LLD | - | - | < LLD | 0 |
| Sr-90 8 | | 0.005 | < LLD | - | - | < LLD | 0 |
| GS 8 | | | | | | | |
| Be-7 | | 0.062 | < LLD | - | - | < LLD | 0 |
| K-40 | | 0.50 | 1.27 (4/4) (1.15-1.43) | K-32, Grocery 11.5 mi. N | 1.28 (4/4) (1.08-1.55) | 1.28 (4/4) (1.08-1.55) | 0 |
| Nb-95 | | 0.013 | < LLD | - | - | < LLD | 0 |
| Zr-95 | | 0.015 | < LLD | - | - | < LLD | 0 |
| Ru-103 | | 0.011 | < LLD | - | - | < LLD | 0 |
| Ru-106 | | 0.068 | < LLD | - | - | < LLD | 0 |
| Cs-134 | | 0.009 | < LLD | - | - | < LLD | 0 |
| Cs-137 | | 0.008 | < LLD | - | - | < LLD | 0 |
| Ce-141 | | 0.021 | < LLD | - | - | < LLD | 0 |
| Ce-144 | | 0.067 | < 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 Reporting Period January-December, 2010
 (County, State)

| Sample Type (Units) | Type and Number of Analyses ^a | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^d |
|---|--|----------------------------|--|------------------------------------|--|--|---|
| | | | | Location ^d | Mean (F) ^c Range ^c | | |
| Vegetables (pCi/gwet) | GB 10 | 0.010 | 2.99 (3/3) (1.48-4.35) | K-38, Sinkula Farm 2.45 mi. WNW | 3.74 (2/2) (3.13-4.35) | 3.69 (7/7) (2.15-5.29) | 0 |
| | Sr-89 10 | 0.008 | < LLD | - | - | < LLD | 0 |
| | Sr-90 10 | 0.005 | < LLD | K-26, Vegetable Stand 10.7 SSW | 0.005 (1/7) | 0.005 (1/7) | 0 |
| | GS 10 | | | | | | |
| | Be-7 10 | 0.127 | < LLD | - | - | < LLD | 0 |
| | K-40 10 | 0.50 | 2.66 (3/3) (1.77-4.18) | K-38, Sinkula Farm 2.45 mi. WNW | 3.11 (2/2) (2.03-4.18) | 2.51 (7/7) (1.61-3.86) | 0 |
| | Nb-95 10 | 0.013 | < LLD | - | - | < LLD | 0 |
| | Zr-95 10 | 0.019 | < LLD | - | - | < LLD | 0 |
| | Ru-103 10 | 0.014 | < LLD | - | - | < LLD | 0 |
| | Ru-106 10 | 0.12 | < LLD | - | - | < LLD | 0 |
| | Cs-134 10 | 0.012 | < LLD | - | - | < LLD | 0 |
| | Cs-137 10 | 0.016 | < LLD | - | - | < LLD | 0 |
| | Ce-141 10 | 0.026 | < LLD | - | - | < LLD | 0 |
| | Ce-144 10 | 0.12 | < LLD | - | - | < LLD | 0 |
| Grain - (Oats, Clover, Corn) (pCi/gwet) | GB 3 | 0.010 | 5.37 (3/3) (2.60-8.67) | K-23, Kewaunee Site, 0.5 mi. W | 5.37 (3/3) (2.60-8.67) | None | 0 |
| | Sr-89 3 | 0.029 | < LLD | - | - | None | 0 |
| | Sr-90 3 | 0.013 | < LLD | - | - | None | 0 |
| | GS 3 | | | | | | |
| | Be-7 3 | 0.061 | 1.84 (2/3) (1.25-2.42) | K-23, Kewaunee Site, 0.5 mi. W | 1.84 (2/3) (1.25-2.42) | None | 0 |
| | K-40 3 | 0.50 | 3.42 (3/3) (2.07-4.50) | K-23, Kewaunee Site, 0.5 mi. W | 3.42 (3/3) (2.07-4.50) | None | 0 |
| | Nb-95 3 | 0.015 | < LLD | - | - | None | 0 |
| | Zr-95 3 | 0.027 | < LLD | - | - | None | 0 |
| | Ru-103 3 | 0.011 | < LLD | - | - | None | 0 |
| | Ru-106 3 | 0.16 | < LLD | - | - | None | 0 |
| | Cs-134 3 | 0.013 | < LLD | - | - | None | 0 |
| | Cs-137 3 | 0.017 | < LLD | - | - | None | 0 |
| | Ce-141 3 | 0.027 | < LLD | - | - | None | 0 |
| | Ce-144 3 | 0.11 | < LLD | - | - | None | 0 |
| Cattlefeed (pCi/gwet) | GB 12 | 0.10 | 10.68 (8/8) (2.58-21.64) | K-39, Wojta Farm 3.46 mi. N | 12.18 (2/2) (3.28-21.07) | 9.21 (4/4) (2.93-18.66) | 0 |
| | Sr-89 12 | 0.037 | < LLD | - | - | < LLD | 0 |
| | Sr-90 12 | 0.019 | 0.020 (2/8) (0.020-0.020) | K-35, Ducat 6.71 mi. WNW | 0.021 (1/2) | 0.021 (1/4) | 0 |
| | GS 12 | | | | | | |
| | Be-7 12 | 0.16 | 0.62 (3/8) (0.39-1.01) | K-38, Sinkula Farm 2.45 mi. WNW | 1.01 (1/2) | 0.27 (2/4) (0.19-0.35) | 0 |
| K-40 12 | 0.10 | 8.58 (8/8) (2.18-18.35) | K-34, Struck Farm 2.7 N | 10.27 (2/2) (2.18-18.35) | 6.77 (4/4) (2.92-13.00) | 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 Reporting Period January-December, 2010
 (County, State)

| Sample Type (Units) | Type and Number of Analyses ^a | | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^a |
|------------------------|--|----|------------------|--|------------------------------------|--|--|---|
| | | | | | Location ^d | Mean (F) ^c Range ^c | | |
| Cattlefeed (continued) | Nb-95 | | 0.018 | < LLD | - | - | < LLD | 0 |
| | Zr-95 | | 0.022 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | | 0.013 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | | 0.15 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | | 0.012 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | | 0.015 | 0.032 (1/8) | K-34, Struck Farm 2.7 N | 0.032 (1/2) | < LLD | 0 |
| | Ce-141 | | 0.035 | < LLD | - | - | < LLD | 0 |
| | Ce-144 | | 0.11 | < LLD | - | - | < LLD | 0 |
| Grass (pCi/gwet) | GB | 24 | 0.10 | 8.78 (18/18) (6.12-10.86) | K-35, Ducat 6.71 mi. WNW | 12.10 (3/3) (7.78-19.80) | 11.14 (6/6) (7.78-19.80) | 0 |
| | Sr-89 | 24 | 0.034 | < LLD | - | - | < LLD | 0 |
| | Sr-90 | 24 | 0.014 | 0.023 (2/18) (0.022-0.023) | K-35, Ducat 6.71 mi. WNW | 0.028 (1/3) | 0.028 (1/6) | 0 |
| | GS | 24 | | | | | | |
| | Be-7 | | 0.10 | 2.18 (18/18) (0.43-6.73) | K-5, Paplham Farm 3.2 NNW | 3.15 (3/3) (0.43-6.73) | 2.33 (6/6) (0.91-5.39) | 0 |
| | K-40 | | 0.50 | 6.50 (18/18) (5.11-8.35) | K-35, Ducat 6.71 mi. WNW | 8.90 (3/3) (6.17-13.40) | 8.29 (6/6) (7.67-13.40) | 0 |
| | Nb-95 | | 0.023 | < LLD | - | - | < LLD | 0 |
| | Zr-95 | | 0.039 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | | 0.023 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | | 0.24 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | | 0.023 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | | 0.027 | < LLD | - | - | < LLD | 0 |
| | Ce-141 | | 0.054 | < LLD | - | - | < LLD | 0 |
| | Ce-144 | | 0.19 | < LLD | - | - | < LLD | 0 |
| Soil (pCi/gdry) | GA | 14 | 1.0 | 7.45 (10/10) (5.14-11.85) | K-5, Paplham Farm 3.2 NNW | 9.47 (2/2) (7.09-11.85) | 5.45 (4/4) (3.73-7.22) | 0 |
| | GB | 14 | 2.0 | 30.84 (10/10) (24.25-36.68) | K-34, Struck Farm 2.7 N | 33.42 (2/0) (31.35-35.49) | 24.43 (4/4) (20.75-28.43) | 0 |
| | Sr-89 | 14 | 0.091 | < LLD | - | - | < LLD | 0 |
| | Sr-90 | 14 | 0.045 | < LLD | K-35, Ducat 6.71 mi. WNW | 0.049 (1/2) | 0.049 (1/4) | 0 |
| | GS | 14 | | | | | | |
| | Be-7 | | 0.31 | 0.56 (2/10) (0.42-0.70) | K-5, Paplham Farm 3.2 NNW | 0.70 (1/2) | 0.56 (2/4) (0.45-0.67) | 0 |
| | K-40 | | 1.4 | 20.26 (10/10) (17.56-23.69) | K-38, Sinkula Farm 2.45 mi. WNW | 22.38 (2/2) (21.03-23.69) | 15.14 (4/4) (11.83-17.06) | 0 |
| | Nb-95 | | 0.030 | < LLD | - | - | < LLD | 0 |
| | Zr-95 | | 0.046 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | | 0.032 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | | 0.36 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | | 0.038 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | | 0.029 | 0.10 (7/10) (0.078-0.14) | K-35, Ducat 6.71 mi. WNW | 0.14 (2/2) (0.13-0.15) | 0.12 (4/4) (0.084-0.15) | 0 |
| | Ce-141 | | 0.060 | < LLD | - | - | < LLD | 0 |
| | Ce-144 | | 0.18 | < 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 Reporting Period January-December, 2010
 (County, State)

| Sample Type (Units) | Type and Number of Analyses ^a | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^e |
|--------------------------|--|------------------|--|-----------------------------------|--|--|---|
| | | | | Location ^d | Mean (F) ^c Range ^c | | |
| Surface Water (pCi/L) | GB (TR) 104 | 0.8 | 4.7 (80/80) (0.9-25.0) | K-1k, Drainage Pond 0.60 SW | 14.1 (9/9) (4.9-25.0) | 1.4 (23/24) (0.8-2.6) | 0 |
| | GS 104 | | | | | | |
| | 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 | 1 | 155 | 163 (1/27) | K-1k, Drainage Pond 0.60 mi. SW | 163 (1/3) | < LLD |
| Sr-89 | 1 | 1.3 | < LLD | - | - | < LLD | 0 |
| Sr-90 | 1 | 0.8 | < LLD | - | - | < LLD | 0 |
| K-40 | 104 | 0.87 | 3.7 (80/80) (1.1-22.1) | K-1k, Drainage Pond 0.60 SW | 10.9 (9/9) (2.9-22.1) | 1.2 (24/24) (1.0-1.2) | 0 |
| Fish (Muscle) (pCi/gwet) | GB 3 | 0.5 | 3.08 (3/3) (2.88-3.18) | K-1d, Cond. Discharge 0.10 mi. E | 3.08 (3/3) (2.88-3.18) | None | 0 |
| | GS 3 | | | | | | |
| | K-40 | 0.5 | 2.06 (3/3) (1.80-2.49) | K-1d, Cond. Discharge 0.10 mi. E | 2.06 (3/3) (1.80-2.49) | None | 0 |
| | Mn-54 | 0.019 | < LLD | - | - | None | 0 |
| | Fe-59 | 0.050 | < LLD | - | - | None | 0 |
| | Co-58 | 0.017 | < LLD | - | - | None | 0 |
| | Co-60 | 0.020 | < LLD | - | - | None | 0 |
| | Cs-134 | 0.019 | < LLD | - | - | None | 0 |
| | Cs-137 | 0.028 | < LLD | - | - | None | 0 |
| Fish (Bones) (pCi/gwet) | GB 3 | 1.99 | 2.34 (3/3) (1.64-3.26) | K-1d, Cond. Discharge 0.10 mi. E | 2.34 (3/3) (1.64-3.26) | None | 0 |
| | Sr-89 3 | 0.38 | < LLD | - | - | None | 0 |
| | Sr-90 3 | 0.05 | 0.20 (3/3) (0.14-0.26) | K-1d, Cond. Discharge 0.10 mi. E | 0.20 (3/3) (0.14-0.26) | None | 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, 2010

| Sample Type (Units) | Type and Number of Analyses ^a | LLD ^b | Indicator Locations Mean (F) ^c Range ^c | Location with Highest Annual Mean | | Control Locations Mean (F) ^c Range ^c | Number Non-Routine Results ^d |
|-------------------------------|--|---------------------------|--|-----------------------------------|--|--|---|
| | | | | Location ^d | Mean (F) ^c Range ^c | | |
| Periphyton (Algae) (pCi/gwet) | GB 14 | 0.1 | 5.02 (12/12) (3.07-8.30) | K-1a, North Creek 0.62 N | 6.82 (2/2) (5.33-8.30) | 4.23 (2/2) (2.60-5.86) | 0 |
| | Sr-89 14 | 0.16 | < LLD | - | - | < LLD | 0 |
| | Sr-90 14 | 0.061 | < LLD | - | - | < LLD | 0 |
| | GS 14 | | | | | | |
| | Be-7 | 0.36 | 1.52 (8/12) (1.12-2.05) | K-1e, South Creek 0.12 S | 1.90 (2/2) (1.79-2.01) | 0.77 (1/2) | 0 |
| | K-40 | 0.5 | 3.43 (12/12) (1.23-7.15) | K-1b, Middle Creek 0.12 N | 5.52 (2/2) (3.89-7.15) | 3.71 (2/2) (2.88-4.53) | 0 |
| | Mn-54 | 0.024 | < LLD | - | - | < LLD | 0 |
| | Co-58 | 0.019 | 0.039 (1/12) | K-1e, South Creek | 0.039 (1/2) | < LLD | 0 |
| | Co-60 | 0.030 | < LLD | - | - | < LLD | 0 |
| | Nb-95 | 0.045 | < LLD | - | - | < LLD | 0 |
| | Zr-95 | 0.044 | < LLD | - | - | < LLD | 0 |
| | Ru-103 | 0.028 | < LLD | - | - | < LLD | 0 |
| | Ru-106 | 0.29 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | 0.031 | < LLD | - | - | < LLD | 0 |
| | Cs-137 | 0.035 | 0.041 (1/12) | K-1d, Cond. Discharge 0.10 mi. E | 0.041 (1/2) | < LLD | 0 |
| Ce-141 | 0.078 | < LLD | - | - | < LLD | 0 | |
| Ce-144 | 0.27 | < LLD | - | - | < LLD | 0 | |
| Bottom Sediments (pCi/gdry) | GB 10 | 1.0 | 9.47 (8/8) (7.54-15.93) | K-9, Rostok Intake #N/A | 13.85 (2/2) (12.31-15.38) | 13.85 (2/2) (12.31-15.38) | 0 |
| | Sr-89 10 | 0.029 | < LLD | - | - | < LLD | 0 |
| | Sr-90 10 | 0.025 | 0.029 (1/8) | K-14, Two Creeks Park 2.6 S | 0.029 (1/2) | < LLD | 0 |
| | GS 10 | | | | | | |
| | K-40 | 0.5 | 7.92 (8/8) (6.81-9.26) | K-14, Two Creeks Park #N/A | 8.93 (2/2) (8.80-9.26) | 8.68 (2/2) (7.94-9.42) | 0 |
| | Co-58 | 0.022 | < LLD | - | - | < LLD | 0 |
| | Co-60 | 0.021 | < LLD | - | - | < LLD | 0 |
| | Cs-134 | 0.019 | < LLD | - | - | < LLD | 0 |
| Cs-137 | 0.021 | 0.028 (2/8) (0.027-0.028) | 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 ft² 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 | | | 1.81 | |
| 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 | | 1.52 | |
| 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. 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 2009 and 2010 census.

| | | |
|----------|--------------|--|
| Sector A | Township 1. | Wakker farm added structures for additional milking cows. |
| Sector A | Township 6. | S. Ihlenfeldt residence appeared to be occupied (unconfirmed). |
| Sector A | Township 11. | There appeared to be milk cows on/near K. Repitz farm. |
| Sector B | No changes | |
| Sector J | No changes. | |
| Sector K | No changes. | |
| Sector M | No changes | |
| Sector N | No changes | |
| Sector P | Township 17. | Former R. Plansky residence is now empty. |
| Sector Q | Township 16 | No milk cows observed. |
| Sector Q | Township 22 | No milk cows observed. |
| Sector Q | Township 22 | Told D. Jandrin has moved, could not confirm resident. |
| Sector R | Township 2 | Brian Wauranek now runs farm. |
| Sector R | Township 9 | No milk cows observed, only beef cattle. |
| Sector R | Township 15 | G. Paplham now runs farm. |
| Sector R | Township 24 | J. Walecka now lives in residence. |

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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, 2010 through December, 2010

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Appendix A

Interlaboratory Comparison Program Results

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

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

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

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 > 100 pCi/liter or kg | 5.0 pCi/liter 5% of known value |
| Strontium-89 ^b | 5 to 50 pCi/liter or kg > 50 pCi/liter or kg | 5.0 pCi/liter 10% of known value |
| Strontium-90 ^b | 2 to 30 pCi/liter or kg > 30 pCi/liter or kg | 5.0 pCi/liter 10% of known value |
| Potassium-40 | ≥ 0.1 g/liter or kg | 5% of known value |
| Gross alpha | ≤ 20 pCi/liter > 20 pCi/liter | 5.0 pCi/liter 25% of known value |
| Gross beta | ≤ 100 pCi/liter > 100 pCi/liter | 5.0 pCi/liter 5% of known value |
| Tritium | ≤ 4,000 pCi/liter > 4,000 pCi/liter | ± 1σ = 169.85 x (known) ^{0.0933} 10% of known value |
| Radium-226,-228 | ≥ 0.1 pCi/liter | 15% of known value |
| Plutonium | ≥ 0.1 pCi/liter, gram, or sample | 10% of known value |
| Iodine-131, Iodine-129 ^b | ≤ 55 pCi/liter > 55 pCi/liter | 6 pCi/liter 10% of known value |
| Uranium-238, Nickel-63 ^b Technetium-99 ^b | ≤ 35 pCi/liter > 35 pCi/liter | 6 pCi/liter 15% of known value |
| Iron-55 ^b | 50 to 100 pCi/liter > 100 pCi/liter | 10 pCi/liter 10% of known value |
| Other Analyses ^b | --- | 20% of known value |

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

^b Laboratory limit.

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

| Lab Code | Date | Analysis | Concentration (pCi/L) | | | Acceptance |
|----------|----------|-----------|--------------------------------|-------------------------|----------------|------------|
| | | | Laboratory Result ^b | ERA Result ^c | Control Limits | |
| STW-1205 | 04/05/10 | Sr-89 | 63.0 ± 5.7 | 60.4 | 48.6 - 68.2 | Pass |
| STW-1205 | 04/05/10 | Sr-90 | 37.4 ± 2.4 | 41.3 | 30.4 - 47.4 | Pass |
| STW-1206 | 04/05/10 | Ba-133 | 63.6 ± 3.3 | 65.9 | 54.9 - 72.5 | Pass |
| STW-1206 | 04/05/10 | Co-60 | 83.3 ± 2.9 | 84.5 | 76.0 - 95.3 | Pass |
| STW-1206 | 04/05/10 | Cs-134 | 71.0 ± 3.4 | 71.6 | 58.4 - 78.8 | Pass |
| STW-1206 | 04/05/10 | Cs-137 | 145.5 ± 5.1 | 146.0 | 131.0 - 163.0 | Pass |
| STW-1206 | 04/05/10 | Zn-65 | 194.9 ± 7.8 | 186.0 | 167.0 - 219.0 | Pass |
| STW-1207 | 04/05/10 | Gr. Alpha | 26.5 ± 1.7 | 32.9 | 16.9 - 42.6 | Pass |
| STW-1207 | 04/05/10 | Gr. Beta | 34.5 ± 1.6 | 37.5 | 24.7 - 45.0 | Pass |
| STW-1208 | 04/05/10 | I-131 | 22.7 ± 0.8 | 26.4 | 21.9 - 31.1 | Pass |
| STW-1209 | 04/05/10 | Ra-226 | 15.2 ± 0.7 | 14.6 | 10.9 - 16.8 | Pass |
| STW-1209 | 04/05/10 | Ra-228 | 15.6 ± 1.8 | 15.1 | 10.1 - 18.3 | Pass |
| STW-1209 | 04/05/10 | Uranium | 59.5 ± 0.7 | 62.3 | 50.7 - 69.1 | Pass |
| STW-1210 | 04/05/10 | H-3 | 12955 ± 332 | 12400.0 | 10800 - 13600 | Pass |
| STW-1224 | 10/04/10 | Sr-89 | 65.3 ± 5.7 | 68.5 | 55.8 - 76.7 | Pass |
| STW-1224 | 10/04/10 | Sr-90 | 39.9 ± 2.3 | 43.0 | 31.7 - 49.3 | Pass |
| STW-1225 | 10/04/10 | Ba-133 | 67.2 ± 4.3 | 68.9 | 57.5 - 75.8 | Pass |
| STW-1225 | 10/04/10 | Co-60 | 53.2 ± 3.3 | 53.4 | 48.1 - 61.3 | Pass |
| STW-1225 | 10/04/10 | Cs-134 | 47.3 ± 5.1 | 43.2 | 34.5 - 47.5 | Pass |
| STW-1225 | 10/04/10 | Cs-137 | 118.0 ± 5.9 | 123.0 | 111.0 - 138.0 | Pass |
| STW-1225 | 10/04/10 | Zn-65 | 107.0 ± 8.7 | 102.0 | 91.8 - 122.0 | Pass |
| STW-1226 | 10/04/10 | Gr. Alpha | 30.7 ± 2.9 | 42.3 | 21.9 - 53.7 | Pass |
| STW-1226 | 10/04/10 | Gr. Beta | 32.7 ± 0.8 | 36.6 | 24.0 - 44.2 | Pass |
| STW-1227 | 10/04/10 | I-131 | 28.6 ± 1.1 | 27.5 | 22.9 - 32.3 | Pass |
| STW-1228 | 10/04/10 | Ra-226 | 11.8 ± 0.6 | 11.4 | 8.5 - 13.2 | Pass |
| STW-1228 | 10/04/10 | Ra-228 | 12.0 ± 1.8 | 9.9 | 6.4 - 12.3 | Pass |
| STW-1228 | 10/04/10 | Uranium | 34.8 ± 0.4 | 36.8 | 29.8 - 41.0 | Pass |
| STW-1229 | 10/04/10 | H-3 | 13682 ± 352 | 12900.0 | 11200 - 14200 | 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.

TABLE A-2. Crosscheck program results; Thermoluminescent Dosimetry, (TLD, CaSO₄: Dy Cards).

| Lab Code | Date | Description | mR | | | Acceptance |
|----------------------------|------------|-------------|-------------|--------------------------|----------------|------------|
| | | | Known Value | Lab Result ± 2 sigma | Control Limits | |
| <u>Environmental, Inc.</u> | | | | | | |
| 2010-1 | 6/8/2010 | 30 cm. | 75.07 | 90.78 \pm 3.60 | 52.55 - 97.59 | Pass |
| 2010-1 | 6/8/2010 | 40 cm. | 42.23 | 50.88 \pm 3.59 | 29.56 - 54.90 | Pass |
| 2010-1 | 6/8/2010 | 50 cm. | 27.03 | 32.12 \pm 1.90 | 18.92 - 35.14 | Pass |
| 2010-1 | 6/8/2010 | 60 cm. | 18.77 | 21.80 \pm 0.90 | 13.14 - 24.40 | Pass |
| 2010-1 | 6/8/2010 | 70 cm. | 13.79 | 15.38 \pm 1.39 | 9.65 - 17.93 | Pass |
| 2010-1 | 6/8/2010 | 75 cm. | 12.01 | 11.30 \pm 1.07 | 8.41 - 15.61 | Pass |
| 2010-1 | 6/8/2010 | 80 cm. | 10.56 | 10.90 \pm 0.61 | 7.39 - 13.73 | Pass |
| 2010-1 | 6/8/2010 | 90 cm. | 8.34 | 7.84 \pm 0.83 | 5.84 - 10.84 | Pass |
| 2010-1 | 6/8/2010 | 100 cm. | 6.76 | 6.61 \pm 0.52 | 4.73 - 8.79 | Pass |
| 2010-1 | 6/8/2010 | 110 cm. | 5.58 | 4.29 \pm 0.55 | 3.91 - 7.25 | Pass |
| 2010-1 | 6/8/2010 | 120 cm. | 4.69 | 3.64 \pm 0.33 | 3.28 - 6.10 | Pass |
| 2010-1 | 6/8/2010 | 150 cm. | 3.00 | 2.82 \pm 0.84 | 2.10 - 3.90 | Pass |
| 2010-1 | 6/8/2010 | 180 cm. | 2.09 | 1.55 \pm 0.23 | 1.46 - 2.72 | Pass |
| <u>Environmental, Inc.</u> | | | | | | |
| 2010-2 | 12/13/2010 | 100 cm. | 4.94 | 4.65 \pm 0.57 | 3.46 - 6.42 | Pass |
| 2010-2 | 12/13/2010 | 110 cm. | 4.09 | 3.50 \pm 0.74 | 2.86 - 5.32 | Pass |
| 2010-2 | 12/13/2010 | 120 cm. | 3.43 | 2.68 \pm 0.36 | 2.40 - 4.46 | Pass |
| 2010-2 | 12/13/2010 | 150 cm. | 2.2 | 1.75 \pm 0.42 | 1.54 - 2.86 | Pass |
| 2010-2 | 12/13/2010 | 180 cm. | 1.53 | 1.32 \pm 0.52 | 1.07 - 1.99 | Pass |
| 2010-2 | 12/13/2010 | 40 cm. | 30.89 | 38.56 \pm 2.11 | 21.62 - 40.16 | Pass |
| 2010-2 | 12/13/2010 | 50 cm. | 19.77 | 23.35 \pm 1.82 | 13.84 - 25.70 | Pass |
| 2010-2 | 12/13/2010 | 60 cm. | 13.73 | 14.53 \pm 1.24 | 9.61 - 17.85 | Pass |
| 2010-2 | 12/13/2010 | 60 cm. | 13.73 | 15.84 \pm 1.53 | 9.61 - 17.85 | Pass |
| 2010-2 | 12/13/2010 | 80 cm. | 7.72 | 8.33 \pm 0.74 | 5.40 - 10.04 | Pass |
| 2010-2 | 12/13/2010 | 90 cm. | 6.1 | 5.93 \pm 0.73 | 4.27 - 7.93 | Pass |

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

| Lab Code ^b | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|-----------------------|-----------|-----------|--|-------------------|--------------------------------|------------|
| | | | Laboratory results 2s, n=1 ^c | Known Activity | Control Limits ^d | |
| SPW-12648 | 1/20/2010 | Ra-228 | 40.04 ± 2.99 | 40.54 | 28.38 - 52.70 | Pass |
| SPW-279 | 1/27/2010 | U-238 | 4.52 ± 0.22 | 4.17 | 0.00 - 16.17 | Pass |
| SPW-391 | 2/4/2010 | Ni-63 | 179.70 ± 2.96 | 209.62 | 146.73 - 272.51 | Pass |
| W-21210 | 2/12/2010 | Ra-226 | 16.05 ± 0.39 | 16.77 | 11.74 - 21.80 | Pass |
| W-21710 | 2/17/2010 | Gr. Alpha | 17.54 ± 0.37 | 20.00 | 10.00 - 30.00 | Pass |
| W-21710 | 2/17/2010 | Gr. Beta | 42.47 ± 0.39 | 45.20 | 35.20 - 55.20 | Pass |
| SPAP-669 | 2/25/2010 | Gr. Beta | 45.78 ± 0.11 | 49.24 | 29.54 - 68.94 | Pass |
| SPAP-671 | 2/25/2010 | Cs-134 | 10.56 ± 3.15 | 10.38 | 0.38 - 20.38 | Pass |
| SPAP-671 | 2/25/2010 | Cs-137 | 105.36 ± 3.15 | 109.20 | 98.28 - 120.12 | Pass |
| SPMI-674 | 2/25/2010 | Co-60 | 67.38 ± 5.65 | 68.79 | 58.79 - 78.79 | Pass |
| SPMI-674 | 2/25/2010 | Cs-134 | 60.61 ± 6.28 | 51.91 | 41.91 - 61.91 | Pass |
| SPMI-674 | 2/25/2010 | Cs-137 | 173.80 ± 10.30 | 163.80 | 147.42 - 180.18 | Pass |
| SPW-676 | 2/25/2010 | Co-60 | 66.13 ± 5.22 | 68.79 | 58.79 - 78.79 | Pass |
| SPW-676 | 2/25/2010 | Cs-134 | 51.54 ± 5.97 | 51.91 | 41.91 - 61.91 | Pass |
| SPW-676 | 2/25/2010 | Cs-137 | 179.30 ± 9.95 | 163.80 | 147.42 - 180.18 | Pass |
| SPW-678 | 2/25/2010 | H-3 | 59213.70 ± 709.90 | 60407.70 | 48326.16 - 72489.24 | Pass |
| SPF-680 | 2/25/2010 | Cs-134 | 402.56 ± 22.40 | 415.00 | 373.50 - 456.50 | Pass |
| SPF-680 | 2/25/2010 | Cs-137 | 2267.90 ± 75.60 | 2180.00 | 1962.00 - 2398.00 | Pass |
| SPW-682 | 2/25/2010 | Tc-99 | 29.70 ± 1.51 | 32.34 | 20.34 - 44.34 | Pass |
| SPW-2871 | 4/5/2010 | Ra-228 | 33.91 ± 2.85 | 36.80 | 25.76 - 47.84 | Pass |
| W-40510 | 4/5/2010 | Gr. Alpha | 20.65 ± 0.42 | 20.00 | 10.00 - 30.00 | Pass |
| W-40510 | 4/5/2010 | Gr. Beta | 44.72 ± 0.40 | 45.20 | 35.20 - 55.20 | Pass |
| SPW-2083 | 4/28/2010 | U-238 | 4.20 ± 0.32 | 4.17 | 0.00 - 16.17 | Pass |
| W-51310 | 5/13/2010 | Ra-226 | 17.04 ± 0.50 | 16.77 | 11.74 - 21.80 | Pass |
| SPW-3181 | 6/17/2010 | Tc-99 | 29.87 ± 1.09 | 32.34 | 20.34 - 44.34 | Pass |
| SPW-3272 | 6/25/2010 | H-3 | 5489.00 ± 224.00 | 5928.00 | 4742.40 - 7113.60 | Pass |
| SPW-3278 | 6/25/2010 | Fe-55 | 17054.00 ± 348.00 | 19614.00 | 15691.20 - 23536.80 | Pass |
| SPW-3280 | 6/25/2010 | C-14 | 3410.60 ± 9.75 | 4738.00 | 2842.80 - 6633.20 | Pass |
| SPAP-3270 | 6/28/2010 | Cs-134 | 12.24 ± 3.13 | 10.38 | 0.38 - 20.38 | Pass |
| SPAP-3270 | 6/28/2010 | Cs-137 | 103.92 ± 7.14 | 109.20 | 98.28 - 120.12 | Pass |
| SPW-3274 | 6/28/2010 | Co-60 | 67.48 ± 5.53 | 65.84 | 55.84 - 75.84 | Pass |
| SPW-3274 | 6/28/2010 | Cs-134 | 49.55 ± 6.11 | 46.38 | 36.38 - 56.38 | Pass |
| SPW-3274 | 6/28/2010 | Cs-137 | 58.85 ± 6.54 | 54.17 | 44.17 - 64.17 | Pass |
| SPW-3274 | 6/28/2010 | Sr-90 | 41.59 ± 1.83 | 42.72 | 34.18 - 51.26 | Pass |
| SPMI-3276 | 6/28/2010 | Co-60 | 66.80 ± 5.25 | 65.84 | 55.84 - 75.84 | Pass |
| SPMI-3276 | 6/28/2010 | Cs-134 | 48.20 ± 3.88 | 46.38 | 36.38 - 56.38 | Pass |
| SPMI-3276 | 6/28/2010 | Cs-137 | 62.46 ± 6.33 | 54.17 | 44.17 - 64.17 | Pass |
| SPMI-3276 | 6/28/2010 | Sr-90 | 43.32 ± 1.63 | 42.72 | 34.18 - 51.26 | Pass |

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

| Lab Code ^b | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|-----------------------|------------|-----------|------------------------------------|-------------------|--------------------------------|------------|
| | | | Laboratory results 2s, n=1 | Known Activity | Control Limits ^c | |
| SPW-5081 | 9/9/2010 | Tc-99 | 30.22 ± 1.06 | 32.34 | 20.34 - 44.34 | Pass |
| W-90910 | 9/9/2010 | Gr. Alpha | 20.95 ± 0.43 | 20.00 | 10.00 - 30.00 | Pass |
| W-90910 | 9/9/2010 | Gr. Beta | 45.20 ± 0.41 | 45.20 | 35.20 - 55.20 | Pass |
| W-91010 | 9/10/2010 | Ra-226 | 17.48 ± 0.50 | 16.77 | 11.74 - 21.80 | Pass |
| SPW-2874 | 9/23/2010 | Ra-228 | 34.60 ± 2.68 | 36.80 | 25.76 - 47.84 | Pass |
| XWW-5302 | 10/6/2010 | Ba-133 | 154.13 ± 8.90 | 155.21 | 139.69 - 170.73 | Pass |
| XWW-5302 | 10/6/2010 | Co-60 | 24.65 ± 4.11 | 23.28 | 13.28 - 33.28 | Pass |
| XWW-5302 | 10/6/2010 | Cs-134 | 14.03 ± 3.87 | 13.95 | 3.95 - 23.95 | Pass |
| XWW-5302 | 10/6/2010 | Cs-137 | 61.16 ± 6.08 | 59.22 | 49.22 - 69.22 | Pass |
| SPW-6035 | 10/21/2010 | U-238 | 4.52 ± 0.20 | 4.17 | 0.00 - 16.17 | Pass |
| W-120110 | 12/1/2010 | Gr. Alpha | 20.27 ± 0.41 | 20.00 | 10.00 - 30.00 | Pass |
| W-120110 | 12/1/2010 | Gr. Beta | 46.75 ± 0.41 | 45.20 | 35.20 - 55.20 | Pass |
| W-121610 | 12/16/2010 | Ra-226 | 17.99 ± 0.43 | 16.77 | 11.74 - 21.80 | Pass |

^a Liquid sample results are reported in pCi/Liter, air filters (pCi/filter), charcoal (pCi/m³), 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).

^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 (4.66 σ) | | Acceptance Criteria (4.66 σ) |
| | | | | LLD | Activity ^c | |
| SPW-12658 | Water | 1/20/2010 | Ra-228 | 0.79 | 0.61 \pm 0.44 | 2 |
| SPW-280 | Water | 1/27/2010 | U-238 | 0.18 | 0.07 \pm 0.13 | 1 |
| SPW-392 | Water | 2/4/2010 | Ni-63 | 15.90 | -11.80 \pm 9.40 | 20 |
| W-21210 | Water | 2/12/2010 | Ra-226 | 0.03 | 0.06 \pm 0.02 | 1 |
| W-21710 | Water | 2/17/2010 | Gr. Alpha | 0.41 | 0.09 \pm 0.30 | 1 |
| W-21710 | Water | 2/17/2010 | Gr. Beta | 0.73 | 0.23 \pm 0.52 | 3.2 |
| SPAP-668 | Air Filter | 2/25/2010 | Gr. Beta | 0.11 | 0.008 \pm 0.002 | 3.2 |
| SPAP-670 | Air Filter | 2/25/2010 | Cs-134 | 1.87 | - | 100 |
| SPAP-670 | Air Filter | 2/25/2010 | Cs-137 | 2.31 | - | 100 |
| SPMI-672 | Milk | 2/25/2010 | Cs-137 | 3.52 | - | 10 |
| SPMI-672 | Milk | 2/25/2010 | I-131(G) | 6.09 | - | 20 |
| SPW-675 | Water | 2/25/2010 | Co-60 | 1.55 | - | 10 |
| SPW-675 | Water | 2/25/2010 | Cs-137 | 2.69 | - | 10 |
| SPW-675 | Water | 2/25/2010 | I-131(G) | 5.68 | - | 20 |
| SPF-679 | Fish | 2/25/2010 | Cs-134 | 10.94 | - | 100 |
| SPF-679 | Fish | 2/25/2010 | Cs-137 | 18.37 | - | 100 |
| SPW-681 | Water | 2/25/2010 | Tc-99 | 16.11 | -10.75 \pm 9.53 | 10 |
| SPW-2881 | Water | 4/5/2010 | Ra-228 | 0.89 | 0.22 \pm 0.44 | 2 |
| W-40510 | Water | 4/5/2010 | Gr. Alpha | 0.40 | -0.20 \pm 0.26 | 1 |
| W-40510 | Water | 4/5/2010 | Gr. Beta | 0.75 | -0.09 \pm 0.52 | 3.2 |
| SPW-2084 | Water | 4/28/2010 | U-238 | 0.14 | 0.03 \pm 0.10 | 1 |
| W-51310 | Water | 5/13/2010 | Ra-226 | 0.03 | 0.06 \pm 0.02 | 1 |
| SPW-3271 | Water | 6/25/2010 | H-3 | 151.60 | -58.10 \pm 71.90 | 200 |
| SPW-3278 | Water | 6/25/2010 | Fe-55 | 634.50 | 256.80 \pm 396.40 | 1000 |
| SPW-3279 | water | 6/25/2010 | C-14 | 8.57 | -1.84 \pm 5.18 | 200 |
| SPAP-3269 | Air Filter | 6/28/2010 | Cs-134 | 1.71 | - | 100 |
| SPAP-3269 | Air Filter | 6/28/2010 | Cs-137 | 2.42 | - | 100 |
| SPW-3273 | Water | 6/28/2010 | Co-60 | 1.64 | - | 10 |
| SPW-3273 | Water | 6/28/2010 | Cs-134 | 3.89 | - | 10 |
| SPW-3273 | Water | 6/28/2010 | Cs-137 | 4.29 | - | 10 |
| SPW-3273 | water | 6/25/2010 | Sr-90 | 0.50 | -0.04 \pm 0.22 | 1 |
| SPMI-3275 | Milk | 6/28/2010 | Cs-134 | 3.33 | - | 10 |
| SPMI-3275 | Milk | 6/28/2010 | Cs-137 | 3.82 | - | 10 |
| SPMI-3275 | Milk | 6/28/2010 | I-131(G) | 3.71 | - | 20 |
| SPMI-3275 | Milk | 6/28/2010 | Sr-90 | 0.58 | 0.81 \pm 0.36 | 1 |

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

| Lab Code | Sample Type | Date | Analysis ^b | Concentration (pCi/L) ^a | | |
|------------|-------------|------------|-----------------------|------------------------------------|-----------------------|------------------------------|
| | | | | Laboratory results (4.66σ) | | Acceptance Criteria (4.66 σ) |
| | | | | LLD | Activity ^c | |
| SPW-5080 | Water | 9/9/2010 | Tc-99 | 2.15 | -0.71 ± 1.29 | 10 |
| W-90910 | Water | 9/9/2010 | Gr. Alpha | 0.39 | 0.10 ± 0.28 | 1 |
| W-90910 | Water | 9/9/2010 | Gr. Beta | 0.78 | -0.09 ± 0.55 | 3.2 |
| W-91010 | Water | 9/10/2010 | Ra-226 | 0.04 | 0.07 ± 0.03 | 1 |
| SPW-2884 | Water | 9/23/2010 | Ra-228 | 0.71 | 1.14 ± 0.46 | 2 |
| SPW-6036 | Water | 10/21/2010 | U-238 | 0.11 | 0.07 ± 0.10 | 1 |
| W-120110 | Water | 12/1/2010 | Gr. Alpha | 0.43 | -0.05 ± 0.29 | 1 |
| W-120110 | Water | 12/1/2010 | Gr. Beta | 0.75 | -0.08 ± 0.53 | 3.2 |
| W-121610 | Water | 12/16/2010 | Ra-226 | 0.03 | 0.04 ± 0.02 | 1 |
| BKW-120610 | water | 12/6/2010 | Ba-133 | 5.66 | - | 10 |
| BKW-120610 | water | 12/6/2010 | Co-60 | 4.49 | - | 10 |
| BKW-120610 | water | 12/6/2010 | Cs-134 | 4.41 | - | 10 |
| BKW-120610 | water | 12/6/2010 | Cs-137 | 5.33 | - | 10 |
| W-121610 | Water | 12/16/2010 | Ra-226 | 0.03 | 0.04 ± 0.02 | 1 |

^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 | | | Acceptance |
|-----------------|-----------|-----------|------------------------------------|------------------|------------------|------------|
| | | | First Result | Second Result | Averaged Result | |
| CF-20, 21 | 1/4/2010 | Gr. Beta | 10.96 ± 0.27 | 11.30 ± 0.28 | 11.13 ± 0.19 | Pass |
| CF-20, 21 | 1/4/2010 | K-40 | 8.88 ± 0.48 | 8.27 ± 0.78 | 8.58 ± 0.46 | Pass |
| CF-20, 21 | 1/4/2010 | Sr-90 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.00 | Pass |
| CF-41, 42 | 1/4/2010 | Be-7 | 0.45 ± 0.11 | 0.41 ± 0.14 | 0.43 ± 0.09 | Pass |
| CF-41, 42 | 1/4/2010 | Gr. Beta | 3.26 ± 0.10 | 3.33 ± 0.11 | 3.30 ± 0.07 | Pass |
| CF-41, 42 | 1/4/2010 | K-40 | 2.85 ± 0.36 | 3.04 ± 0.22 | 2.95 ± 0.21 | Pass |
| MI-111, 112 | 1/12/2010 | K-40 | 1276.00 ± 98.96 | 1334.80 ± 105.00 | 1305.40 ± 72.14 | Pass |
| DW-10010, 10011 | 1/13/2010 | Ra-226 | 0.48 ± 0.10 | 0.43 ± 0.10 | 0.46 ± 0.07 | Pass |
| DW-10010, 10011 | 1/13/2010 | Ra-226 | 1.59 ± 0.61 | 1.13 ± 0.47 | 1.36 ± 0.39 | Pass |
| WW-215, 216 | 1/18/2010 | H-3 | 211.16 ± 87.57 | 291.90 ± 91.31 | 251.53 ± 63.26 | Pass |
| DW-10022, 10023 | 1/21/2010 | Ra-226 | 8.57 ± 0.91 | 10.20 ± 1.08 | 9.39 ± 0.71 | Pass |
| DW-10022, 10023 | 1/21/2010 | Ra-228 | 5.68 ± 1.36 | 3.59 ± 1.17 | 4.64 ± 0.90 | Pass |
| WW-424, 425 | 1/28/2010 | H-3 | 422.30 ± 95.90 | 484.20 ± 98.50 | 453.25 ± 68.74 | Pass |
| DW-10034, 10035 | 1/28/2010 | Ra-226 | 0.93 ± 0.13 | 0.90 ± 0.11 | 0.92 ± 0.09 | Pass |
| DW-10034, 10035 | 1/28/2010 | Ra-228 | 1.16 ± 0.62 | 1.29 ± 0.62 | 1.23 ± 0.44 | Pass |
| SW-382, 383 | 2/1/2010 | Gr. Beta | 2.22 ± 0.68 | 1.18 ± 0.71 | 1.70 ± 0.49 | Pass |
| DW-10046, 10047 | 2/2/2010 | Ra-226 | 6.11 ± 0.91 | 7.88 ± 1.17 | 7.00 ± 0.74 | Pass |
| DW-10046, 10047 | 2/2/2010 | Ra-228 | 5.84 ± 1.11 | 6.13 ± 1.14 | 5.99 ± 0.80 | Pass |
| WW-693, 694 | 2/23/2010 | H-3 | 1458.00 ± 131.00 | 1531.00 ± 133.00 | 1494.50 ± 93.34 | Pass |
| SW-782, 783 | 3/1/2010 | Gr. Beta | 1.05 ± 0.42 | 1.60 ± 0.43 | 1.33 ± 0.30 | Pass |
| SW-782, 783 | 3/1/2010 | K-40 | 1.50 ± 0.15 | 1.52 ± 0.15 | 1.51 ± 0.11 | Pass |
| MI-946, 947 | 3/9/2010 | K-40 | 1485.00 ± 109.30 | 1347.40 ± 108.30 | 1416.20 ± 76.93 | Pass |
| W-1035, 1036 | 3/17/2010 | Ra-226 | 11.78 ± 1.51 | 9.76 ± 1.26 | 10.77 ± 0.98 | Pass |
| W-1035, 1036 | 3/17/2010 | Ra-228 | 5.31 ± 2.42 | 8.45 ± 2.78 | 6.88 ± 1.84 | Pass |
| SW-1285, 1286 | 3/17/2010 | H-3 | 377.60 ± 104.50 | 282.70 ± 100.70 | 330.15 ± 72.56 | Pass |
| W-1103, 1104 | 3/18/2010 | H-3 | 12690 ± 333 | 12679 ± 333 | 12685 ± 235 | Pass |
| WW-1193, 1194 | 3/18/2010 | H-3 | 227.38 ± 95.19 | 251.81 ± 96.15 | 239.60 ± 67.65 | Pass |
| LW-1909, 1910 | 3/24/2010 | H-3 | 1529.40 ± 144.60 | 1404.40 ± 140.80 | 1466.90 ± 100.91 | Pass |
| LW-1909, 1910 | 3/25/2010 | H-3 | 2.40 ± 0.97 | 1.99 ± 1.03 | 2.20 ± 0.71 | Pass |
| DW-10068, 10069 | 3/25/2010 | Gr. Alpha | 1.08 ± 1.02 | 1.35 ± 1.05 | 1.22 ± 0.73 | Pass |
| DW-10070, 10071 | 3/29/2010 | Ra-226 | 1.58 ± 0.17 | 1.69 ± 0.16 | 1.64 ± 0.12 | Pass |
| DW-10070, 10071 | 3/29/2010 | Ra-228 | 1.16 ± 0.47 | 1.34 ± 0.49 | 1.25 ± 0.34 | Pass |
| AP-1729, 1730 | 3/30/2010 | Be-7 | 0.08 ± 0.01 | 0.08 ± 0.01 | 0.08 ± 0.01 | Pass |
| AP-1782, 1783 | 3/30/2010 | Be-7 | 0.08 ± 0.01 | 0.09 ± 0.01 | 0.09 ± 0.01 | Pass |
| E-1392, 1393 | 4/1/2010 | Gr. Beta | 1.59 ± 0.07 | 1.66 ± 0.08 | 1.63 ± 0.05 | Pass |
| E-1392, 1393 | 4/1/2010 | K-40 | 902.30 ± 179.00 | 1076.70 ± 202.90 | 989.50 ± 135.29 | Pass |
| WW-1422, 1423 | 4/1/2010 | Gr. Beta | 22.23 ± 1.58 | 19.42 ± 1.40 | 20.83 ± 1.06 | Pass |
| SW-1464, 1465 | 4/1/2010 | H-3 | 262.06 ± 98.96 | 233.18 ± 97.75 | 247.62 ± 69.55 | Pass |
| XW-1666, 1667 | 4/1/2010 | Fe-55 | 7.05 ± 0.71 | 7.25 ± 0.74 | 7.15 ± 0.51 | Pass |
| SG-1532, 1533 | 4/6/2010 | Ac-228 | 19.45 ± 1.14 | 20.07 ± 1.19 | 19.76 ± 0.82 | Pass |
| SG-1532, 1533 | 4/6/2010 | Pb-214 | 12.66 ± 0.52 | 13.32 ± 0.54 | 12.99 ± 0.38 | Pass |

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

| Lab Code | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|-----------------|-----------|-----------|------------------------------------|------------------|-----------------|------------|
| | | | First Result | Second Result | Averaged Result | |
| SG-1506, 1507 | 4/7/2010 | Ac-228 | 1.28 ± 0.15 | 1.15 ± 0.14 | 1.22 ± 0.10 | Pass |
| SG-1506, 1507 | 4/7/2010 | Pb-214 | 1.24 ± 0.10 | 1.22 ± 0.09 | 1.23 ± 0.07 | Pass |
| SW-1645, 1646 | 4/14/2010 | H-3 | 312.00 ± 100.00 | 352.00 ± 102.00 | 332.00 ± 71.42 | Pass |
| DW-10095, 10096 | 4/14/2010 | Ra-226 | 4.87 ± 0.53 | 5.57 ± 0.61 | 5.22 ± 0.40 | Pass |
| DW-10095, 10096 | 4/14/2010 | Ra-228 | 2.49 ± 0.56 | 2.76 ± 0.60 | 2.63 ± 0.41 | Pass |
| W-2013, 2014 | 4/16/2010 | Gr. Alpha | 33.45 ± 3.98 | 39.11 ± 4.54 | 36.28 ± 3.02 | Pass |
| W-2013, 2014 | 4/16/2010 | Gr. Beta | 14.83 ± 0.96 | 16.07 ± 0.96 | 15.45 ± 0.68 | Pass |
| WW-2431, 2432 | 4/19/2010 | H-3 | 400.40 ± 98.10 | 377.70 ± 97.10 | 389.05 ± 69.01 | Pass |
| SO-2037, 2038 | 4/22/2010 | K-40 | 2.89 ± 0.40 | 2.89 ± 0.51 | 2.89 ± 0.32 | Pass |
| W-2325, 2326 | 4/26/2010 | H-3 | 399.00 ± 92.00 | 429.00 ± 94.00 | 414.00 ± 65.76 | Pass |
| AP-2149, 2150 | 4/29/2010 | Be-7 | 0.14 ± 0.08 | 0.26 ± 0.12 | 0.20 ± 0.07 | Pass |
| LW-2191, 2192 | 4/29/2010 | Gr. Beta | 1.16 ± 0.56 | 0.79 ± 0.52 | 0.97 ± 0.38 | Pass |
| G-2170, 2171 | 5/3/2010 | Be-7 | 0.91 ± 0.32 | 0.86 ± 0.26 | 0.89 ± 0.21 | Pass |
| G-2170, 2171 | 5/3/2010 | Gr. Beta | 8.73 ± 0.22 | 9.01 ± 0.23 | 8.87 ± 0.16 | Pass |
| G-2170, 2171 | 5/3/2010 | K-40 | 7.24 ± 0.44 | 7.48 ± 0.78 | 7.36 ± 0.45 | Pass |
| SWT-2282, 2283 | 5/4/2010 | Gr. Beta | 0.73 ± 0.52 | 1.58 ± 0.57 | 1.16 ± 0.39 | Pass |
| WW-2233, 2234 | 5/5/2010 | Gr. Alpha | 1.56 ± 1.47 | 2.27 ± 1.65 | 1.92 ± 1.10 | Pass |
| WW-2233, 2234 | 5/5/2010 | Gr. Beta | 2.33 ± 1.14 | 4.08 ± 1.24 | 3.21 ± 0.84 | Pass |
| TD-2410, 2411 | 5/10/2010 | H-3 | 431.92 ± 96.50 | 403.05 ± 95.26 | 417.48 ± 67.80 | Pass |
| SG-2347, 2348 | 5/13/2010 | Ra-226 | 37.34 ± 0.42 | 37.91 ± 0.36 | 37.63 ± 0.28 | Pass |
| F-2463, 2464 | 5/17/2010 | K-40 | 2.69 ± 0.56 | 2.65 ± 0.38 | 2.67 ± 0.34 | Pass |
| XW-2834, 2835 | 5/20/2010 | H-3 | 209.53 ± 83.34 | 263.11 ± 85.95 | 236.32 ± 59.86 | Pass |
| WW-2597, 2598 | 5/25/2010 | H-3 | 288.10 ± 98.20 | 155.80 ± 93.40 | 221.95 ± 67.76 | Pass |
| MI-2639, 2640 | 5/25/2010 | K-40 | 1428.80 ± 110.60 | 1408.60 ± 107.40 | 1418.70 ± 77.08 | Pass |
| SL-2771, 2772 | 6/1/2010 | Gr. Beta | 5.33 ± 0.18 | 5.30 ± 0.18 | 5.32 ± 0.13 | Pass |
| SL-2771, 2772 | 6/1/2010 | K-40 | 4.67 ± 0.46 | 4.88 ± 0.46 | 4.78 ± 0.33 | Pass |
| SW-2879, 2880 | 6/1/2010 | H-3 | 335.60 ± 92.60 | 356.40 ± 93.60 | 346.00 ± 65.83 | Pass |
| SG-2904, 2905 | 6/7/2010 | Gamma | 5.20 ± 0.20 | 5.50 ± 0.10 | 5.35 ± 0.11 | Pass |
| SO-3039, 3040 | 6/8/2010 | Be-7 | 0.12 ± 0.03 | 0.13 ± 0.08 | 0.13 ± 0.04 | Pass |
| SO-3039, 3040 | 6/8/2010 | Cs-137 | 0.01 ± 0.00 | 0.01 ± 0.00 | 0.01 ± 0.00 | Pass |
| SO-3039, 3040 | 6/8/2010 | Gr. Beta | 22.80 ± 2.05 | 23.84 ± 2.44 | 23.32 ± 1.59 | Pass |
| SO-3039, 3040 | 6/8/2010 | K-40 | 11.30 ± 1.20 | 11.70 ± 1.20 | 11.50 ± 0.85 | Pass |
| SO-3039, 3040 | 6/8/2010 | U-233/4 | 0.12 ± 0.02 | 0.13 ± 0.01 | 0.13 ± 0.01 | Pass |
| SO-3039, 3040 | 6/8/2010 | U-238 | 0.12 ± 0.01 | 0.13 ± 0.01 | 0.13 ± 0.01 | Pass |
| WW-3060, 3061 | 6/14/2010 | H-3 | 199.16 ± 95.13 | 203.59 ± 95.34 | 201.38 ± 67.34 | Pass |
| VE-3351, 3352 | 6/21/2010 | Be-7 | 1.86 ± 0.25 | 1.85 ± 0.27 | 1.85 ± 0.18 | Pass |
| VE-3351, 3352 | 6/21/2010 | K-40 | 6.10 ± 0.52 | 6.10 ± 0.57 | 6.10 ± 0.39 | Pass |
| W-3469, 3470 | 6/25/2010 | H-3 | 573.00 ± 110.00 | 525.00 ± 108.00 | 549.00 ± 77.08 | Pass |
| SG-3539, 3540 | 6/29/2010 | Ac-228 | 14.55 ± 0.51 | 14.57 ± 0.44 | 14.56 ± 0.34 | Pass |
| SG-3539, 3540 | 6/29/2010 | Pb-214 | 15.50 ± 1.56 | 16.80 ± 1.71 | 16.15 ± 1.16 | Pass |
| AP-3743, 3744 | 6/30/2010 | Be-7 | 0.07 ± 0.01 | 0.07 ± 0.01 | 0.07 ± 0.01 | Pass |

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

| Lab Code | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|----------------------------|-----------|-----------|------------------------------------|------------------|------------------|------------|
| | | | First Result | Second Result | Averaged Result | |
| G-3427, 3428 | 7/1/2010 | Be-7 | 1.18 ± 0.29 | 1.06 ± 0.25 | 1.12 ± 0.19 | Pass |
| G-3427, 3428 | 7/1/2010 | K-40 | 8.79 ± 0.64 | 7.85 ± 0.65 | 8.32 ± 0.46 | Pass |
| SW-3512, 3513 | 7/6/2010 | H-3 | 441.00 ± 103.00 | 423.00 ± 102.00 | 432.00 ± 72.48 | Pass |
| AP-3680, 3681 | 7/8/2010 | Be-7 | 0.16 ± 0.08 | 0.13 ± 0.07 | 0.15 ± 0.05 | Pass |
| VE-3791, 3792 | 7/12/2010 | K-40 | 4.37 ± 0.38 | 4.23 ± 0.35 | 4.30 ± 0.26 | Pass |
| WW-3934, 3935 | 7/12/2010 | H-3 | 3091.00 ± 187.00 | 3242.00 ± 191.00 | 3166.50 ± 133.65 | Pass |
| DW-10135, 10136 | 7/13/2010 | Ra-226 | 0.18 ± 0.07 | 0.26 ± 0.07 | 0.22 ± 0.05 | Pass |
| DW-10135, 10136 | 7/13/2010 | Ra-228 | 0.76 ± 0.44 | 0.81 ± 0.41 | 0.79 ± 0.30 | Pass |
| W-4063, 4064 | 7/14/2010 | H-3 | 469.00 ± 104.00 | 351.00 ± 99.00 | 410.00 ± 71.79 | Pass |
| DW-10143, 10144 | 7/19/2010 | Gr. Alpha | 2.84 ± 0.74 | 2.49 ± 0.73 | 2.67 ± 0.52 | Pass |
| DW-10148, 10149 | 7/23/2010 | Ra-226 | 2.08 ± 0.39 | 2.97 ± 0.55 | 2.53 ± 0.34 | Pass |
| DW-10148, 10149 | 7/23/2010 | Ra-228 | 1.90 ± 0.61 | 2.00 ± 0.61 | 1.95 ± 0.43 | Pass |
| DW-10159, 10160 | 7/23/2010 | Ra-226 | 0.91 ± 0.14 | 0.79 ± 0.21 | 0.85 ± 0.13 | Pass |
| DW-10159, 10160 | 7/23/2010 | Ra-228 | 1.41 ± 0.54 | 1.30 ± 0.53 | 1.36 ± 0.38 | Pass |
| SL-4106, 4107 | 8/2/2010 | Be-7 | 2.05 ± 0.20 | 2.05 ± 0.18 | 2.05 ± 0.13 | Pass |
| SL-4106, 4107 | 8/2/2010 | Gr. Beta | 5.06 ± 0.32 | 4.62 ± 0.30 | 4.84 ± 0.22 | Pass |
| SL-4106, 4107 | 8/2/2010 | K-40 | 1.89 ± 0.24 | 1.70 ± 0.17 | 1.80 ± 0.15 | Pass |
| SG-4085, 4086 | 8/3/2010 | Ra-226 | 20.23 ± 2.04 | 21.45 ± 2.16 | 20.84 ± 1.49 | Pass |
| SG-4085, 4086 | 8/3/2010 | Ra-228 | 15.88 ± 0.41 | 16.24 ± 0.36 | 16.06 ± 0.27 | Pass |
| SWT-4304, 4305 | 8/3/2010 | Gr. Beta | 2.08 ± 1.07 | 2.44 ± 0.98 | 2.26 ± 0.73 | Pass |
| BS-4398, 4399 | 8/10/2010 | Cs-137 | 78.80 ± 33.50 | 94.30 ± 51.90 | 86.55 ± 30.89 | Pass |
| BS-4398, 4399 | 8/10/2010 | K-40 | 13708 ± 795 | 12091 ± 1110 | 12900 ± 683 | Pass |
| VE-4531, 4532 | 8/11/2010 | Gr. Beta | 36.20 ± 0.90 | 35.80 ± 0.90 | 36.00 ± 0.64 | Pass |
| VE-4531, 4532 | 8/11/2010 | K-40 | 27.31 ± 0.70 | 27.58 ± 0.62 | 27.45 ± 0.47 | Pass |
| VE-4531, 4532 | 8/11/2010 | U-233/4 | 0.014 ± 0.003 | 0.014 ± 0.003 | 0.014 ± 0.002 | Pass |
| VE-4531, 4532 | 8/11/2010 | U-238 | 0.012 ± 0.003 | 0.010 ± 0.002 | 0.011 ± 0.002 | Pass |
| DW-10170, 10171 | 8/13/2010 | Ra-226 | 1.32 ± 0.14 | 1.26 ± 0.14 | 1.29 ± 0.10 | Pass |
| DW-10170, 10171 | 8/13/2010 | Ra-228 | 2.55 ± 0.78 | 1.76 ± 0.71 | 2.16 ± 0.53 | Pass |
| AP-4766, 4767 | 8/26/2010 | Be-7 | 0.18 ± 0.09 | 0.25 ± 0.13 | 0.22 ± 0.08 | Pass |
| DW-10182, 10183 | 8/27/2010 | Ra-226 | 0.15 ± 0.08 | 0.11 ± 0.07 | 0.13 ± 0.05 | Pass |
| VE-4928, 4929 | 9/1/2010 | K-40 | 2.99 ± 0.41 | 3.18 ± 0.28 | 3.09 ± 0.25 | Pass |
| SL-4883, 4884 | 9/1/2010 | Gr. Beta | 6.90 ± 0.20 | 7.10 ± 0.20 | 7.00 ± 0.14 | Pass |
| SL-4883, 4884 ^b | 9/1/2010 | K-40 | 7.15 ± 0.99 | 5.07 ± 0.51 | 6.11 ± 0.56 | Fail |
| W-5135, 5136 | 9/6/2010 | H-3 | 658.60 ± 110.80 | 600.90 ± 108.50 | 629.75 ± 77.54 | Pass |
| SW-5071, 5072 | 9/13/2010 | H-3 | 186.70 ± 101.10 | 267.30 ± 104.40 | 227.00 ± 72.66 | Pass |
| XWW-5246, 5247 | 9/14/2010 | H-3 | 1990.60 ± 157.70 | 1986.20 ± 157.60 | 1988.40 ± 111.48 | Pass |

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

| Lab Code | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|-----------------|------------|----------|------------------------------------|-------------------|-------------------|------------|
| | | | First Result | Second Result | Averaged Result | |
| VE-5114, 5115 | 9/9/2010 | Be-7 | 1.14 ± 0.35 | 1.48 ± 0.26 | 1.31 ± 0.22 | Pass |
| VE-5114, 5115 | 9/9/2010 | Gr. Beta | 34.72 ± 1.29 | 33.38 ± 1.23 | 34.05 ± 0.89 | Pass |
| VE-5114, 5115 | 9/9/2010 | H-3 | 79367 ± 837 | 79421 ± 837 | 79394 ± 592 | Pass |
| VE-5114, 5115 | 9/9/2010 | K-40 | 22.13 ± 0.67 | 21.93 ± 0.58 | 22.03 ± 0.44 | Pass |
| VE-5114, 5115 | 9/9/2010 | U-233/4 | 0.08 ± 0.01 | 0.06 ± 0.01 | 0.07 ± 0.01 | Pass |
| MI-5267, 5268 | 9/20/2010 | K-40 | 1281.10 ± 118.90 | 1218.60 ± 110.80 | 1249.85 ± 81.26 | Pass |
| SO-5357, 5358 | 9/23/2010 | K-40 | 10894.00 ± 560.00 | 11175.00 ± 760.00 | 11034.50 ± 472.02 | Pass |
| AP-5357, 5358 | 9/23/2010 | Be-7 | 0.11 ± 0.02 | 0.09 ± 0.02 | 0.10 ± 0.01 | Pass |
| DW-10194, 10195 | 9/23/2010 | Ra-226 | 0.40 ± 0.10 | 0.20 ± 0.10 | 0.30 ± 0.07 | Pass |
| DW-10194, 10195 | 9/23/2010 | Ra-228 | 1.61 ± 0.65 | 0.88 ± 0.47 | 1.25 ± 0.40 | Pass |
| WW-5442, 5443 | 9/29/2010 | H-3 | 6706.00 ± 252.00 | 6510.00 ± 249.00 | 6608.00 ± 177.13 | Pass |
| VE-5469, 5470 | 9/29/2010 | K-40 | 2.86 ± 0.38 | 2.57 ± 0.37 | 2.72 ± 0.26 | Pass |
| BS-5886, 5887 | 9/29/2010 | Cs-137 | 83.36 ± 23.31 | 58.97 ± 21.16 | 71.17 ± 15.74 | Pass |
| BS-5886, 5887 | 9/29/2010 | K-40 | 13913.00 ± 775.40 | 13582.00 ± 710.30 | 13747.50 ± 525.78 | Pass |
| G-5513, 5514 | 10/4/2010 | Be-7 | 6.73 ± 0.40 | 6.36 ± 0.41 | 6.55 ± 0.29 | Pass |
| E-5492, 5493 | 10/4/2010 | Gr. Beta | 1.74 ± 0.05 | 1.77 ± 0.05 | 1.76 ± 0.04 | Pass |
| E-5492, 5493 | 10/4/2010 | K-40 | 1.57 ± 0.17 | 1.55 ± 0.18 | 1.56 ± 0.12 | Pass |
| G-5512, 5513 | 10/4/2010 | Gr. Beta | 10.86 ± 0.44 | 10.39 ± 0.39 | 10.63 ± 0.29 | Pass |
| G-5512, 5513 | 10/4/2010 | K-40 | 7.10 ± 0.54 | 7.41 ± 0.59 | 7.26 ± 0.40 | Pass |
| MI-5541, 5542 | 10/4/2010 | K-40 | 1090.60 ± 106.70 | 1246.10 ± 102.60 | 1168.35 ± 74.01 | Pass |
| MI-5541, 5542 | 10/4/2010 | Sr-90 | 1.44 ± 0.38 | 1.11 ± 0.35 | 1.27 ± 0.26 | Pass |
| F-6061, 6062 | 10/9/2010 | H-3 | 7.64 ± 0.23 | 7.49 ± 0.23 | 7.57 ± 0.16 | Pass |
| F-6061, 6062 | 10/9/2010 | K-40 | 2.81 ± 0.40 | 2.56 ± 0.50 | 2.68 ± 0.32 | Pass |
| VE-5740, 5741 | 10/10/2010 | K-40 | 4.92 ± 0.53 | 4.61 ± 0.34 | 4.77 ± 0.32 | Pass |
| VE-5761, 5762 | 10/12/2010 | Be-7 | 1.05 ± 0.29 | 0.69 ± 0.15 | 0.87 ± 0.16 | Pass |
| VE-5761, 5762 | 10/12/2010 | K-40 | 3.45 ± 0.45 | 3.34 ± 0.29 | 3.40 ± 0.27 | Pass |
| AP-5910, 5911 | 10/14/2010 | Be-7 | 0.23 ± 0.09 | 0.30 ± 0.12 | 0.26 ± 0.08 | Pass |
| WW-6294, 6295 | 10/18/2010 | H-3 | 1681.49 ± 146.32 | 1637.41 ± 144.98 | 1659.45 ± 102.99 | Pass |
| P-6038, 6039 | 10/19/2010 | H-3 | 2131.90 ± 159.50 | 2212.00 ± 161.70 | 2171.95 ± 113.56 | Pass |
| AP-6195, 6196 | 10/21/2010 | Be-7 | 0.27 ± 0.11 | 0.26 ± 0.13 | 0.26 ± 0.09 | Pass |
| WW-6366, 6367 | 10/23/2010 | H-3 | 477.28 ± 102.02 | 529.99 ± 104.27 | 503.64 ± 72.94 | Pass |
| SWU-6315, 6316 | 10/26/2010 | Gr. Beta | 1.85 ± 1.00 | 1.40 ± 0.90 | 1.62 ± 0.67 | Pass |
| SO-6336, 6337 | 10/28/2010 | Cs-137 | 0.23 ± 0.03 | 0.23 ± 0.04 | 0.23 ± 0.02 | Pass |
| SO-6336, 6337 | 10/28/2010 | Gr. Beta | 26.36 ± 1.67 | 24.78 ± 1.52 | 25.57 ± 1.13 | Pass |
| SO-6336, 6337 | 10/28/2010 | K-40 | 13.43 ± 0.76 | 13.73 ± 0.81 | 13.58 ± 0.56 | Pass |
| AP-6453, 6454 | 10/28/2010 | Be-7 | 0.23 ± 0.12 | 0.30 ± 0.15 | 0.26 ± 0.10 | Pass |
| BS-6475, 6476 | 11/1/2010 | Gr. Beta | 13.13 ± 1.83 | 12.75 ± 1.67 | 12.94 ± 1.24 | Pass |
| F-6658, 6659 | 11/3/2010 | K-40 | 2.79 ± 0.40 | 2.94 ± 0.44 | 2.86 ± 0.30 | Pass |
| F-6565, 6566 | 11/4/2010 | Cs-137 | 0.06 ± 0.02 | 0.04 ± 0.01 | 0.05 ± 0.01 | Pass |
| F-6565, 6566 | 11/4/2010 | Gr. Beta | 3.90 ± 0.10 | 4.10 ± 0.10 | 3.96 ± 0.06 | Pass |
| F-6565, 6566 | 11/4/2010 | K-40 | 2.63 ± 0.45 | 2.57 ± 0.35 | 2.60 ± 0.29 | Pass |
| SS-5761, 5762 | 11/16/2010 | K-40 | 15.42 ± 1.57 | 15.87 ± 1.21 | 15.65 ± 0.99 | Pass |
| WW-7056, 7057 | 11/30/2010 | Gr. Beta | 2.09 ± 0.84 | 2.22 ± 0.80 | 2.16 ± 0.58 | Pass |

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

| Lab Code | Date | Analysis | Concentration (pCi/L) ^a | | | Acceptance |
|----------------|------------|----------|------------------------------------|------------------|-----------------|------------|
| | | | First Result | Second Result | Averaged Result | |
| SO-7166, 7167 | 11/30/2010 | Cs-137 | 0.12 ± 0.04 | 0.11 ± 0.03 | 0.11 ± 0.03 | Pass |
| SO-7166, 7167 | 11/30/2010 | K-40 | 14.93 ± 0.88 | 14.49 ± 0.86 | 14.71 ± 0.61 | Pass |
| WW-7412, 7413 | 12/6/2010 | H-3 | 469.78 ± 146.32 | 503.57 ± 93.96 | 486.68 ± 86.94 | Pass |
| MI-7187, 7188 | 12/8/2010 | K-40 | 1495.10 ± 129.00 | 1398.40 ± 109.10 | 1446.75 ± 84.47 | Pass |
| MI-7187, 7188 | 12/8/2010 | Sr-90 | 0.57 ± 0.31 | 0.66 ± 0.28 | 0.62 ± 0.21 | Pass |
| WW-7255, 7256 | 12/8/2010 | H-3 | 243.46 ± 90.39 | 327.34 ± 94.11 | 285.40 ± 65.24 | Pass |
| AP-7276, 7277 | 12/9/2010 | Be-7 | 0.13 ± 0.07 | 0.18 ± 0.10 | 0.16 ± 0.06 | Pass |
| XWW-7297, 7298 | 12/9/2010 | H-3 | 686.00 ± 102.00 | 764.60 ± 105.00 | 725.30 ± 73.19 | Pass |
| AP-7344, 7345 | 12/16/2010 | Be-7 | 0.16 ± 0.09 | 0.17 ± 0.09 | 0.16 ± 0.06 | Pass |
| SWT-7480, 7481 | 12/28/2010 | Gr. Beta | 0.90 ± 0.40 | 1.03 ± 0.41 | 0.97 ± 0.29 | 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).

^b Analysis was repeated, result of reanalysis: 4.83 ± 0.29 pCi/L.

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

| Lab Code ^c | Date | Analysis | Laboratory result | Concentration ^b | | Acceptance |
|-----------------------|----------|-----------|-------------------|----------------------------|-----------------------------|------------|
| | | | | Known Activity | Control Limits ^d | |
| STVE-1199 | 03/01/10 | Co-57 | 0.01 ± 0.03 | 0.00 | - | Pass |
| STVE-1199 | 03/01/10 | Co-60 | 3.39 ± 0.12 | 3.27 | 2.29 - 4.25 | Pass |
| STVE-1199 | 03/01/10 | Cs-134 | 4.74 ± 0.15 | 4.39 | 3.07 - 5.71 | Pass |
| STVE-1199 | 03/01/10 | Cs-137 | 3.32 ± 0.17 | 3.06 | 2.14 - 3.98 | Pass |
| STVE-1199 | 03/01/10 | Mn-54 | 0.01 ± 0.05 | 0.00 | - | Pass |
| STVE-1199 | 03/01/10 | Zn-65 | 8.03 ± 0.33 | 7.10 | 4.97 - 9.23 | Pass |
| STW-1200 | 03/01/10 | Gr. Alpha | 0.40 ± 0.05 | 0.68 | 0.00 - 1.35 | Pass |
| STW-1200 | 03/01/10 | Gr. Beta | 3.03 ± 0.07 | 3.09 | 1.55 - 4.64 | Pass |
| STW-1201 | 03/01/10 | Am-241 | 1.05 ± 0.08 | 1.30 | 0.91 - 1.69 | Pass |
| STW-1201 | 03/01/10 | Co-57 | 28.90 ± 0.40 | 28.30 | 19.80 - 36.80 | Pass |
| STW-1201 | 03/01/10 | Co-60 | 0.06 ± 0.05 | 0.00 | - | Pass |
| STW-1201 | 03/01/10 | Cs-134 | -0.03 ± 0.09 | 0.00 | - | Pass |
| STW-1201 | 03/01/10 | Cs-137 | 60.60 ± 0.60 | 60.60 | 42.40 - 78.80 | Pass |
| STW-1201 | 03/01/10 | Fe-55 | 3.00 ± 14.40 | 0.00 | - | Pass |
| STW-1201 | 03/01/10 | H-3 | 93.20 ± 18.30 | 90.80 | 63.60 - 118.00 | Pass |
| STW-1201 | 03/01/10 | Mn-54 | 27.80 ± 0.40 | 26.90 | 18.80 - 35.00 | Pass |
| STW-1201 | 03/01/10 | Ni-63 | 49.10 ± 3.50 | 59.90 | 41.90 - 77.90 | Pass |
| STW-1201 | 03/01/10 | Sr-90 | -0.10 ± 0.60 | 0.00 | - | Pass |
| STW-1201 | 03/01/10 | Tc-99 | 0.50 ± 0.50 | 0.00 | - | Pass |
| STW-1201 | 03/01/10 | U-233/4 | 1.21 ± 0.05 | 1.22 | 0.85 - 1.59 | Pass |
| STW-1201 | 03/01/10 | U-238 | 1.20 ± 0.05 | 1.25 | 0.88 - 1.63 | Pass |
| STW-1201 | 03/01/10 | Zn-65 | 42.70 ± 0.80 | 40.70 | 28.50 - 52.90 | Pass |
| STSO-1202 | 03/01/10 | Co-57 | 520.00 ± 10.80 | 522.00 | 365.00 - 679.00 | Pass |
| STSO-1202 | 03/01/10 | Co-60 | 599.10 ± 2.80 | 622.00 | 435.00 - 809.00 | Pass |
| STSO-1202 | 03/01/10 | Cs-134 | 666.10 ± 4.70 | 733.00 | 513.00 - 953.00 | Pass |
| STSO-1202 | 03/01/10 | Cs-137 | 774.40 ± 4.50 | 779.00 | 545.00 - 1013.00 | Pass |
| STSO-1202 | 03/01/10 | K-40 | 562.00 ± 15.30 | 559.00 | 391.00 - 727.00 | Pass |
| STSO-1202 | 03/01/10 | Mn-54 | 866.20 ± 4.60 | 849.00 | 594.00 - 1104.00 | Pass |
| STSO-1202 | 03/01/10 | Sr-90 | 225.50 ± 11.80 | 288.00 | 202.00 - 374.00 | Pass |
| STSO-1202 | 03/01/10 | U-233/4 | 59.90 ± 2.50 | 60.00 | 42.00 - 78.00 | Pass |
| STSO-1202 | 03/01/10 | U-238 | 62.10 ± 2.60 | 64.00 | 45.00 - 83.00 | Pass |
| STSO-1202 | 03/01/10 | Zn-65 | -1.23 ± 1.96 | 0.00 | - | Pass |
| STAP-1203 | 03/01/10 | Am-241 | 0.10 ± 0.01 | 0.15 | 0.10 - 0.19 | Pass |
| STAP-1203 | 03/01/10 | Co-57 | 0.01 ± 0.02 | 0.00 | - | Pass |
| STAP-1203 | 03/01/10 | Co-60 | 2.63 ± 0.19 | 2.47 | 1.73 - 3.22 | Pass |
| STAP-1203 | 03/01/10 | Cs-134 | 2.21 ± 0.34 | 2.13 | 1.49 - 2.77 | Pass |
| STAP-1203 | 03/01/10 | Cs-137 | 1.66 ± 0.22 | 1.53 | 1.07 - 1.99 | Pass |
| STAP-1203 | 03/01/10 | Mn-54 | 3.42 ± 0.26 | 3.02 | 2.11 - 3.93 | Pass |
| STAP-1203 | 03/01/10 | Sr-90 | 0.02 ± 0.06 | 0.00 | - | Pass |
| STAP-1203 | 03/01/10 | Zn-65 | -0.05 ± 0.11 | 0.00 | - | Pass |

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

| Lab Code ^c | Date | Analysis | Laboratory result | Concentration ^b | | Acceptance |
|-----------------------|----------|-----------|-------------------|----------------------------|-----------------------------|------------|
| | | | | Known Activity | Control Limits ^d | |
| STAP-1204 | 03/01/10 | Gr. Alpha | 0.13 ± 0.03 | 0.43 | 0.00 - 0.85 | Pass |
| STAP-1204 | 03/01/10 | Gr. Beta | 1.46 ± 0.07 | 1.29 | 0.65 - 1.94 | Pass |
| STW-1211 | 08/01/10 | Am-241 | 0.02 ± 0.02 | 0.00 | - | Pass |
| STW-1211 | 08/01/10 | Co-57 | 36.40 ± 4.80 | 36.00 | 25.20 - 46.80 | Pass |
| STW-1211 | 08/01/10 | Co-60 | 28.30 ± 1.00 | 28.30 | 19.80 - 36.80 | Pass |
| STW-1211 | 08/01/10 | Cs-134 | 29.30 ± 2.10 | 31.40 | 22.00 - 40.80 | Pass |
| STW-1211 | 08/01/10 | Cs-137 | 44.60 ± 1.80 | 44.20 | 30.90 - 57.50 | Pass |
| STW-1211 | 08/01/10 | Fe-55 | 48.50 ± 20.10 | 60.20 | 42.10 - 78.30 | Pass |
| STW-1211 | 08/01/10 | H-3 | 503.60 ± 12.80 | 453.40 | 317.40 - 589.40 | Pass |
| STW-1211 | 08/01/10 | K-40 | 38.50 ± 2.50 | 38.90 | 27.20 - 50.60 | Pass |
| STW-1211 | 08/01/10 | Mn-54 | 0.10 ± 0.30 | 0.00 | - | Pass |
| STW-1211 | 08/01/10 | Ni-63 | 49.30 ± 3.10 | 56.10 | 39.30 - 72.90 | Pass |
| STW-1211 | 08/01/10 | Pu-238 | 1.49 ± 0.15 | 1.81 | 1.27 - 2.35 | Pass |
| STW-1211 | 08/01/10 | Pu-239/40 | 1.20 ± 0.10 | 1.35 | 0.95 - 1.76 | Pass |
| STW-1211 | 08/01/10 | Sr-90 | 9.20 ± 1.30 | 8.30 | 5.80 - 10.80 | Pass |
| STW-1211 | 08/01/10 | Tc-99 | 28.10 ± 0.90 | 33.60 | 23.50 - 43.70 | Pass |
| STW-1211 | 08/01/10 | U-233/4 | 2.04 ± 0.14 | 2.01 | 1.41 - 2.61 | Pass |
| STW-1211 | 08/01/10 | U-238 | 2.05 ± 0.14 | 2.07 | 1.45 - 2.69 | Pass |
| STW-1211 | 08/01/10 | Zn-65 | 32.80 ± 3.00 | 31.00 | 21.70 - 40.30 | Pass |
| STW-1212 | 08/01/10 | Gr. Alpha | 1.54 ± 0.09 | 1.92 | 0.58 - 3.26 | Pass |
| STW-1212 | 08/01/10 | Gr. Beta | 4.13 ± 0.15 | 4.39 | 2.20 - 6.59 | Pass |
| STVE-1213 | 08/01/10 | Co-57 | 9.60 ± 0.54 | 8.27 | 5.79 - 10.75 | Pass |
| STVE-1213 | 08/01/10 | Co-60 | 0.05 ± 0.08 | 0.00 | - | Pass |
| STVE-1213 | 08/01/10 | Cs-134 | 4.83 ± 0.26 | 4.79 | 3.35 - 6.23 | Pass |
| STVE-1213 | 08/01/10 | Cs-137 | 6.45 ± 0.66 | 5.88 | 4.12 - 7.64 | Pass |
| STVE-1213 | 08/01/10 | Mn-54 | 7.12 ± 0.66 | 6.29 | 4.40 - 8.17 | Pass |
| STVE-1213 | 08/01/10 | Zn-65 | 6.05 ± 0.74 | 5.39 | 3.77 - 7.01 | Pass |
| STSO-1214 | 08/01/10 | Co-57 | 0.10 ± 1.60 | 0.00 | - | Pass |
| STSO-1214 | 08/01/10 | Co-60 | 370.00 ± 6.00 | 343.00 | 240.00 - 446.00 | Pass |
| STSO-1214 | 08/01/10 | Cs-134 | 1005.00 ± 21.00 | 940.00 | 658.00 - 1222.00 | Pass |
| STSO-1214 | 08/01/10 | Cs-137 | 755.00 ± 15.00 | 670.00 | 469.00 - 871.00 | Pass |
| STSO-1214 | 08/01/10 | K-40 | 783.00 ± 54.00 | 699.00 | 489.00 - 909.00 | Pass |
| STSO-1214 | 08/01/10 | Mn-54 | 942.00 ± 15.00 | 820.00 | 574.00 - 1066.00 | Pass |
| STSO-1214 | 08/01/10 | Pu-238 | 69.20 ± 6.20 | 64.00 | 45.00 - 83.00 | Pass |
| STSO-1214 | 08/01/10 | Pu-239/40 | 76.50 ± 6.20 | 71.00 | 50.00 - 92.00 | Pass |
| STSO-1214 | 08/01/10 | Sr-90 | 3.50 ± 8.00 | 0.00 | - | Pass |
| STSO-1214 | 08/01/10 | U-233/4 | 76.50 ± 6.20 | 71.00 | 50.00 - 92.00 | Pass |
| STSO-1214 | 08/01/10 | U-238 | 271.40 ± 9.00 | 289.00 | 202.00 - 376.00 | Pass |
| STSO-1214 | 08/01/10 | Zn-65 | 310.00 ± 18.00 | 265.00 | 186.00 - 345.00 | Pass |

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

| Lab Code ^c | Date | Analysis | Laboratory result | Concentration ^b | | Acceptance |
|-----------------------|----------|-----------|-------------------|----------------------------|-----------------------------|------------|
| | | | | Known Activity | Control Limits ^d | |
| STAP-1215 | 08/01/10 | Co-57 | 4.47 ± 0.21 | 4.08 | 2.86 - 5.30 | Pass |
| STAP-1215 | 08/01/10 | Co-60 | 3.15 ± 0.30 | 2.92 | 2.04 - 3.80 | Pass |
| STAP-1215 | 08/01/10 | Cs-134 | 3.03 ± 0.17 | 2.98 | 2.09 - 3.87 | Pass |
| STAP-1215 | 08/01/10 | Cs-137 | 0.01 ± 0.05 | 0.00 | - | Pass |
| STAP-1215 | 08/01/10 | Mn-54 | 3.69 ± 0.39 | 3.18 | 2.23 - 4.13 | Pass |
| STAP-1215 | 08/01/10 | Sr-90 | 1.00 ± 0.12 | 1.01 | 0.71 - 1.31 | Pass |
| STAP-1215 | 08/01/10 | Zn-65 | 0.03 ± 0.15 | 0.00 | - | Pass |
| STAP-1216 | 08/01/10 | Gr. Alpha | 0.01 ± 0.01 | 0.00 | - | Pass |
| STAP-1216 | 08/01/10 | Gr. Beta | 0.54 ± 0.05 | 0.50 | 0.25 - 0.75 | 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.

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

| Lab Code ^b | Date | Analysis | Concentration (pCi/L) | | Control Limits | Acceptance |
|------------------------|----------|-----------|--------------------------------|-------------------------|-------------------|------------|
| | | | Laboratory Result ^c | ERA Result ^d | | |
| STAP-1217 | 09/20/10 | Am-241 | 55.6 ± 2.9 | 74.1 | 43.3 - 102.0 | Pass |
| STAP-1217 | 09/20/10 | Co-60 | 517.1 ± 9.1 | 479.0 | 371.0 - 598.0 | Pass |
| STAP-1217 | 09/20/10 | Cs-134 | 384.6 ± 33.7 | 388.0 | 253.0 - 480.0 | Pass |
| STAP-1217 | 09/20/10 | Cs-137 | 589.4 ± 7.1 | 514.0 | 386.0 - 675.0 | Pass |
| STAP-1217 | 09/20/10 | Mn-54 | 0.0 ± 0.0 | - | - | Pass |
| STAP-1217 | 09/20/10 | Pu-238 | 76.5 ± 4.0 | 72.9 | 50.0 - 95.8 | Pass |
| STAP-1217 | 09/20/10 | Pu-239/40 | 73.0 ± 3.8 | 69.6 | 50.5 - 90.1 | Pass |
| STAP-1217 | 09/20/10 | Sr-90 | 172.9 ± 21.3 | 159.0 | 70.0 - 247.0 | Pass |
| STAP-1217 | 09/20/10 | U-233/234 | 64.9 ± 3.9 | 71.8 | 45.2 - 106.0 | Pass |
| STAP-1217 | 09/20/10 | U-238 | 68.0 ± 4.0 | 71.2 | 45.6 - 101.0 | Pass |
| STAP-1217 | 09/20/10 | Uranium | 135.5 ± 8.7 | 146.0 | 74.6 - 232.0 | Pass |
| STAP-1217 | 09/20/10 | Zn-65 | 563.1 ± 15.3 | 465.0 | 322.0 - 644.0 | Pass |
| STAP-1218 | 09/20/10 | Gr. Alpha | 66.1 ± 3.2 | 52.3 | 27.1 - 78.7 | Pass |
| STAP-1218 | 09/20/10 | Gr. Beta | 69.9 ± 2.5 | 52.7 | 32.5 - 77.0 | Pass |
| STSO-1219 | 09/20/10 | Ac-228 | 1632.0 ± 80.4 | 1830.0 | 1170.0 - 2580.0 | Pass |
| STSO-1219 | 09/20/10 | Am-241 | 1063.0 ± 120.9 | 1120.0 | 669.0 - 1440.0 | Pass |
| STSO-1219 | 09/20/10 | Bi-212 | 1752.0 ± 255.6 | 2070.0 | 543.0 - 3100.0 | Pass |
| STSO-1219 | 09/20/10 | Bi-214 | 909.3 ± 38.9 | 983.0 | 603.0 - 1410.0 | Pass |
| STSO-1219 | 09/20/10 | Co-60 | 4852.0 ± 153.5 | 4780.0 | 3480.0 - 6420.0 | Pass |
| STSO-1219 | 09/20/10 | Cs-134 | 2190.0 ± 50.7 | 2240.0 | 1440.0 - 2700.0 | Pass |
| STSO-1219 | 09/20/10 | Cs-137 | 3584.0 ± 42.5 | 3530.0 | 2700.0 - 4580.0 | Pass |
| STSO-1219 | 09/20/10 | K-40 | 10017.0 ± 274.5 | 10700.0 | 7760.0 - 14500.0 | Pass |
| STSO-1219 | 09/20/10 | Mn-54 | 0.0 ± 0.0 | - | - | Pass |
| STSO-1219 | 09/20/10 | Pb-212 | 1573.0 ± 28.2 | 1640.0 | 1060.0 - 2310.0 | Pass |
| STSO-1219 | 09/20/10 | Pb-214 | 999.0 ± 39.2 | 969.0 | 580.0 - 1440.0 | Pass |
| STSO-1219 | 09/20/10 | Pu-238 | 1568.0 ± 155.0 | 1280.0 | 733.0 - 1800.0 | Pass |
| STSO-1219 | 09/20/10 | Pu-239/40 | 1445.0 ± 142.9 | 1180.0 | 805.0 - 1570.0 | Pass |
| STSO-1219 ^e | 09/20/10 | U-233/234 | 599.4 ± 69.4 | 1360.0 | 862.0 - 1690.0 | Fail |
| STSO-1219 ^e | 09/20/10 | U-238 | 633.8 ± 71.3 | 1340.0 | 819.0 - 1700.0 | Fail |
| STSO-1219 ^e | 09/20/10 | Uranium | 1248.0 ± 152.7 | 2770.0 | 1580.0 - 3740.0 | Fail |
| STSO-1219 | 09/20/10 | Zn-65 | 2447.0 ± 60.1 | 2300.0 | 1820.0 - 3080.0 | Pass |
| STVE-1220 | 09/20/10 | Co-60 | 1108.0 ± 38.7 | 1010.0 | 683.0 - 1450.0 | Pass |
| STVE-1220 | 09/20/10 | Cs-134 | 1161.0 ± 57.3 | 1040.0 | 595.0 - 1440.0 | Pass |
| STVE-1220 | 09/20/10 | Cs-137 | 1400.0 ± 43.0 | 1260.0 | 924.0 - 1750.0 | Pass |
| STVE-1220 | 09/20/10 | K-40 | 27400.0 ± 683.4 | 22600.0 | 16200.0 - 32000.0 | Pass |
| STVE-1220 | 09/20/10 | Mn-54 | 0.0 ± 0.0 | - | - | Pass |

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

| Lab Code ^b | Date | Analysis | Concentration (pCi/L) | | | Acceptance |
|-----------------------|----------|-----------|--------------------------------|-------------------------|-------------------|------------|
| | | | Laboratory Result ^c | ERA Result ^d | Control Limits | |
| STVE-1220 | 09/20/10 | Am-241 | 4185.0 ± 180.0 | 4760.0 | 2710.0 - 6540.0 | Pass |
| STVE-1220 | 09/20/10 | Cm-244 | 2329.0 ± 132.5 | 2740.0 | 1350.0 - 4270.0 | Pass |
| STVE-1220 | 09/20/10 | Pu-238 | 4912.0 ± 194.0 | 4740.0 | 2560.0 - 6940.0 | Pass |
| STVE-1220 | 09/20/10 | Pu-239/40 | 4765.0 ± 111.0 | 4470.0 | 2770.0 - 6100.0 | Pass |
| STVE-1220 | 09/20/10 | Sr-90 | 7706.0 ± 583.9 | 7810.0 | 4360.0 - 10400.0 | Pass |
| STVE-1220 | 09/20/10 | U-233/234 | 3862.0 ± 203.0 | 4010.0 | 2750.0 - 5320.0 | Pass |
| STVE-1220 | 09/20/10 | U-238 | 3926.0 ± 205.3 | 3980.0 | 2800.0 - 5030.0 | Pass |
| STVE-1220 | 09/20/10 | Uranium | 7671.0 ± 201.2 | 8180.0 | 5620.0 - 10600.0 | Pass |
| STVE-1220 | 09/20/10 | Zn-65 | 1443.0 ± 81.0 | 1210.0 | 874.0 - 1650.0 | Pass |
| STW-1221 | 09/20/10 | Am-241 | 127.9 ± 4.2 | 176.0 | 120.0 - 238.0 | Pass |
| STW-1221 | 09/20/10 | Co-60 | 697.8 ± 10.4 | 714.0 | 622.0 - 844.0 | Pass |
| STW-1221 | 09/20/10 | Cs-134 | 437.5 ± 13.3 | 492.0 | 363.0 - 565.0 | Pass |
| STW-1221 | 09/20/10 | Cs-137 | 612.8 ± 11.6 | 625.0 | 531.0 - 749.0 | Pass |
| STW-1221 | 09/20/10 | Fe-55 | 936.8 ± 508.2 | 825.0 | 480.0 - 1100.0 | Pass |
| STW-1221 | 09/20/10 | Mn-54 | 0.0 ± 0.0 | - | - | Pass |
| STW-1221 | 09/20/10 | Pu-238 | 148.1 ± 6.0 | 162.0 | 122.0 - 201.0 | Pass |
| STW-1221 | 09/20/10 | Pu-239/40 | 154.1 ± 6.2 | 148.0 | 114.0 - 183.0 | Pass |
| STW-1221 | 09/20/10 | Sr-90 | 872.3 ± 13.4 | 921.0 | 585.0 - 1230.0 | Pass |
| STW-1221 | 09/20/10 | U-233/234 | 99.1 ± 4.4 | 109.0 | 82.2 - 140.0 | Pass |
| STW-1221 | 09/20/10 | U-238 | 103.7 ± 4.5 | 108.0 | 82.5 - 134.0 | Pass |
| STW-1221 | 09/20/10 | Uranium | 206.5 ± 9.8 | 221.0 | 159.0 - 294.0 | Pass |
| STW-1221 | 09/20/10 | Zn-65 | 489.1 ± 16.2 | 489.0 | 414.0 - 610.0 | Pass |
| STW-1222 | 09/20/10 | Gr. Alpha | 110.6 ± 3.5 | 146.0 | 64.8 - 216.0 | Pass |
| STW-1222 | 09/20/10 | Gr. Beta | 134.6 ± 2.6 | 143.0 | 83.6 - 210.0 | Pass |
| STW-1223 | 09/20/10 | H-3 | 23500.0 ± 1438.0 | 21600.0 | 14100.0 - 31900.0 | 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).

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

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

^e Analysis was repeated using total dissolution. Results of the reanalysis,

U-233/234: 1137 ± 254 pCi/kg, U-238: 1193 ± 116 pCi/kg, Total Uranium: 2379 ± 254 pCi/kg.

APPENDIX B

DATA REPORTING CONVENTIONS

Data Reporting Conventions

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

2.0. Single Measurements

Each single measurement is reported as follows: $x \pm s$
where: x = value of the measurement;
 s = 2σ 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 $x_1, x_2 \dots x_n$ are defined as follows:

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

- 4.2. Values below the highest lower limit of detection are not included in the average.
- 4.3. If all values in the averaging group are less than the highest LLD, the highest LLD is reported.
- 4.4. If all but one of the values are less than the highest LLD, the single value x and associated two sigma error is reported.
- 4.5. In rounding off, the following rules are followed:
- 4.5.1. If the number following those to be retained is less than 5, the number is dropped, and the retained 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 x 10 ⁻³ | Strontium-89 | 8,000 |
| Gross beta | 1 | Strontium-90 | 500 |
| Iodine-131 ^b | 2.8 x 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 x 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.

APPENDIX D

RADIOLOGICAL ENVIRONMENTAL

MONITORING MANUAL (REMM)

KEWAUNEE

POWER STATION

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Kewaunee Power Station

***Radiological Environmental
Monitoring Manual
(REMM)***

***Revision 16
04/13/2010***

| | | | |
|--------------|--|-------|-------------------|
| Reviewed by: | <u>Michael J. Wilson</u> Facility Safety Review Committee | Date: | <u>04-13-2010</u> |
| Approved by: | <u>James M. Hale</u> Manager, Radiological Protection and Chemistry | Date: | <u>04-13-2010</u> |
| Approved by: | <u>Thomas L. Breene</u> Manager, Regulatory Affairs | Date: | <u>04-13-2010</u> |

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1.0 Introduction

1.1 Purpose

The purpose of this document is to define the Radiological Environmental Monitoring Program (REMP) for the Kewaunee Power Station (KPS). The REMP is required by KPS Technical Specification (TS) 6.16.b.2, "Radiological Environmental Monitoring Program."

This document is known as the Radiological Environmental Monitoring Manual (REMM) and is intended to serve as a tool for program administration and as a guidance document for contractors which implement the monitoring program.

1.2 Scope

This program defines the sampling and analysis schedule which was developed to provide representative measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the high potential radiation exposures of MEMBERS OF THE PUBLIC resulting from plant operation. This monitoring program implements Section IV.B.2 of Appendix I to 10CFR Part 50 and thereby verifies that the measurable concentrations of radioactivity and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. Guidance for the development of this monitoring program is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring. This program has been developed in accordance with NUREG 0472.

The program will provide field and analytical data on the air, aquatic, and terrestrial radioecology of the area near the Kewaunee Power Station so as to:

1. Determine the effects of the operation of the Kewaunee Power Station on the environment;
2. Serve as a gauge of the operating effectiveness of in-plant control of waste discharges; and
3. Provide data on the radiation dose to the public by direct or indirect pathways of exposure.

1.3 Implementation

This document is considered, by reference, to be part of the Offsite Dose Calculation Manual. This is as required by KPS TS 6.16.b.2. The REMM is controlled as a separate document for ease of revision, use in the field and use by contractors. This format was approved by the NRC as part of TS Amendment No. 64, which provided Radiological Effluent Technical Specifications (RETS) for KPS.

The REMP is setup to be implemented by a vendor and controlled by KPS in accordance with Nuclear Administrative Directive NAD-01.20, "Radiological Environmental Monitoring Program." Monthly reviews of the vendor's progress report are checked and approved by KPS in accordance with Surveillance Procedure SP-63-276. Annual reviews and submittals of the vendor's report and raw data are checked and approved by KPS in accordance with Surveillance Procedure SP-63-280. All sample collection, preparation, and analysis are performed by the vendor except where noted. Surveillance Procedure SP-63-164 outlines the environmental sample collection performed by KPS. Current vendor Quality Control Program Manuals and implementing procedures shall be kept on file at KPS.

Periodic reviews of monitoring data and an annual land use census will be used to develop modifications to the existing monitoring program. Upon approval, these modifications will be incorporated into this document so that it will accurately reflect the current radiological environmental monitoring program in effect for KPS.

The remainder of this document is divided into two sections. The first section, 2.0 REMP Requirements, describes the different TS and REMM requirements associated with the REMP. The second section, 3.0 REMP Implementation, describes the specific requirements used to implement the REMP.

2.0 REMP Requirements

KPS TS Amendment No. 104 implemented the guidance provided in Generic Letter 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications (RETS)." These changes included:

1. Incorporation of *programmatic controls* in the Administrative Controls section of the TS to satisfy existing regulatory requirements for RETS, and
2. Relocation of the *procedural details* on radioactive effluents monitoring, radiological environmental monitoring, reporting details, and other related specifications from the TS to the ODCM.

Relocating the procedural details to the ODCM allows for revising these requirements using the 10CFR50.59 process instead of requiring prior NRC approval using the TS Amendment process.

The RETS requirements were incorporated verbatim into the ODCM, Revision 6. Several of these requirements pertain only to the environmental monitoring program and therefore have been relocated into this document (REMM, Revision 3 and 4) and are identified as REMM requirements.

2.1 Technical Specification Requirements

Technical Specification 6.16.b.2 provides the programmatic control, which requires a program to monitor the radiation and radionuclides in the environs of the plant. This is the reason for the existence of the REMP. TS 6.16.b.2 also provides the programmatic control which requires:

- a. The program to perform the monitoring, sampling, analysis, and reporting in accordance with the methodology and parameters in the ODCM,
- b. A land use census to be performed, and
- c. Participation in an Interlaboratory Comparison Program.

The details of each requirement are described in the REMM requirements stated below.

Technical Specification 6.9.b.1 requires an "Annual Radiological Environmental Monitoring Report" be submitted to the NRC each year. The specific contents of this report are detailed in REMM 2.4.1. Additional specific reporting requirements are listed in the other REMM requirements.

2.2 REMM Requirements

The following REMM requirements include the procedural details that were originally located in the KPS RETS section and then relocated into Revision 6 of the ODCM, as discussed above. These requirements are specific to the radiological environmental monitoring program and have been relocated into this document for ease of use and completeness.

The REMM requirements for the Monitoring Program, Land Use Census, and the Interlaboratory Comparison Program include a detailed specification (numbered 2.2.1, 2.2.2, and 2.2.3 respectively) and an associated surveillance requirement (numbered 2.3.1, 2.3.2, and 2.3.3 respectively), along with the basis for the requirement. Reporting requirements are listed in specification REMM 2.4.1.

General requirements also apply to all ODCM and REMM requirements (specifications 3.01, 3.02, 3.03, 4.01, 4.02, and 4.03). The requirements are located in the ODCM and are repeated here for convenience.

GENERAL SPECIFICATIONS

- 3.0.1 Compliance with the specifications contained in the succeeding text is required during the conditions specified therein; except that upon failure to meet the specifications, the associated ACTION requirements shall be met.
- 3.0.2 Noncompliance with a Specification shall exist when its requirements and associated ACTION requirements are not met within the specified time intervals. If the Specification is restored prior to expiration of the specified time intervals, completion of the Action requirements is not required.
- 3.0.3 When a Specification is not met, except as provided in the associated ACTION requirements, reporting pursuant to TS 6.9.b and REMM 2.4.1 will be initiated.

SURVEILLANCE REQUIREMENTS

- 4.0.1 Surveillance Requirements shall be met during the conditions specified for individual Specifications unless otherwise stated in an individual Surveillance Requirement.
- 4.0.2 Each Surveillance Requirement shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the surveillance interval.
- 4.0.3 Failure to perform a Surveillance Requirement within the specified time interval shall constitute a failure to meet the OPERABILITY requirements for a Specification. Exceptions to these requirements are stated in the individual Specification. Surveillance Requirements do not have to be performed on inoperable equipment.

REMM 2.2.1/2.3.1 Monitoring Program

SPECIFICATION

2.2.1 The radiological environmental monitoring program shall be conducted as specified in Table 2.2.1-A.

APPLICABILITY

At all times.

ACTION

- a. With the radiological environmental monitoring program not being conducted as specified in Table 2.2.1-A, in lieu of a Licensee Event Report, prepare and submit to the Commission, in the Annual Radiological Environmental Monitoring Report required by TS 6.9.b.1 and REMM 2.4.1, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.
- b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 2.2.1-D when averaged over any calendar quarter in lieu of a Licensee Event Report, prepare and submit to the Commission within 30 days, pursuant to TS 6.9.b.3, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose¹ to A MEMBER OF THE PUBLIC is less than the calendar year limits of specifications ODCM 3.3.2, 3.4.2, and 3.4.3. When more than one of the radionuclides in Table 2.2.1-D are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{concentration}(1)}{\text{reporting level}(1)} + \frac{\text{concentration}(2)}{\text{reporting level}(2)} + \dots \geq 1.0$$

When radionuclides other than those in Table 2.2.1-D are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose¹ to a MEMBER OF THE PUBLIC is equal to or greater than the calendar year limits of specifications ODCM 3.3.2, 3.4.2, and 3.4.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event the condition shall be reported and described in the Annual Radiological Environmental Monitoring Report.

¹The methodology and parameters used to estimate the potential annual dose to a member of the public shall be indicated in this report.

- c. With milk or fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 2.2.1-A, a sample from an alternative location will be substituted, noting the reason for the unavailability in the Annual Radiological Environmental Monitoring Report. When changes in sampling locations are permanent, the sampling schedule in the RADIOLOGICAL ENVIRONMENTAL MONITORING MANUAL (REMM) will be updated to reflect the new routine and alternative sampling locations and this revision will be described in the Annual Radiological Environmental Monitoring Report.

SURVEILLANCE REQUIREMENT

- 2.3.1 The radiological environmental monitoring samples shall be collected pursuant to Table 2.2.1-A from the specific locations given in the table and figure(s) in the REMM, and shall be analyzed pursuant to the requirements of Table 2.2.1-A and the detection capabilities required by Table 2.3.1-A.

BASIS

The radiological environmental monitoring program required by this specification provides representative measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposures of MEMBERS OF THE PUBLIC resulting from the station operation. This monitoring program implements Section IV.B.2 of Appendix I to 10CFR Part 50 and thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. Guidance for this monitoring program is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring. Program changes may be initiated based on operational experience.

The required detection capabilities for environmental sample analyses are tabulated in terms of the lower limits of detection (LLDs). The LLDs required by Table 2.3.1-A are considered optimum for routine environmental measurements in industrial laboratories. It should be recognized that the LLD is defined as a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

Detailed discussion of the LLD, and other detection limits, can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and Hartwell, J.K., "Detection Limits for Radioanalytical Counting Techniques," Atlantic Richfield Hanford Company Report ARH-SA-215 (June 1975).

Discussion

KPS TS 6.16.b.2(A) requires that the monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment be done in accordance with the methodology and parameters in the ODCM.

REMM 2.2.2/2.3.2 Land Use Census

SPECIFICATION

- 2.2.2 A land use census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 10 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden² of greater than 50 m² (500 ft²) producing broad leaf vegetation.

APPLICABILITY

At all times.

ACTION

- a. With a land use census identifying a location(s) that yields a calculated dose or dose commitment greater than the values currently being calculated in ODCM Surveillance Requirement 4.4.3, in lieu of a Licensee Event Report, identify the new location(s) in the next Annual Radiological Environmental Monitoring Report pursuant to TS 6.9.b.1 and REMM 2.4.1.
- b. With a land use census identifying a location(s) that yields a calculated dose or dose commitment (via the same exposure pathway) 20% greater than at a location from which samples are currently being obtained in accordance with specification REMM 2.2.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having a lower calculated dose or dose commitment(s), via the same exposure pathway, may be deleted from this monitoring program. In lieu of a Licensee Event Report, identify the new location(s) in the next Annual Radiological Environmental Monitoring Report pursuant to TS 6.9.b.1 and REMM 2.4.1 and also include in the report a revised figure(s) and table for the REMM reflecting the new location(s).

SURVEILLANCE REQUIREMENT

- 2.3.2 The land use census shall be conducted during the growing season once per 12 months using reasonable survey methods, such as by a door-to-door survey, aerial survey, or by consulting local agriculture authorities. The results of the land use census shall be included in the Annual Radiological Environmental Monitoring Report pursuant to TS 6.9.b.1 and REMM 2.4.1.

²Sampling of leaf vegetation may be performed at the site boundary in each of two different direction sectors with the highest predicted D/Qs in lieu of the garden census. Specifications for broad leaf vegetation sampling in Table 2.2.1-A item 4c shall be followed, including analysis of control samples.

BASIS

This specification is provided to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the radiological environmental monitoring program are made if required by the door-to-door survey, from aerial survey or from consulting with local agricultural authorities. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10CFR Part 50. Restricting the census to gardens of greater than 50 m² provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/yr) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were made:

1. 20% of the garden was used for growing leafy vegetation (i.e., similar to lettuce and cabbage), and
2. A vegetation yield of 2 kg/m².

Discussion

KPS TS 6.16.b.2(b) requires that a land use census be performed to ensure that changes in the use of areas at and beyond site boundary are identified and that modifications to the radiological environmental monitoring program are made if required by the results of this census.

Figure 2, Emergency Plan Zone Map identifying sectors for cross-reference in Land Use Census Program.

REMM 2.2.3/2.3.3 Interlaboratory Comparison Program

SPECIFICATION

- 2.2.3 Analyses shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program that has been approved by the Commission.

APPLICABILITY

At all times.

ACTION

- a. With analyses not being performed as required above, report corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Monitoring Report pursuant to TS 6.9.b.1 and REMM 2.4.1.

SURVEILLANCE REQUIREMENT

- 2.3.3 The Interlaboratory Comparison Program shall be described in the REMM. A summary of the results obtained as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Monitoring Report pursuant to TS 6.9.b.1 and REMM 2.4.1.

BASIS

The requirement for participation in an approved Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of measurements of radioactive material in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are valid for the purposes of Section IV.B.2 of Appendix I to 10CFR Part 50.

Discussion

KPS TS 6.16.b.2(C) requires participation in an approved Interlaboratory Comparison Program to ensure that an independent check is performed of the precision and accuracy of radioactive materials measurements. This will demonstrate that the results are valid for the purposes of Section IV.B.2 of Appendix I to 10CFR Part 50.

REMM 2.4.1 Reporting Requirements

2.4.1 The Annual Radiological Environmental Monitoring Report shall include:

- a. Summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with pre-operational studies, with operational controls as appropriate, and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by specification REMM 2.2.2.
- b. The results of analyses of radiological environmental samples and of environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the Radiological Environmental Monitoring Manual (REMM), as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report when applicable.
- c. A summary description of the radiological environmental monitoring program; legible maps covering all sampling locations keyed to a table giving distances and directions from the centerline of one reactor; the results of licensee participation in the Interlaboratory Comparison Program, required by specification REMM 2.2.3; discussion of all deviations from the sampling schedule of Table 2.2.1-A; and discussion of all analyses in which the LLD required by Table 2.3.1-A was not achievable.

Discussion

KPS TS 6.9.b.1 provides the programmatic control, which requires that an Annual Radiological Environmental Monitoring Report be submitted to the NRC. It also states that this report shall include summaries, interpretations, and analysis of trends of the results of the REMP for the reporting period.

The procedural details of this report are included in this specification. Specifications REMM 2.2.1/2.3.1, 2.2.2/2.3.2, and 2.2.3/2.3.3 also include specific reporting requirements. These specifications reference this REMM specification, along with TS 6.9.b.1, as the method for reporting deviations from the current program during the reporting period, and require that this information be included in the Annual Radiological Environmental Monitoring Report.

3.0 REMP Implementation

The Radiological Environmental Monitoring Program for KPS is under the direction of a Contracted Vendor (CV). This section describes this program, as required by REMM 2.2.1 and the process the CV uses to perform it.

3.1 Sampling Requirements

Table 2.2.1-A identifies the various samples required by the REMP. Identified in the "available sample locations" column in Table 2.2.1-A are the sample locations selected, in conjunction with the vendor, to meet or exceed the REMP requirements. Table 2.2.1-B includes the same requirements as in Table 2.2.1-A but presents the information in a different format by identifying the type of samples required at each location and the collection frequency. Table 2.2.1-C identifies the location and description of each sample location. Figure 1 shows the physical location of each sample point on an area map.

3.2 Analysis Methodology

Analytical procedures and counting methods employed by the CV will follow those recommended by the U.S. Public Health Service publication, Radioassay Procedures for Environmental Samples, January 1967; and the U.S. Atomic Energy Commission Health and Safety Laboratory, HASL Procedures Manual (HASL-300), 1972. The manual is also available on-line at www.eml.st.dhs.gov/publications/procman.

Updated copies will be maintained in KPS's vault.

3.3 Detection Capability (LLD) Requirements

The required detection capabilities for environmental sample and analysis are tabulated in terms of lower limits of detection (LLDs) in Table 2.3.1-A. The LLDs required by Table 2.3.1-A are considered optimum for routine environmental measurements in industrial laboratories. It should be recognized that the LLD is defined as a a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

Detailed discussion of the LLD, and other detection limits, can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L.A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," *Anal. Chem.* 40, 586-93 (1968), and Hartwell, J.K., "Detection Limits for Radioanalytical Counting Techniques," Atlantic Richfield Hanford Company Report ARH-SA-215 (June 1975).

3.4 Contracted Vendor Reporting Requirements

Monthly Progress Reports

Monthly progress reports will include a tabulation of completed analytical data on samples obtained during the previous 30 day period together with graphic representations where trends are evident, and the status of field collections. One copy of the reports will be submitted within 30 days of the reporting month.

Annual Reports

Annual reports will be submitted in two parts. Part I, to be submitted to the NRC, will be prepared in accordance with NRC Regulatory Guide 4.8. It will contain an introductory statement, a summary of results, description of the program, discussion of the results, and summary table. Part II of the annual report will include tables of analytical data for all samples collected during the reporting period, together with graphic presentation where trends are evident and statistical evaluation of the results. Gamma scan data will be complemented by figures of representative spectra. Draft copies of each annual report will be due 60 days after completion of the annual period. After final review of the draft document, one photoready copy of the revised annual report will be sent to KPS for printing.

Non-Routine Reports

If analyses of any samples collected show abnormally high levels of radioactivity, KPS will be notified by telephone immediately after data becomes available.

Action Limits

The CV will report any radioactive concentrations found in the environmental samples which exceed the reporting levels shown in Table 2.2.1-D, CV to KPS column. These levels are set below the NRC required reporting levels (KPS to NRC column) so actions can be initiated to prevent exceeding the NRC concentration limits.

3.5 Quality Control Program

To insure the validity of the data, the CV maintains a quality control (QC) program, which employs quality control checks, with documentation, of the analytical phase of its environmental monitoring studies. The program is defined in the CV's QC Program Manual, and procedures are presented in the CV QC Procedures Manual. The program shall be reviewed and meet the requirements of Regulatory Guide 4.15 and 10CFR21. All data related to quality control will be available for review by Dominion Energy Kewaunee upon reasonable prior notification. Proprietary information will be identified so that it may be treated accordingly.

Updated copies of the Quality Control Program Manual and the Quality Assurance Program Manual will be maintained in KPS's vault.

3.6 *Sample Descriptions*

A description of each of the samples required by this program follows:

Airborne Particulates

Airborne particulates are collected at six locations (K-1f, K-2, K-7, K-8, K-31, and K-41) on a continuous basis on a 47 mm diameter membrane filter of 0.8-micron porosity at a volumetric rate of approximately one cubic foot per minute (CFM). The filters are changed weekly, placed in glassine protective envelopes, and dispatched by U.S. Mail to the CV for Gamma Isotopic Analysis. Filter samples are analyzed weekly for gross beta activity after sufficient time (usually 3 to 5 days) has elapsed to allow decay of Radon and Thoron daughters. If gross beta concentration in air particulate samples are greater than ten (10) times the yearly mean of the control samples, gamma isotopic analysis shall be performed on the individual samples. Quarterly composites from each location receive Gamma Isotopic Analysis using a Germanium detector. All identifiable gamma-emitters are quantified. Reporting units are pCi/m³.

Airborne Iodine

All air samplers are equipped with charcoal traps installed behind the particulate filters for collection of airborne I-131. The traps are changed once every two weeks. Iodine-131 is measured by Gamma Isotopic Analysis.

Periphyton (Slime) or Aquatic Vegetation

Periphyton (slime) or aquatic plant samples are collected at or near locations used for surface water sampling. They are collected twice during the year (2nd and 3rd quarter), if available. The samples are analyzed for gross beta activity and, if available in sufficient quantity, for Sr-89, Sr-90, and by Gamma Isotopic Analysis. Reporting units are pCi/g wet weight.

Fish

Fish are collected three times per year (second, third, and fourth quarters) near the discharge area (K-1d). Flesh is separated from the bones and analyzed for gross beta activity and by Gamma Isotopic Analysis. The bones are analyzed for gross beta activity and Sr-89 and Sr-90. Reporting units are pCi/g wet weight.

Domestic Meat

Domestic meat (chickens) may be collected once a year during the 3rd quarter, from three locations in the vicinity of the plant (K-24, K-29, and K-32). Samples may not be available every year at every location due to farmer preference. At least one control and one indicator should be collected. The flesh is analyzed for gross alpha, gross beta, and by Gamma Isotopic Analysis to identify and quantify gamma-emitting radionuclides. Reporting units are pCi/g wet weight.

Ambient Radiation

Two packets of thermoluminescent dosimeters (CaSO₄: Dy cards) are placed at twenty-two locations, six of which are air sampling locations (K-1f, K-2, K-7, K-8, K-31, and K-41), four of which are milk sampling locations (K-3, K-5, K-25, and K-39), eight of which are ISFSI area locations (K-11 through K-1s), and the remaining four locations are K -15, K-17, K-27, and K-30. One packet is changed quarterly and one annually. Annual TLDs will serve as an emergency set to be read when needed. They will be exchanged annually (without reading) if not read during the year.

To insure the precision of the measurement, each packet will contain two cards with four dosimeters each (four sensitive areas each for a total of eight). For protection against moisture each set of cards is sealed in a plastic bag and placed in a plastic container.

Each card is individually calibrated for self-irradiation and light response. Fading is guaranteed by the manufacturer (Teledyne Isotopes) not to exceed 20% in one year. Minimum sensitivity for the multi-area dosimeter is 0.5 mR defined as 3 times the standard deviation of the background. Maximum Error (1 standard deviation) - ⁶⁰Co Gamma +/-0.2 mR or +/-3%, whichever is greater. The maximum spread between areas on the same dosimeter is 3.5% at 1 standard deviation.

Reporting units for TLDs are mR/91 days for quarterly TLDs and mR/exposure period for annual TLDs.

Tests for uniformity and reproducibility of TLDs as specified in ANSI N545-1981 and NRC Regulatory Guide 4.13, are performed annually.

Well Water

One gallon water samples are taken once every three months from four off-site wells, (K-10, K-11, K-13, and K-38) and two on-site wells (K-1h and K-1g). All samples are analyzed for gross beta in the total residue, K-40, tritium, and by Gamma Isotopic Analysis. Samples from one on-site well are analyzed for Sr-89, and Sr-90. Samples from K-1h and K-1g are also analyzed for gross alpha. Reporting units are pCi/l.

Precipitation

A monthly cumulative sample of precipitation is taken at Location K-11. This sample is analyzed for tritium. Reporting units are pCi/l.

Milk

Milk samples are collected from two herds that graze within three miles of the reactor site (K-38 and K-34); 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. To prevent spoilage the samples are treated with preservative. All samples are analyzed by Gamma Isotopic Analysis and for iodine -131 immediately after they are received at the laboratory. To achieve required minimum sensitivity of 0.5 pCi/l, iodine is separated on an ion exchange column, precipitated as palladium iodide and beta counted. Monthly samples and monthly composites of semimonthly samples are then analyzed for Sr-89 and Sr-90. Potassium and calcium are determined and the $^{137}\text{Cs/gK}$ and $^{90}\text{Sr/gCa}$ ratios are calculated. Reporting units are pCi/l except for stable potassium and calcium, which are reported in g/l.

If milk samples are not available, green leafy vegetables will be collected on a monthly basis (when available) from Locations K-23A, K-23B, and K-26.

Grass

Grass is collected three times per year (2nd, 3rd, and 4th quarters) from the six dairy farms (K-3, K-5, K-35, K-34, K-38, and K-39) and from two on-site locations (K-1b and K-1f). The samples are analyzed for gross beta activity, for Sr-89 and Sr-90, and Gamma Isotopic Analysis to identify and quantify gamma-emitting radionuclides. Reporting units are pCi/g wet weight.

Cattlefeed

Once per year, during the first quarter when grass is not available, cattlefeed (such as hay or silage) is collected from the six dairy farms. The analyses performed are the same as for grass. Reporting units are pCi/g wet weight.

Vegetables and Grain

Annually, during the 3rd quarter, samples of five varieties of vegetables grown and marketed for human consumption are collected from K-26, depending upon the availability of samples. If samples are not available from this location, samples may be obtained from any local source so there is some sample of record. The location will be documented. In addition, two varieties of grain or leafy vegetables from the highest predicted X/Q and D/Q, if available, are collected annually from the farmland owned by Dominion Energy Kewaunee (K-23 a and b) and rented to a private individual for growing crops. The analyses performed are the same as for grass. Reporting units are pCi/g wet weight.

Eggs

Quarterly samples of eggs can be taken from K-24 and K-32. At least one control and one indicator should be collected. The samples are analyzed for gross beta activity, for Sr-89 and Sr-90, and Gamma Isotopic Analysis to identify and quantify gamma-emitting radionuclides. Reporting units are pCi/g wet weight.

Soil

Twice during the growing season samples of the top two inches of soil are collected from the six dairy farms and from an on-site location (K-1f). The soil is analyzed for gross alpha and gross beta activities, for Sr-89 and Sr-90, and Gamma Isotopic Analysis to identify and quantify gamma-emitting manmade radionuclides. Reporting units are pCi/g dry weight.

Surface Water

Surface water is sampled monthly from Lake Michigan at the KPS discharge (K-1d), two samples (north and south ends), of Two Creeks Park, 2.5 miles south of the reactor site (K-14a, K-14b). Samples are collected monthly at the Green Bay Municipal Pumping station between Kewaunee and Green Bay (K-9). Raw and treated water is collected. Monthly samples are also taken, when available, from each of the three creeks (K-1a, K-1b, K-1e) that pass through the reactor site and from the drainage pond (K-1k) south of the plant. The samples are taken at a point near the mouth of each creek and at the shore of the drainage pond.

The water is analyzed for gross beta activity in:

- a. The total residue,
- b. The dissolved solids, and
- c. The suspended solids.

The samples are also analyzed for K-40 and by Gamma Isotopic Analysis. Quarterly composites from all locations are analyzed for tritium, Sr-89 and Sr-90. Reporting units are pCi/l.

Bottom Sediments

Five samples of Lake Michigan bottom sediments, one at the discharge (K-1d), one from 500 feet north of the discharge (K-1c), one from 500 feet south of the discharge (K-1j), and one at the Two Creeks Park (K-14), one at the Green Bay Municipal Pumping Station (K-9) are collected semi-annually (May and November). The samples are collected at the beach in about 2-3 feet of water. All samples are analyzed for gross beta activity, for Sr-89 and Sr-90 and by Gamma isotopic Analysis. Since it is known that the specific activity of the sediments (i.e., the amount of radioactivity per unit mass of sediment) increases with decreasing particle size, the sampling procedure will assure collection of very fine particles. Reporting units are pCi/g dry weight.

Ground Monitoring Wells

Figure 3 shows the location of 14 installed groundwater monitoring wells. The wells and location are identified with a diamond shape in Figure 3. The wells are labeled MW (Monitoring Well) and AB (Auxiliary Building).

The Groundwater Protection Program consists of the 14 wells in addition to the two on-site wells already in the REMM (K-1g and K-1h).

Results of analyses and a description of any event above Reporting Levels will be included in the Annual Environmental Monitoring Report for K-1g, K-1h and in the Annual Radioactive Effluent Release Report for the other 14 wells.

Table 2.2.1-A

Radiological Environmental Monitoring Program

| Exposure Pathway And/Or Sample | Minimum Required Samples ^a | Available Sample Locations ^b | Sampling, Collection and Analysis Frequency | Type of Analysis |
|---|---|--|--|---|
| 1. Direct Radiation ^c | 13 Inner Ring locations | K-5, K-25, K-27, K-7, K-1f, K-30, K-11, K-1m, K-1n, K-1o, K-1p, K-1q, K-1r, K-1s | See Table 2.2.1-B | Gamma dose ^e |
| | 6 Outer Ring locations | K-2, K-3, K-15, K-17, K-8, K-31, K-39 | | |
| | 1 Control location | K-41 | | |
| | 1 Population center | K-7 | | |
| | 1 Special interest location | K-8 | | |
| | 1 Nearby resident | K-27 | | |
| 2. Airborne Radioiodine and Particulates | 3 samples close to the site boundary in highest average X/Q | K-1f, K-2, K-7, K-8, K-31 | See Table 2.2.1.B Continuous sampler operation Iodine; charcoal | Iodine (I-131) by Gamma Isotopic ^f |
| | 1 sample from the closest community having the highest X/Q | K-7 | Particulates See Table 2.2.1-B | Particulates; gross beta analysis ^e |
| | 1 sample from a control location | K-41 ^d | See Table 2.2.1-B | Gamma isotopic of composite (by location) ^f |
| 3. Waterborne a. Surface ^g | 1 Upstream sample 1 Downstream sample | K-1a, K-9 ^j , K-1d K-1e, K-14a, K-14b, K-1k, K-1b | Grab sample See Table 2.2.1-B | Gross Beta, Gamma isotopic K-40 ^f Composite of grab samples for tritium, K-40 and Sr 89/90 |
| | b. Ground | 1-2 location likely to be affected ^d | K-1g, K-1h ^h | Grab sample See Table 2.2.1-B Gamma isotopic ^f , tritium and K-40 analysis Gross Beta, one well for Sr 89/90 |

Table 2.2.1-A

Radiological Environmental Monitoring Program

| Exposure Pathway And/Or Sample | Minimum Required Samples ^a | Available Sample Locations ^b | Sampling, Collection and Analysis Frequency | Type of Analysis |
|-----------------------------------|---|--|---|---|
| c. Drinking | 1-3 samples of nearest water supply | K-10, K-11, K-13, K-38 | Grab sample See Table 2.2.1-B | Gross beta and gamma isotopic analysis. Tritium and K-40 analysis of the composite of monthly grab samples. |
| d. Sediment from shoreline | 1 sample from downstream area with potential for recreational value | K-14, K-1c, K-1d, K-1j, K-9 | Grab sample See Table 2.2.1-B | Gamma isotopic analysis Gross Beta, Sr 89/90 |
| 4. Ingestion a. Milk | Samples from milking animals in 3 locations within 5 km having the highest dose potential. 1 alternate location 1 control location. | K-5 ^k , K-38, K-34 K-3, K-39 K-35, K-42 | See Table 2.2.1-B | I-131 Gamma Isotopic SR 89/90 |
| b. Fish | 3 random samplings of commercially and recreationally important species in the vicinity of the discharge. | K-1d | See Table 2.2.1-B | Gamma isotopic and Gross Beta on edible portions, Gross Beta and Sr 89/90 on bones |
| c. Food Products | Samples of grain or leafy vegetables grown nearest each of two different offsite locations within 5 miles of the plant if milk sampling is not performed. | 2 samples K-23a, K-23b – and one more location if available 1 sample 15-30 km distant if milk sampling is not performed. K-26 | See Table 2.2.1-B | Gamma isotopic and I-131 Analysis. |

Table 2.2.1-A
Radiological Environmental Monitoring Program

| Exposure Pathway And/Or Sample | Minimum Required Samples ^a | Available Sample Locations ^b | Sampling, Collection and Analysis Frequency | Type of Analysis |
|---|--|--|---|---|
| 5. Miscellaneous samples not identified in NUREG-0472 | a. Aquatic Slime | None required | K-1k K-1a, K-1b, K-1e K-14, K-1d K-9 (control) | See Table 2.2.1-B Gross Beta activity and if available Sr-89, Sr-90 and Gamma Isotopic ^f |
| | b. Soil | None required | K-1f, K-5, K-35, K-39 K-34, K-38 K-3, (control) | See Table 2.2.1-B Gross Alpha/Beta Sr-89 and Sr-90 Gamma Isotopic ^f |
| | c. Cattlefeed | None required | K-5, K-35, K-39 K-34, K-38 K-3,(control) | See Table 2.2.1-B Gross Beta Sr-89 and Sr-90 Gamma Isotopic ^f |
| | d. Grass | None required | K-1b, K-1f, K-35, K-39 K-5, K-34, K-38 K-3,(control) | See Table 2.2.1-B Gross Beta Sr-89 and Sr-90 Gamma Isotopic ^f |
| | e. Domestic Meat | None required | K-24, K-29 K-32 (control) | See Table 2.2.1-B Gross Alpha/Beta Gamma Isotopic ^f |
| | f. Eggs | None required | K-32 K-24 | See Table 2.2.1-B Gross Beta Sr-89/90 Gamma Isotopic ^f |
| | g. Precipitation | None required | K-11 | See Table 2.2.1-B Tritium |

Table 2.2.1-A
Radiological Environmental Monitoring Program

| Exposure Pathway And/OR Sample | Minimum Required Samples ^a | Available Sample Locations ^b | Sampling, Collection and Analysis Frequency | Type of Analysis |
|--|--|--|---|---------------------|
| Table Notations | | | | |
| a. The samples listed in this column describe the minimum sampling required to meet REMP requirements. | | | | |
| b. Additional details of sample locations are provided in Table 2.2.1-C and Figure 1. The REMP requires that samples to be taken from each of the "available sample locations" listed (see section 3.1). Deviations from the required sampling schedule will occur if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, reasonable efforts shall be made to complete corrective actions prior to the end of the next sampling period. All deviations from the sampling schedule shall be documented, as required by REMM 2.4.1.c, in the Annual Radiological Environmental Monitoring Report. It is recognized that, at times, it may not be possible or practicable to continue to obtain samples of the media of choice at the most desired location or time. In these instances suitable alternative media and locations may be chosen for the particular pathway in question and appropriate substitutions made within 30 days in the REMM. The cause of the unavailability of samples for that pathway and the new location(s) for obtaining replacement samples will be identified in the Annual Radiological Environmental Monitoring Report. | | | | |
| c. For the purposes of this table, each location will have 2 packets of thermoluminescent dosimeters (TLDs). The TLDs are CaSO ₄ : Dy cards with 2 cards/packet and 4 dosimeters/card (four sensitive areas each for a total of eight dosimeters/packet). The NRC guidance of 40 stations is not an absolute number. The number of direct radiation monitoring stations has been reduced according to geographical limitations; e.g., Lake Michigan. The frequency of analysis or readout for TLD systems depends upon the characteristics of the specific system used and selection is made to obtain optimum dose information with minimal fading. | | | | |
| d. The purpose of this sample is to obtain background information. If it is not practical to establish control locations in accordance with the distance and wind direction criteria, other sites that provide valid background data may be substituted. | | | | |
| e. Airborne particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air particulate samples is greater than ten times the yearly mean of control samples, gamma isotopic analysis shall be performed on the individual samples. | | | | |
| f. Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility. | | | | |
| g. The "upstream sample" shall be taken at a distance beyond significant influence of the discharge. The "downstream" sample shall be taken in an area near the mixing zone. | | | | |
| h. Ground water samples shall be taken when this source is tapped for drinking or irrigation purposes in areas where the hydraulic gradient or recharge properties are suitable for contamination. | | | | |
| i. In the event elevated analysis are reported by CV for gamma isotopic or tritium, a review will be conducted with the option to retest additional analysis for hard to detect isotopes or alpha emitters. The additional test may include Fe-55, Ni-63, or alpha emitters anticipated on current plant conditions. | | | | |
| j. Two samples to be collected, Raw and Treated | | | | |
| k. K-5 is about 5.1 km, closest Milk Location available. | | | | |

Table 2.2.1-B
Type and Frequency of Collection

| Location | Weekly | Biweekly | Monthly | Quarterly | | Semi-Annually | Annually |
|----------|-----------------|----------|-----------------|-----------------|-----|-----------------|-----------------|
| K-1a | | | SW | | | | SL ^f |
| K-1b | | | SW | GR ^a | | | SL ^f |
| K-1c | | | | | | BS ^b | |
| K-1d | | | SW | FI ^a | | BS ^b | SL ^f |
| K-1e | | | SW | | | | SL ^f |
| K-1f | AP ^g | AI | | GR ^a | TLD | SO | |
| K-1g | | | | WW | | | |
| K-1h | | | | WW | | | |
| K-1j | | | | | | BS ^b | |
| K-1k | | | SW | | | | SL ^f |
| K-1l | | | | | TLD | | |
| K-1m | | | | | TLD | | |
| K-1n | | | | | TLD | | |
| K-1o | | | | | TLD | | |
| K-1p | | | | | TLD | | |
| K-1q | | | | | TLD | | |
| K-1r | | | | | TLD | | |
| K-1s | | | | | TLD | | |
| K-2 | AP ^g | AI | | | TLD | | |
| K-3 | | | MI ^c | GR ^a | TLD | SO | CF ^d |
| K-5 | | | MI ^c | GR ^a | TLD | SO | CF ^d |
| K-7 | AP ^g | AI | | | TLD | | |
| K-8 | AP ^g | AI | | | TLD | | |
| K-9 | | | SW ⁱ | | | BS ^b | SL ^f |
| K-10 | | | | WW | | | |
| K-11 | | | PR | WW | | | |
| K-13 | | | | WW | | | |
| K-14 | | | SW ^h | | | BS ^b | SL ^f |
| K-15 | | | | | TLD | | |
| K-17 | | | | | TLD | | |
| K-23a | | | | | | | GRN/GLV |
| K-23b | | | | | | | GRN/GLV |
| K-24 | | | | EG | | | DM |
| K-25 | | | | | TLD | | |
| K-26 | | | | | | | VE |
| K-27 | | | | | TLD | | |

Table 2.2.1-B
Type and Frequency of Collection

| Location | Weekly | Biweekly | Monthly | Quarterly | Semi-Annually | Annually |
|----------|-----------------|----------|-----------------|---------------------|---------------|-----------------|
| K-29 | | | | | | DM |
| K-30 | | | | TLD | | |
| K-31 | AP ^g | AI | | TLD | | |
| K-32 | | | | EG | | DM |
| K-34 | | | MI ^c | GR ^a | SO | CF ^d |
| K-35 | | | MI ^c | GR ^a | SO | CF ^d |
| K-38 | | | MI ^c | GR ^a WW | SO | CF ^d |
| K-39 | | | MI ^c | TLD GR ^a | SO | CF ^d |
| K-41 | AP ^g | AI | | TLD | | |
| K-42 | | | MI ^c | | | |

- a. Three times a year, second (April, May, June), third (July, August, September), and fourth (October, November, December) quarters
- b. To be collected in May and November
- c. Monthly from November through April; semimonthly from May through October
- d. First (January, February, March) quarter 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 water samples are collected, North (K-14a) and South (K-14b) of Two Creeks Rd.
- i. Two samples, raw and treated

| <u>Code</u> | <u>Description</u> | <u>Code</u> | <u>Description</u> | <u>Code</u> | <u>Description</u> |
|-------------|----------------------|-------------|--------------------|-------------|-----------------------------|
| AI | Airborne Iodine | FI | Fish | SO | Soil |
| AP | Airborne Particulate | GR | Grass | SW | Surface Water |
| BS | Bottom Sediment | GRN | Grain | TLD | Thermoluminescent Dosimeter |
| CF | Cattlefeed | MI | Milk | VE | Vegetables |
| DM | Domestic Meat | PR | Precipitation | WW | Well Water |
| EG | Eggs | SL | Slime | GLV | Green Leafy Vegetables |

Table 2.2.1-C

Sampling Locations, Kewaunee Power Station

| Code | Type^a | Distance (Miles)^b and Sector | Location |
|-------------|-------------------------|--|--|
| K-1 | | | 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 Papham Farm, E4160 Old Settlers Rd, Kewaunee |
| K-7 | I | 2.51 SSW | Ron Zimmerman Farm, 17620 Nero Rd, Two Rivers |
| K-8 | C | 4.85 WSW | Saint 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 2 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, 2.5 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 Cty Tk B, Kewaunee |

| <i>Table 2.2.1-C</i> | | | |
|---|-------------------|--|---|
| <i>Sampling Locations, Kewaunee Power Station</i> | | | |
| Code | Type ^a | Distance (Miles) ^b and Sector | Location |
| K-20(c) | I | 2.5 N | Carl Struck Farm, N1596 Lakeshore Dr., Kewaunee |
| K-23a | I | 0.5 W | 0.5 miles west of plant, Kewaunee site |
| K-23b | I | 0.6N | 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, E3968 Cty Tk BB, Two Rivers |
| K-26(d) | 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 |
| 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 | I | 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 Vicky Struck Farm, N1549 Lakeshore Drive, Kewaunee |
| K-35(e) | C | 6.71 WNW | Duane Ducat Farm, N1215 Sleepy Hollow, Kewaunee |
| K-36(f) | I | | Fiala's Fish Market, 216 Milwaukee, Kewaunee |
| K-38 | I | 2.45 WNW | Dave Sinkula Farm, N890 Town Hall Road, Kewaunee |
| K-39 | I | 3.46 N | Francis Wotja Farm, N1859 Lakeshore Road, Kewaunee |
| K-41 (g) | C | 22 NW | KPS-EOF, 3060 Voyager Drive, Green Bay |
| K-42 (h) | C | 28.1 W | Lamers Dairy Products obtain from Green Bay Markets (i) |

- a. I = indicator; C = control.
- b. Distances are measured from reactor stack.
- c. Location removed from program in 2007
- d. Location K-18 was changed because Schmidt's Food Stand went out of business. It was replaced by Bertler's Fruit Stand (K-26). Replaced with Sandy's Vegetable in 2007.
- e. Removed from the program in Fall of 2001, back to program in August 2008.
- f. Removed from the program in Fall of 2001, back to program in August 2008.
- g. Location replaces K-16, January of 2007
- h. Location replaces K-28 as of March 2010
- i. Lamers Dairy is actually located in Appleton. The herds providing milk to Lamers are located nearer to Appleton than the plant to provide adequate distance for purposes of a control location.

Table 2.2.1-D
Reporting Levels for Radioactivity Concentrations in Environmental Samples

| Medium | Radionuclide | Reporting Levels | |
|---|------------------|------------------------|-------------------------|
| | | CV to KPS ^a | KPS to NRC ^b |
| Airborne Particulate or Gases (pCi/m ³) | Gross Beta | 1 | -- |
| | I-131 (Charcoal) | 0.1 | 0.9 |
| | Cs-134 | 1 | 10 |
| | Cs-137 | 1 | 20 |
| Precipitation (pCi/l) | H-3 | 1,000 | -- |
| Water (pCi/l) | Gross Alpha | 10 | -- |
| | Gross Beta | 30 | -- |
| | H-3 | 10,000 | 20,000 ^c |
| | Mn-54 | 100 | 1,000 |
| | Fe-59 | 40 | 400 |
| | Co-58 | 100 | 1,000 |
| | Co-60 | 30 | 300 |
| | Zr-Nb-95 | 40 | 400 |
| | Cs-134 | 10 | 30 |
| | Cs-137 | 20 | 50 |
| | Ba-La-140 | 100 | 200 |
| | Sr-89 | 8 ^d | -- |
| | Sr-90 | 8 ^d | -- |
| | Zn-65 | 30 | 300 |
| Milk (pCi/l) | I-131 | 1.0 | 3 |
| | Cs-134 | 20 | 60 |
| | Cs-137 | 20 | 70 |
| | Ba-La-140 | 100 | 300 |
| | Sr-89 | 10 | -- |
| Grass, Cattle Feed, and Vegetables (pCi/g wet) | Gross Beta | 30 | -- |
| | I-131 | 0.1 | 0.1 |
| | Cs-134 | 0.2 | 1 |
| | Cs-137 | 0.2 | 2 |
| | Sr-89 | 1 | -- |
| | Sr-90 | 1 | -- |

Table 2.2.1-D
Reporting Levels for Radioactivity Concentrations in Environmental Samples

| Medium | Radionuclide | Reporting Levels | |
|--------------------------------|---------------------------|------------------------|-------------------------|
| | | CV to KPS ^a | KPS to NRC ^b |
| Eggs (pCi/g wet) | Gross Beta | 30 | -- |
| | Cs-134 | 0.2 | 1 |
| | Cs-137 | 0.2 | 2 |
| | Sr-89 | 1 | -- |
| | Sr-90 | 1 | -- |
| Soil, Bottom Sediments (pCi/g) | Gross Beta | 50 | -- |
| | Cs-134 | 5 | -- |
| | Cs-137 | 5 | -- |
| | Sr-89 | 5 | -- |
| | Sr-90 | 5 | -- |
| Meat (pCi/g wet) | Gross Beta (Flesh, Bones) | 10 | -- |
| | Cs-134 (Flesh) | 1.0 | 1.0 |
| | Cs-137 (Flesh) | 2 | 2.0 |
| | Sr-89 (Bones) | 2 | -- |
| | Sr-90 (Bones) | 2 | -- |
| Fish (pCi/g wet) | Gross Beta (Flesh, Bones) | 10 | -- |
| | Mn-54 | -- | 30.0 |
| | Fe-59 | -- | 10.0 |
| | Co-58 | -- | 30.0 |
| | Co-60 | -- | 10.0 |
| | Cs-134 (Flesh) | 1 | 1.0 |
| | Cs-137 (Flesh) | 2 | 2.0 |
| | Sr-89 (Bones) | 2 | -- |
| | Sr-90 (Bones) | 2 | -- |
| | Zn-65 (Bones) | -- | 20 |

- a. Radionuclides will be monitored by the CV and concentrations above the listed limits will be reported to KPS.
- b. Concentrations above the listed limits will be reported to NRC as required by Specification 2.2.1.b.
- c. For drinking water samples, this is 40CFR Part 141 value. If no drinking water pathway exists, a value of 30,000 pCi/l may be used.
- d. The Sr-89/90 values are based on the EPA drinking water standards. See note "f." of Table 2.3.1-A for further information

*Table 2.3.1-A
 Detection Capabilities for Environmental Sample Analysis^a
 Lower Limit of Detection (LLD)^{b,c}*

| Analysis | Water (pCi/l) | Airborne Particulate or Gases (pCi/m ³) | Fish (pCi/kg, wet) | Milk (pCi/l) | Food Products (pCi/kg, wet) | Sediment (pCi/kg, dry) |
|-----------------------|-------------------|---|-----------------------|--------------|--------------------------------|---------------------------|
| Gross Beta | 4 | 0.01 | | | | |
| H-3 | 2000 ^d | | | | | |
| Mn-54 | 15 | | 130 | | | |
| Fe-59 | 30 | | 260 | | | |
| Co-58, 60 | 15 | | 130 | | | |
| Zr-Nb-95 | 15 | | | | | |
| I-131 | 1 ^e | 0.07 | | 1 | 60 | |
| Cs-134 | 15 | 0.05 | 130 | 15 | 60 | 150 |
| Cs-137 | 18 | 0.06 | 150 | 18 | 80 | 180 |
| Ba-La-140 | 15 | | | 15 | | |
| Zn-65 | 30 | | 260 | | | |
| Sr-89/90 ^f | 5 | | | | | |

Table Notations for Table 2.3.1-A

- a. This list does not mean that only these nuclides are to be considered. Other peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radiological Environment Monitoring Report.
- b. Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13.
- c. The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system, which may include radiochemical separation:

$$LLD = \frac{4.66s_b}{E \times V \times 2.22 \times Y \times \exp(-\gamma\Delta t)}$$

Where:

LLD is the a priori lower limit of detection as defined above, as picocuries per unit mass or volume,

S_b is the standard deviation of the background counting rate or of the counting rate of blank sample as appropriate, as counts per minute,

E is the counting efficiency, as counts per disintegration,

V is the sample size in units of mass or volume,

2.22 is the number of disintegrations per minute per picocurie,

Y is the fractional radiochemical yield, when applicable,

γ is the radioactive decay constant for the particular radionuclide, and

Δt for environmental samples is the elapsed time between sample collection, or end of the sample collection period, and time of counting,

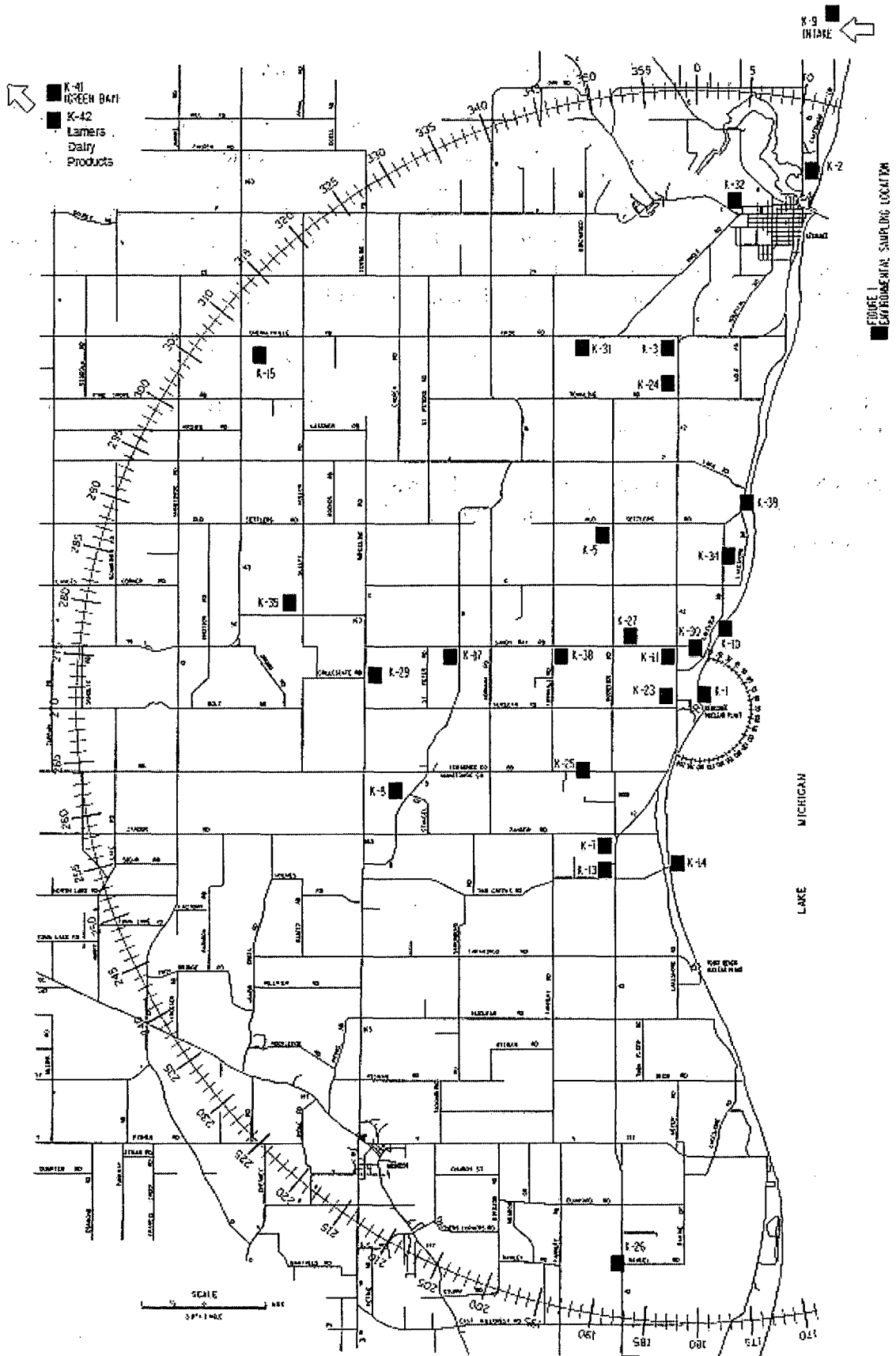
Typical values of E, V, Y, and Δt should be used in calculation.

Table Notations for Table 2.3.1-A (con't)

It should be recognized that the LLD is defined as a priori (before the fact) limit representing the capability of a measurement system and not as an posteriori (after the fact) limit for a particular measurement. Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidable small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Monitoring Report.

- d. If no drinking water pathway exists, a value of 3,000 pCi/l may be used.
- e. LLD for drinking water samples. If no drinking water pathway exists, the LLD of gamma isotopic analysis may be used.
- f. This is NOT a NUREG-0472 required value. It is based on EPA drinking water standards, which tie into the NEI Groundwater Protection Initiative that was implemented at KPS on August 4, 2006.

FIGURE 1



069-10/2.004

FIGURE 2

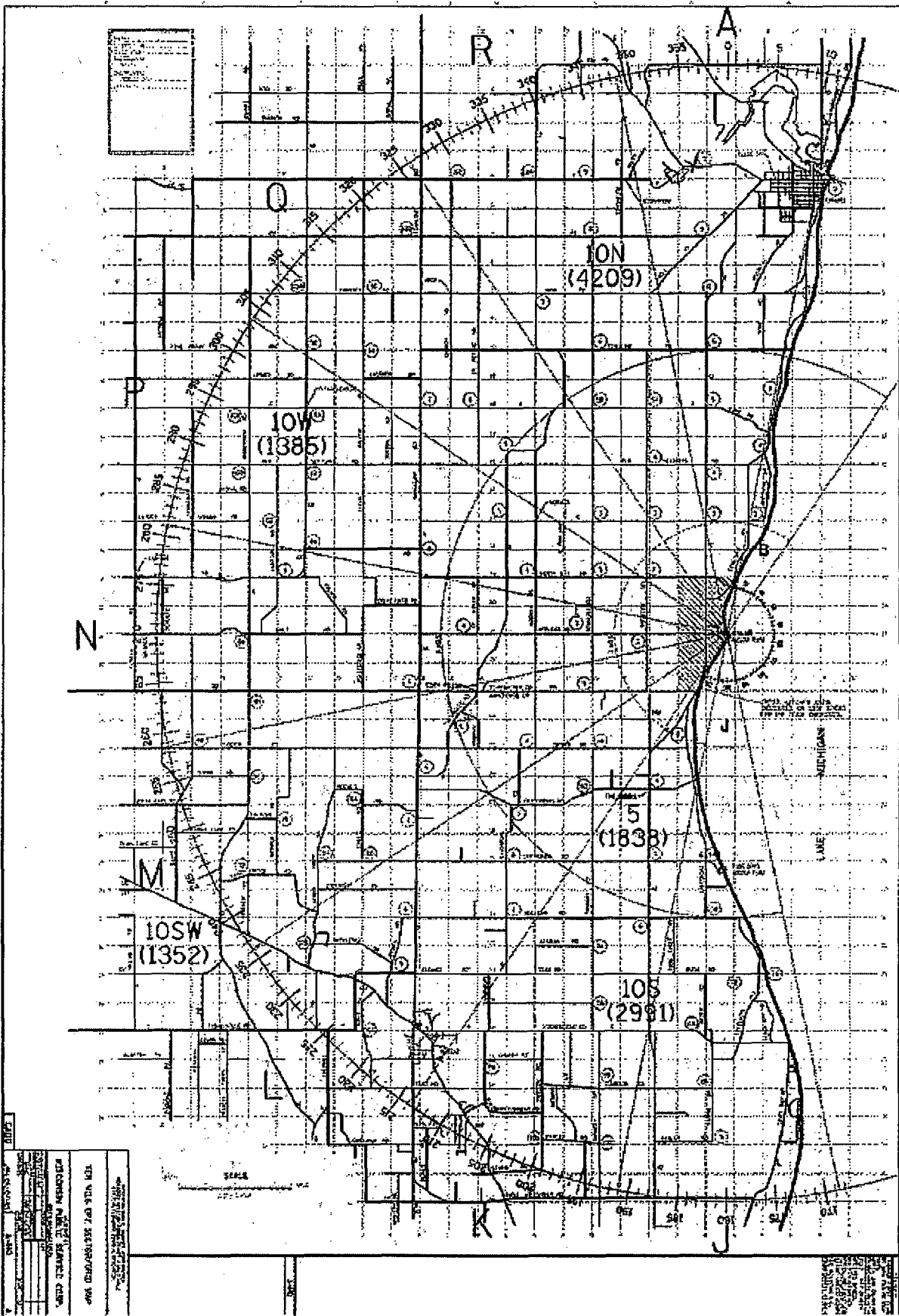


FIGURE 3

NOTES:

1. LOCATIONS OF MONITORING WELLS SURVEYED BY STS ON JUNE 21, 2007.
2. LOCATIONS OF WATER SUPPLY WELLS ARE ESTIMATED.

LEGEND:

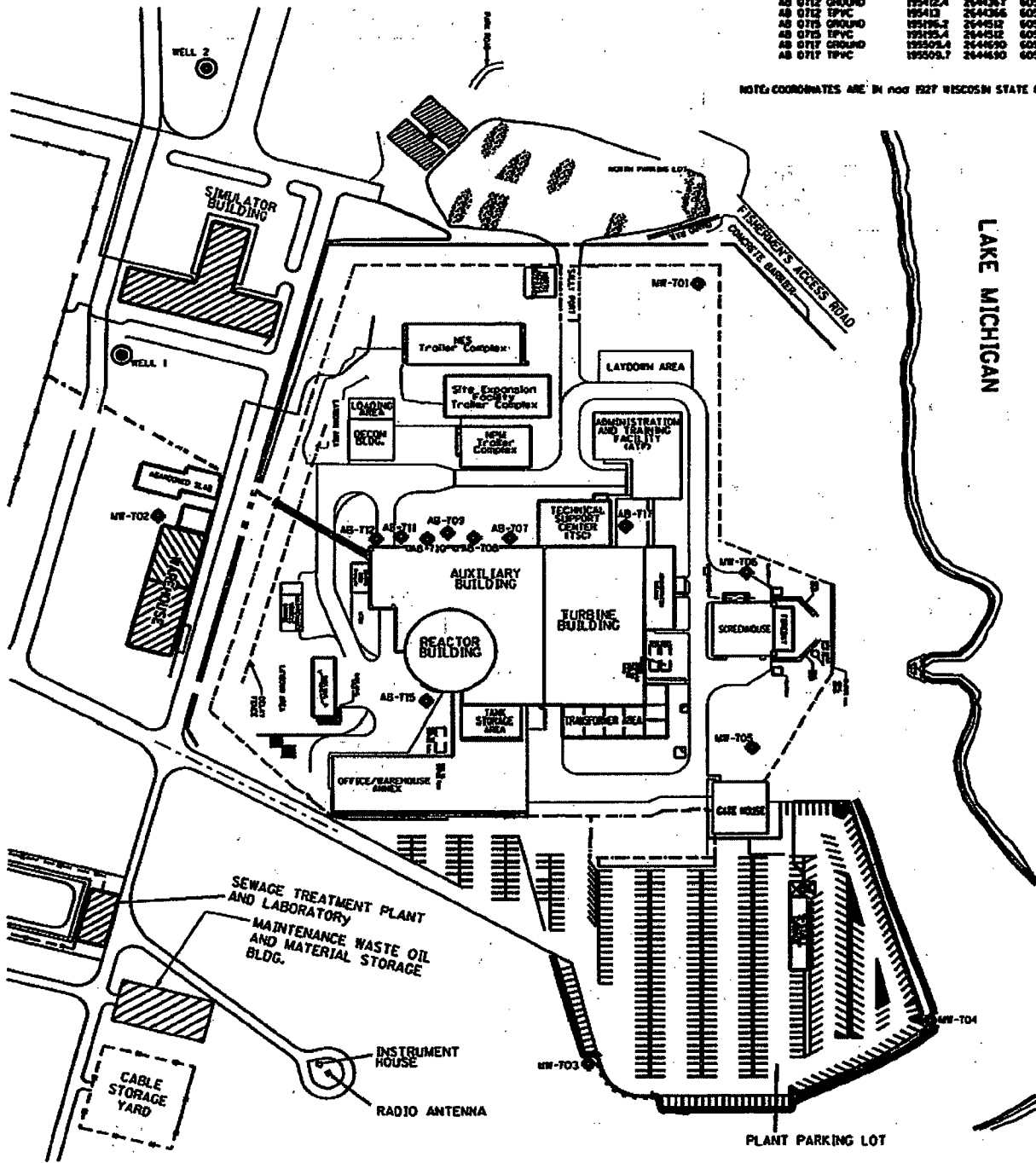
--- 6' HIGH FENCE

⊙ SUPPLY WELL

◆ MONITORING WELL

| LOCATION | WELLING | CASING | ELEVATION |
|----------------|----------|---------|-----------|
| MW-0701 GROUND | 195255.5 | 264461 | 605.628 |
| MW-0701 TPVC | 195259.9 | 264461 | 605.622 |
| MW-0702 GROUND | 195372.1 | 2644096 | 607.897 |
| MW-0702 TPVC | 195371.3 | 2644097 | 607.288 |
| MW-0703 TPVC | 194712.3 | 2644235 | 605.695 |
| MW-0703 GROUND | 194761.4 | 2644235 | 605.127 |
| MW-0704 GROUND | 194928.7 | 2642525 | 608.916 |
| MW-0704 TPVC | 194928.7 | 2642525 | 608.502 |
| MW-0705 TPVC | 195264.4 | 2644927 | 604.312 |
| MW-0705 GROUND | 195264.4 | 2644927 | 605.329 |
| MW-0706 GROUND | 195491.2 | 2644865 | 605.403 |
| MW-0706 TPVC | 195491.2 | 2644865 | 605.917 |
| AB 0707 GROUND | 195461 | 2644523 | 605.053 |
| AB 0707 TPVC | 195460.4 | 2644523 | 605.673 |
| AB 0708 GROUND | 195451.3 | 2644530 | 605.065 |
| AB 0708 TPVC | 195451 | 2644529 | 605.585 |
| AB 0709 GROUND | 195448.3 | 2644453 | 604.193 |
| AB 0709 TPVC | 195448 | 2644453 | 605.659 |
| AB 0710 GROUND | 195428.7 | 2644450 | 604.145 |
| AB 0710 TPVC | 195428.2 | 2644450 | 605.812 |
| AB 0711 GROUND | 195421.1 | 2644417 | 605.8849 |
| AB 0711 TPVC | 195420.8 | 2644417 | 605.4903 |
| AB 0712 GROUND | 195412.4 | 2644267 | 605.5062 |
| AB 0712 TPVC | 195412 | 2644266 | 605.951 |
| AB 0715 GROUND | 195496.7 | 2644512 | 605.1293 |
| AB 0715 TPVC | 195495.4 | 2644512 | 605.4278 |
| AB 0717 GROUND | 195505.7 | 2644630 | 605.4788 |
| AB 0717 TPVC | 195505.7 | 2644630 | 605.2917 |

NOTE: COORDINATES ARE IN MDD 1827 WISCONSIN STATE PLANE CENTRAL.



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Dominion[®]

**2010
Annual
Environmental
Monitoring
Report**

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

Dominion Energy Kewaunee, Inc.



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, 2010

Prepared and submitted by

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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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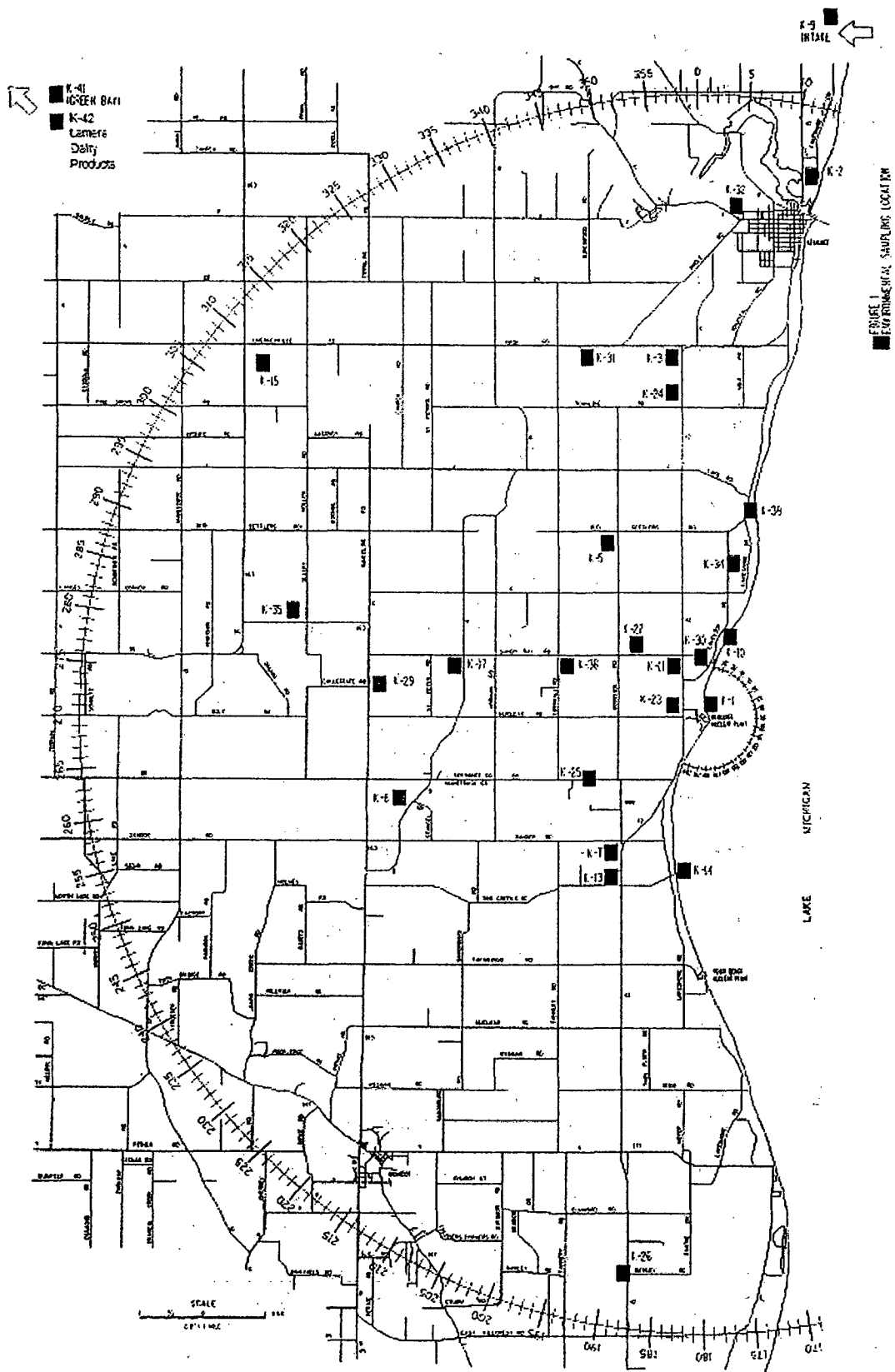
1.0 INTRODUCTION

The following constitutes Part II of the final report for the 2010 Radiological Monitoring Program conducted at the Kewaunee Power Station (KPS), Kewaunee, Wisconsin.

Included are tabulations of data for all samples collected in 2010 along with graphs of data trends. A summary and interpretation of the data presented here are published in Part I of the 2010 Annual Report on the Radiological Monitoring Program for the Kewaunee Power Station.

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OFF-DRAWING

Figure 1. Sampling locations, Kewaunee Power Station

KEWAUNEE

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 Paptham 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 | Rostok Water Intake for Green Bay, Wisconsin, 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 | 10.7 SSW | Sandy's Vegetable Stand (8.0 miles south of "BB") |
| K-27 | I | 1.53 NW | Schlies 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 |
| 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 and Sue Wojta, N1859 Lakeshore Dr., Kewaunee |
| K-41 | C | 22 NW | KPS-EOF, 3060 Voyager Dr., Green Bay |
| K-42 | C | 28.1 W | Lamer's 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.

KEWAUNEE

Table 2. Type and frequency of collection.

| Location | Weekly | Biweekly | Monthly | Quarterly | Semiannually | Annually |
|-------------------|--------|----------|-----------------|---------------------|--------------------|-----------------|
| K-1a | | | SW | | SL | |
| K-1b | | | SW | GR ^a | SL | |
| K-1c | | | | | BS ^b | |
| K-1d | | | SW | FI ^a | SL BS ^b | |
| K-1e | | | SW | | SL | |
| K-1f | AP | AI | | TLD GR ^a | SO | |
| K-1g, K-1h | | | | WW | | |
| K-1j | | | | | BS ^b | |
| K-1k | | | SW | | SL | |
| K-1l through K-1s | | | | TLD | | |
| K-2 | AP | AI | | TLD | | |
| K-3, K-5 | | | MI ^c | TLD GR ^a | SO | CF ^d |
| K-7, K-8 | AP | AI | | TLD | | |
| K-9 | | | SW | | SL BS ^b | |
| K-10, K-13 | | | | WW | | |
| K-11 | | | PR | WW | | |
| K-14 | | | SW | | SL BS ^b | |
| K-15, K-17 | | | | TLD | | |
| K-23a, b | | | | | GRN / GLV | |
| K-24 | | | | EG | | DM |
| K-25 | | | | TLD | | |
| K-26 | | | | | | VE |
| K-27 | | | | TLD | | |
| K-28 | | | MI ^c | | | |
| K-29 | | | | | | DM |
| K-30 | | | | TLD | | |
| K-31 | AP | 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 | TLD GR ^a | SO | CF ^d |
| K-41 | AP | AI | | TLD | | |
| K-42 ^e | | | MI ^c | | | |
| K-43 ^f | AP | AI | | TLD | | |

^a Three times a year, second, third and fourth quarters.

^b Collected in May and November.

^c Monthly; November through April; semimonthly May through October.

^d First quarter (January, February, March) only.

^e Replaced K-28 in March, 2010.

^f Replaced K-7 in August, 2010.

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 |

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KEWAUNEE

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

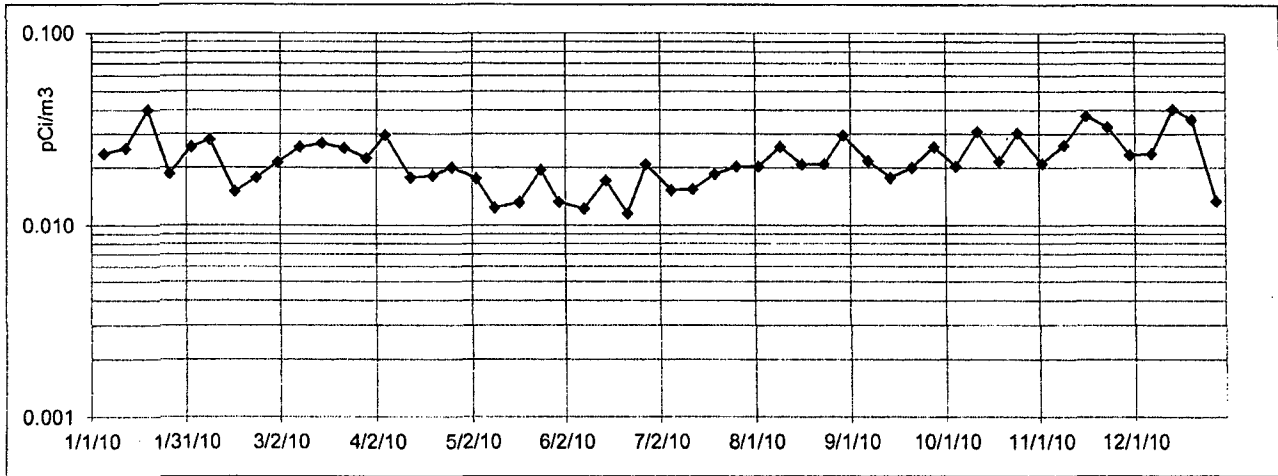


Figure 2. Location K-1f (weekly samples, 2010).

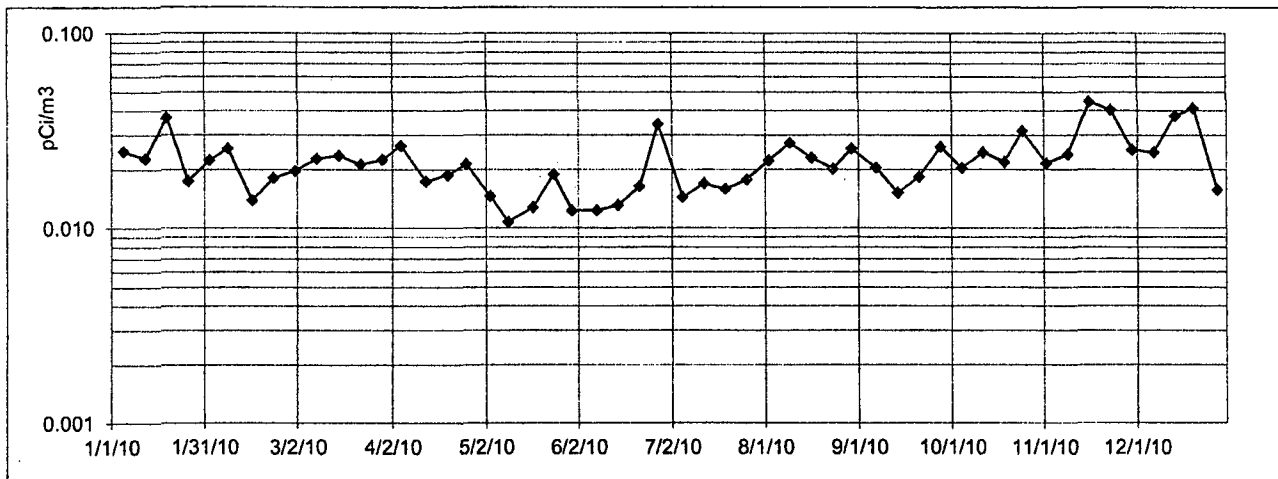


Figure 3. Location K-2 (weekly samples, 2010).

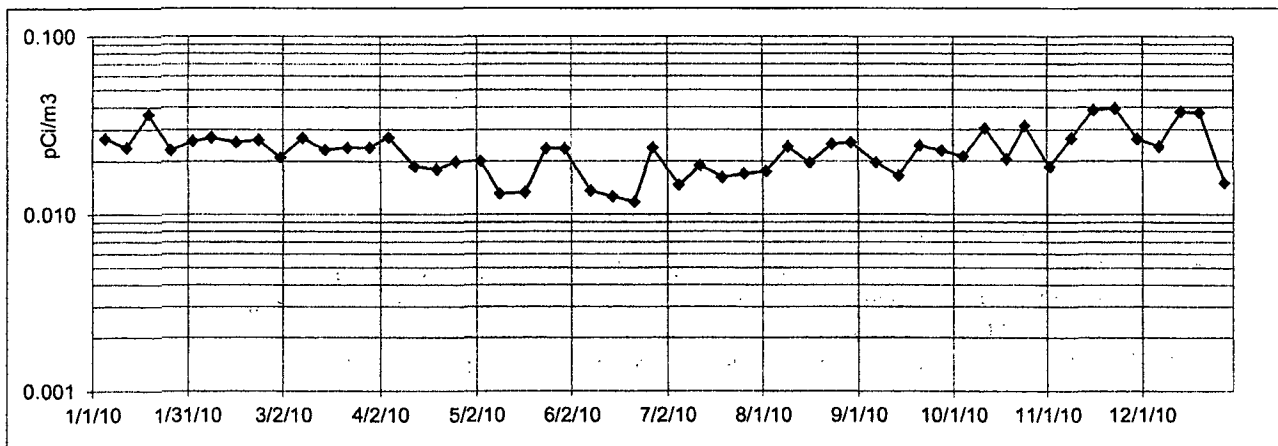


Figure 4. Location K-7 (weekly samples, 2010).

Kewaunee

Air Particulates - Gross Beta

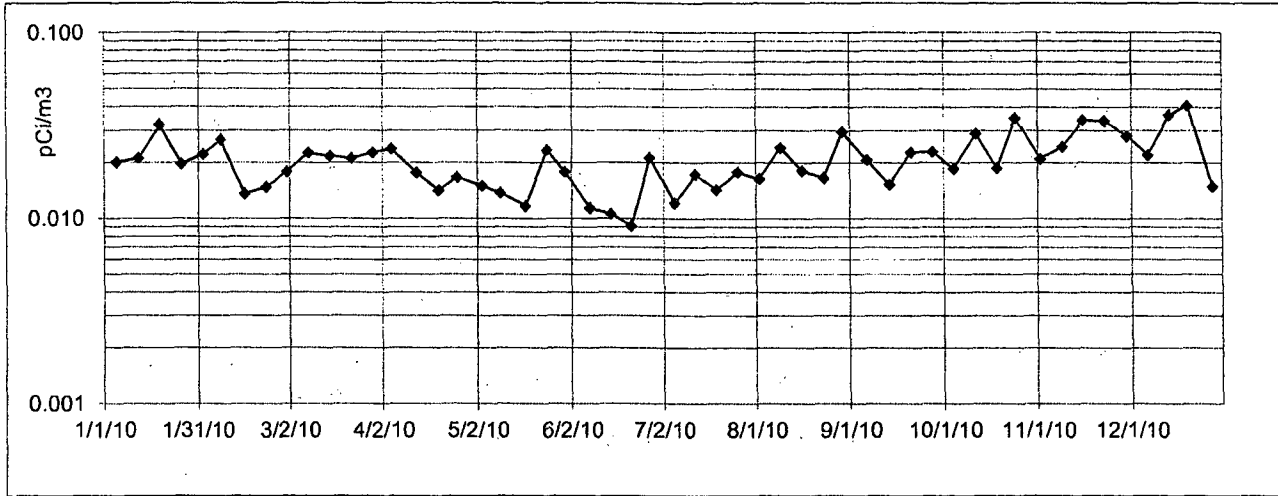


Figure 5. Location K-8 (weekly samples, 2010).

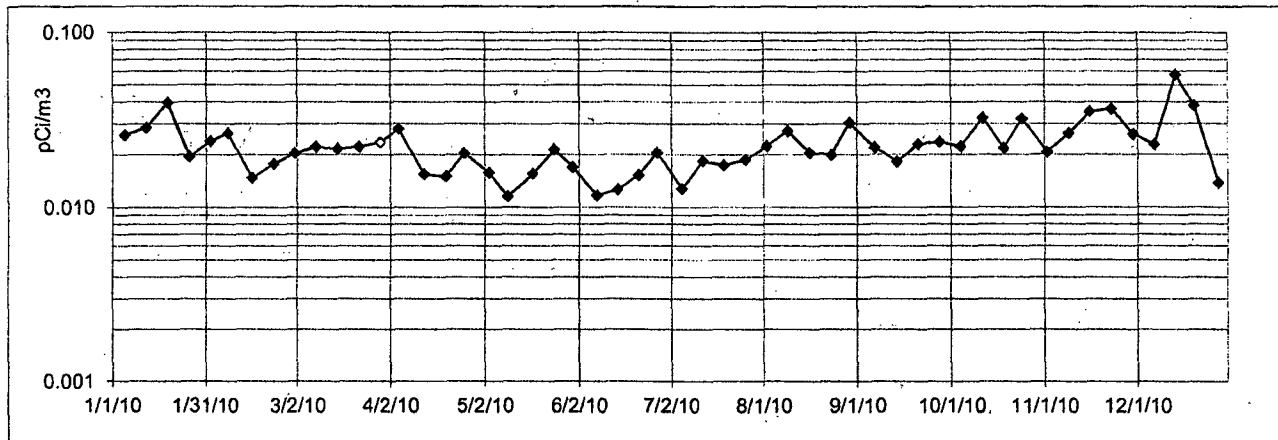


Figure 6. Location K-31 (weekly samples, 2010).

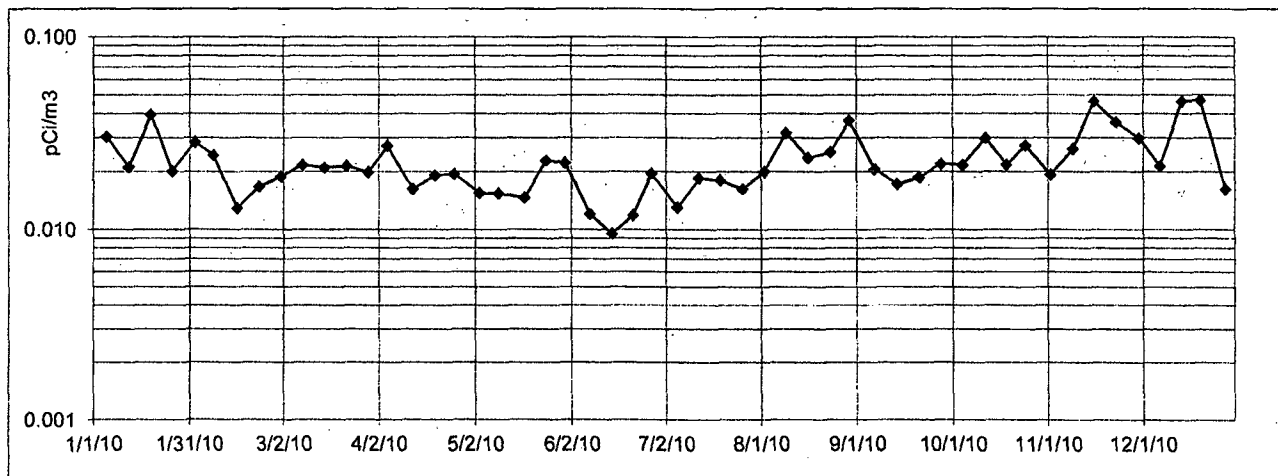


Figure 7. Location K-41 (weekly samples, 2010).

Kewaunee Power Station
Air Particulates - Gross Beta

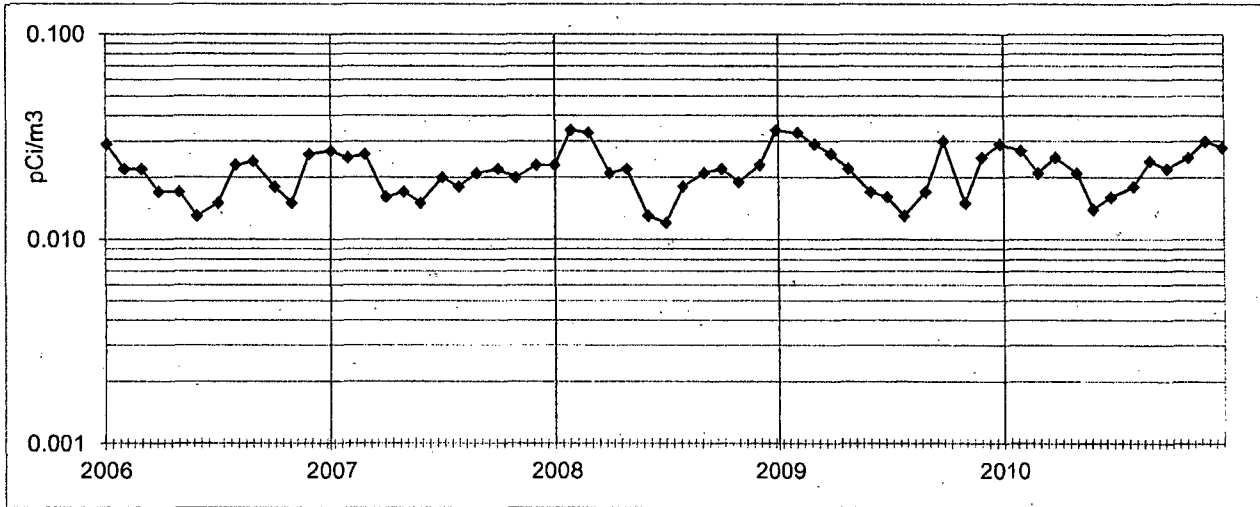


Figure 8. Location K-1f (monthly averages, 2006-2010).

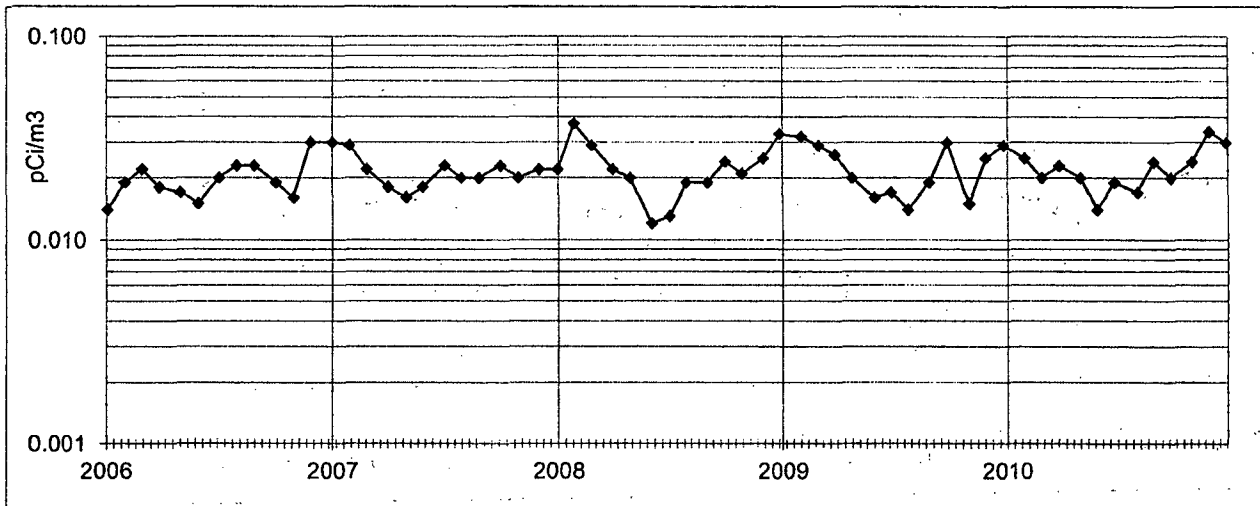


Figure 9. Location K-2 (monthly averages, 2006-2010).

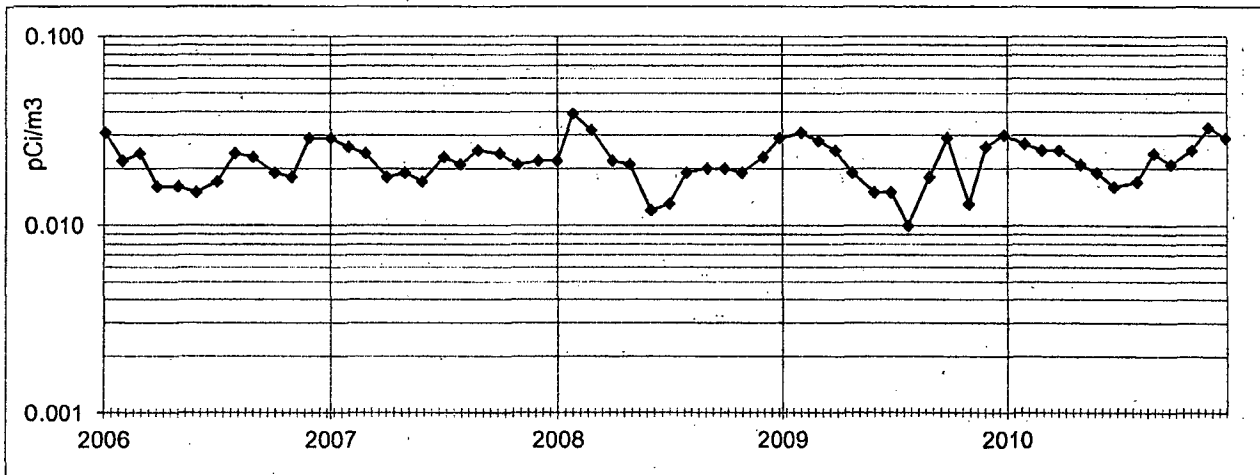


Figure 10. Location K-7 (monthly averages, 2006-2010).

Kewaunee Power Station
Air Particulates - Gross Beta

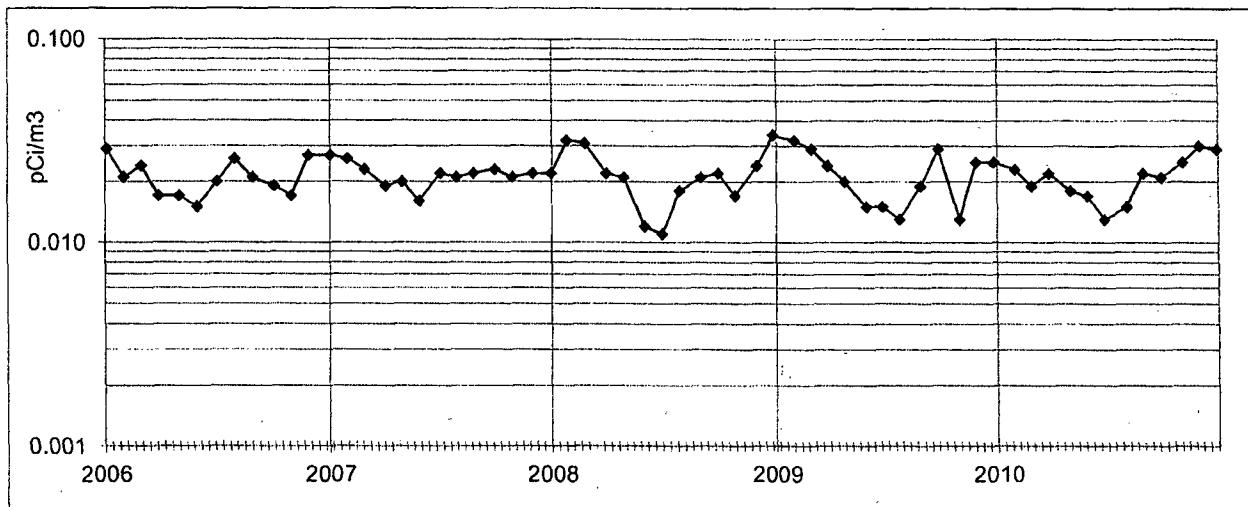


Figure 11. Location K-8 (monthly averages, 2006-2010).

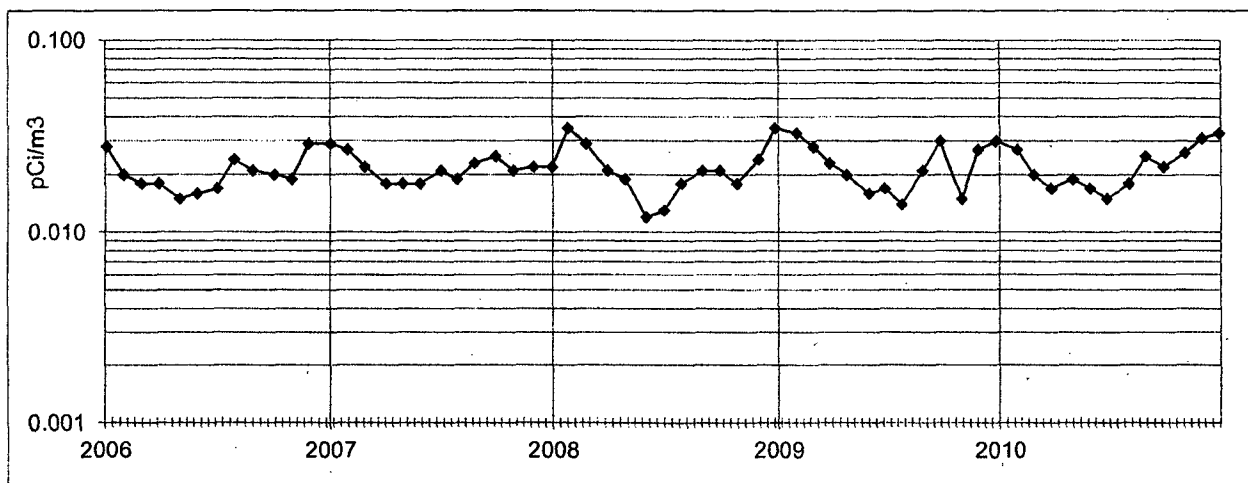


Figure 12. Location K-31 (monthly averages, 2006-2010).

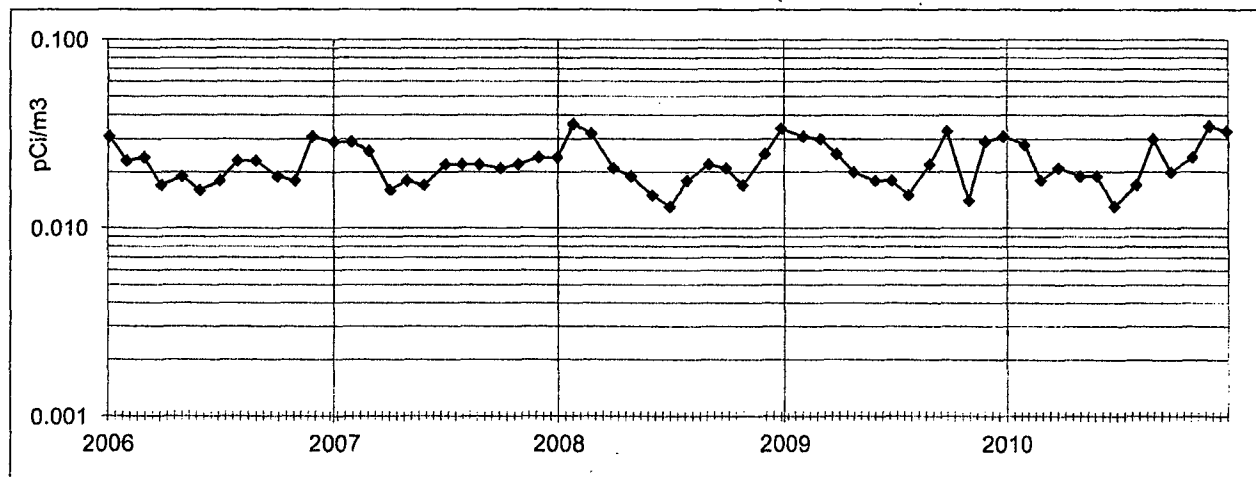


Figure 13. Location K-41a (monthly averages, 2006-2010).

^a collected at location K-16 prior to 2007

Kewaunee

WELL WATER-GROSS ALPHA

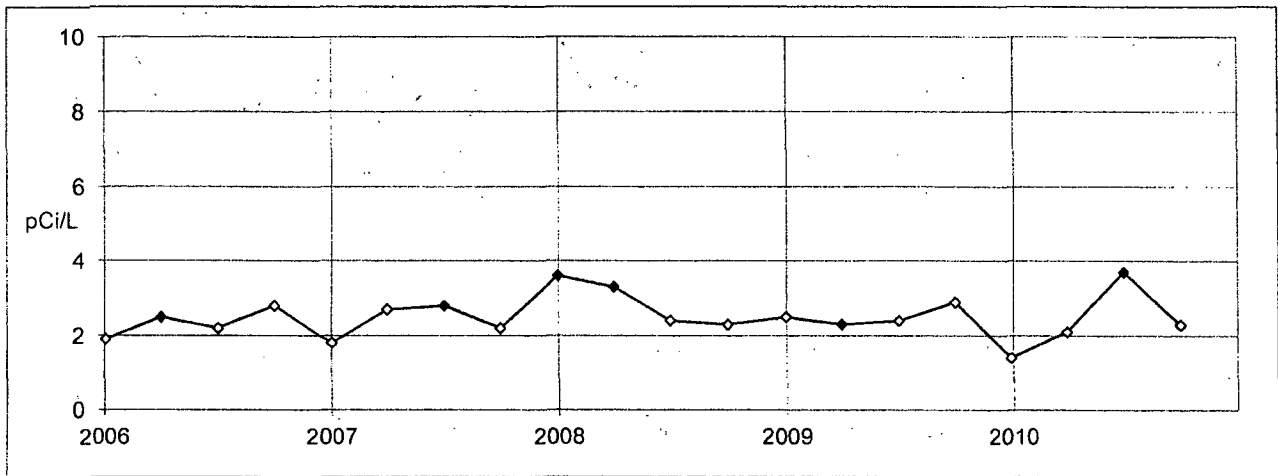


Figure 14. Location K-1g. Total Residue. Quarterly collection.

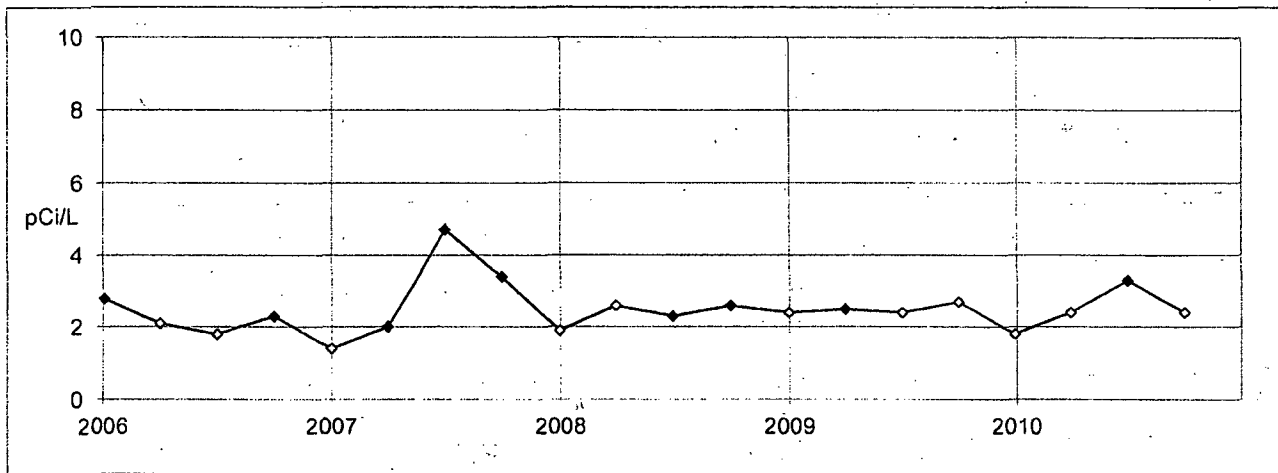


Figure 15. Location K-1h. Total Residue. Quarterly collection.

Kewaunee Power Station
WELL WATER-GROSS BETA

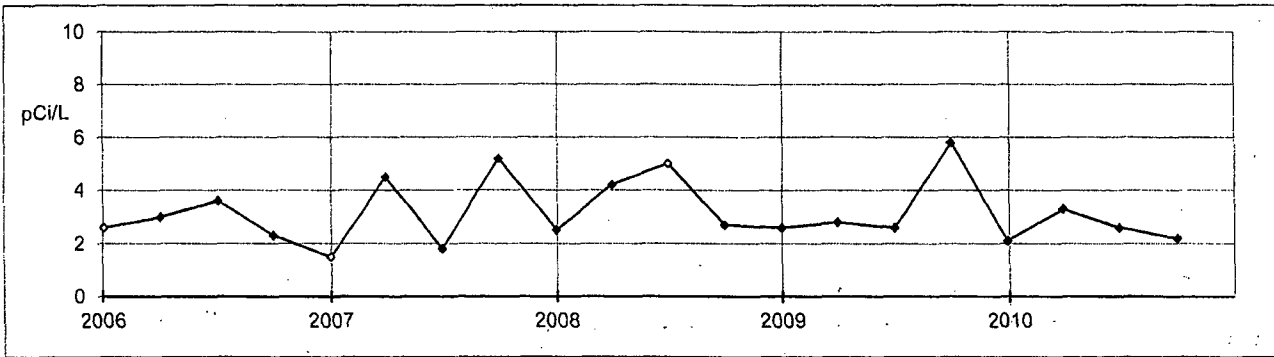


Figure 16. Location K-1g. Total Residue. Quarterly collection.

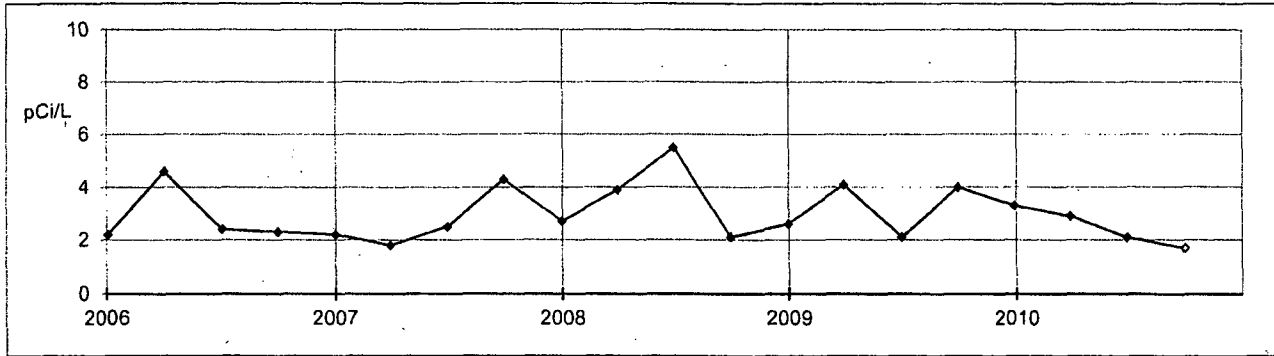


Figure 17. Location K-1h. Total Residue. Quarterly collection.

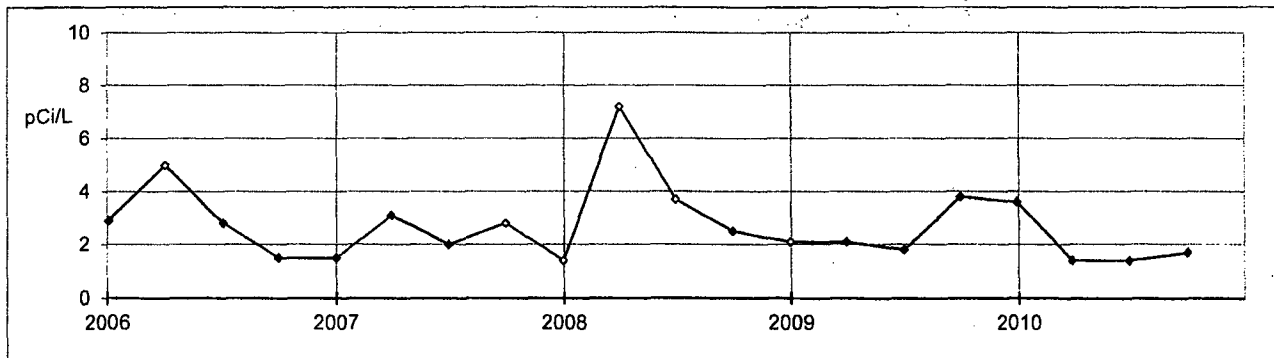


Figure 18. Location K-10. Total Residue. Quarterly collection.

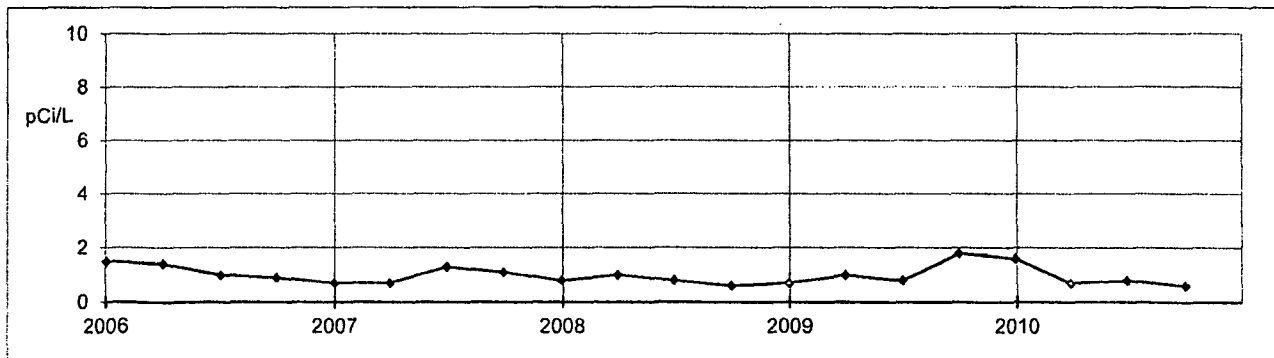


Figure 19. Location K-11. Total Residue. Quarterly collection.

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

Kewaunee Power Station
WELL WATER-GROSS BETA

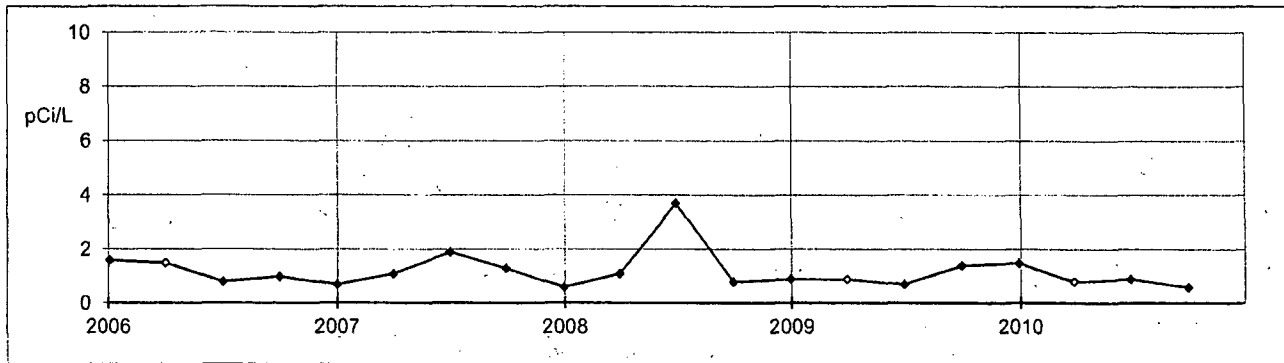


Figure 20. Location K-13. Total Residue. Quarterly collection.

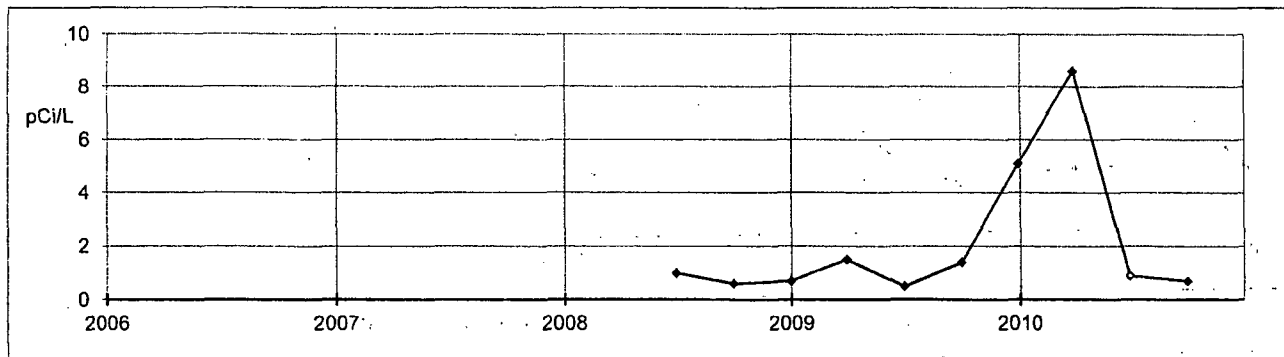


Figure 21. Location K-38. Total Residue. Quarterly collection.

Kewaunee Power Station
Milk - Strontium-90

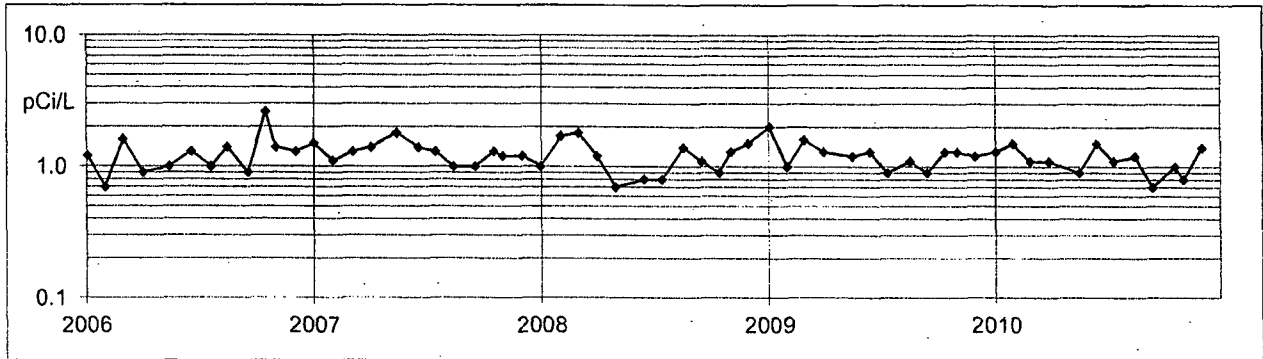


Figure 22. Milk samples. Location K-3.

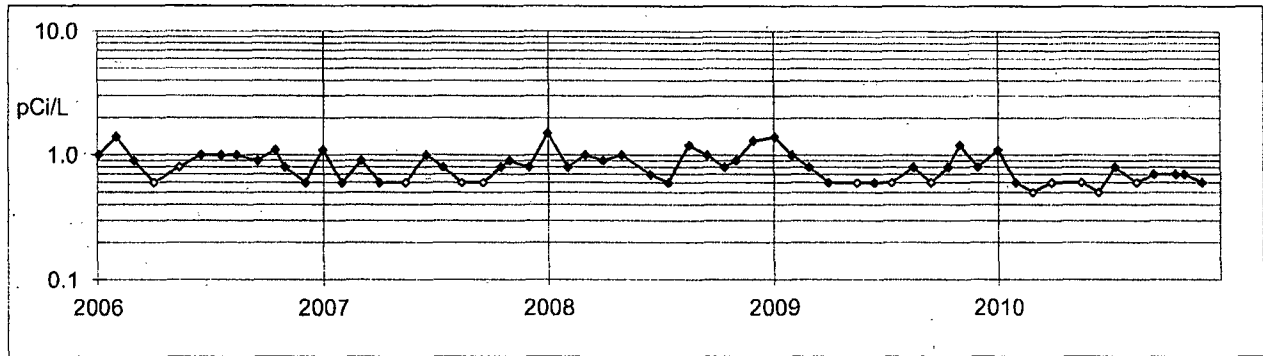


Figure 23. Milk samples. Location K-5.

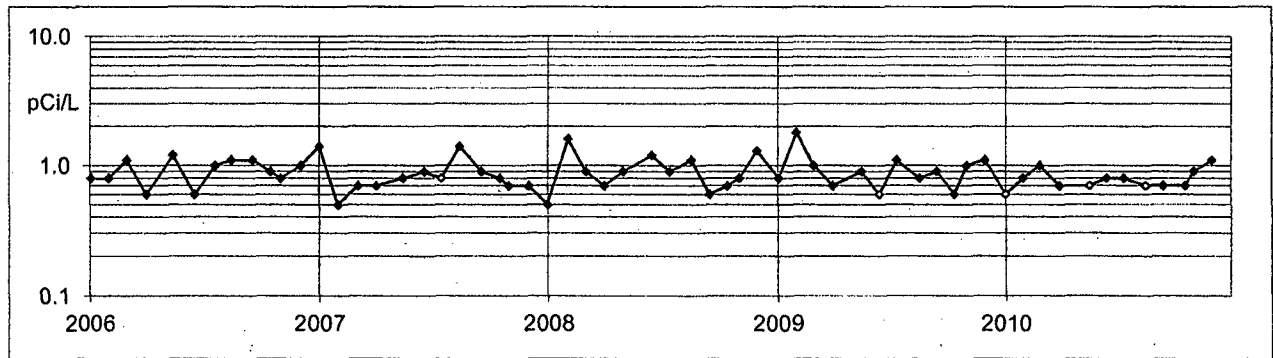


Figure 24. Milk samples. Location K-28 / K-42.

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

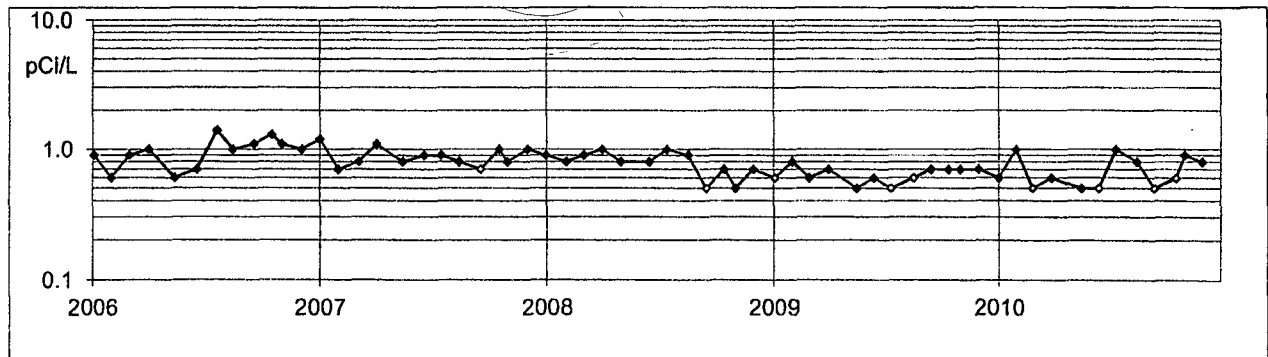


Figure 25. Milk samples. Location K-34.

Kewaunee Power Station
Milk - Strontium-90

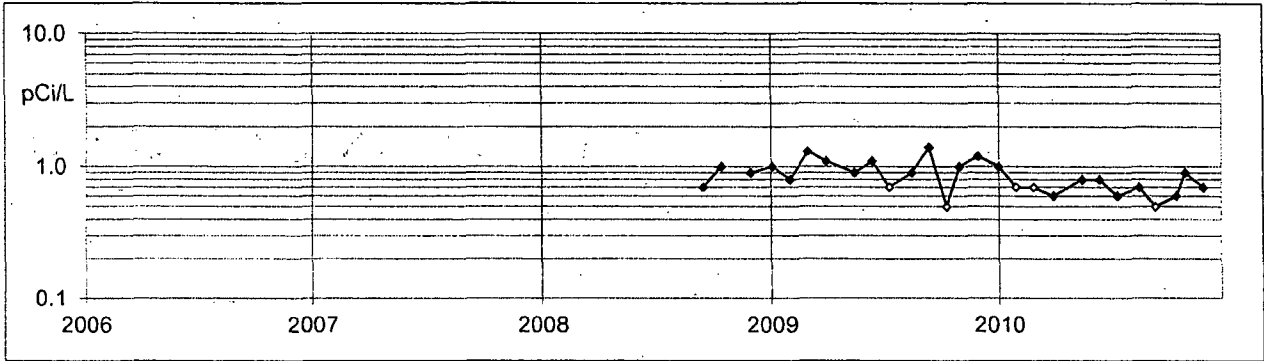


Figure 26. Milk samples. Location K-35.

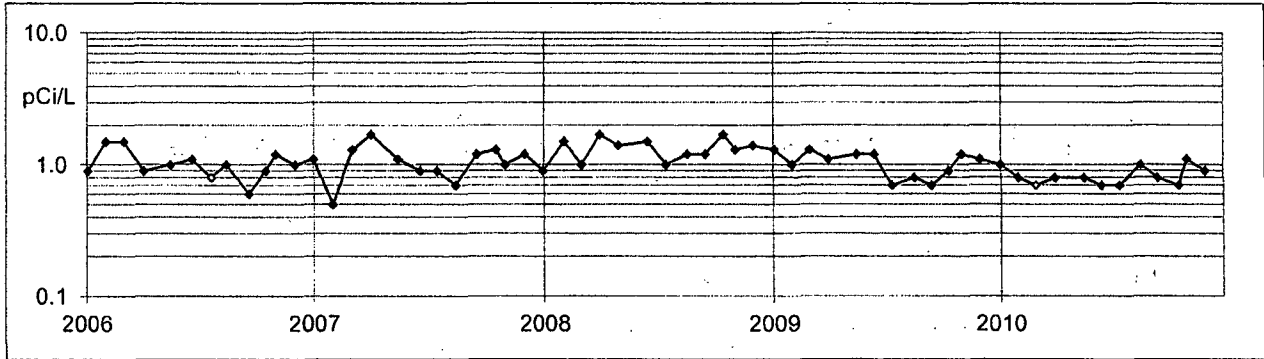


Figure 27. Milk samples. Location K-38.

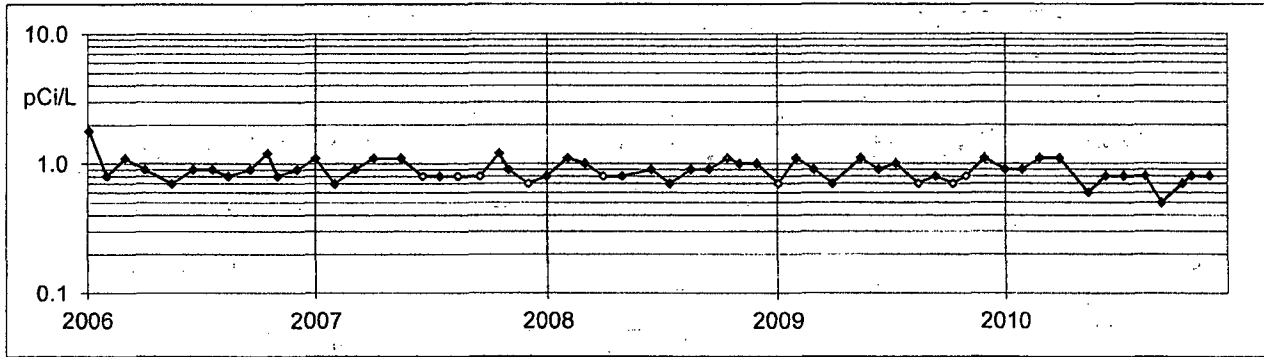


Figure 28. Milk samples. Location K-39.

Kewaunee Power Station
Surface Water - Gross Beta

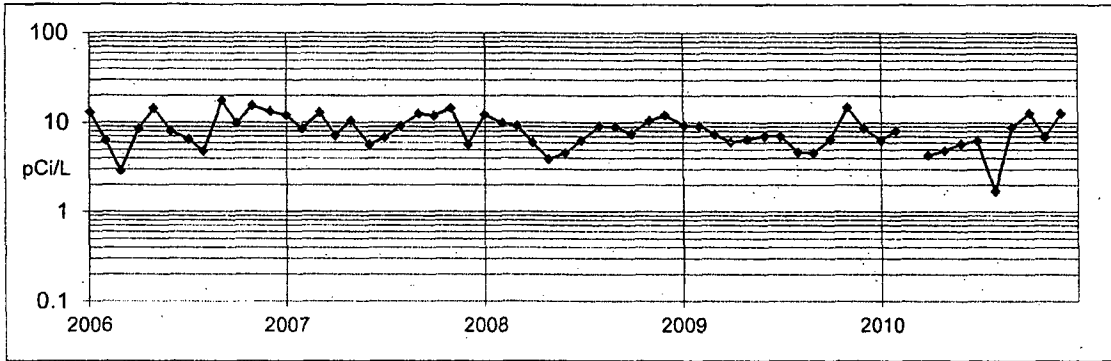


Figure 30. Surface water . North Creek, Onsite (K-1a).

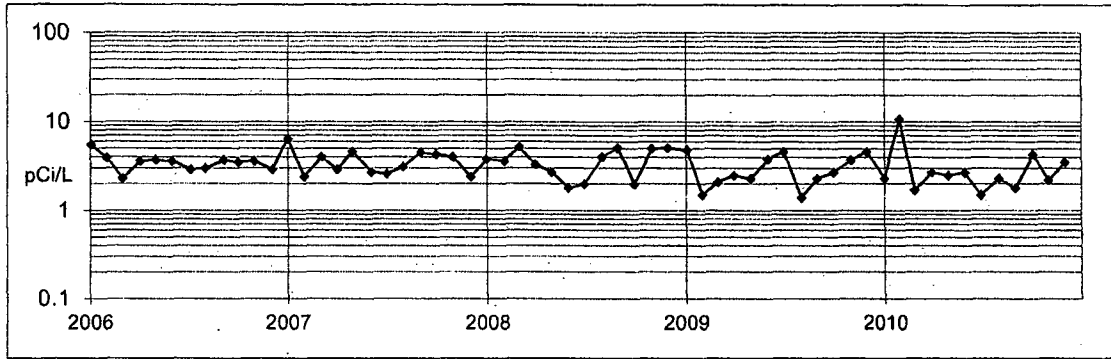


Figure 31. Surface water . Middle Creek, Onsite (K-1b).

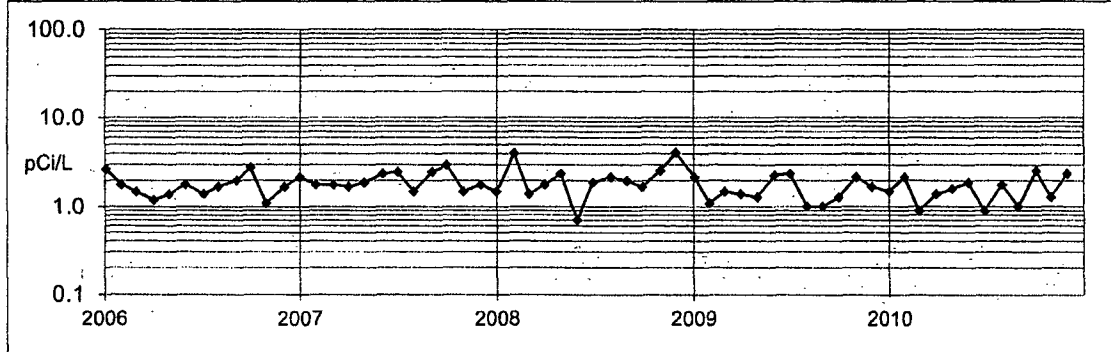


Figure 32. Surface water. Lake Michigan, condenser discharge, Onsite (K-1d).

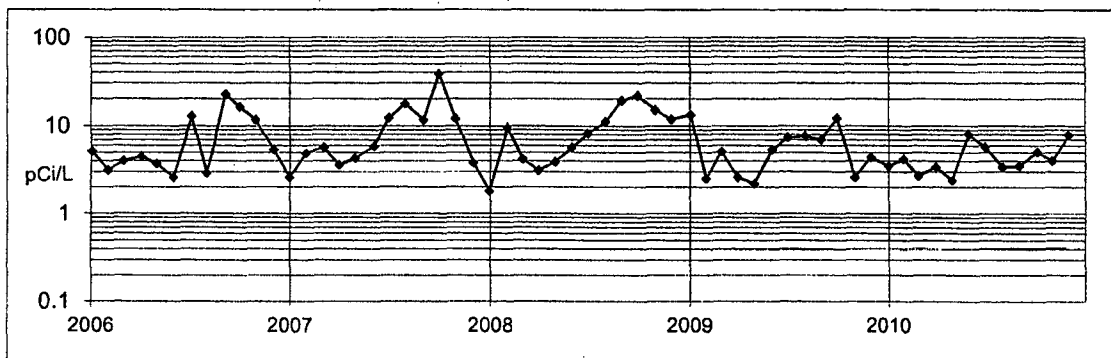


Figure 33. Surface water. South Creek, Onsite (K-1e).

Kewaunee Power Station
Surface Water - Gross Beta

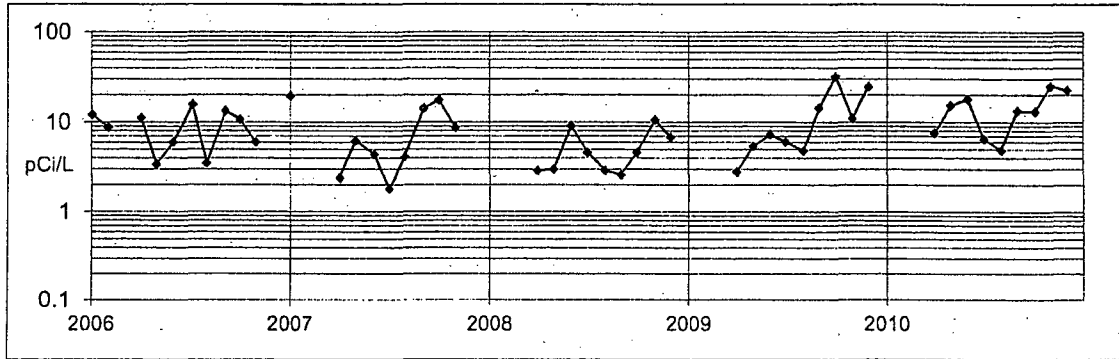


Figure 34. Surface water. School Forest Pond (K-1k).

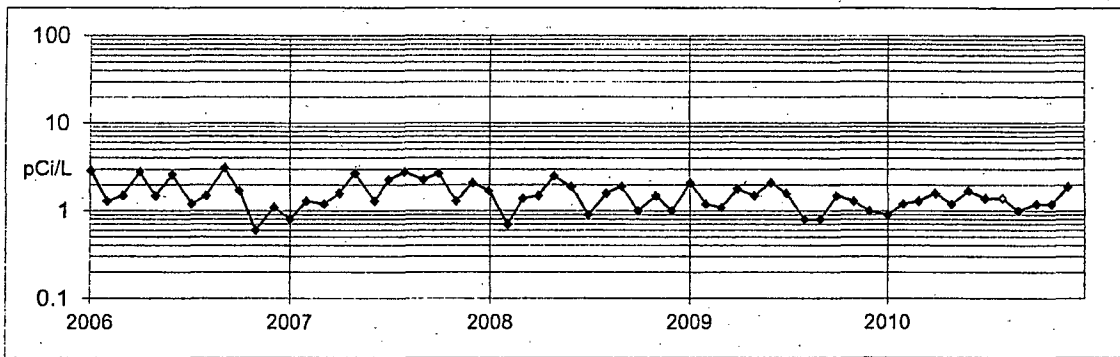


Figure 35. Surface water (raw). Lake Michigan, Rostok Intake (K-9)

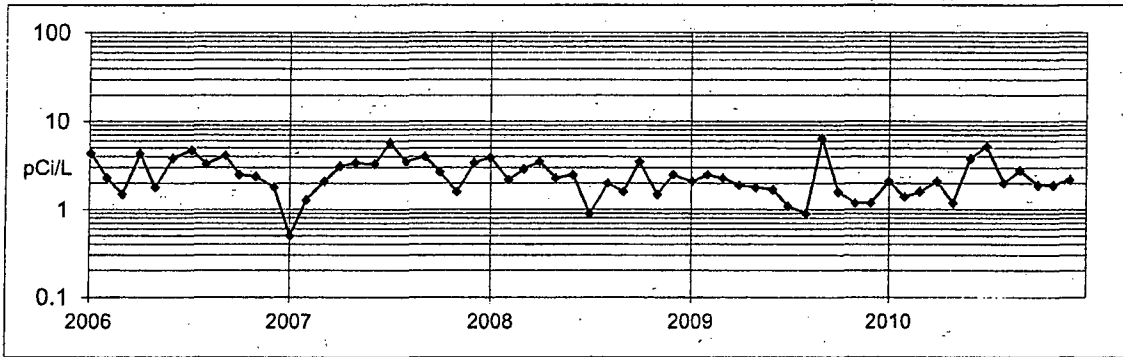


Figure 36. Surface water . Lake Michigan, Two Creeks Park (K-14a).

Kewaunee
Surface Water - Tritium

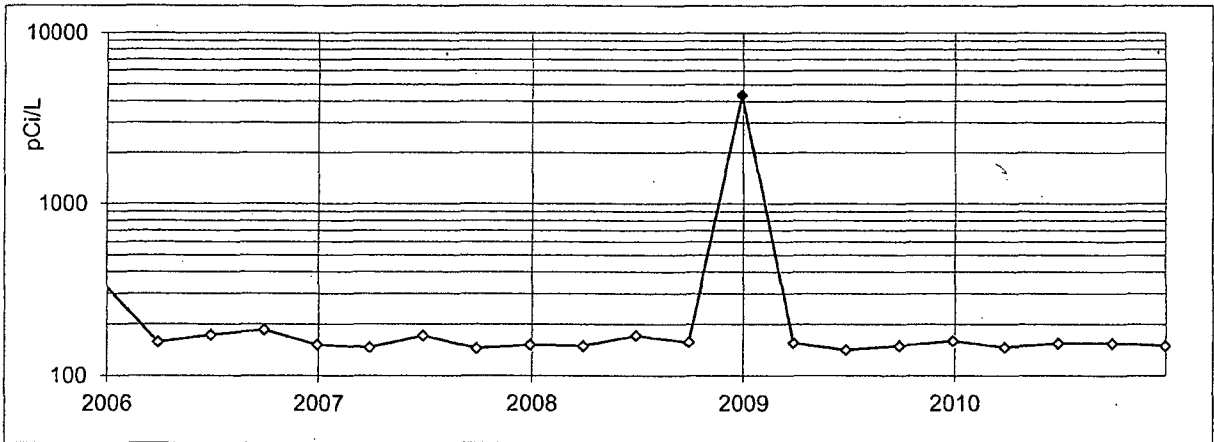


Figure 37. Surface water. Lake Michigan, condenser discharge, K-1d. Quarterly collection.

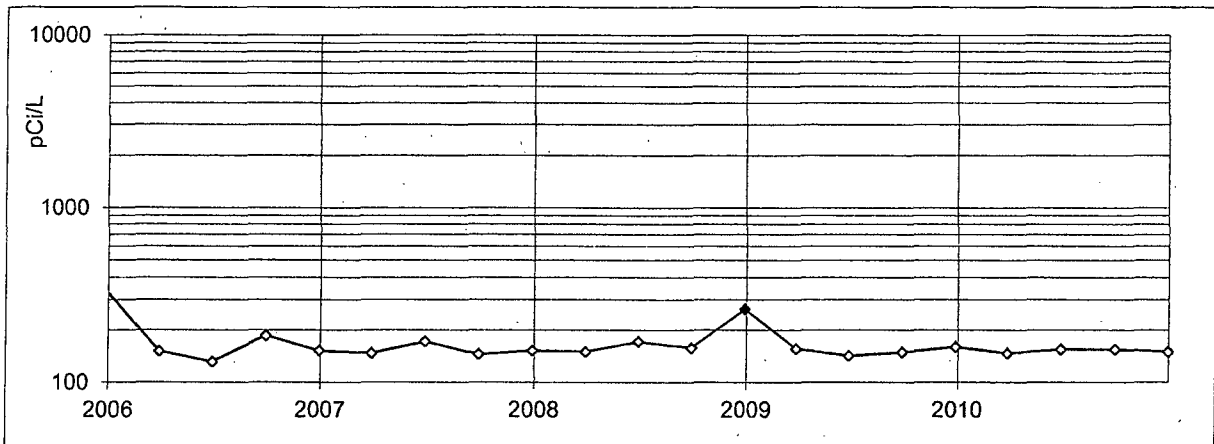


Figure 38. Surface water. Lake Michigan, Two Creeks Park, K-14a. Quarterly collection.

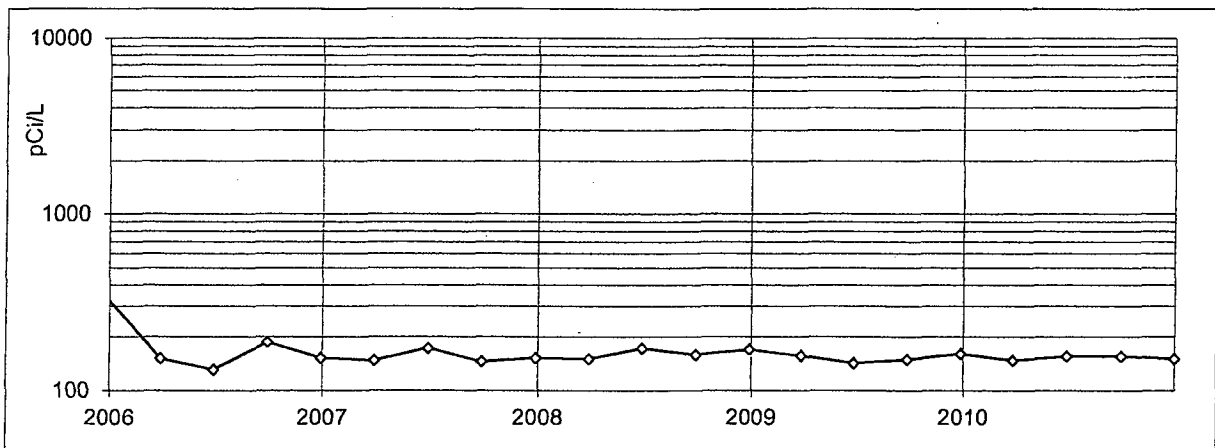


Figure 39. Surface water. Lake Michigan, Rostok Intake, K-9. Quarterly collection.

Note: Prior to 2006, LLD values were reported as compliant with technical specifications (< 330 pCi/L).

6.0 DATA TABULATIONS

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

Location: K-1f

Units: pCi/m³

Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|-------------------------|--------------------------|----------------------|-------------------------|--------------------------|----------------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 354 | 0.024 ± 0.003 | 07-06-10 | 403 | 0.015 ± 0.002 |
| 01-12-10 | 355 | 0.025 ± 0.003 | 07-13-10 | 363 | 0.015 ± 0.003 |
| 01-19-10 | 351 | 0.040 ± 0.004 | 07-20-10 | 319 | 0.018 ± 0.003 |
| 01-26-10 | 352 | 0.019 ± 0.003 | 07-27-10 | 338 | 0.020 ± 0.003 |
| 02-02-10 | 354 | 0.026 ± 0.003 | 08-03-10 | 341 | 0.020 ± 0.003 |
| 02-08-10 | 302 | 0.028 ± 0.003 | 08-10-10 | 354 | 0.026 ± 0.003 |
| 02-16-10 | 401 | 0.015 ± 0.002 | 08-17-10 | 361 | 0.021 ± 0.003 |
| 02-23-10 | 354 | 0.018 ± 0.003 | 08-24-10 | 335 | 0.021 ± 0.003 |
| 03-02-10 | 338 | 0.021 ± 0.003 | 08-30-10 | 229 | 0.029 ± 0.004 |
| 03-09-10 | 323 | 0.026 ± 0.003 | 09-07-10 | 344 | 0.022 ± 0.003 |
| 03-16-10 | 321 | 0.027 ± 0.003 | 09-14-10 | 302 | 0.018 ± 0.003 |
| 03-23-10 | 320 | 0.025 ± 0.003 | 09-21-10 | 303 | 0.020 ± 0.003 |
| 03-30-10 | 324 | 0.022 ± 0.003 | 09-28-10 | 303 | 0.026 ± 0.003 |
| 1st Quarter Mean ± s.d. | | <u>0.024 ± 0.006</u> | 3rd Quarter Mean ± s.d. | | <u>0.021 ± 0.004</u> |
| 04-05-10 | 277 | 0.030 ± 0.004 | 10-05-10 | 296 | 0.020 ± 0.003 |
| 04-13-10 | 367 | 0.018 ± 0.003 | 10-12-10 | 293 | 0.031 ± 0.004 |
| 04-20-10 | 336 | 0.018 ± 0.003 | 10-19-10 | 309 | 0.022 ± 0.003 |
| 04-26-10 | 303 | 0.020 ± 0.003 | 10-25-10 | 252 | 0.030 ± 0.004 |
| 05-04-10 | 403 | 0.018 ± 0.002 | 11-02-10 | 315 | 0.021 ± 0.003 |
| 05-10-10 | 304 | 0.012 ± 0.003 | 11-09-10 | 274 | 0.026 ± 0.004 |
| 05-18-10 | 398 | 0.013 ± 0.002 | 11-16-10 | 298 | 0.037 ± 0.004 |
| 05-25-10 | 361 | 0.019 ± 0.003 | 11-23-10 | 311 | 0.033 ± 0.004 |
| 05-31-10 | 297 | 0.013 ± 0.003 | 11-30-10 | 348 | 0.023 ± 0.003 |
| 06-08-10 | 404 | 0.012 ± 0.002 | 12-07-10 | 301 | 0.024 ± 0.003 |
| 06-15-10 | 348 | 0.017 ± 0.003 | 12-14-10 | 300 | 0.040 ± 0.004 |
| 06-22-10 | 357 | 0.012 ± 0.002 | 12-20-10 | 252 | 0.036 ± 0.004 |
| 06-28-10 | 301 | 0.021 ± 0.003 | 12-28-10 | 331 | 0.013 ± 0.003 |
| 2nd Quarter Mean ± s.d. | | <u>0.017 ± 0.005</u> | 4th Quarter Mean ± s.d. | | <u>0.027 ± 0.008</u> |
| Cumulative Average | | | | | 0.022 |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

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

Location: K-2

Units: pCi/m³

Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 339 | 0.025 ± 0.003 | 07-06-10 | 346 | 0.014 ± 0.003 |
| 01-12-10 | 356 | 0.023 ± 0.003 | 07-13-10 | 303 | 0.017 ± 0.003 |
| 01-19-10 | 351 | 0.037 ± 0.003 | 07-20-10 | 307 | 0.016 ± 0.003 |
| 01-26-10 | 336 | 0.017 ± 0.003 | 07-27-10 | 306 | 0.018 ± 0.003 |
| 02-02-10 | 339 | 0.022 ± 0.003 | 08-03-10 | 293 | 0.022 ± 0.003 |
| 02-08-10 | 306 | 0.026 ± 0.003 | 08-10-10 | 304 | 0.027 ± 0.003 |
| 02-16-10 | 381 | 0.014 ± 0.002 | 08-17-10 | 302 | 0.023 ± 0.003 |
| 02-23-10 | 324 | 0.018 ± 0.003 | 08-24-10 | 325 | 0.020 ± 0.003 |
| 03-02-10 | 338 | 0.020 ± 0.003 | 08-30-10 | 266 | 0.026 ± 0.004 |
| 03-09-10 | 338 | 0.023 ± 0.003 | 09-07-10 | 333 | 0.020 ± 0.003 |
| 03-16-10 | 311 | 0.024 ± 0.003 | 09-14-10 | 302 | 0.015 ± 0.003 |
| 03-23-10 | 300 | 0.021 ± 0.003 | 09-21-10 | 303 | 0.018 ± 0.003 |
| 03-30-10 | 304 | 0.022 ± 0.003 | 09-28-10 | 305 | 0.026 ± 0.003 |
| 1st Quarter Mean ± s.d. | | 0.022 ± 0.006 | 3rd Quarter Mean ± s.d. | | 0.020 ± 0.004 |
| 04-05-10 | 260 | 0.026 ± 0.004 | 10-05-10 | 296 | 0.020 ± 0.003 |
| 04-13-10 | 345 | 0.017 ± 0.003 | 10-12-10 | 314 | 0.025 ± 0.003 |
| 04-20-10 | 311 | 0.019 ± 0.003 | 10-19-10 | 303 | 0.022 ± 0.003 |
| 04-26-10 | 268 | 0.021 ± 0.003 | 10-25-10 | 258 | 0.032 ± 0.004 |
| 05-04-10 | 347 | 0.015 ± 0.002 | 11-02-10 | 353 | 0.022 ± 0.003 |
| 05-10-10 | 260 | 0.011 ± 0.003 | 11-09-10 | 311 | 0.024 ± 0.003 |
| 05-18-10 | 356 | 0.013 ± 0.002 | 11-16-10 | 264 | 0.045 ± 0.004 |
| 05-25-10 | 315 | 0.019 ± 0.003 | 11-23-10 | 281 | 0.041 ± 0.004 |
| 05-31-10 | 257 | 0.012 ± 0.003 | 11-30-10 | 306 | 0.025 ± 0.004 |
| 06-08-10 | 345 | 0.012 ± 0.002 | 12-07-10 | 302 | 0.024 ± 0.003 |
| 06-15-10 | 302 | 0.013 ± 0.003 | 12-14-10 | 306 | 0.038 ± 0.004 |
| 06-22-10 | 303 | 0.016 ± 0.003 | 12-20-10 | 248 | 0.041 ± 0.004 |
| 06-28-10 | 258 | 0.034 ± 0.004 | 12-28-10 | 320 | 0.016 ± 0.003 |
| 2nd Quarter Mean ± s.d. | | 0.018 ± 0.007 | 4th Quarter Mean ± s.d. | | 0.029 ± 0.009 |
| Cumulative Average | | | | | 0.022 |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

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

Location: K-7 / K-43^b

Units: pCi/m³

Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|-------------------------|--------------------------|---------------|-------------------------|--------------------------|---------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 332 | 0.027 ± 0.003 | 07-06-10 | 346 | 0.015 ± 0.003 |
| 01-12-10 | 330 | 0.024 ± 0.003 | 07-13-10 | 309 | 0.019 ± 0.003 |
| 01-19-10 | 320 | 0.037 ± 0.004 | 07-20-10 | 296 | 0.016 ± 0.003 |
| 01-26-10 | 309 | 0.023 ± 0.003 | 07-27-10 | 343 | 0.017 ± 0.003 |
| 02-02-10 | 301 | 0.026 ± 0.003 | 08-03-10 | 335 | 0.018 ± 0.003 |
| 02-08-10 | 254 | 0.027 ± 0.004 | 08-10-10 | 361 | 0.024 ± 0.003 |
| 02-16-10 | 231 | 0.026 ± 0.004 | 08-17-10 | 327 | 0.020 ± 0.003 |
| 02-23-10 | 223 | 0.026 ± 0.004 | 08-24-10 | 302 | 0.025 ± 0.003 |
| 03-02-10 | 307 | 0.021 ± 0.003 | 08-30-10 | 255 | 0.026 ± 0.004 |
| 03-09-10 | 298 | 0.027 ± 0.004 | 09-07-10 | 350 | 0.020 ± 0.003 |
| 03-16-10 | 301 | 0.023 ± 0.003 | 09-14-10 | 317 | 0.017 ± 0.003 |
| 03-23-10 | 300 | 0.024 ± 0.003 | 09-21-10 | 326 | 0.024 ± 0.003 |
| 03-30-10 | 312 | 0.024 ± 0.003 | 09-28-10 | 327 | 0.023 ± 0.003 |
| 1st Quarter Mean ± s.d. | | 0.026 ± 0.004 | 3rd Quarter Mean ± s.d. | | 0.020 ± 0.004 |
| 04-05-10 | 252 | 0.027 ± 0.004 | 10-05-10 | 304 | 0.021 ± 0.003 |
| 04-13-10 | 345 | 0.019 ± 0.003 | 10-12-10 | 306 | 0.031 ± 0.003 |
| 04-20-10 | 306 | 0.018 ± 0.003 | 10-19-10 | 293 | 0.021 ± 0.003 |
| 04-26-10 | 268 | 0.020 ± 0.003 | 10-25-10 | 267 | 0.032 ± 0.004 |
| 05-04-10 | 363 | 0.020 ± 0.003 | 11-02-10 | 360 | 0.019 ± 0.003 |
| 05-10-10 | 278 | 0.013 ± 0.003 | 11-09-10 | 299 | 0.027 ± 0.003 |
| 05-18-10 | 353 | 0.013 ± 0.002 | 11-16-10 | 319 | 0.039 ± 0.004 |
| 05-25-10 | 309 | 0.024 ± 0.003 | 11-23-10 | 307 | 0.040 ± 0.004 |
| 05-31-10 | 255 | 0.024 ± 0.003 | 11-30-10 | 309 | 0.027 ± 0.004 |
| 06-08-10 | 352 | 0.014 ± 0.002 | 12-07-10 | 299 | 0.024 ± 0.003 |
| 06-15-10 | 296 | 0.013 ± 0.003 | 12-14-10 | 305 | 0.038 ± 0.004 |
| 06-22-10 | 305 | 0.012 ± 0.003 | 12-20-10 | 260 | 0.037 ± 0.004 |
| 06-28-10 | 257 | 0.024 ± 0.003 | 12-28-10 | 375 | 0.015 ± 0.003 |
| 2nd Quarter Mean ± s.d. | | 0.019 ± 0.005 | 4th Quarter Mean ± s.d. | | 0.029 ± 0.008 |
| Cumulative Average | | | | | 0.023 |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

^b In August, 2010, Location K-07 (2.51 mi. SSW) was relocated. New location, K-43 (2.71 mi. SSW).

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

Location: K-8

Units: pCi/m³

Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 342 | 0.020 ± 0.003 | 07-06-10 | 346 | 0.012 ± 0.002 |
| 01-12-10 | 340 | 0.021 ± 0.003 | 07-13-10 | 309 | 0.017 ± 0.003 |
| 01-19-10 | 345 | 0.032 ± 0.003 | 07-20-10 | 297 | 0.014 ± 0.003 |
| 01-26-10 | 334 | 0.020 ± 0.003 | 07-27-10 | 316 | 0.018 ± 0.003 |
| 02-02-10 | 311 | 0.022 ± 0.003 | 08-03-10 | 288 | 0.016 ± 0.003 |
| 02-08-10 | 272 | 0.027 ± 0.004 | 08-10-10 | 309 | 0.024 ± 0.003 |
| 02-16-10 | 391 | 0.014 ± 0.002 | 08-17-10 | 302 | 0.018 ± 0.003 |
| 02-23-10 | 347 | 0.015 ± 0.002 | 08-24-10 | 312 | 0.017 ± 0.003 |
| 03-02-10 | 334 | 0.018 ± 0.003 | 08-30-10 | 235 | 0.029 ± 0.004 |
| 03-09-10 | 319 | 0.023 ± 0.003 | 09-07-10 | 345 | 0.021 ± 0.003 |
| 03-16-10 | 311 | 0.022 ± 0.003 | 09-14-10 | 302 | 0.015 ± 0.003 |
| 03-23-10 | 300 | 0.021 ± 0.003 | 09-21-10 | 303 | 0.023 ± 0.003 |
| 03-30-10 | 311 | 0.023 ± 0.003 | 09-28-10 | 308 | 0.023 ± 0.003 |
| <u>1st Quarter Mean ± s.d.</u> | | <u>0.021 ± 0.005</u> | <u>3rd Quarter Mean ± s.d.</u> | | <u>0.019 ± 0.005</u> |
| 04-05-10 | 253 | 0.024 ± 0.004 | 10-05-10 | 296 | 0.019 ± 0.003 |
| 04-13-10 | 345 | 0.018 ± 0.003 | 10-12-10 | 297 | 0.029 ± 0.003 |
| 04-20-10 | 331 | 0.014 ± 0.003 | 10-19-10 | 309 | 0.019 ± 0.003 |
| 04-26-10 | 302 | 0.017 ± 0.003 | 10-25-10 | 266 | 0.035 ± 0.004 |
| 05-04-10 | 369 | 0.015 ± 0.002 | 11-02-10 | 363 | 0.021 ± 0.003 |
| 05-10-10 | 261 | 0.014 ± 0.003 | 11-09-10 | 305 | 0.025 ± 0.003 |
| 05-18-10 | 341 | 0.012 ± 0.002 | 11-16-10 | 321 | 0.034 ± 0.004 |
| 05-25-10 | 309 | 0.023 ± 0.003 | 11-23-10 | 315 | 0.034 ± 0.004 |
| 05-31-10 | 255 | 0.018 ± 0.003 | 11-30-10 | 297 | 0.028 ± 0.004 |
| 06-08-10 | 381 | 0.011 ± 0.002 | 12-07-10 | 299 | 0.022 ± 0.003 |
| 06-15-10 | 321 | 0.011 ± 0.002 | 12-14-10 | 299 | 0.036 ± 0.004 |
| 06-22-10 | 305 | 0.009 ± 0.002 | 12-20-10 | 249 | 0.041 ± 0.004 |
| 06-28-10 | 257 | 0.021 ± 0.003 | 12-28-10 | 349 | 0.015 ± 0.003 |
| <u>2nd Quarter Mean ± s.d.</u> | | <u>0.016 ± 0.005</u> | <u>4th Quarter Mean ± s.d.</u> | | <u>0.028 ± 0.008</u> |
| <u>Cumulative Average</u> | | | | | <u>0.021</u> |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

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

Location: K-31
 Units: pCi/m³
 Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|--------------------------------|--------------------------|----------------------|--------------------------------|--------------------------|----------------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 303 | 0.026 ± 0.003 | 07-06-10 | 346 | 0.013 ± 0.002 |
| 01-12-10 | 305 | 0.029 ± 0.003 | 07-13-10 | 303 | 0.018 ± 0.003 |
| 01-19-10 | 301 | 0.040 ± 0.004 | 07-20-10 | 305 | 0.017 ± 0.003 |
| 01-26-10 | 301 | 0.020 ± 0.003 | 07-27-10 | 308 | 0.019 ± 0.003 |
| 02-02-10 | 255 | 0.024 ± 0.004 | 08-03-10 | 293 | 0.022 ± 0.003 |
| 02-08-10 | 259 | 0.027 ± 0.004 | 08-10-10 | 303 | 0.027 ± 0.003 |
| 02-16-10 | 341 | 0.015 ± 0.003 | 08-17-10 | 301 | 0.021 ± 0.003 |
| 02-23-10 | 304 | 0.018 ± 0.003 | 08-24-10 | 306 | 0.020 ± 0.003 |
| 03-02-10 | 302 | 0.020 ± 0.003 | 08-30-10 | 262 | 0.030 ± 0.004 |
| 03-09-10 | 303 | 0.022 ± 0.003 | 09-07-10 | 351 | 0.022 ± 0.003 |
| 03-16-10 | 301 | 0.022 ± 0.003 | 09-14-10 | 302 | 0.018 ± 0.003 |
| 03-23-10 | 300 | 0.022 ± 0.003 | 09-21-10 | 305 | 0.023 ± 0.003 |
| 03-30-10 | 40 | < 0.023 ^b | 09-28-10 | 306 | 0.024 ± 0.003 |
| <u>1st Quarter Mean ± s.d.</u> | | <u>0.024 ± 0.006</u> | <u>3rd Quarter Mean ± s.d.</u> | | <u>0.021 ± 0.004</u> |
| 04-05-10 | 254 | 0.028 ± 0.004 | 10-05-10 | 283 | 0.022 ± 0.003 |
| 04-13-10 | 345 | 0.015 ± 0.003 | 10-12-10 | 285 | 0.033 ± 0.004 |
| 04-20-10 | 300 | 0.015 ± 0.003 | 10-19-10 | 285 | 0.022 ± 0.003 |
| 04-26-10 | 260 | 0.020 ± 0.003 | 10-25-10 | 258 | 0.032 ± 0.004 |
| 05-04-10 | 346 | 0.016 ± 0.003 | 11-02-10 | 358 | 0.021 ± 0.003 |
| 05-10-10 | 261 | 0.012 ± 0.003 | 11-09-10 | 299 | 0.026 ± 0.003 |
| 05-18-10 | 345 | 0.016 ± 0.002 | 11-16-10 | 312 | 0.035 ± 0.004 |
| 05-25-10 | 305 | 0.021 ± 0.003 | 11-23-10 | 293 | 0.037 ± 0.004 |
| 05-31-10 | 257 | 0.017 ± 0.003 | 11-30-10 | 296 | 0.026 ± 0.004 |
| 06-08-10 | 344 | 0.012 ± 0.002 | 12-07-10 | 302 | 0.023 ± 0.003 |
| 06-15-10 | 302 | 0.013 ± 0.002 | 12-14-10 | 197 | 0.057 ± 0.006 |
| 06-22-10 | 306 | 0.015 ± 0.003 | 12-20-10 | 248 | 0.038 ± 0.004 |
| 06-28-10 | 254 | 0.021 ± 0.003 | 12-28-10 | 334 | 0.014 ± 0.003 |
| <u>2nd Quarter Mean ± s.d.</u> | | <u>0.017 ± 0.004</u> | <u>4th Quarter Mean ± s.d.</u> | | <u>0.030 ± 0.011</u> |
| <u>Cumulative Average</u> | | | | | <u>0.023</u> |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

^b No explanation for low volume, sampler pump run-time, 22 hours.

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

Location: K-41

Units: pCi/m³

Collection: Continuous, weekly exchange.

| Date Collected | Volume (m ³) | Gross Beta | Date Collected | Volume (m ³) | Gross Beta |
|-------------------------|--------------------------|----------------------|-------------------------|--------------------------|----------------------|
| <u>Required LLD</u> | | <u>0.010</u> | <u>Required LLD</u> | | <u>0.010</u> |
| 01-05-10 | 301 | 0.030 ± 0.003 | 07-06-10 | 346 | 0.013 ± 0.002 |
| 01-12-10 | 306 | 0.021 ± 0.003 | 07-13-10 | 304 | 0.019 ± 0.003 |
| 01-19-10 | 300 | 0.040 ± 0.004 | 07-20-10 | 301 | 0.018 ± 0.003 |
| 01-26-10 | 302 | 0.020 ± 0.003 | 07-27-10 | 312 | 0.016 ± 0.003 |
| 02-02-10 | 303 | 0.028 ± 0.003 | 08-03-10 | 293 | 0.020 ± 0.003 |
| 02-08-10 | 258 | 0.024 ± 0.004 | 08-10-10 | 303 | 0.032 ± 0.003 |
| 02-16-10 | 345 | 0.013 ± 0.002 | 08-17-10 | 302 | 0.024 ± 0.003 |
| 02-23-10 | 303 | 0.017 ± 0.003 | 08-24-10 | 307 | 0.025 ± 0.003 |
| 03-02-10 | 338 | 0.019 ± 0.003 | 08-30-10 | 201 | 0.037 ± 0.005 |
| 03-09-10 | 353 | 0.022 ± 0.003 | 09-07-10 | 345 | 0.021 ± 0.003 |
| 03-16-10 | 351 | 0.021 ± 0.003 | 09-14-10 | 302 | 0.017 ± 0.003 |
| 03-23-10 | 350 | 0.021 ± 0.003 | 09-21-10 | 303 | 0.019 ± 0.003 |
| 03-30-10 | 355 | 0.020 ± 0.003 | 09-28-10 | 306 | 0.022 ± 0.003 |
| 1st Quarter Mean ± s.d. | | <u>0.023 ± 0.007</u> | 3rd Quarter Mean ± s.d. | | <u>0.022 ± 0.007</u> |
| 04-05-10 | 303 | 0.027 ± 0.003 | 10-05-10 | 296 | 0.022 ± 0.003 |
| 04-13-10 | 373 | 0.016 ± 0.002 | 10-12-10 | 302 | 0.030 ± 0.003 |
| 04-20-10 | 300 | 0.019 ± 0.003 | 10-19-10 | 303 | 0.022 ± 0.003 |
| 04-26-10 | 259 | 0.019 ± 0.003 | 10-25-10 | 259 | 0.027 ± 0.004 |
| 05-04-10 | 347 | 0.016 ± 0.003 | 11-02-10 | 357 | 0.019 ± 0.003 |
| 05-10-10 | 260 | 0.015 ± 0.003 | 11-09-10 | 331 | 0.026 ± 0.003 |
| 05-18-10 | 345 | 0.015 ± 0.002 | 11-16-10 | 267 | 0.046 ± 0.004 |
| 05-25-10 | 305 | 0.023 ± 0.003 | 11-23-10 | 283 | 0.036 ± 0.004 |
| 05-31-10 | 254 | 0.022 ± 0.003 | 11-30-10 | 284 | 0.030 ± 0.004 |
| 06-08-10 | 358 | 0.012 ± 0.002 | 12-07-10 | 300 | 0.021 ± 0.003 |
| 06-15-10 | 324 | 0.009 ± 0.002 | 12-14-10 | 262 | 0.046 ± 0.005 |
| 06-22-10 | 323 | 0.012 ± 0.002 | 12-20-10 | 217 | 0.047 ± 0.005 |
| 06-28-10 | 266 | 0.020 ± 0.003 | 12-28-10 | 346 | 0.016 ± 0.003 |
| 2nd Quarter Mean ± s.d. | | <u>0.017 ± 0.005</u> | 4th Quarter Mean ± s.d. | | <u>0.030 ± 0.011</u> |
| Cumulative Average | | | | | 0.023 |

^a Iodine-131 is sampled biweekly. Concentrations are < 0.03 pCi/m³ unless otherwise noted.

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

| January | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.027 | 0.019 | 0.040 |
| K-1f | 0.027 | 0.019 | 0.040 |
| K-7 | 0.027 | 0.023 | 0.037 |
| Controls | 0.026 | 0.017 | 0.040 |
| K-2 | 0.025 | 0.017 | 0.037 |
| K-8 | 0.023 | 0.020 | 0.032 |
| K-31 | 0.028 | 0.020 | 0.040 |
| K-41 | 0.028 | 0.020 | 0.040 |

| April | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.021 | 0.018 | 0.030 |
| K-1f | 0.021 | 0.018 | 0.030 |
| K-7 | 0.021 | 0.018 | 0.027 |
| Controls | 0.019 | 0.014 | 0.028 |
| K-2 | 0.020 | 0.015 | 0.026 |
| K-8 | 0.018 | 0.014 | 0.024 |
| K-31 | 0.019 | 0.015 | 0.028 |
| K-41 | 0.019 | 0.015 | 0.028 |

| February | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.022 | 0.013 | 0.028 |
| K-1f | 0.021 | 0.015 | 0.028 |
| K-7 | 0.025 | 0.021 | 0.027 |
| Controls | 0.019 | 0.013 | 0.027 |
| K-2 | 0.020 | 0.014 | 0.026 |
| K-8 | 0.019 | 0.014 | 0.027 |
| K-31 | 0.020 | 0.015 | 0.027 |
| K-41 | 0.018 | 0.013 | 0.024 |

| May | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.016 | 0.009 | 0.035 |
| K-1f | 0.014 | 0.012 | 0.019 |
| K-7 | 0.019 | 0.013 | 0.024 |
| Controls | 0.017 | 0.011 | 0.023 |
| K-2 | 0.014 | 0.011 | 0.019 |
| K-8 | 0.017 | 0.012 | 0.023 |
| K-31 | 0.017 | 0.012 | 0.021 |
| K-41 | 0.019 | 0.015 | 0.023 |

| March | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.025 | 0.022 | 0.027 |
| K-1f | 0.025 | 0.022 | 0.027 |
| K-7 | 0.025 | 0.023 | 0.027 |
| Controls | 0.022 | 0.020 | 0.024 |
| K-2 | 0.023 | 0.021 | 0.024 |
| K-8 | 0.022 | 0.021 | 0.023 |
| K-31 | 0.022 | 0.022 | 0.022 |
| K-41 | 0.021 | 0.020 | 0.022 |

| June | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.016 | 0.012 | 0.024 |
| K-1f | 0.016 | 0.012 | 0.021 |
| K-7 | 0.016 | 0.012 | 0.024 |
| Controls | 0.020 | 0.009 | 0.035 |
| K-2 | 0.019 | 0.012 | 0.034 |
| K-8 | 0.013 | 0.009 | 0.021 |
| K-31 | 0.015 | 0.012 | 0.021 |
| K-41 | 0.013 | 0.009 | 0.020 |

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

| July | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.018 | 0.015 | 0.020 |
| K-1f | 0.018 | 0.015 | 0.020 |
| K-7 | 0.017 | 0.015 | 0.019 |
| Controls | 0.017 | 0.012 | 0.022 |
| K-2 | 0.017 | 0.014 | 0.022 |
| K-8 | 0.015 | 0.012 | 0.018 |
| K-31 | 0.018 | 0.013 | 0.022 |
| K-41 | 0.017 | 0.013 | 0.020 |

| October | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.025 | 0.019 | 0.032 |
| K-1f | 0.025 | 0.020 | 0.031 |
| K-7 | 0.025 | 0.019 | 0.032 |
| Controls | 0.025 | 0.019 | 0.035 |
| K-2 | 0.024 | 0.020 | 0.032 |
| K-8 | 0.025 | 0.019 | 0.035 |
| K-31 | 0.026 | 0.021 | 0.033 |
| K-41 | 0.024 | 0.019 | 0.030 |

| August | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.024 | 0.020 | 0.029 |
| K-1f | 0.024 | 0.021 | 0.029 |
| K-7 | 0.024 | 0.020 | 0.026 |
| Controls | 0.025 | 0.017 | 0.037 |
| K-2 | 0.024 | 0.020 | 0.027 |
| K-8 | 0.022 | 0.017 | 0.029 |
| K-31 | 0.025 | 0.020 | 0.030 |
| K-41 | 0.030 | 0.024 | 0.037 |

| November | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.032 | 0.023 | 0.040 |
| K-1f | 0.030 | 0.023 | 0.037 |
| K-7 | 0.033 | 0.027 | 0.040 |
| Controls | 0.033 | 0.024 | 0.046 |
| K-2 | 0.034 | 0.024 | 0.045 |
| K-8 | 0.030 | 0.025 | 0.034 |
| K-31 | 0.031 | 0.026 | 0.037 |
| K-41 | 0.035 | 0.026 | 0.046 |

| September | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.022 | 0.017 | 0.026 |
| K-1f | 0.022 | 0.018 | 0.026 |
| K-7 | 0.021 | 0.017 | 0.024 |
| Controls | 0.021 | 0.015 | 0.026 |
| K-2 | 0.020 | 0.015 | 0.026 |
| K-8 | 0.021 | 0.015 | 0.023 |
| K-31 | 0.022 | 0.018 | 0.024 |
| K-41 | 0.020 | 0.017 | 0.022 |

| December | | | |
|------------|---------|--------|--------|
| Location | Average | Minima | Maxima |
| Indicators | 0.029 | 0.013 | 0.040 |
| K-1f | 0.028 | 0.013 | 0.040 |
| K-7 | 0.029 | 0.015 | 0.038 |
| Controls | 0.031 | 0.014 | 0.057 |
| K-2 | 0.030 | 0.016 | 0.041 |
| K-8 | 0.029 | 0.015 | 0.041 |
| K-31 | 0.033 | 0.014 | 0.057 |
| K-41 | 0.033 | 0.016 | 0.047 |

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.

| Indicator | Sample Description and Concentration (pCi/m ³) | | | |
|--------------------------|--|---------------|---------------|---------------|
| | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
| <u>K-1f</u> | | | | |
| Lab Code | KAP- 1782 | KAP- 3655 | KAP- 6146 | KAP- 7682 |
| Volume (m ³) | 4449 | 4456 | 4295 | 3880 |
| Be-7 | 0.082 ± 0.014 | 0.070 ± 0.013 | 0.059 ± 0.013 | 0.068 ± 0.017 |
| Nb-95 | < 0.0008 | < 0.0008 | < 0.0005 | < 0.0007 |
| Zr-95 | < 0.0016 | < 0.0011 | < 0.0012 | < 0.0010 |
| Ru-103 | < 0.0010 | < 0.0005 | < 0.0003 | < 0.0008 |
| Ru-106 | < 0.0077 | < 0.0056 | < 0.0072 | < 0.0046 |
| Cs-134 | < 0.0007 | < 0.0008 | < 0.0003 | < 0.0007 |
| Cs-137 | < 0.0006 | < 0.0006 | < 0.0005 | < 0.0006 |
| Ce-141 | < 0.0010 | < 0.0013 | < 0.0008 | < 0.0015 |
| Ce-144 | < 0.0033 | < 0.0032 | < 0.0040 | < 0.0031 |
| <u>K-7</u> | | | | |
| Lab Code | KAP- 1785 | KAP- 3657 | KAP- 6149 | KAP- 7684 |
| Volume (m ³) | 3818 | 3939 | 4194 | 4003 |
| Be-7 | 0.090 ± 0.013 | 0.083 ± 0.015 | 0.068 ± 0.014 | 0.054 ± 0.013 |
| Nb-95 | < 0.0007 | < 0.0008 | < 0.0009 | < 0.0009 |
| Zr-95 | < 0.0009 | < 0.0009 | < 0.0009 | < 0.0007 |
| Ru-103 | < 0.0009 | < 0.0009 | < 0.0007 | < 0.0010 |
| Ru-106 | < 0.0023 | < 0.0056 | < 0.0056 | < 0.0054 |
| Cs-134 | < 0.0003 | < 0.0004 | < 0.0006 | < 0.0004 |
| Cs-137 | < 0.0006 | < 0.0005 | < 0.0006 | < 0.0007 |
| Ce-141 | < 0.0009 | < 0.0008 | < 0.0011 | < 0.0022 |
| Ce-144 | < 0.0032 | < 0.0032 | < 0.0038 | < 0.0045 |

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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 |
| <u>Control</u> | | | | |
| | | | | |
| <u>K-2</u> | | | | |
| Lab Code | KAP- 1784 | KAP- 3656 | KAP- 6148 | KAP- 7683 |
| Volume (m ³) | 4323 | 3927 | 3995 | 3862 |
| Be-7 | 0.079 ± 0.012 | 0.075 ± 0.014 | 0.075 ± 0.016 | 0.068 ± 0.015 |
| Nb-95 | < 0.0010 | < 0.0012 | < 0.0009 | < 0.0011 |
| Zr-95 | < 0.0014 | < 0.0010 | < 0.0015 | < 0.0016 |
| Ru-103 | < 0.0008 | < 0.0007 | < 0.0007 | < 0.0008 |
| Ru-106 | < 0.0067 | < 0.0072 | < 0.0062 | < 0.0096 |
| Cs-134 | < 0.0007 | < 0.0008 | < 0.0005 | < 0.0009 |
| Cs-137 | < 0.0006 | < 0.0004 | < 0.0007 | < 0.0010 |
| Ce-141 | < 0.0014 | < 0.0014 | < 0.0009 | < 0.0016 |
| Ce-144 | < 0.0037 | < 0.0036 | < 0.0026 | < 0.0052 |
| | | | | |
| <u>K-8</u> | | | | |
| Lab Code | KAP- 1786 | KAP- 3658 | KAP- 6150 | KAP- 7685 |
| Volume (m ³) | 4257 | 4030 | 3972 | 3965 |
| Be-7 | 0.067 ± 0.014 | 0.065 ± 0.016 | 0.074 ± 0.018 | 0.056 ± 0.015 |
| Nb-95 | < 0.0005 | < 0.0010 | < 0.0013 | < 0.0011 |
| Zr-95 | < 0.0015 | < 0.0013 | < 0.0013 | < 0.0010 |
| Ru-103 | < 0.0010 | < 0.0010 | < 0.0006 | < 0.0011 |
| Ru-106 | < 0.0031 | < 0.0051 | < 0.0082 | < 0.0071 |
| Cs-134 | < 0.0009 | < 0.0006 | < 0.0007 | < 0.0004 |
| Cs-137 | < 0.0007 | < 0.0010 | < 0.0005 | < 0.0005 |
| Ce-141 | < 0.0012 | < 0.0016 | < 0.0013 | < 0.0012 |
| Ce-144 | < 0.0037 | < 0.0047 | < 0.0041 | < 0.0043 |

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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 |
| <u>Control</u> | | | | |
| | | | | |
| <u>K-31</u> | | | | |
| Lab Code | KAP- 1787 | KAP- 3659 | KAP- 6151 | KAP- 7686 |
| Volume (m ³) | 3615 | 3879 | 3991 | 3750 |
| Be-7 | 0.076 ± 0.013 | 0.073 ± 0.015 | 0.078 ± 0.015 | 0.066 ± 0.016 |
| Nb-95 | < 0.0009 | < 0.0010 | < 0.0010 | < 0.0008 |
| Zr-95 | < 0.0017 | < 0.0011 | < 0.0017 | < 0.0011 |
| Ru-103 | < 0.0013 | < 0.0011 | < 0.0005 | < 0.0009 |
| Ru-106 | < 0.0076 | < 0.0033 | < 0.0056 | < 0.0099 |
| Cs-134 | < 0.0008 | < 0.0010 | < 0.0008 | < 0.0005 |
| Cs-137 | < 0.0010 | < 0.0007 | < 0.0007 | < 0.0006 |
| Ce-141 | < 0.0022 | < 0.0010 | < 0.0009 | < 0.0014 |
| Ce-144 | < 0.0047 | < 0.0054 | < 0.0042 | < 0.0045 |
| | | | | |
| <u>K-41</u> | | | | |
| Lab Code | KAP- 1788 | KAP- 3660 | KAP- 6152 | KAP- 7687 |
| Volume (m ³) | 4165 | 4017 | 3925 | 3807 |
| Be-7 | 0.072 ± 0.013 | 0.077 ± 0.015 | 0.072 ± 0.014 | 0.055 ± 0.014 |
| Nb-95 | < 0.0005 | < 0.0009 | < 0.0008 | < 0.0010 |
| Zr-95 | < 0.0013 | < 0.0012 | < 0.0016 | < 0.0017 |
| Ru-103 | < 0.0011 | < 0.0007 | < 0.0005 | < 0.0008 |
| Ru-106 | < 0.0071 | < 0.0059 | < 0.0068 | < 0.0079 |
| Cs-134 | < 0.0007 | < 0.0006 | < 0.0005 | < 0.0005 |
| Cs-137 | < 0.0006 | < 0.0005 | < 0.0007 | < 0.0008 |
| Ce-141 | < 0.0010 | < 0.0009 | < 0.0020 | < 0.0012 |
| Ce-144 | < 0.0031 | < 0.0034 | < 0.0036 | < 0.0033 |

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

| | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> | |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|--------------------|
| Date Placed | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 | |
| Date Removed | 04-01-10 | 07-01-10 | 10-04-10 | 01-03-11 | |
| mR/91 days | | | | | |
| <u>Indicator</u> | | | | | <u>Mean ± s.d.</u> |
| K-1f | 12.1 ± 0.7 | 11.7 ± 0.3 | 10.8 ± 0.5 | 12.7 ± 0.4 | 11.8 ± 0.8 |
| K-5 | 16.1 ± 0.5 | 18.5 ± 0.7 | 16.6 ± 0.6 | 19.6 ± 0.8 | 17.7 ± 1.6 |
| K-7 / K-43 | 17.8 ± 1.1 | 18.8 ± 0.5 | 15.2 ± 0.8 | 16.2 ± 0.6 | 17.0 ± 1.6 |
| K-17 | 12.8 ± 0.5 | 13.3 ± 0.4 | 11.5 ± 0.4 | 13.8 ± 0.3 | 12.9 ± 1.0 |
| K-25 | 13.4 ± 0.4 | 17.4 ± 0.6 | 13.3 ± 0.3 | 18.2 ± 0.8 | 15.6 ± 2.6 |
| K-27 | 15.7 ± 0.8 | 17.6 ± 0.9 | 14.6 ± 0.3 | 18.6 ± 1.0 | 16.6 ± 1.8 |
| K-30 | 13.7 ± 1.2 | 14.9 ± 0.7 | 14.1 ± 0.6 | 16.2 ± 0.9 | 14.7 ± 1.1 |
| K-39 | 14.5 ± 0.3 | 15.7 ± 0.4 | 13.6 ± 0.3 | 18.3 ± 0.4 | 15.5 ± 2.0 |
| Mean ± s.d. | 14.5 ± 1.9 | 16.0 ± 2.6 | 13.7 ± 1.9 | 16.7 ± 2.4 | 15.2 ± 1.4 |
| <u>Control</u> | | | | | |
| K-2 | 14.8 ± 0.3 | 15.9 ± 0.8 | 14.6 ± 0.5 | 15.9 ± 0.6 | 15.3 ± 0.7 |
| K-3 | 16.3 ± 0.7 | 16.8 ± 0.7 | 16.0 ± 0.6 | 17.8 ± 0.7 | 16.7 ± 0.8 |
| K-8 | 14.3 ± 0.5 | 15.2 ± 0.6 | 14.0 ± 0.7 | 16.1 ± 0.6 | 14.9 ± 0.9 |
| K-15 | 12.5 ± 0.3 | 14.0 ± 0.3 | 12.1 ± 0.4 | 14.8 ± 0.6 | 13.4 ± 1.3 |
| K-31 | 10.9 ± 0.3 | 12.7 ± 0.2 | 10.2 ± 0.2 | 13.7 ± 0.4 | 11.9 ± 1.6 |
| K-41 | 12.5 ± 0.7 | 13.7 ± 0.5 | 11.6 ± 0.5 | 16.5 ± 0.8 | 13.6 ± 2.1 |
| Mean ± s.d. | 13.6 ± 1.9 | 14.7 ± 1.5 | 13.1 ± 2.2 | 15.8 ± 1.4 | 14.3 ± 1.2 |
| <u>Inside the Protected Area</u> | | | | | |
| | <u>1st Qtr.</u> | <u>2nd Qtr.</u> | <u>3rd Qtr.</u> | <u>4th Qtr.</u> | |
| Date Placed | 12-29-09 | 03-24-10 | 06-24-10 | 09-24-10 | |
| Date Removed | 03-24-10 | 06-24-10 | 09-24-10 | 12-23-10 | |
| K-1L | 14.4 ± 0.4 | 14.4 ± 0.6 | 14.0 ± 0.8 | 14.7 ± 0.8 | 14.4 ± 0.3 |
| K-1M | 15.9 ± 0.5 | 16.2 ± 0.7 | 13.8 ± 0.5 | 15.9 ± 0.7 | 15.5 ± 1.2 |
| K-1N | 13.6 ± 0.5 | 15.0 ± 1.0 | 12.9 ± 0.5 | 15.2 ± 0.8 | 14.5 ± 1.1 |
| K-1O | 12.7 ± 0.3 | 14.5 ± 0.5 | 12.4 ± 0.1 | 15.1 ± 1.1 | 14.1 ± 1.2 |
| K-1P | 13.2 ± 0.4 | 14.8 ± 1.0 | 12.6 ± 0.2 | 14.6 ± 1.0 | 14.2 ± 1.1 |
| K-1Q | 12.1 ± 0.9 | 13.1 ± 0.3 | 11.3 ± 0.6 | 12.9 ± 0.5 | 12.6 ± 0.9 |
| K-1R | 13.3 ± 0.5 | 14.4 ± 0.3 | 15.0 ± 0.5 | 15.7 ± 0.3 | 14.9 ± 0.6 |
| K-1S | 13.4 ± 0.6 | 14.3 ± 0.2 | 14.4 ± 0.5 | 15.0 ± 0.4 | 14.5 ± 0.3 |
| Mean ± s.d. | 13.6 ± 1.2 | 14.6 ± 0.9 | 13.3 ± 1.2 | 14.9 ± 0.9 | 14.1 ± 0.8 |

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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) |
| 01/05/10 | KP- 74 | < 152 | < 48 |
| 02/02/10 | KP- 448 | < 153 | < 48 |
| 03/02/10 | KP- 885 | < 151 | < 47 |
| 04/05/10 | KP- 1491 | < 144 | < 45 |
| 05/04/10 | KP- 2241 | < 156 | < 49 |
| 06/08/10 | KP- 2977 | < 140 | < 44 |
| 07/06/10 | KP- 3561 | < 163 | < 51 |
| 08/03/10 | KP- 4241 | < 164 | < 51 |
| 09/07/10 | KP- 5038 | < 153 | < 48 |
| 09/28/10 | KP- 5463 | < 156 | < 49 |
| 11/02/10 | KP- 6590 | < 163 | < 51 |
| 12/10/10 | KP- 7287 | < 141 | < 44 |

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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 |
| <u>Indicators</u> | | | | | | |
| <u>K-5</u> | | | | | | |
| 01-04-10 | KMI- 7 | < 0.5 | < 10 | < 10 | < 15 | 1428 ± 114 |
| 02-01-10 | KMI- 345 | < 0.5 | < 10 | < 10 | < 15 | 1355 ± 107 |
| 03-01-10 | KMI- 786 | < 0.5 | < 10 | < 10 | < 15 | 1468 ± 120 |
| 04-01-10 | KMI- 1395 | < 0.5 | < 10 | < 10 | < 15 | 1406 ± 96 |
| 05-03-10 | KMI- 2141 | < 0.5 | < 10 | < 10 | < 15 | 1396 ± 111 |
| 05-18-10 | KMI- 2493 | < 0.5 | < 10 | < 10 | < 15 | 1266 ± 117 |
| 06-01-10 | KMI- 2779 | < 0.5 | < 10 | < 10 | < 15 | 1339 ± 110 |
| 06-15-10 | KMI- 3075 | < 0.5 | < 10 | < 10 | < 15 | 1308 ± 113 |
| 07-01-10 | KMI- 3414 | < 0.5 | < 10 | < 10 | < 15 | 1373 ± 110 |
| 07-13-10 | KMI- 3785 | < 0.5 | < 10 | < 10 | < 15 | 1411 ± 133 |
| 08-02-10 | KMI- 4098 | < 0.5 | < 10 | < 10 | < 15 | 1343 ± 119 |
| 08-17-10 | KMI- 4564 | < 0.5 | < 10 | < 10 | < 15 | 1453 ± 111 |
| 09-01-10 | KMI- 4889 | < 0.5 | < 10 | < 10 | < 15 | 1369 ± 120 |
| 09-14-10 | KMI- 5165 | < 0.5 | < 10 | < 10 | < 15 | 1395 ± 116 |
| 10-04-10 | KMI- 5495 | < 0.5 | < 10 | < 10 | < 15 | 1272 ± 112 |
| 10-19-10 | KMI- 6001 | < 0.5 | < 10 | < 10 | < 15 | 1353 ± 123 |
| 11-02-10 | KMI- 6469 | < 0.5 | < 10 | < 10 | < 15 | 1418 ± 124 |
| 12-02-10 | KMI- 7039 | < 0.5 | < 10 | < 10 | < 15 | 1373 ± 132 |
| <u>K-34</u> | | | | | | |
| 01-05-10 | KMI- 9 | < 0.5 | < 10 | < 10 | < 15 | 1536 ± 116 |
| 02-02-10 | KMI- 347 | < 0.5 | < 10 | < 10 | < 15 | 1465 ± 129 |
| 03-02-10 | KMI- 788 | < 0.5 | < 10 | < 10 | < 15 | 1505 ± 118 |
| 04-01-10 | KMI- 1397 | < 0.5 | < 10 | < 10 | < 15 | 1506 ± 131 |
| 05-03-10 | KMI- 2143 | < 0.5 | < 10 | < 10 | < 15 | 1470 ± 119 |
| 05-18-10 | KMI- 2494 | < 0.5 | < 10 | < 10 | < 15 | 1441 ± 110 |
| 06-02-10 | KMI- 2780 | < 0.5 | < 10 | < 10 | < 15 | 1504 ± 117 |
| 06-15-10 | KMI- 3076 | < 0.5 | < 10 | < 10 | < 15 | 1465 ± 113 |
| 07-02-10 | KMI- 3415 | < 0.5 | < 10 | < 10 | < 15 | 1411 ± 120 |
| 07-13-10 | KMI- 3786 | < 0.5 | < 10 | < 10 | < 15 | 1432 ± 117 |
| 08-02-10 | KMI- 4099 | < 0.5 | < 10 | < 10 | < 15 | 1367 ± 114 |
| 08-17-10 | KMI- 4565 | < 0.5 | < 10 | < 10 | < 15 | 1372 ± 115 |
| 09-02-10 | KMI- 4890 | < 0.5 | < 10 | < 10 | < 15 | 1407 ± 118 |
| 09-14-10 | KMI- 5166 | < 0.5 | < 10 | < 10 | < 15 | 1423 ± 110 |
| 10-04-10 | KMI- 5496 | < 0.5 | < 10 | < 10 | < 15 | 1404 ± 128 |
| 10-19-10 | KMI- 6002 | < 0.5 | < 10 | < 10 | < 15 | 1430 ± 115 |
| 11-01-10 | KMI- 6470 | < 0.5 | < 10 | < 10 | < 15 | 1518 ± 120 |
| 12-01-10 | KMI- 7040 | < 0.5 | < 10 | < 10 | < 15 | 1433 ± 124 |

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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 |
| <u>Indicators</u> | | | | | | |
| <u>K-38</u> | | | | | | |
| 01-05-10 | KMI- 11 | < 0.5 | < 10 | < 10 | < 15 | 1411 ± 114 |
| 02-02-10 | KMI- 349 | < 0.5 | < 10 | < 10 | < 15 | 1382 ± 116 |
| 03-02-10 | KMI- 790 | < 0.5 | < 10 | < 10 | < 15 | 1273 ± 106 |
| 04-01-10 | KMI- 1399 | < 0.5 | < 10 | < 10 | < 15 | 1390 ± 110 |
| 05-03-10 | KMI- 2145 | < 0.5 | < 10 | < 10 | < 15 | 1316 ± 112 |
| 05-18-10 | KMI- 2496 | < 0.5 | < 10 | < 10 | < 15 | 1385 ± 121 |
| 06-02-10 | KMI- 2782 | < 0.5 | < 10 | < 10 | < 15 | 1412 ± 114 |
| 06-15-10 | KMI- 3078 | < 0.5 | < 10 | < 10 | < 15 | 1354 ± 114 |
| 07-02-10 | KMI- 3417 | < 0.5 | < 10 | < 10 | < 15 | 1317 ± 110 |
| 07-13-10 | KMI- 3788 | < 0.5 | < 10 | < 10 | < 15 | 1381 ± 103 |
| 08-03-10 | KMI- 4101 | < 0.5 | < 10 | < 10 | < 15 | 1272 ± 116 |
| 08-17-10 | KMI- 4567 | < 0.5 | < 10 | < 10 | < 15 | 1365 ± 100 |
| 09-02-10 | KMI- 4892 | < 0.5 | < 10 | < 10 | < 15 | 1367 ± 114 |
| 09-14-10 | KMI- 5168 | < 0.5 | < 10 | < 10 | < 15 | 1281 ± 115 |
| 10-05-10 | KMI- 5498 | < 0.5 | < 10 | < 10 | < 15 | 1210 ± 103 |
| 10-19-10 | KMI- 6004 | < 0.5 | < 10 | < 10 | < 15 | 1272 ± 126 |
| 11-01-10 | KMI- 6472 | < 0.5 | < 10 | < 10 | < 15 | 1391 ± 124 |
| 12-01-10 | KMI- 7042 | < 0.5 | < 10 | < 10 | < 15 | 1421 ± 111 |
| <u>K-39</u> | | | | | | |
| 01-05-10 | KMI- 12 | < 0.5 | < 10 | < 10 | < 15 | 1439 ± 101 |
| 02-02-10 | KMI- 350 | < 0.5 | < 10 | < 10 | < 15 | 1398 ± 114 |
| 03-02-10 | KMI- 791 | < 0.5 | < 10 | < 10 | < 15 | 1421 ± 111 |
| 04-01-10 | KMI- 1400 | < 0.5 | < 10 | < 10 | < 15 | 1349 ± 94 |
| 05-03-10 | KMI- 2146 | < 0.5 | < 10 | < 10 | < 15 | 1391 ± 111 |
| 05-18-10 | KMI- 2497 | < 0.5 | < 10 | < 10 | < 15 | 1325 ± 122 |
| 06-02-10 | KMI- 2783 | < 0.5 | < 10 | < 10 | < 15 | 1463 ± 113 |
| 06-15-10 | KMI- 3079 | < 0.5 | < 10 | < 10 | < 15 | 1384 ± 113 |
| 07-02-10 | KMI- 3418 | < 0.5 | < 10 | < 10 | < 15 | 1324 ± 113 |
| 07-13-10 | KMI- 3789 | < 0.5 | < 10 | < 10 | < 15 | 1323 ± 127 |
| 08-03-10 | KMI- 4102 | < 0.5 | < 10 | < 10 | < 15 | 1308 ± 107 |
| 08-17-10 | KMI- 4568 | < 0.5 | < 10 | < 10 | < 15 | 1381 ± 112 |
| 09-02-10 | KMI- 4893 | < 0.5 | < 10 | < 10 | < 15 | 1339 ± 102 |
| 09-14-10 | KMI- 5169 | < 0.5 | < 10 | < 10 | < 15 | 1291 ± 110 |
| 10-04-10 | KMI- 5499 | < 0.5 | < 10 | < 10 | < 15 | 1413 ± 106 |
| 10-19-10 | KMI- 6005 | < 0.5 | < 10 | < 10 | < 15 | 1329 ± 104 |
| 11-01-10 | KMI- 6473 | < 0.5 | < 10 | < 10 | < 15 | 1307 ± 120 |
| 12-01-10 | KMI- 7043 | < 0.5 | < 10 | < 10 | < 15 | 1338 ± 115 |

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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 |
| <u>Control</u> | | | | | | |
| <u>K-3</u> | | | | | | |
| 01-05-10 | KMI- 6 | < 0.5 | < 10 | < 10 | < 15 | 1293 ± 108 |
| 02-01-10 | KMI- 344 | < 0.5 | < 10 | < 10 | < 15 | 1390 ± 116 |
| 03-02-10 | KMI- 785 | < 0.5 | < 10 | < 10 | < 15 | 1292 ± 131 |
| 04-02-10 | KMI- 1394 | < 0.5 | < 10 | < 10 | < 15 | 1328 ± 106 |
| 05-04-10 | KMI- 2140 | < 0.5 | < 10 | < 10 | < 15 | 1323 ± 112 |
| 05-18-10 | KMI- 2492 | < 0.5 | < 10 | < 10 | < 15 | 1310 ± 113 |
| 06-02-10 | KMI- 2778 | < 0.5 | < 10 | < 10 | < 15 | 1396 ± 126 |
| 06-15-10 | KMI- 3074 | < 0.5 | < 10 | < 10 | < 15 | 1362 ± 117 |
| 07-02-10 | KMI- 3413 | < 0.5 | < 10 | < 10 | < 15 | 1228 ± 116 |
| 07-13-10 | KMI- 3784 | < 0.5 | < 10 | < 10 | < 15 | 1268 ± 113 |
| 08-03-10 | KMI- 4097 | < 0.5 | < 10 | < 10 | < 15 | 1342 ± 120 |
| 08-17-10 | KMI- 4563 | < 0.5 | < 10 | < 10 | < 15 | 1223 ± 106 |
| 09-01-10 | KMI- 4888 | < 0.5 | < 10 | < 10 | < 15 | 1253 ± 125 |
| 09-14-10 | KMI- 5164 | < 0.5 | < 10 | < 10 | < 15 | 1448 ± 121 |
| 10-05-10 | KMI- 5494 | < 0.5 | < 10 | < 10 | < 15 | 1391 ± 125 |
| 10-19-10 | KMI- 6000 | < 0.5 | < 10 | < 10 | < 15 | 1410 ± 109 |
| 11-02-10 | KMI- 6468 | < 0.5 | < 10 | < 10 | < 15 | 1282 ± 120 |
| 12-02-10 | KMI- 7038 | < 0.5 | < 10 | < 10 | < 15 | 1406 ± 139 |
| <u>K-28, K-42^a</u> | | | | | | |
| 01-05-10 | KMI- 8 | < 0.5 | < 10 | < 10 | < 15 | 1420 ± 112 |
| 02-02-10 | KMI- 346 | < 0.5 | < 10 | < 10 | < 15 | 1420 ± 108 |
| 03-02-10 | KMI- 787 | < 0.5 | < 10 | < 10 | < 15 | 1428 ± 111 |
| 04-02-10 | KMI- 1396 | < 0.5 | < 10 | < 10 | < 15 | 1389 ± 125 |
| 05-04-10 | KMI- 2142 | < 0.5 | < 10 | < 10 | < 15 | 1459 ± 123 |
| 05-18-10 | KMI- 2498 | < 0.5 | < 10 | < 10 | < 15 | 1353 ± 109 |
| 06-01-10 | KMI- 2784 | < 0.5 | < 10 | < 10 | < 15 | 1439 ± 130 |
| 06-15-10 | KMI- 3080 | < 0.5 | < 10 | < 10 | < 15 | 1292 ± 110 |
| 07-01-10 | KMI- 3419 | < 0.5 | < 10 | < 10 | < 15 | 1438 ± 111 |
| 07-13-10 | KMI- 3790 | < 0.5 | < 10 | < 10 | < 15 | 1379 ± 108 |
| 08-02-10 | KMI- 4103 | < 0.5 | < 10 | < 10 | < 15 | 1352 ± 105 |
| 08-17-10 | KMI- 4569 | < 0.5 | < 10 | < 10 | < 15 | 1358 ± 105 |
| 09-02-10 | KMI- 4894 | < 0.5 | < 10 | < 10 | < 15 | 1334 ± 129 |
| 09-14-10 | KMI- 5170 | < 0.5 | < 10 | < 10 | < 15 | 1270 ± 106 |
| 10-04-10 | KMI- 5500 | < 0.5 | < 10 | < 10 | < 15 | 1432 ± 121 |
| 10-19-10 | KMI- 6006 | < 0.5 | < 10 | < 10 | < 15 | 1438 ± 127 |
| 11-01-10 | KMI- 6474 | < 0.5 | < 10 | < 10 | < 15 | 1416 ± 126 |
| 12-01-10 | KMI- 7044 | < 0.5 | < 10 | < 10 | < 15 | 1316 ± 112 |

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

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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 |
| <u>Control</u> | | | | | | |
| <u>K-35</u> | | | | | | |
| 01-04-10 | KMI- 10 | < 0.5 | < 10 | < 10 | < 15 | 1458 ± 116 |
| 02-02-10 | KMI- 348 | < 0.5 | < 10 | < 10 | < 15 | 1523 ± 126 |
| 03-02-10 | KMI- 789 | < 0.5 | < 10 | < 10 | < 15 | 1480 ± 120 |
| 04-02-10 | KMI- 1398 | < 0.5 | < 10 | < 10 | < 15 | 1465 ± 114 |
| 05-04-10 | KMI- 2144 | < 0.5 | < 10 | < 10 | < 15 | 1450 ± 117 |
| 05-18-10 | KMI- 2495 | < 0.5 | < 10 | < 10 | < 15 | 1390 ± 125 |
| 06-02-10 | KMI- 2781 | < 0.5 | < 10 | < 10 | < 15 | 1564 ± 121 |
| 06-15-10 | KMI- 3077 | < 0.5 | < 10 | < 10 | < 15 | 1632 ± 132 |
| 07-02-10 | KMI- 3416 | < 0.5 | < 10 | < 10 | < 15 | 1498 ± 118 |
| 07-13-10 | KMI- 3787 | < 0.5 | < 10 | < 10 | < 15 | 1069 ± 105 |
| 08-02-10 | KMI- 4100 | < 0.5 | < 10 | < 10 | < 15 | 1392 ± 116 |
| 08-17-10 | KMI- 4566 | < 0.5 | < 10 | < 10 | < 15 | 1269 ± 124 |
| 09-01-10 | KMI- 4891 | < 0.5 | < 10 | < 10 | < 15 | 1061 ± 113 |
| 09-14-10 | KMI- 5167 | < 0.5 | < 10 | < 10 | < 15 | 1173 ± 133 |
| 10-05-10 | KMI- 5497 | < 0.5 | < 10 | < 10 | < 15 | 1442 ± 109 |
| 10-19-10 | KMI- 6003 | < 0.5 | < 10 | < 10 | < 15 | 1452 ± 115 |
| 11-02-10 | KMI- 6471 | < 0.5 | < 10 | < 10 | < 15 | 1365 ± 123 |
| 12-02-10 | KMI- 7041 | < 0.5 | < 10 | < 10 | < 15 | 1413 ± 115 |

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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 | | | | Ratios | |
|-------------------|----------|---------------|---------------|-------------|----------|-------------------|-------------------|
| | | Sr-89 (pCi/L) | Sr-90 (pCi/L) | K (g/L) | Ca (g/L) | Sr-90 per gram Ca | Cs-137 per gram K |
| <u>Indicators</u> | | | | | | | |
| K-5 | | | | | | | |
| January | KMI - 7 | < 1.2 | 1.1 ± 0.4 | 1.68 ± 0.13 | 1.22 | 0.90 | < 5.95 |
| February | - 345 | < 0.9 | 0.6 ± 0.3 | 1.60 ± 0.13 | 1.12 | 0.54 | < 6.25 |
| March | - 786 | < 1.0 | < 0.5 | 1.73 ± 0.14 | 1.06 | < 0.47 | < 5.78 |
| April | - 1395 | < 1.2 | < 0.6 | 1.66 ± 0.11 | 1.00 | < 0.60 | < 6.02 |
| May | - 2581 | < 1.0 | < 0.6 | 1.57 ± 0.13 | 0.96 | < 0.63 | < 6.37 |
| June | - 3085 | < 0.7 | < 0.5 | 1.56 ± 0.13 | 1.06 | < 0.47 | < 6.41 |
| July | - 4088 | < 0.9 | 0.8 ± 0.5 | 1.64 ± 0.14 | 0.93 | 0.86 | < 6.10 |
| August | - 4793 | < 1.2 | < 0.6 | 1.65 ± 0.14 | 1.09 | < 0.55 | < 6.06 |
| September | - 5189 | < 0.8 | 0.7 ± 0.3 | 1.63 ± 0.14 | 0.94 | 0.74 | < 6.13 |
| October | - 6604 | < 0.8 | 0.7 ± 0.4 | 1.55 ± 0.14 | 0.95 | 0.74 | < 6.45 |
| November | - 6469 | < 0.9 | 0.7 ± 0.3 | 1.67 ± 0.15 | 1.02 | 0.69 | < 5.99 |
| December | - 7039 | < 0.8 | 0.6 ± 0.3 | 1.62 ± 0.16 | 1.18 | 0.51 | < 6.17 |
| K-34 | | | | | | | |
| January | KMI - 9 | < 1.0 | 0.6 ± 0.3 | 1.81 ± 0.14 | 1.06 | 0.57 | < 5.52 |
| February | - 347 | < 0.8 | 1.0 ± 0.3 | 1.73 ± 0.15 | 1.18 | 0.85 | < 5.78 |
| March | - 788 | < 0.9 | < 0.5 | 1.77 ± 0.14 | 1.16 | < 0.43 | < 5.65 |
| April | - 1397 | < 0.8 | 0.6 ± 0.3 | 1.78 ± 0.15 | 1.19 | 0.50 | < 5.62 |
| May | - 2582 | < 0.7 | 0.5 ± 0.3 | 1.72 ± 0.14 | 0.99 | 0.51 | < 5.81 |
| June | - 3086 | < 0.8 | < 0.5 | 1.75 ± 0.14 | 0.94 | < 0.53 | < 5.71 |
| July | - 4089 | < 0.9 | 1.0 ± 0.4 | 1.68 ± 0.14 | 0.88 | 1.14 | < 5.95 |
| August | - 4794 | < 0.8 | 0.8 ± 0.4 | 1.61 ± 0.14 | 1.07 | 0.75 | < 6.21 |
| September | - 5190 | < 0.8 | < 0.5 | 1.67 ± 0.13 | 0.99 | < 0.51 | < 5.99 |
| October | - 6605 | < 0.8 | < 0.6 | 1.67 ± 0.14 | 1.01 | < 0.59 | < 5.99 |
| November | - 6470 | < 1.0 | 0.9 ± 0.3 | 1.79 ± 0.14 | 1.13 | 0.80 | < 5.59 |
| December | - 7040 | < 0.9 | 0.8 ± 0.3 | 1.69 ± 0.15 | 1.01 | 0.79 | < 5.92 |

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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 (continued).

| Collection Period | Lab Code | Concentration | | | Ratios | | |
|-------------------|----------|---------------|---------------|-------------|----------|-------------------|-------------------|
| | | Sr-89 (pCi/L) | Sr-90 (pCi/L) | K (g/L) | Ca (g/L) | Sr-90 per gram Ca | Cs-137 per gram K |
| <u>Indicators</u> | | | | | | | |
| K-38 | | | | | | | |
| January | KMI - 11 | < 1.0 | 1.0 ± 0.4 | 1.66 ± 0.13 | 1.02 | 0.98 | < 6.02 |
| February | - 349 | < 1.0 | 0.8 ± 0.4 | 1.63 ± 0.14 | 1.01 | 0.79 | < 6.13 |
| March | - 790 | < 1.2 | < 0.7 | 1.50 ± 0.13 | 1.08 | < 0.65 | < 6.67 |
| April | - 1399 | < 0.9 | 0.8 ± 0.3 | 1.64 ± 0.13 | 1.17 | 0.68 | < 6.10 |
| May | - 2584 | < 0.7 | 0.8 ± 0.3 | 1.59 ± 0.14 | 1.00 | 0.80 | < 6.29 |
| June | - 3088 | < 0.8 | 0.7 ± 0.4 | 1.63 ± 0.13 | 1.11 | 0.63 | < 6.13 |
| July | - 4091 | < 0.8 | 0.7 ± 0.3 | 1.59 ± 0.13 | 0.95 | 0.74 | < 6.29 |
| August | - 4796 | < 0.7 | 1.0 ± 0.4 | 1.55 ± 0.13 | 1.08 | 0.93 | < 6.45 |
| September | - 5192 | < 0.7 | 0.8 ± 0.3 | 1.56 ± 0.14 | 0.95 | 0.84 | < 6.41 |
| October | - 6607 | < 0.8 | 0.7 ± 0.3 | 1.46 ± 0.14 | 0.90 | 0.78 | < 6.85 |
| November | - 6472 | < 0.9 | 1.1 ± 0.4 | 1.64 ± 0.15 | 1.19 | 0.92 | < 6.10 |
| December | - 7042 | < 1.1 | 0.9 ± 0.4 | 1.68 ± 0.13 | 1.17 | 0.77 | < 5.95 |
| K-39 | | | | | | | |
| January | KMI - 12 | < 1.2 | 0.9 ± 0.4 | 1.70 ± 0.12 | 1.06 | 0.85 | < 5.88 |
| February | - 350 | < 0.9 | 0.9 ± 0.4 | 1.65 ± 0.13 | 1.09 | 0.83 | < 6.06 |
| March | - 791 | < 1.0 | 1.1 ± 0.4 | 1.68 ± 0.13 | 1.12 | 0.98 | < 5.95 |
| April | - 1400 | < 1.1 | 1.1 ± 0.4 | 1.59 ± 0.11 | 1.23 | 0.89 | < 6.29 |
| May | - 2585 | < 0.8 | 0.6 ± 0.4 | 1.60 ± 0.14 | 1.02 | 0.59 | < 6.25 |
| June | - 3089 | < 0.9 | 0.8 ± 0.3 | 1.68 ± 0.13 | 1.08 | 0.74 | < 5.95 |
| July | - 4092 | < 0.8 | 0.8 ± 0.3 | 1.56 ± 0.14 | 1.00 | 0.80 | < 6.41 |
| August | - 4797 | < 0.8 | 0.8 ± 0.4 | 1.59 ± 0.13 | 1.16 | 0.69 | < 6.29 |
| September | - 5193 | < 0.7 | 0.5 ± 0.3 | 1.55 ± 0.13 | 1.06 | 0.47 | < 6.45 |
| October | - 6608 | < 0.7 | 0.7 ± 0.3 | 1.62 ± 0.12 | 1.07 | 0.65 | < 6.17 |
| November | - 6473 | < 0.9 | 0.8 ± 0.3 | 1.54 ± 0.14 | 1.04 | 0.77 | < 6.49 |
| December | - 7043 | < 0.8 | 0.8 ± 0.4 | 1.58 ± 0.14 | 1.20 | 0.67 | < 6.33 |

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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 (continued).

| Collection Period | Lab Code | Concentration | | | | Ratios | |
|-------------------|----------|-------------------------------|---------------|-------------|----------|-------------------|-------------------|
| | | Sr-89 (pCi/L) | Sr-90 (pCi/L) | K (g/L) | Ca (g/L) | Sr-90 per gram Ca | Cs-137 per gram K |
| <u>Control</u> | | <u>K-3</u> | | | | | |
| January | KMI - 6 | < 1.0 | 1.3 ± 0.4 | 1.52 ± 0.13 | 1.31 | 0.99 | < 6.58 |
| February | - 344 | < 1.3 | 1.5 ± 0.5 | 1.64 ± 0.14 | 1.29 | 1.16 | < 6.10 |
| March | - 785 | < 0.9 | 1.1 ± 0.4 | 1.52 ± 0.15 | 1.17 | 0.94 | < 6.58 |
| April | - 1394 | < 0.9 | 1.1 ± 0.4 | 1.57 ± 0.13 | 1.17 | 0.94 | < 6.37 |
| May | - 2580 | < 0.8 | 0.9 ± 0.4 | 1.55 ± 0.13 | 1.05 | 0.86 | < 6.45 |
| June | - 3084 | < 1.1 | 1.5 ± 0.5 | 1.63 ± 0.14 | 1.13 | 1.33 | < 6.13 |
| July | - 4087 | < 0.8 | 1.1 ± 0.3 | 1.47 ± 0.14 | 0.99 | 1.11 | < 6.80 |
| August | - 4792 | < 0.8 | 1.1 ± 0.4 | 1.51 ± 0.13 | 1.23 | 0.89 | < 6.62 |
| September | - 5188 | < 0.7 | 0.7 ± 0.3 | 1.59 ± 0.15 | 1.05 | 0.67 | < 6.29 |
| October | - 6603 | < 0.8 | 1.0 ± 0.4 | 1.65 ± 0.14 | 1.20 | 0.83 | < 6.06 |
| November | - 6468 | < 0.8 | 0.8 ± 0.3 | 1.51 ± 0.14 | 1.14 | 0.70 | < 6.62 |
| December | - 7038 | < 0.9 | 1.4 ± 0.3 | 1.66 ± 0.16 | 1.19 | 1.18 | < 6.02 |
| | | <u>K-28, K-42^a</u> | | | | | |
| January | KMI - 8 | < 1.1 | < 0.6 | 1.67 ± 0.13 | 0.94 | < 0.64 | < 5.99 |
| February | - 346 | < 1.1 | 0.8 ± 0.4 | 1.67 ± 0.13 | 0.95 | 0.84 | < 5.99 |
| March | - 787 | < 1.1 | 1.0 ± 0.4 | 1.68 ± 0.13 | 1.21 | 0.83 | < 5.95 |
| April | - 1396 | < 0.8 | 0.7 ± 0.3 | 1.64 ± 0.15 | 1.13 | 0.62 | < 6.10 |
| May | - 2586 | < 1.0 | < 0.7 | 1.66 ± 0.14 | 0.98 | < 0.71 | < 6.02 |
| June | - 3090 | < 0.8 | 0.8 ± 0.4 | 1.61 ± 0.14 | 1.01 | 0.79 | < 6.21 |
| July | - 4093 | < 0.8 | 0.8 ± 0.3 | 1.66 ± 0.13 | 0.93 | 0.86 | < 6.02 |
| August | - 4798 | < 0.9 | < 0.7 | 1.60 ± 0.12 | 1.22 | < 0.57 | < 6.25 |
| September | - 5194 | < 0.8 | 0.7 ± 0.3 | 1.54 ± 0.14 | 0.91 | 0.77 | < 6.49 |
| October | - 6609 | < 0.8 | 0.7 ± 0.4 | 1.69 ± 0.15 | 0.92 | 0.76 | < 5.92 |
| November | - 6474 | < 0.9 | 0.9 ± 0.4 | 1.67 ± 0.15 | 1.02 | 0.88 | < 5.99 |
| December | - 7044 | < 0.8 | 1.1 ± 0.4 | 1.55 ± 0.13 | 1.23 | 0.89 | < 6.45 |
| | | <u>K-35</u> | | | | | |
| January | KMI - 10 | < 0.9 | 1.0 ± 0.3 | 1.72 ± 0.14 | 1.18 | 0.85 | < 5.81 |
| February | - 348 | < 1.1 | < 0.7 | 1.80 ± 0.15 | 1.20 | < 0.58 | < 5.56 |
| March | - 789 | < 1.0 | < 0.7 | 1.75 ± 0.14 | 1.13 | < 0.62 | < 5.71 |
| April | - 1398 | < 0.8 | 0.6 ± 0.3 | 1.73 ± 0.13 | 1.29 | 0.47 | < 5.78 |
| May | - 2583 | < 0.8 | 0.8 ± 0.3 | 1.67 ± 0.14 | 1.06 | 0.75 | < 5.99 |
| June | - 3087 | < 0.8 | 0.8 ± 0.4 | 1.88 ± 0.15 | 0.94 | 0.85 | < 5.32 |
| July | - 4090 | < 0.7 | 0.6 ± 0.3 | 1.51 ± 0.13 | 0.90 | 0.67 | < 6.62 |
| August | - 4795 | < 0.7 | 0.7 ± 0.3 | 1.57 ± 0.14 | 1.20 | 0.58 | < 6.37 |
| September | - 5191 | < 0.9 | < 0.5 | 1.32 ± 0.15 | 0.87 | < 0.57 | < 7.58 |
| October | - 6606 | < 0.7 | 0.6 ± 0.3 | 1.71 ± 0.13 | 1.03 | 0.29 | < 5.85 |
| November | - 6471 | < 0.9 | 0.9 ± 0.3 | 1.61 ± 0.15 | 1.18 | 0.76 | < 6.21 |
| December | - 7041 | < 0.9 | 0.7 ± 0.4 | 1.67 ± 0.14 | 1.14 | 0.61 | < 5.99 |

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

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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) | | | | |
|--|-----------|-----------|-----------|-----------|
| <u>Indicator</u> | | | | |
| <u>K-1g</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 31 | KWW- 1401 | KWW- 3452 | KWW- 5519 |
| Gross alpha | < 1.4 | < 2.1 | 3.7 ± 1.9 | < 2.3 |
| Gross beta | 2.1 ± 1.3 | 3.3 ± 1.3 | 2.6 ± 1.3 | 2.2 ± 1.2 |
| H-3 | < 154 | < 142 | < 182 | < 190 |
| Sr-89 | < 0.6 | < 0.6 | < 0.8 | < 0.5 |
| Sr-90 | < 0.5 | < 0.4 | < 0.5 | < 0.4 |
| K-40 (ICP) | 2.46 | 3.11 | 2.51 | 2.60 |
| 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 |
| <u>K-1h</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 32 | KWW- 1402 | KWW- 3453 | KWW- 5520 |
| Gross alpha | < 1.8 | < 2.4 | 3.3 ± 1.7 | < 2.4 |
| Gross beta | 3.3 ± 1.5 | 2.9 ± 1.3 | 2.1 ± 1.2 | < 1.7 |
| H-3 | < 154 | < 142 | < 182 | < 190 |
| K-40 (ICP) | 2.49 | 2.92 | 2.77 | 2.42 |
| 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) | | | | |
|--|-----------|-----------|-----------|-----------|
| <u>Indicator</u> | | | | |
| <u>K-10</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 33 | KWW- 1403 | KWW- 3454 | KWW- 5521 |
| Gross beta | 3.6 ± 1.4 | 1.4 ± 0.8 | 1.4 ± 0.7 | 1.7 ± 0.8 |
| H-3 | < 154 | < 142 | < 182 | < 190 |
| K-40 (ICP) | 2.21 | 2.34 | 3.20 | 2.85 |
| 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 |
| <u>K-11</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 34 | KWW- 1404 | KWW- 3455 | KWW- 5522 |
| Gross beta | < 1.6 | < 0.7 | 0.8 ± 0.6 | 0.6 ± 0.3 |
| H-3 | < 154 | < 142 | < 182 | < 164 |
| K-40 (ICP) | 0.87 | 0.95 | 0.95 | 1.04 |
| 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.

| Sample Description and Concentration (pCi/L) | | | | |
|--|-----------|-----------|-----------|-----------|
| <u>Indicator</u> | | | | |
| <u>K-38</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 36 | KWW- 1406 | KWW- 3457 | KWW- 5524 |
| Gross beta | 5.1 ± 1.3 | 7.2 ± 1.5 | < 0.9 | 0.7 ± 0.4 |
| H-3 | < 154 | < 142 | < 182 | < 190 |
| K-40 (ICP) | 4.81 | 10.73 | 0.78 | 0.87 |
| 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 |
| <u>Control</u> | | | | |
| <u>K-13</u> | | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KWW- 35 | KWW- 1405 | KWW- 3456 | KWW- 5523 |
| Gross beta | < 1.5 | < 1.7 | 0.9 ± 0.6 | 0.6 ± 0.3 |
| H-3 | < 154 | < 142 | < 182 | < 190 |
| K-40 (ICP) | 0.92 | 1.06 | 1.04 | 0.95 |
| 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 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) | | | |
|--|-------------------|-------------------|-------------------|
| Location | Indicator | | Control |
| | K-24 | K-29 | K-32 |
| Date Collected | 09-01-10 | 09-02-10 | 09-01-10 |
| Lab Code | KME- 4895 | KME- 4896 | KME- 4897 |
| Gross Alpha | 0.078 ± 0.033 | 0.071 ± 0.029 | 0.096 ± 0.030 |
| Gross Beta | 2.54 ± 0.10 | 3.16 ± 0.10 | 2.83 ± 0.09 |
| Be-7 | < 0.15 | < 0.097 | < 0.11 |
| K-40 | 2.97 ± 0.46 | 2.64 ± 0.34 | 2.73 ± 0.38 |
| Nb-95 | < 0.027 | < 0.012 | < 0.012 |
| Zr-95 | < 0.032 | < 0.023 | < 0.039 |
| Ru-103 | < 0.013 | < 0.012 | < 0.015 |
| Ru-106 | < 0.187 | < 0.122 | < 0.132 |
| Cs-134 | < 0.019 | < 0.015 | < 0.012 |
| Cs-137 | < 0.018 | < 0.008 | < 0.007 |
| Ce-141 | < 0.037 | < 0.014 | < 0.024 |
| Ce-144 | < 0.060 | < 0.095 | < 0.083 |

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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 | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KE- 13 | KE- 1391 | KE- 3423 | KE- 5491 |
| Gross beta | 1.90 ± 0.06 | 1.91 ± 0.09 | 1.85 ± 0.09 | 1.87 ± 0.06 |
| Sr-89 | < 0.006 | < 0.006 | < 0.008 | < 0.006 |
| Sr-90 | < 0.004 | < 0.003 | < 0.003 | < 0.002 |
| Be-7 | < 0.046 | < 0.055 | < 0.056 | < 0.061 |
| K-40 | 1.29 ± 0.14 | 1.15 ± 0.16 | 1.22 ± 0.13 | 1.43 ± 0.16 |
| Nb-95 | < 0.005 | < 0.006 | < 0.005 | < 0.011 |
| Zr-95 | < 0.008 | < 0.010 | < 0.012 | < 0.010 |
| Ru-103 | < 0.007 | < 0.006 | < 0.007 | < 0.008 |
| Ru-106 | < 0.037 | < 0.067 | < 0.042 | < 0.056 |
| Cs-134 | < 0.005 | < 0.005 | < 0.005 | < 0.005 |
| Cs-137 | < 0.005 | < 0.006 | < 0.005 | < 0.008 |
| Ce-141 | < 0.011 | < 0.015 | < 0.010 | < 0.017 |
| Ce-144 | < 0.035 | < 0.039 | < 0.039 | < 0.047 |
| | | | | |
| Location | K-32 | | | |
| Date Collected | 01-04-10 | 04-01-10 | 07-01-10 | 10-04-10 |
| Lab Code | KE- 14 | KE- 1392 | KE- 3424 | KE- 5492 |
| Gross beta | 1.53 ± 0.05 | 1.59 ± 0.07 | 1.66 ± 0.08 | 1.74 ± 0.05 |
| Sr-89 | < 0.004 | < 0.006 | < 0.012 | < 0.010 |
| Sr-90 | < 0.002 | < 0.003 | < 0.005 | < 0.004 |
| Be-7 | < 0.051 | < 0.062 | < 0.043 | < 0.052 |
| K-40 | 1.32 ± 0.13 | 1.08 ± 0.20 | 1.17 ± 0.13 | 1.55 ± 0.18 |
| Nb-95 | < 0.006 | < 0.009 | < 0.007 | < 0.013 |
| Zr-95 | < 0.006 | < 0.011 | < 0.010 | < 0.015 |
| Ru-103 | < 0.005 | < 0.008 | < 0.004 | < 0.011 |
| Ru-106 | < 0.048 | < 0.067 | < 0.046 | < 0.068 |
| Cs-134 | < 0.004 | < 0.006 | < 0.005 | < 0.009 |
| Cs-137 | < 0.004 | < 0.005 | < 0.004 | < 0.005 |
| Ce-141 | < 0.011 | < 0.021 | < 0.015 | < 0.019 |
| Ce-144 | < 0.023 | < 0.060 | < 0.042 | < 0.067 |

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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) | | | |
|--|-------------|-------------|-------------|
| Location | Indicator | | |
| | K-23 | | |
| Date Collected | 08-02-10 | 08-02-10 | 08-02-10 |
| Lab Code | KVE- 4238 | KVE- 4239 | KVE- 4240 |
| Type | Clover A | Corn B | Oats C |
| Gross beta | 4.85 ± 0.17 | 2.60 ± 0.07 | 8.67 ± 0.35 |
| Sr-89 | < 0.008 | < 0.005 | < 0.029 |
| Sr-90 | < 0.003 | < 0.002 | < 0.013 |
| Be-7 | 1.25 ± 0.20 | < 0.061 | 2.42 ± 0.24 |
| K-40 | 3.69 ± 0.38 | 2.07 ± 0.21 | 4.50 ± 0.40 |
| Nb-95 | < 0.015 | < 0.010 | < 0.010 |
| Zr-95 | < 0.019 | < 0.013 | < 0.027 |
| Ru-103 | < 0.011 | < 0.005 | < 0.008 |
| Ru-106 | < 0.163 | < 0.051 | < 0.111 |
| Cs-134 | < 0.013 | < 0.008 | < 0.010 |
| Cs-137 | < 0.014 | < 0.005 | < 0.017 |
| Ce-141 | < 0.027 | < 0.018 | < 0.026 |
| Ce-144 | < 0.085 | < 0.072 | < 0.11 |

| Location | K-29 | | K-38 | |
|------------|----------------|----------|-------------|-------------|
| | Date Collected | 10-05-10 | | 09-01-10 |
| Lab Code | KVE- 5533 | | KVE- 4934 | KVE- 4935 |
| Type | Pumpkin | | Cucumber | Zucchini |
| Gross beta | 1.48 ± 0.03 | | 3.13 ± 0.05 | 4.35 ± 0.07 |
| Sr-89 | < 0.002 | | < 0.003 | < 0.006 |
| Sr-90 | < 0.001 | | < 0.002 | < 0.004 |
| Be-7 | < 0.050 | | < 0.079 | < 0.089 |
| K-40 | 1.77 ± 0.17 | | 2.03 ± 0.23 | 4.18 ± 0.31 |
| Nb-95 | < 0.007 | | < 0.008 | < 0.008 |
| Zr-95 | < 0.006 | | < 0.017 | < 0.012 |
| Ru-103 | < 0.005 | | < 0.009 | < 0.010 |
| Ru-106 | < 0.037 | | < 0.069 | < 0.050 |
| Cs-134 | < 0.005 | | < 0.006 | < 0.008 |
| Cs-137 | < 0.005 | | < 0.011 | < 0.008 |
| Ce-141 | < 0.016 | | < 0.019 | < 0.017 |
| Ce-144 | < 0.045 | | < 0.086 | < 0.066 |

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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) | | | |
| Date Collected | 09-02-10 | 09-02-10 | 09-02-10 | 09-02-10 |
| Lab Code | KVE- 4927 | KVE- 4928 | KVE- 4930 | KVE- 4931 |
| Type | Kohlrabi | Squash | Melon | Corn |
| Gross beta | 4.88 ± 0.09 | 4.60 ± 0.08 | 2.15 ± 0.04 | 3.65 ± 0.07 |
| Sr-89 | < 0.004 | < 0.007 | < 0.002 | < 0.005 |
| Sr-90 | < 0.002 | < 0.004 | 0.001 ± 0.001 | 0.005 ± 0.002 |
| Be-7 | < 0.096 | < 0.127 | < 0.101 | < 0.089 |
| K-40 | 2.99 ± 0.29 | 2.99 ± 0.41 | 1.80 ± 0.26 | 2.52 ± 0.26 |
| Nb-95 | < 0.010 | < 0.013 | < 0.008 | < 0.007 |
| Zr-95 | < 0.019 | < 0.013 | < 0.013 | < 0.008 |
| Ru-103 | < 0.011 | < 0.014 | < 0.010 | < 0.007 |
| Ru-106 | < 0.118 | < 0.060 | < 0.067 | < 0.077 |
| Cs-134 | < 0.012 | < 0.009 | < 0.008 | < 0.009 |
| Cs-137 | < 0.012 | < 0.016 | < 0.014 | < 0.008 |
| Ce-141 | < 0.020 | < 0.026 | < 0.020 | < 0.019 |
| Ce-144 | < 0.080 | < 0.115 | < 0.065 | < 0.062 |
| | | | | |
| Date Collected | 09-02-10 | 09-02-10 | 10-05-10 | |
| Lab Code | KVE- 4932 | KVE- 4933 | KVE- 5532 | |
| Type | Potatoes | Cucumber | Pumpkin | |
| Gross beta | 5.29 ± 0.10 | 2.79 ± 0.05 | 2.50 ± 0.05 | |
| Sr-89 | < 0.008 | < 0.003 | < 0.004 | |
| Sr-90 | < 0.005 | < 0.002 | < 0.002 | |
| Be-7 | < 0.088 | < 0.061 | < 0.056 | |
| K-40 | 3.86 ± 0.31 | 1.81 ± 0.22 | 1.61 ± 0.17 | |
| Nb-95 | < 0.010 | < 0.008 | < 0.006 | |
| Zr-95 | < 0.008 | < 0.017 | < 0.009 | |
| Ru-103 | < 0.011 | < 0.010 | < 0.005 | |
| Ru-106 | < 0.096 | < 0.076 | < 0.069 | |
| Cs-134 | < 0.007 | < 0.007 | < 0.005 | |
| Cs-137 | < 0.010 | < 0.007 | < 0.007 | |
| Ce-141 | < 0.018 | < 0.020 | < 0.017 | |
| Ce-144 | < 0.065 | < 0.064 | < 0.054 | |

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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 | 01-05-10 | 01-04-10 | 01-04-10 | 01-04-10 |
| Lab Code | KCF- 16 | KCF- 40 | KCF- 19 | KCF- 44 |
| Type | Hay | Silage | Hay | Silage |
| Gross beta | 11.22 ± 0.27 | 4.02 ± 0.14 | 18.66 ± 0.41 | 2.93 ± 0.09 |
| Sr-89 | < 0.012 | < 0.015 | < 0.019 | < 0.013 |
| Sr-90 | 0.018 ± 0.005 | 0.009 ± 0.004 | 0.021 ± 0.007 | < 0.007 |
| Be-7 | 0.19 ± 0.11 | 0.35 ± 0.15 | < 0.11 | < 0.071 |
| K-40 | 7.87 ± 0.42 | 3.30 ± 0.29 | 13.00 ± 0.50 | 2.92 ± 0.23 |
| Nb-95 | < 0.010 | < 0.009 | < 0.018 | < 0.009 |
| Zr-95 | < 0.015 | < 0.016 | < 0.019 | < 0.007 |
| Ru-103 | < 0.013 | < 0.011 | < 0.007 | < 0.009 |
| Ru-106 | < 0.115 | < 0.082 | < 0.057 | < 0.072 |
| Cs-134 | < 0.011 | < 0.012 | < 0.010 | < 0.007 |
| Cs-137 | < 0.012 | < 0.011 | < 0.011 | < 0.006 |
| Ce-141 | < 0.022 | < 0.022 | < 0.019 | < 0.018 |
| Ce-144 | < 0.109 | < 0.086 | < 0.084 | < 0.059 |
| Indicator | | | | |
| Location | K-5 | K-5 | K-34 | K-34 |
| Date Collected | 01-04-10 | 01-04-10 | 01-04-10 | 01-04-10 |
| Lab Code | KCF- 17 | KCF- 41 | KCF- 18 | KCF- 43 |
| Type | Hay | Silage | Hay | Silage |
| Gross beta | 19.61 ± 0.46 | 3.26 ± 0.10 | 21.64 ± 0.62 | 2.58 ± 0.10 |
| Sr-89 | < 0.024 | < 0.016 | < 0.037 | < 0.009 |
| Sr-90 | 0.020 ± 0.009 | 0.012 ± 0.005 | < 0.019 | 0.005 ± 0.002 |
| Be-7 | < 0.11 | 0.45 ± 0.11 | < 0.10 | < 0.076 |
| K-40 | 16.06 ± 0.44 | 3.04 ± 0.22 | 18.35 ± 0.40 | 2.18 ± 0.20 |
| Nb-95 | < 0.010 | < 0.007 | < 0.013 | < 0.010 |
| Zr-95 | < 0.016 | < 0.013 | < 0.022 | < 0.009 |
| Ru-103 | < 0.009 | < 0.005 | < 0.010 | < 0.008 |
| Ru-106 | < 0.091 | < 0.069 | < 0.101 | < 0.038 |
| Cs-134 | < 0.011 | < 0.006 | < 0.009 | < 0.006 |
| Cs-137 | < 0.011 | < 0.009 | 0.032 ± 0.012 | < 0.007 |
| Ce-141 | < 0.021 | < 0.015 | < 0.020 | < 0.012 |
| Ce-144 | < 0.059 | < 0.063 | < 0.073 | < 0.053 |

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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) | | | | |
|--|---------------|---------------|--------------|---------------|
| Location | Indicator | | | |
| | K-38 | K-38 | K-39 | K-39 |
| Date Collected | 01-04-10 | 01-04-10 | 01-04-10 | 01-04-10 |
| Lab Code | KCF- 20 | KCF- 45 | KCF- 22 | KCF- 46 |
| Type | Hay | Silage | Hay | Silage |
| Gross beta | 10.96 ± 0.27 | 3.00 ± 0.11 | 21.07 ± 0.55 | 3.28 ± 0.11 |
| Sr-89 | < 0.016 | < 0.016 | < 0.027 | < 0.013 |
| Sr-90 | 0.020 ± 0.006 | 0.010 ± 0.005 | < 0.015 | 0.008 ± 0.004 |
| Be-7 | < 0.16 | 1.01 ± 0.16 | < 0.10 | 0.39 ± 0.112 |
| K-40 | 8.88 ± 0.48 | 3.38 ± 0.34 | 13.88 ± 0.37 | 2.87 ± 0.23 |
| Nb-95 | < 0.016 | < 0.009 | < 0.015 | < 0.012 |
| Zr-95 | < 0.020 | < 0.014 | < 0.022 | < 0.017 |
| Ru-103 | < 0.013 | < 0.013 | < 0.009 | < 0.012 |
| Ru-106 | < 0.146 | < 0.094 | < 0.098 | < 0.071 |
| Cs-134 | < 0.011 | < 0.009 | < 0.009 | < 0.008 |
| Cs-137 | < 0.015 | < 0.011 | < 0.010 | < 0.007 |
| Ce-141 | < 0.021 | < 0.035 | < 0.022 | < 0.017 |
| Ce-144 | < 0.097 | < 0.085 | < 0.088 | < 0.067 |

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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 | | | | |
|--------------------------------------|-------------|-------------|-------------|-------------|
| Location | Indicator | | | |
| | K-1b | K-1f | K-5 | K-34 |
| Date Collected | 05-03-10 | 05-03-10 | 05-03-10 | 05-03-10 |
| Lab Code | KG- 2168 | KG- 2169 | KG- 2172 | KG- 2173 |
| Gross beta | 6.92 ± 0.17 | 7.93 ± 0.19 | 9.87 ± 0.25 | 8.79 ± 0.21 |
| Sr-89 | < 0.008 | < 0.011 | < 0.014 | < 0.009 |
| Sr-90 | < 0.004 | < 0.007 | < 0.008 | < 0.005 |
| Be-7 | 0.63 ± 0.17 | 0.45 ± 0.19 | 0.43 ± 0.20 | 0.52 ± 0.15 |
| K-40 | 5.11 ± 0.38 | 6.93 ± 0.53 | 7.76 ± 0.53 | 6.91 ± 0.48 |
| Mn-54 | < 0.009 | < 0.012 | < 0.016 | < 0.013 |
| Co-58 | < 0.009 | < 0.020 | < 0.012 | < 0.011 |
| Co-60 | < 0.009 | < 0.016 | < 0.011 | < 0.012 |
| Nb-95 | < 0.010 | < 0.013 | < 0.015 | < 0.010 |
| Zr-95 | < 0.014 | < 0.025 | < 0.023 | < 0.013 |
| Ru-103 | < 0.012 | < 0.018 | < 0.017 | < 0.014 |
| Ru-106 | < 0.083 | < 0.125 | < 0.094 | < 0.148 |
| Cs-134 | < 0.010 | < 0.014 | < 0.014 | < 0.012 |
| Cs-137 | < 0.008 | < 0.014 | < 0.015 | < 0.014 |
| Ce-141 | < 0.031 | < 0.032 | < 0.018 | < 0.028 |
| Ce-144 | < 0.082 | < 0.170 | < 0.104 | < 0.120 |

| Location | Indicator | | Control | |
|----------------|-------------|-------------|-------------|-------------|
| | K-38 | K-39 | K-3 | K-35 |
| Date Collected | 05-03-10 | 05-03-10 | 05-03-10 | 05-03-10 |
| Lab Code | KG- 2175 | KG- 2176 | KG- 2170 | KG- 2174 |
| Gross beta | 8.66 ± 0.23 | 6.12 ± 0.16 | 8.73 ± 0.22 | 7.78 ± 0.19 |
| Sr-89 | < 0.010 | < 0.010 | < 0.011 | < 0.006 |
| Sr-90 | < 0.006 | < 0.006 | < 0.007 | < 0.003 |
| Be-7 | 0.99 ± 0.16 | 0.69 ± 0.14 | 0.91 ± 0.32 | 1.20 ± 0.24 |
| K-40 | 6.49 ± 0.47 | 5.87 ± 0.39 | 7.48 ± 0.78 | 7.14 ± 0.56 |
| Mn-54 | < 0.009 | < 0.014 | < 0.028 | < 0.016 |
| Co-58 | < 0.012 | < 0.012 | < 0.014 | < 0.016 |
| Co-60 | < 0.013 | < 0.009 | < 0.015 | < 0.015 |
| Nb-95 | < 0.009 | < 0.015 | < 0.014 | < 0.010 |
| Zr-95 | < 0.018 | < 0.016 | < 0.033 | < 0.034 |
| Ru-103 | < 0.015 | < 0.012 | < 0.023 | < 0.016 |
| Ru-106 | < 0.118 | < 0.075 | < 0.219 | < 0.108 |
| Cs-134 | < 0.011 | < 0.011 | < 0.022 | < 0.015 |
| Cs-137 | < 0.012 | < 0.014 | < 0.025 | < 0.016 |
| Ce-141 | < 0.027 | < 0.024 | < 0.025 | < 0.027 |
| Ce-144 | < 0.127 | < 0.074 | < 0.113 | < 0.128 |

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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 | | | | |
|--------------------------------------|-------------|-------------|-------------|-------------|
| Location | Indicator | | | |
| | K-1b | K-1f | K-5 | K-34 |
| Date Collected | 07-01-10 | 07-01-10 | 07-01-10 | 07-02-10 |
| Lab Code | KG- 3425 | KG- 3426 | KG- 3429 | KG- 3430 |
| Gross beta | 8.98 ± 0.19 | 8.43 ± 0.17 | 8.36 ± 0.17 | 9.07 ± 0.19 |
| Sr-89 | < 0.012 | < 0.007 | < 0.010 | < 0.012 |
| Sr-90 | < 0.009 | < 0.005 | < 0.007 | < 0.009 |
| Be-7 | 1.38 ± 0.20 | 1.21 ± 0.18 | 2.28 ± 0.31 | 1.14 ± 0.22 |
| K-40 | 6.01 ± 0.48 | 6.01 ± 0.45 | 6.08 ± 0.52 | 6.41 ± 0.47 |
| Mn-54 | < 0.007 | < 0.014 | < 0.018 | < 0.010 |
| Co-58 | < 0.015 | < 0.014 | < 0.014 | < 0.009 |
| Co-60 | < 0.012 | < 0.010 | < 0.016 | < 0.016 |
| Nb-95 | < 0.014 | < 0.010 | < 0.010 | < 0.016 |
| Zr-95 | < 0.029 | < 0.024 | < 0.025 | < 0.026 |
| Ru-103 | < 0.015 | < 0.014 | < 0.017 | < 0.017 |
| Ru-106 | < 0.141 | < 0.126 | < 0.118 | < 0.139 |
| Cs-134 | < 0.015 | < 0.013 | < 0.016 | < 0.016 |
| Cs-137 | < 0.016 | < 0.018 | < 0.017 | < 0.019 |
| Ce-141 | < 0.035 | < 0.034 | < 0.024 | < 0.034 |
| Ce-144 | < 0.089 | < 0.123 | < 0.126 | < 0.144 |

| Location | Indicator | | Control | |
|----------------|-------------|-------------|---------------------------|---------------|
| | K-38 | K-39 | K-3 | K-35 |
| Date Collected | 07-01-10 | 07-01-10 | 07-01-10 | 07-01-10 |
| Lab Code | KG- 3432 | KG- 3433 | KG- 3427 | KG- 3431 |
| Gross beta | 8.10 ± 0.17 | 8.58 ± 0.19 | 10.60 ± 0.33 ^a | 8.71 ± 0.18 |
| Sr-89 | < 0.009 | < 0.008 | < 0.009 | < 0.008 |
| Sr-90 | < 0.007 | < 0.007 | < 0.008 | 0.007 ± 0.004 |
| Be-7 | 1.55 ± 0.18 | 1.45 ± 0.20 | 1.18 ± 0.29 | 2.22 ± 0.23 |
| K-40 | 5.81 ± 0.42 | 5.40 ± 0.44 | 8.79 ± 0.64 | 6.17 ± 0.43 |
| Mn-54 | < 0.006 | < 0.014 | < 0.020 | < 0.013 |
| Co-58 | < 0.008 | < 0.017 | < 0.018 | < 0.012 |
| Co-60 | < 0.010 | < 0.014 | < 0.021 | < 0.014 |
| Nb-95 | < 0.009 | < 0.013 | < 0.021 | < 0.011 |
| Zr-95 | < 0.022 | < 0.017 | < 0.022 | < 0.017 |
| Ru-103 | < 0.014 | < 0.016 | < 0.014 | < 0.015 |
| Ru-106 | < 0.069 | < 0.078 | < 0.140 | < 0.108 |
| Cs-134 | < 0.012 | < 0.015 | < 0.022 | < 0.013 |
| Cs-137 | < 0.011 | < 0.015 | < 0.018 | < 0.013 |
| Ce-141 | < 0.026 | < 0.031 | < 0.033 | < 0.026 |
| Ce-144 | < 0.086 | < 0.101 | < 0.193 | < 0.098 |

^a Result of reanalysis.

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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 | 10-04-10 | 10-04-10 | 10-04-10 | 10-04-10 |
| Lab Code | KG- 5510 | KG- 5511 | KG- 5513 | KG- 5515 |
| Gross beta | 10.05 ± 0.28 | 8.91 ± 0.24 | 10.86 ± 0.44 | 10.26 ± 0.24 |
| Sr-89 | < 0.027 | < 0.026 | < 0.028 | < 0.016 |
| Sr-90 | 0.023 ± 0.009 | 0.022 ± 0.008 | < 0.014 | < 0.009 |
| Be-7 | 4.15 ± 0.35 | 4.26 ± 0.32 | 6.73 ± 0.40 | 2.83 ± 0.30 |
| K-40 | 5.34 ± 0.46 | 5.68 ± 0.48 | 7.10 ± 0.54 | 8.35 ± 0.56 |
| Mn-54 | < 0.022 | < 0.014 | < 0.018 | < 0.013 |
| Co-58 | < 0.021 | < 0.011 | < 0.011 | < 0.017 |
| Co-60 | < 0.014 | < 0.017 | < 0.014 | < 0.019 |
| Nb-95 | < 0.020 | < 0.016 | < 0.023 | < 0.021 |
| Zr-95 | < 0.029 | < 0.032 | < 0.036 | < 0.027 |
| Ru-103 | < 0.018 | < 0.017 | < 0.019 | < 0.023 |
| Ru-106 | < 0.144 | < 0.128 | < 0.141 | < 0.205 |
| Cs-134 | < 0.015 | < 0.018 | < 0.018 | < 0.015 |
| Cs-137 | < 0.010 | < 0.013 | < 0.020 | < 0.009 |
| Ce-141 | < 0.047 | < 0.034 | < 0.039 | < 0.029 |
| Ce-144 | < 0.152 | < 0.084 | < 0.131 | < 0.170 |

| | Indicator | | Control | |
|----------------|-------------|-------------|---------------|---------------|
| Location | K-38 | K-39 | K-3 | K-35 |
| Date Collected | 10-04-10 | 10-04-10 | 10-04-10 | 10-04-10 |
| Lab Code | KG- 5517 | KG- 5518 | KG- 5512 | KG- 5516 |
| Gross beta | 8.50 ± 0.22 | 9.68 ± 0.24 | 11.17 ± 0.25 | 19.80 ± 0.50 |
| Sr-89 | < 0.020 | < 0.016 | < 0.016 | < 0.034 |
| Sr-90 | < 0.010 | < 0.008 | 0.010 ± 0.005 | 0.028 ± 0.010 |
| Be-7 | 4.10 ± 0.42 | 4.40 ± 0.36 | 3.03 ± 0.28 | 5.39 ± 0.38 |
| K-40 | 7.41 ± 0.67 | 8.33 ± 0.63 | 6.73 ± 0.47 | 13.40 ± 0.84 |
| Mn-54 | < 0.015 | < 0.016 | < 0.015 | < 0.025 |
| Co-58 | < 0.025 | < 0.026 | < 0.013 | < 0.017 |
| Co-60 | < 0.031 | < 0.018 | < 0.014 | < 0.015 |
| Nb-95 | < 0.017 | < 0.019 | < 0.012 | < 0.020 |
| Zr-95 | < 0.032 | < 0.032 | < 0.026 | < 0.039 |
| Ru-103 | < 0.018 | < 0.011 | < 0.017 | < 0.016 |
| Ru-106 | < 0.238 | < 0.170 | < 0.162 | < 0.182 |
| Cs-134 | < 0.023 | < 0.014 | < 0.012 | < 0.021 |
| Cs-137 | < 0.027 | < 0.020 | < 0.016 | < 0.025 |
| Ce-141 | < 0.054 | < 0.029 | < 0.032 | < 0.052 |
| Ce-144 | < 0.192 | < 0.128 | < 0.077 | < 0.156 |

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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 | 05-03-10 | 05-03-10 |
| Lab Code | KSO- 2177 | KSO- 2179 |
| Gross alpha | 5.34 ± 2.84 | 11.85 ± 3.69 |
| Gross beta | 24.25 ± 3.17 | 36.68 ± 3.57 |
| Sr-89 | < 0.091 | < 0.053 |
| Sr-90 | < 0.045 | < 0.024 |
| Be-7 | < 0.18 | < 0.23 |
| K-40 | 17.58 ± 0.83 | 22.06 ± 0.91 |
| Nb-95 | < 0.014 | < 0.019 |
| Zr-95 | < 0.018 | < 0.027 |
| Ru-103 | < 0.017 | < 0.017 |
| Ru-106 | < 0.135 | < 0.131 |
| Cs-134 | < 0.010 | < 0.017 |
| Cs-137 | < 0.018 | 0.095 ± 0.037 |
| Ce-141 | < 0.030 | < 0.037 |
| Ce-144 | < 0.102 | < 0.122 |
| | | |
| Location | K-1f | K-5 |
| Date Collected | 10-04-10 | 10-04-10 |
| Lab Code | KSO- 5525 | KSO- 5527 |
| Gross alpha | 7.02 ± 3.40 | 7.09 ± 2.99 |
| Gross beta | 26.65 ± 3.64 | 28.60 ± 3.37 |
| Sr-89 | < 0.036 | < 0.036 |
| Sr-90 | < 0.017 | 0.031 ± 0.011 |
| Be-7 | < 0.23 | 0.70 ± 0.30 |
| K-40 | 17.56 ± 0.81 | 19.76 ± 0.93 |
| Nb-95 | < 0.019 | < 0.023 |
| Zr-95 | < 0.029 | < 0.023 |
| Ru-103 | < 0.010 | < 0.021 |
| Ru-106 | < 0.174 | < 0.137 |
| Cs-134 | < 0.018 | < 0.009 |
| Cs-137 | < 0.018 | 0.090 ± 0.027 |
| Ce-141 | < 0.051 | < 0.047 |
| Ce-144 | < 0.101 | < 0.077 |

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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 | 05-03-10 | 05-03-10 | 05-03-10 |
| Lab Code | KSO- 2180 | KSO- 2182 | KSO- 2183 |
| Gross alpha | 8.45 ± 3.52 | 5.14 ± 2.78 | 5.77 ± 3.07 |
| Gross beta | 35.49 ± 3.90 | 30.79 ± 3.41 | 27.42 ± 3.54 |
| Sr-89 | < 0.039 | < 0.040 | < 0.037 |
| Sr-90 | < 0.019 | 0.035 ± 0.013 | < 0.018 |
| Be-7 | < 0.31 | < 0.21 | 0.42 ± 0.20 |
| K-40 | 20.63 ± 1.19 | 23.69 ± 0.97 | 18.95 ± 0.86 |
| Nb-95 | < 0.025 | < 0.013 | < 0.010 |
| Zr-95 | < 0.034 | < 0.027 | < 0.024 |
| Ru-103 | < 0.032 | < 0.020 | < 0.014 |
| Ru-106 | < 0.356 | < 0.082 | < 0.206 |
| Cs-134 | < 0.038 | < 0.020 | < 0.016 |
| Cs-137 | 0.078 ± 0.036 | 0.11 ± 0.044 | 0.10 ± 0.024 |
| Ce-141 | < 0.052 | < 0.027 | < 0.029 |
| Ce-144 | < 0.120 | < 0.142 | < 0.124 |
| Location | K-34 | K-38 | K-39 |
| Date Collected | 10-04-10 | 10-04-10 | 10-04-10 |
| Lab Code | KSO- 5528 | KSO- 5530 | KSO- 5531 |
| Gross alpha | 7.69 ± 3.54 | 9.48 ± 3.41 | 6.71 ± 3.33 |
| Gross beta | 31.35 ± 3.91 | 30.95 ± 3.58 | 36.25 ± 4.00 |
| Sr-89 | < 0.057 | < 0.036 | < 0.038 |
| Sr-90 | < 0.030 | < 0.017 | 0.029 ± 0.012 |
| Be-7 | < 0.27 | < 0.21 | < 0.27 |
| K-40 | 20.52 ± 0.98 | 21.03 ± 0.92 | 20.84 ± 0.92 |
| Nb-95 | < 0.024 | < 0.030 | < 0.027 |
| Zr-95 | < 0.028 | < 0.031 | < 0.023 |
| Ru-103 | < 0.012 | < 0.027 | < 0.017 |
| Ru-106 | < 0.139 | < 0.189 | < 0.138 |
| Cs-134 | < 0.022 | < 0.017 | < 0.016 |
| Cs-137 | 0.099 ± 0.033 | < 0.029 | 0.14 ± 0.027 |
| Ce-141 | < 0.045 | < 0.054 | < 0.055 |
| Ce-144 | < 0.135 | < 0.131 | < 0.126 |

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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) | | |
|--|---------------|---------------|
| Control | | |
| Location | K-3 | K-35 |
| Date Collected | 05-03-10 | 05-03-10 |
| Lab Code | KSO- 2178 | KSO- 2181 |
| Gross alpha | 4.61 ± 2.49 | 3.73 ± 2.53 |
| Gross beta | 20.75 ± 2.82 | 23.96 ± 3.25 |
| Sr-89 | < 0.050 | < 0.037 |
| Sr-90 | < 0.036 | 0.022 ± 0.010 |
| Be-7 | 0.67 ± 0.24 | < 0.19 |
| K-40 | 11.83 ± 0.74 | 16.08 ± 0.83 |
| Nb-95 | < 0.014 | < 0.019 |
| Zr-95 | < 0.038 | < 0.021 |
| Ru-103 | < 0.018 | < 0.011 |
| Ru-106 | < 0.121 | < 0.096 |
| Cs-134 | < 0.020 | < 0.014 |
| Cs-137 | 0.084 ± 0.027 | 0.132 ± 0.034 |
| Ce-141 | < 0.027 | < 0.036 |
| Ce-144 | < 0.177 | < 0.132 |
| | | |
| Location | K-3 | K-35 |
| Date Collected | 10-04-10 | 10-04-10 |
| Lab Code | KSO- 5526 | KSO- 5529 |
| Gross alpha | 7.22 ± 3.21 | 6.25 ± 3.12 |
| Gross beta | 24.58 ± 3.21 | 28.43 ± 3.46 |
| Sr-89 | < 0.036 | < 0.048 |
| Sr-90 | 0.019 ± 0.010 | 0.049 ± 0.015 |
| Be-7 | < 0.24 | 0.45 ± 0.22 |
| K-40 | 15.59 ± 0.79 | 17.06 ± 0.89 |
| Nb-95 | < 0.014 | < 0.022 |
| Zr-95 | < 0.037 | < 0.046 |
| Ru-103 | < 0.012 | < 0.027 |
| Ru-106 | < 0.145 | < 0.221 |
| Cs-134 | < 0.021 | < 0.018 |
| Cs-137 | 0.098 ± 0.035 | 0.15 ± 0.036 |
| Ce-141 | < 0.049 | < 0.060 |
| Ce-144 | < 0.117 | < 0.107 |

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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) | | | |
|--|-----------|-------------------------|-----------------|
| <u>Indicator</u> | | | |
| <u>K-1a</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 23 | KSW- 380 | NS ^b |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | - |
| Dissolved Solids | 6.3 ± 0.6 | 8.2 ± 2.1 | - |
| Total Residue | 6.3 ± 0.6 | 8.2 ± 2.1 | - |
| K-40 (ICP) | 6.08 | 5.79 | - |
| 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 | - |
| <u>K-1b</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 24 | KSW- 381 | KSW- 777 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.8 | < 0.8 |
| Dissolved Solids | 2.3 ± 0.3 | 10.8 ± 1.3 ^a | 1.7 ± 0.6 |
| Total Residue | 2.3 ± 0.3 | 10.8 ± 1.3 | 1.7 ± 0.6 |
| K-40 (ICP) | 2.06 | 2.33 | 1.80 |
| 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 Analysis was repeated, result of reanalysis; 12.6 ± 1.7 pCi/L.

^b 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1a</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1382 | KSW- 2159 | KSW- 2762 |
| Gross beta | | | |
| Suspended Solids | < 0.2 | < 1.3 | < 0.8 |
| Dissolved Solids | 4.3 ± 1.0 | 4.9 ± 0.6 | 5.8 ± 1.6 |
| Total Residue | 4.3 ± 1.0 | 4.9 ± 0.6 | 5.8 ± 1.6 |
| K-40 (ICP) | 4.92 | 5.26 | 4.83 |
| 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 |
| <u>K-1b</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1383 | KSW- 2160 | KSW- 2763 |
| Gross beta | | | |
| Suspended Solids | < 0.2 | < 1.0 | < 0.7 |
| Dissolved Solids | 2.7 ± 0.7 | 2.5 ± 0.4 | 2.7 ± 1.0 |
| Total Residue | 2.7 ± 0.7 | 2.5 ± 0.4 | 2.7 ± 1.0 |
| K-40 (ICP) | 1.87 | 2.54 | 1.63 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1a</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3434 | KSW- 4109 | KSW- 4936 |
| Gross beta | | | |
| Suspended Solids | < 0.9 | < 0.5 | 0.5 ± 0.3 |
| Dissolved Solids | 6.3 ± 1.2 | 1.7 ± 1.0 | 8.4 ± 0.7 |
| Total Residue | 6.3 ± 1.2 | 1.7 ± 1.0 | 8.9 ± 0.8 |
| K-40 (ICP) | 7.17 | 1.70 | 10.09 |
| 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 |
| <u>K-1b</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3435 | KSW- 4110 | KSW- 4937 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.5 | < 0.4 |
| Dissolved Solids | 1.5 ± 0.6 | 2.3 ± 0.7 | 1.8 ± 0.4 |
| Total Residue | 1.5 ± 0.6 | 2.3 ± 0.7 | 1.8 ± 0.4 |
| K-40 (ICP) | 1.95 | 2.57 | 2.32 |
| 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) | | | |
|--|------------|-----------|------------|
| <u>Indicator</u> | | | |
| <u>K-1a</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5501 | KSW- 6459 | KSW- 7045 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.5 | < 0.8 |
| Dissolved Solids | 12.8 ± 2.0 | 7.0 ± 0.9 | 12.8 ± 1.1 |
| Total Residue | 12.8 ± 2.0 | 7.0 ± 0.9 | 12.8 ± 1.1 |
| K-40 (ICP) | 7.08 | 7.22 | 12.14 |
| 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 |
| <u>K-1b</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5502 | KSW- 6460 | KSW- 7046 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.5 | < 0.7 |
| Dissolved Solids | 4.3 ± 1.1 | 2.2 ± 0.5 | 3.5 ± 0.6 |
| Total Residue | 4.3 ± 1.1 | 2.2 ± 0.5 | 3.5 ± 0.6 |
| K-40 (ICP) | 3.12 | 2.42 | 2.12 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1d</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 25 | KSW- 382 | KSW- 778 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | < 0.7 |
| Dissolved Solids | 1.5 ± 0.2 | 2.2 ± 0.7 | 0.9 ± 0.4 |
| Total Residue | 1.5 ± 0.2 | 2.2 ± 0.7 | 0.9 ± 0.4 |
| K-40 (ICP) | 1.22 | 1.09 | 1.23 |
| 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 |
| <u>K-1e</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 26 | KSW- 384 | KSW- 779 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.8 | < 0.8 |
| Dissolved Solids | 3.5 ± 0.5 | 4.2 ± 1.0 | 6.8 ± 1.8 |
| Total Residue | 3.5 ± 0.5 | 4.2 ± 1.0 | 6.8 ± 1.8 |
| K-40 (ICP) | 3.20 | 3.77 | 6.32 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1d</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1384 | KSW- 2161 | KSW- 2764 |
| Gross beta | | | |
| Suspended Solids | < 0.2 | < 0.6 | < 0.7 |
| Dissolved Solids | 1.4 ± 0.4 | 1.6 ± 0.3 | 1.9 ± 0.7 |
| Total Residue | 1.4 ± 0.4 | 1.6 ± 0.3 | 1.9 ± 0.7 |
| K-40 (ICP) | 1.27 | 1.27 | 1.10 |
| 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 |
| <u>K-1e</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1385 | KSW- 2162 | KSW- 2765 |
| Gross beta | | | |
| Suspended Solids | < 0.2 | < 1.3 | < 0.7 |
| Dissolved Solids | 3.4 ± 0.9 | 2.4 ± 0.5 | 8.1 ± 1.8 |
| Total Residue | 3.4 ± 0.9 | 2.4 ± 0.5 | 8.1 ± 1.8 |
| K-40 (ICP) | 3.88 | 2.29 | 4.12 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1d</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3436 | KSW- 4111 | KSW- 4938 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.5 | < 0.4 |
| Dissolved Solids | 0.9 ± 0.4 | 1.8 ± 0.4 | 1.0 ± 0.2 |
| Total Residue | 0.9 ± 0.4 | 1.8 ± 0.4 | 1.0 ± 0.2 |
| K-40 (ICP) | 1.13 | 1.14 | 1.14 |
| 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 |
| <u>K-1e</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3437 | KSW- 4112 | KSW- 4939 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.5 | < 0.7 |
| Dissolved Solids | 5.8 ± 1.1 | 3.4 ± 0.9 | 3.5 ± 0.5 |
| Total Residue | 5.8 ± 1.1 | 3.4 ± 0.9 | 3.5 ± 0.5 |
| K-40 (ICP) | 4.70 | 2.73 | 4.54 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-1d</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5503 | KSW- 6461 | KSW- 7047 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.5 | < 0.8 |
| Dissolved Solids | 2.6 ± 0.8 | 1.3 ± 0.4 | 2.4 ± 0.4 |
| Total Residue | 2.6 ± 0.8 | 1.3 ± 0.4 | 2.4 ± 0.4 |
| K-40 (ICP) | 1.27 | 1.27 | 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 |
| <u>K-1e</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5504 | KSW- 6462 | KSW- 7048 |
| Gross beta | | | |
| Suspended Solids | 0.9 ± 0.4 | < 0.5 | < 0.8 |
| Dissolved Solids | 4.2 ± 1.0 | 4.0 ± 0.7 | 7.9 ± 1.5 |
| Total Residue | 5.1 ± 1.1 | 4.0 ± 0.7 | 7.9 ± 1.5 |
| K-40 (ICP) | 4.22 | 4.53 | 3.84 |
| 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) | | | |
|--|-----------------|-----------------|-----------------|
| <u>Indicator</u> | | | |
| <u>K-1k</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| 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 | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1386 | KSW- 2163 | KSW- 2766 |
| Gross beta | | | |
| Suspended Solids | < 0.4 | 1.0 ± 0.6 | < 0.8 |
| Dissolved Solids | 7.6 ± 0.8 | 14.4 ± 0.5 | 18.0 ± 2.8 |
| Total Residue | 7.6 ± 0.8 | 15.4 ± 0.8 | 18.0 ± 2.8 |
| K-40 (ICP) | 6.65 | 11.53 | 8.28 |
| 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.

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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) | | | |
|--|------------|------------|------------|
| <u>Indicator</u> | | | |
| <u>K-1k</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3438 | KSW- 4113 | KSW- 4940 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | 0.8 ± 0.4 | < 0.7 |
| Dissolved Solids | 6.5 ± 0.7 | 4.1 ± 0.6 | 13.4 ± 0.6 |
| Total Residue | 6.5 ± 0.7 | 4.9 ± 0.7 | 13.4 ± 0.6 |
| K-40 (ICP) | 5.77 | 2.88 | 22.05 |
| 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 |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5505 | KSW- 6463 | KSW- 7049 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | 3.4 ± 0.5 | < 0.8 |
| Dissolved Solids | 13.2 ± 1.0 | 21.6 ± 1.0 | 22.6 ± 1.3 |
| Total Residue | 13.2 ± 1.0 | 25.0 ± 1.1 | 22.6 ± 1.3 |
| K-40 (ICP) | 14.10 | 12.14 | 14.27 |
| 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 |

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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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-9 (Raw)</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 27 | KSW- 385 | KSW- 780 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | < 0.7 |
| Dissolved Solids | 0.9 ± 0.4 | 1.2 ± 0.4 | 1.3 ± 0.4 |
| Total Residue | 0.9 ± 0.4 | 1.2 ± 0.4 | 1.3 ± 0.4 |
| K-40 (ICP) | 1.09 | 0.99 | 1.18 |
| 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 |
| <u>K-9 (Tap)</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 28 | KSW- 386 | KSW- 781 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.8 | < 0.8 |
| Dissolved Solids | 1.0 ± 0.4 | < 0.6 | 1.1 ± 0.4 |
| Total Residue | 1.0 ± 0.4 | < 0.8 | 1.1 ± 0.4 |
| K-40 (ICP) | 1.09 | 1.03 | 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 |

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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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-9 (Raw)</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1387 | KSW- 2164 | KSW- 2767 |
| Gross beta | | | |
| Suspended Solids | < 0.3 | < 1.4 | < 0.8 |
| Dissolved Solids | 1.6 ± 0.4 | 1.2 ± 0.2 | 1.7 ± 0.4 |
| Total Residue | 1.6 ± 0.4 | 1.2 ± 0.2 | 1.7 ± 0.4 |
| K-40 (ICP) | 1.19 | 1.19 | 1.10 |
| 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 |
| <u>K-9 (Tap)</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1388 | KSW- 2165 | KSW- 2768 |
| Gross beta | | | |
| Suspended Solids | < 0.3 | < 0.7 | < 0.7 |
| Dissolved Solids | 0.9 ± 0.3 | 1.6 ± 0.4 | 1.9 ± 0.7 |
| Total Residue | 0.9 ± 0.3 | 1.6 ± 0.4 | 1.9 ± 0.7 |
| K-40 (ICP) | 1.16 | 1.19 | 1.10 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-9 (Raw)</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3439 | KSW- 4114 | KSW- 4941 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.8 | < 0.7 |
| Dissolved Solids | 1.4 ± 0.4 | 1.4 ± 0.4 | 1.0 ± 0.2 |
| Total Residue | 1.4 ± 0.4 | 1.4 ± 0.4 | 1.0 ± 0.2 |
| K-40 (ICP) | 1.13 | 1.08 | 1.12 |
| 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 |
| <u>K-9 (Tap)</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3440 | KSW- 4115 | KSW- 4942 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.7 | < 0.7 |
| Dissolved Solids | 2.6 ± 0.8 | 1.6 ± 0.7 | 1.9 ± 0.4 |
| Total Residue | 2.6 ± 0.8 | 1.6 ± 0.7 | 1.9 ± 0.4 |
| K-40 (ICP) | 1.15 | 1.10 | 1.14 |
| 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) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-9 (Raw)</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5506 | KSW- 6464 | KSW- 7050 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.7 | < 0.9 |
| Dissolved Solids | 1.2 ± 0.4 | 1.2 ± 0.3 | 1.9 ± 0.7 |
| Total Residue | 1.2 ± 0.4 | 1.2 ± 0.3 | 1.9 ± 0.7 |
| K-40 (ICP) | 1.23 | 1.21 | 1.22 |
| 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 |
| <u>K-9 (Tap)</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5507 | KSW- 6465 | KSW- 7051 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | < 0.8 |
| Dissolved Solids | 0.8 ± 0.4 | 1.1 ± 0.3 | 1.4 ± 0.7 |
| Total Residue | 0.8 ± 0.4 | 1.1 ± 0.3 | 1.4 ± 0.7 |
| K-40 (ICP) | 1.18 | 1.19 | 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 |

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

| Sample Description and Concentration (pCi/L) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-14a</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 29 | KSW- 387 | KSW- 783 |
| Gross beta | | | |
| Suspended Solids | < 0.7 | < 0.7 | < 0.7 |
| Dissolved Solids | 2.1 ± 0.5 | 1.4 ± 0.4 | 1.6 ± 0.5 |
| Total Residue | 2.1 ± 0.5 | 1.4 ± 0.4 | 1.6 ± 0.5 |
| K-40 (ICP) | 1.36 | 1.26 | 1.29 |
| 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 |
| <u>K-14b</u> | | | |
| Date Collected | 01-04-10 | 02-01-10 | 03-01-10 |
| Lab Code | KSW- 30 | KSW- 388 | KSW- 784 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.8 | < 0.8 |
| Dissolved Solids | 1.7 ± 0.4 | 1.3 ± 0.4 | 1.6 ± 0.4 |
| Total Residue | 1.7 ± 0.4 | 1.3 ± 0.4 | 1.6 ± 0.4 |
| K-40 (ICP) | 1.27 | 1.37 | 1.31 |
| 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, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

| Sample Description and Concentration (pCi/L) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-14a</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1389 | KSW- 2166 | KSW- 2769 |
| Gross beta | | | |
| Suspended Solids | < 0.3 | < 0.8 | < 0.7 |
| Dissolved Solids | 2.1 ± 0.4 | 1.2 ± 0.4 | 3.8 ± 0.8 |
| Total Residue | 2.1 ± 0.4 | 1.2 ± 0.4 | 3.8 ± 0.8 |
| K-40 (ICP) | 1.87 | 1.27 | 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 |
| <u>K-14b</u> | | | |
| Date Collected | 04-01-10 | 05-03-10 | 06-01-10 |
| Lab Code | KSW- 1390 | KSW- 2167 | KSW- 2770 |
| Gross beta | | | |
| Suspended Solids | < 0.3 | < 0.7 | < 0.7 |
| Dissolved Solids | 2.1 ± 0.4 | 1.4 ± 0.4 | 3.0 ± 0.8 |
| Total Residue | 2.1 ± 0.4 | 1.4 ± 0.4 | 3.0 ± 0.8 |
| K-40 (ICP) | 1.95 | 1.27 | 1.10 |
| 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, analyses for gross beta, potassium-40 and gamma-emitting isotopes (continued).

| Sample Description and Concentration (pCi/L) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-14a</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3441 | KSW- 4116 | KSW- 4943 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | < 0.8 |
| Dissolved Solids | 5.2 ± 0.9 | 2.0 ± 0.7 | 2.8 ± 0.4 |
| Total Residue | 5.2 ± 0.9 | 2.0 ± 0.7 | 2.8 ± 0.4 |
| K-40 (ICP) | 1.79 | 1.21 | 1.09 |
| 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 |
| <u>K-14b</u> | | | |
| Date Collected | 07-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSW- 3442 | KSW- 4117 | KSW- 4944 |
| Gross beta | | | |
| Suspended Solids | < 0.8 | < 0.7 | < 0.5 |
| Dissolved Solids | 4.5 ± 1.0 | 2.2 ± 0.7 | 2.3 ± 0.5 |
| Total Residue | 4.5 ± 1.0 | 2.2 ± 0.7 | 2.3 ± 0.5 |
| K-40 (ICP) | 1.82 | 1.24 | 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 |

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

| Sample Description and Concentration (pCi/L) | | | |
|--|-----------|-----------|-----------|
| <u>Indicator</u> | | | |
| <u>K-14a</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5508 | KSW- 6466 | KSW- 7052 |
| Gross beta | | | |
| Suspended Solids | < 0.5 | < 0.8 | < 0.8 |
| Dissolved Solids | 1.9 ± 0.5 | 1.9 ± 0.3 | 2.2 ± 0.7 |
| Total Residue | 1.9 ± 0.5 | 1.9 ± 0.3 | 2.2 ± 0.7 |
| K-40 (ICP) | 1.37 | 1.39 | 1.38 |
| 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 |
| <u>K-14b</u> | | | |
| Date Collected | 10-04-10 | 11-01-10 | 12-01-10 |
| Lab Code | KSW- 5509 | KSW- 6467 | KSW- 7053 |
| Gross beta | | | |
| Suspended Solids | < 0.5 | < 0.8 | < 0.8 |
| Dissolved Solids | 2.6 ± 0.5 | 2.1 ± 0.4 | 3.0 ± 0.8 |
| Total Residue | 2.6 ± 0.5 | 2.1 ± 0.4 | 3.0 ± 0.8 |
| K-40 (ICP) | 1.39 | 1.36 | 1.31 |
| 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 | | Concentration pCi/L | | |
|--------------------------|----------|---------------------|-------|-------|
| Collection Period | Lab Code | H-3 | Sr-89 | Sr-90 |
| <u>Indicator</u> | | | | |
| <u>K-1a</u> | | | | |
| 1st Quarter ^a | KSW -935 | < 148 | < 1.3 | < 0.5 |
| 2nd Quarter | -3296 | < 155 | < 0.8 | < 0.5 |
| 3rd Quarter | -5093 | < 155 | < 0.8 | < 0.5 |
| 4th Quarter | -7265 | < 150 | < 1.0 | < 0.7 |
| <u>K-1b</u> | | | | |
| 1st Quarter | KSW -936 | < 147 | < 1.1 | < 0.6 |
| 2nd Quarter | -3297 | < 155 | < 1.0 | < 0.6 |
| 3rd Quarter | -5095 | < 155 | < 0.8 | < 0.5 |
| 4th Quarter | -7266 | < 150 | < 1.0 | < 0.5 |
| <u>K-1d</u> | | | | |
| 1st Quarter | KSW -937 | < 147 | < 0.8 | < 0.4 |
| 2nd Quarter | -3298 | < 155 | < 0.9 | < 0.5 |
| 3rd Quarter | -5096 | < 155 | < 0.8 | < 0.5 |
| 4th Quarter | -7267 | < 150 | < 0.9 | < 0.5 |
| <u>K-1e</u> | | | | |
| 1st Quarter | KSW -938 | < 147 | < 1.1 | < 0.4 |
| 2nd Quarter | -3299 | < 155 | < 0.8 | < 0.5 |
| 3rd Quarter | -5097 | < 155 | < 0.9 | < 0.6 |
| 4th Quarter | -7268 | < 150 | < 1.1 | < 0.5 |

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

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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 |
| <u>Indicator</u> | | | | |
| <u>K-14a</u> | | | | |
| 1st Quarter | KSW -941 | < 147 | < 1.0 | < 0.5 |
| 2nd Quarter | -3303 | < 155 | < 0.9 | < 0.6 |
| 3rd Quarter | -5101 | < 155 | < 0.7 | < 0.5 |
| 4th Quarter | -7272 | < 150 | < 1.2 | < 0.7 |
| <u>K-14b</u> | | | | |
| 1st Quarter | KSW -942 | < 147 | < 0.9 | < 0.5 |
| 2nd Quarter | -3304 | < 155 | < 0.9 | < 0.5 |
| 3rd Quarter | -5102 | < 155 | < 0.8 | < 0.5 |
| 4th Quarter | -7273 | < 150 | < 0.9 | < 0.4 |
| <u>K-1k</u> | | | | |
| 1st Quarter | NS ^b | - | - | - |
| 2nd Quarter | KSW -3300 | 163 ± 90 | < 0.8 | < 0.8 |
| 3rd Quarter | -5098 | < 155 | < 0.7 | 0.5 ± 0.3 |
| 4th Quarter | -7269 | < 150 | < 1.0 | < 0.7 |
| <u>Control</u> | | | | |
| <u>K-9</u> | | | | |
| 1st Quarter | KSW -939 (Raw) | < 147 | < 1.0 | < 0.5 |
| | -940 (Tap) | < 147 | < 0.9 | < 0.5 |
| 2nd Quarter | KSW -3301 (Raw) | < 155 | < 1.0 | < 0.6 |
| | -3302 (Tap) | < 155 | < 1.1 | < 0.6 |
| 3rd Quarter | KSW -5099 (Raw) | < 155 | < 0.9 | < 0.5 |
| | -5100 (Tap) | < 155 | < 1.0 | < 0.7 |
| 4th Quarter | KSW -7270 (Raw) | < 150 | < 1.2 | < 0.7 |
| | -7271 (Tap) | < 150 | < 1.1 | < 0.5 |

^b No data; water frozen.

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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 | 04-09-10 | | 07-09-10 | |
| Lab Code | KF- 2153 | | KF- 4108 | |
| Type | Carp | | Sucker | |
| Portion | <u>Flesh</u> | <u>Bones</u> | <u>Flesh</u> | <u>Bones</u> |
| Gross beta | 3.17 ± 0.08 | 2.12 ± 0.71 | 3.18 ± 0.07 | 3.26 ± 0.99 |
| Sr-89 | NA ^a | < 0.21 | NA ^a | < 0.36 |
| Sr-90 | NA | 0.14 ± 0.06 | NA | 0.21 ± 0.07 |
| K-40 | 2.49 ± 0.47 | NA ^a | 1.80 ± 0.29 | NA ^a |
| Mn-54 | < 0.015 | NA | < 0.012 | NA |
| Fe-59 | < 0.050 | NA | < 0.015 | NA |
| Co-58 | < 0.011 | NA | < 0.010 | NA |
| Co-60 | < 0.020 | NA | < 0.008 | NA |
| Cs-134 | < 0.019 | NA | < 0.012 | NA |
| Cs-137 | < 0.028 | NA | < 0.017 | NA |
| | | | | |
| Collected | 10-08-10 | | | |
| Lab Code | KF- 6481 | | | |
| Type | White Fish | | | |
| Portion | <u>Flesh</u> | <u>Bones</u> | | |
| Gross beta | 2.88 ± 0.06 | 1.64 ± 0.67 | | |
| Sr-89 | NA ^a | < 0.38 | | |
| Sr-90 | NA | 0.26 ± 0.11 | | |
| K-40 | 1.90 ± 0.35 | NA ^a | | |
| Mn-54 | < 0.019 | NA | | |
| Fe-59 | < 0.045 | NA | | |
| Co-58 | < 0.017 | NA | | |
| Co-60 | < 0.013 | NA | | |
| Cs-134 | < 0.017 | NA | | |
| Cs-137 | < 0.020 | NA | | |

^a NA = Not analyzed; analyses not required.

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

| Sample Description and Concentration | | | | |
|--------------------------------------|---------------|-------------|---------------|-------------|
| Location | Indicators | | | Control |
| | K-1a | K-1b | K-1d | K-9 |
| Date Collected | 06-01-10 | 06-01-10 | 06-01-10 | 06-01-10 |
| Lab Code | KSL- 2771 | KSL- 2773 | KSL- 2774 | KSL- 2776 |
| Gross beta | 5.33 ± 0.18 | 5.25 ± 0.10 | 3.07 ± 0.20 | 5.86 ± 0.11 |
| Sr-89 | < 0.007 | < 0.005 | < 0.025 | < 0.006 |
| Sr-90 | < 0.005 | < 0.003 | < 0.017 | < 0.005 |
| Be-7 | < 0.19 | < 0.16 | 1.47 ± 0.17 | < 0.14 |
| K-40 | 4.67 ± 0.46 | 3.89 ± 0.37 | 1.31 ± 0.25 | 4.53 ± 0.39 |
| Mn-54 | < 0.018 | < 0.012 | < 0.010 | < 0.014 |
| Co-58 | < 0.012 | < 0.014 | < 0.011 | < 0.015 |
| Co-60 | < 0.008 | < 0.013 | < 0.009 | < 0.018 |
| Nb-95 | < 0.015 | < 0.017 | < 0.013 | < 0.011 |
| Zr-95 | < 0.028 | < 0.011 | < 0.026 | < 0.016 |
| Ru-103 | < 0.012 | < 0.015 | < 0.013 | < 0.011 |
| Ru-106 | < 0.166 | < 0.090 | < 0.069 | < 0.073 |
| Cs-134 | < 0.017 | < 0.011 | < 0.014 | < 0.014 |
| Cs-137 | < 0.017 | < 0.013 | 0.041 ± 0.017 | < 0.015 |
| Ce-141 | < 0.040 | < 0.034 | < 0.028 | < 0.036 |
| Ce-144 | < 0.135 | < 0.091 | < 0.072 | < 0.118 |
| | | | | |
| Location | K-1e | K-1k | K-14 | |
| Date Collected | 05-03-10 | 06-01-10 | 06-01-10 | |
| Lab Code | KSL- 2189 | KSL- 2775 | KSL- 2777 | |
| Gross beta | 3.49 ± 0.31 | 5.61 ± 0.10 | 4.86 ± 0.30 | |
| Sr-89 | < 0.040 | < 0.005 | < 0.036 | |
| Sr-90 | < 0.019 | < 0.003 | < 0.024 | |
| Be-7 | 1.79 ± 0.21 | < 0.11 | 1.12 ± 0.20 | |
| K-40 | 1.23 ± 0.20 | 4.85 ± 0.35 | 2.49 ± 0.32 | |
| Mn-54 | < 0.011 | < 0.010 | < 0.010 | |
| Co-58 | 0.039 ± 0.023 | < 0.011 | < 0.012 | |
| Co-60 | < 0.009 | < 0.008 | < 0.011 | |
| Nb-95 | < 0.008 | < 0.014 | < 0.009 | |
| Zr-95 | < 0.017 | < 0.013 | < 0.012 | |
| Ru-103 | < 0.010 | < 0.010 | < 0.007 | |
| Ru-106 | < 0.095 | < 0.079 | < 0.073 | |
| Cs-134 | < 0.005 | < 0.010 | < 0.009 | |
| Cs-137 | < 0.011 | < 0.009 | < 0.012 | |
| Ce-141 | < 0.028 | < 0.019 | < 0.020 | |
| Ce-144 | < 0.060 | < 0.077 | < 0.076 | |

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

| Sample Description and Concentration | | | | |
|--------------------------------------|---------------|---------------|---------------|-------------|
| Location | Indicators | | | Control |
| | K-1a | K-1b | K-1d | K-9 |
| Date Collected | 09-01-10 | 09-01-10 | 08-02-10 | 09-01-10 |
| Lab Code | KSL- 4882 | KSL- 4883 | KSL- 4105 | KSL- 4887 |
| Gross beta | 8.30 ± 0.28 | 6.90 ± 0.20 | 3.63 ± 0.48 | 2.60 ± 0.12 |
| Sr-89 | < 0.013 | < 0.016 | < 0.074 | < 0.015 |
| Sr-90 | < 0.005 | < 0.006 | < 0.029 | < 0.006 |
| Be-7 | 1.73 ± 0.21 | < 0.36 | 1.26 ± 0.17 | 0.77 ± 0.20 |
| K-40 | 5.40 ± 0.40 | 7.15 ± 0.99 | 2.05 ± 0.19 | 2.88 ± 0.45 |
| Mn-54 | < 0.010 | < 0.024 | < 0.007 | < 0.017 |
| Co-58 | < 0.011 | < 0.019 | < 0.006 | < 0.017 |
| Co-60 | < 0.009 | < 0.030 | < 0.006 | < 0.020 |
| Nb-95 | < 0.012 | < 0.029 | < 0.013 | < 0.017 |
| Zr-95 | < 0.017 | < 0.044 | < 0.011 | < 0.025 |
| Ru-103 | < 0.011 | < 0.023 | < 0.009 | < 0.013 |
| Ru-106 | < 0.104 | < 0.290 | < 0.056 | < 0.097 |
| Cs-134 | < 0.011 | < 0.031 | < 0.007 | < 0.016 |
| Cs-137 | < 0.012 | < 0.035 | 0.016 ± 0.008 | < 0.017 |
| Ce-141 | < 0.024 | < 0.078 | < 0.029 | < 0.038 |
| Ce-144 | < 0.056 | < 0.266 | < 0.066 | < 0.132 |
| | | | | |
| Location | K-1e | K-1k | K-14 | |
| Date Collected | 09-01-10 | 09-01-10 | 08-02-10 | |
| Lab Code | KSL- 4885 | KSL- 4886 | KSL- 4106 | |
| Gross beta | 6.48 ± 0.88 | 4.28 ± 0.38 | 4.62 ± 0.30 | |
| Sr-89 | < 0.16 | < 0.048 | < 0.077 | |
| Sr-90 | < 0.061 | 0.037 ± 0.012 | < 0.034 | |
| Be-7 | 2.01 ± 0.20 | 1.45 ± 0.36 | 2.05 ± 0.20 | |
| K-40 | 2.35 ± 0.27 | 3.37 ± 0.48 | 1.89 ± 0.24 | |
| Mn-54 | < 0.007 | < 0.019 | < 0.011 | |
| Co-58 | < 0.010 | < 0.016 | < 0.013 | |
| Co-60 | < 0.008 | < 0.018 | < 0.007 | |
| Nb-95 | < 0.016 | < 0.045 | < 0.017 | |
| Zr-95 | < 0.024 | < 0.039 | < 0.019 | |
| Ru-103 | < 0.016 | < 0.028 | < 0.012 | |
| Ru-106 | < 0.054 | < 0.159 | < 0.050 | |
| Cs-134 | < 0.009 | < 0.013 | < 0.006 | |
| Cs-137 | 0.023 ± 0.009 | < 0.021 | < 0.013 | |
| Ce-141 | < 0.039 | < 0.048 | < 0.019 | |
| Ce-144 | < 0.072 | < 0.144 | < 0.061 | |

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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) | | | | | |
|--|---------------|--------------|---------------|---------------|--------------|
| Location | Indicator | | | | Control |
| | K-1c | K-1d | K-1j | K-14 | K-9 |
| Collection Date | 05-03-10 | 05-03-10 | 05-03-10 | 05-03-10 | 05-03-10 |
| Lab Code | KBS- 2184 | KBS- 2185 | KBS- 2186 | KBS- 2188 | KBS- 2187 |
| Gross beta | 13.88 ± 2.07 | 10.89 ± 1.91 | 7.54 ± 1.64 | 10.60 ± 1.72 | 12.31 ± 1.66 |
| Sr-89 | < 0.024 | < 0.025 | < 0.025 | < 0.023 | < 0.026 |
| Sr-90 | < 0.016 | < 0.016 | < 0.017 | 0.029 ± 0.011 | < 0.015 |
| K-40 | 8.62 ± 0.65 | 6.99 ± 0.59 | 6.81 ± 0.44 | 9.26 ± 0.52 | 7.94 ± 0.49 |
| Co-58 | < 0.020 | < 0.019 | < 0.007 | < 0.010 | < 0.013 |
| Co-60 | < 0.019 | < 0.021 | < 0.009 | < 0.010 | < 0.010 |
| Cs-134 | < 0.017 | < 0.014 | < 0.008 | < 0.009 | < 0.009 |
| Cs-137 | < 0.021 | < 0.021 | < 0.012 | < 0.015 | < 0.012 |
| Location | K-1c | K-1d | K-1j | K-14 | K-9 |
| Collection Date | 11-01-10 | 11-01-10 | 11-01-10 | 11-01-10 | 11-01-10 |
| Lab Code | KBS- 6475 | KBS- 6477 | KBS- 6478 | KBS- 6480 | KBS- 6479 |
| Gross beta | 13.13 ± 1.83 | 11.51 ± 1.76 | 13.83 ± 1.84 | 15.93 ± 1.95 | 15.38 ± 1.84 |
| Sr-89 | < 0.027 | < 0.029 | < 0.026 | < 0.028 | < 0.029 |
| Sr-90 | < 0.025 | < 0.018 | < 0.022 | < 0.019 | < 0.017 |
| K-40 | 7.68 ± 0.45 | 7.97 ± 0.48 | 8.63 ± 0.49 | 8.60 ± 0.48 | 9.42 ± 0.68 |
| Co-58 | < 0.010 | < 0.014 | < 0.011 | < 0.016 | < 0.022 |
| Co-60 | < 0.008 | < 0.007 | < 0.007 | < 0.010 | < 0.014 |
| Cs-134 | < 0.008 | < 0.013 | < 0.010 | < 0.011 | < 0.019 |
| Cs-137 | 0.027 ± 0.011 | < 0.013 | 0.028 ± 0.013 | < 0.010 | < 0.020 |

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Dominion[®]

**2010
Annual
Environmental
Monitoring
Report**

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

Dominion Energy Kewaunee, Inc.

State Change History

| | | | | | | | |
|--|--|--|---|---|--|---------------------------------------|--|
| Submit by BRANTMEIER, MICHELLE L | Draft 2/16/2010 13:31:39 Owner : BRANTMEIER, MICHELLE L | Submit by BRANTMEIER, MICHELLE L | Supervisor Review 2/16/2010 13:32:33 Owner : BERNSDORF, MIKE A | Complete by BERNSDORF, MIKE A | O/R Review 2/16/2010 14:54:11 Owner : FICTUM, HOLLY C | Complete by DYKSTRA, DALE E | CRT Review 2/16/2010 16:55:07 Owner : FICTUM, HOLLY C |
| CA by ERICSON, JANICE L | CRT Assignment Creation 2/17/2010 9:48:13 Owner : FICTUM, HOLLY C | Complete by ERICSON, JANICE L | Assignments Pending 2/17/2010 9:49:45 Owner : FICTUM, HOLLY C | | | | |

Section 1

Applicable to site: KEWA

Record #: CR369046

Revision Number: 0

Submitter: BRANTMEIER, MICHELLE L

Submitter Dept.: KEWA - Chemistry

Submitter Phone Number: 920-388-8214

Submitter Pager Number: 000-000-0000

One-Line Description: K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection

Description: K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection

K-7 Air Sampler located at 17620 Nero Road was found to have a shortage of run hours. On 02/08/10@ 0949 run hours was 16361.5. On 2/16/10 @ 1210 run hours was found to be 16490.0 for a total of 128.5 run hours. Expected run hours would be approximately 194 hours. Rechecked meter reading and sampler functionality. Pump was working correctly.

02/16/10 1430 sampler was rechecked and the meter is running but the hour meter is not progressing

Discovery Date: 2/16/2010

Discovery Time: 12:10:00

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: Unit 1

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: Checked Air Sampler for proper functioning and contacted supervision. Returned that afternoon to ensure air sampler was working properly.

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: No

Tag Number: NA

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

Yes/No H: Yes

Question I: Does this CR affect plant safety? Yes

Yes/No I: Yes

Question J: Does this CR involve plant equipment? Yes

Yes/No J: Yes

Question K: Is this CR an environmental concern? Yes

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: The K-7 Environmental Air Sampler was NON-FUNCTIONAL at the time of discovery since it can't be determined definitively that the sampler operated for the required amount of time with the hour meter not functioning.

The K-7 Environmental Air Sampler is required per Table 2.2.1-A, Radiological Environmental Monitoring Program. Per the 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 next sample period.

The hour meter must be repaired to satisfy REMM Table 2.2.1-A requirements.

I agree with the above assessment.

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: None

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: 3

Deficiency Type: Equipment

Potential Repeat: Yes

Previous Issues (PIs, CRs): searched "K-7 Air Sampler":
 -CR353663 [10/20/09], CR352454 [10/13/09], CR350028 [9/09], CR342776 [7/09]; all power found off and w/ ref to CA142447 [CR342776-7/09].
 -Others CR13785, 101593, 92318, 116348, 325344.

CR FLAGS: Environmental - VPDES

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

CRT Comments: CA to RP to ensure the Annual Environmental Monitoring Report notes are updated as necessary that the sample pump was not working during this time period. This CA will also be the 2010 placeholder for all environmental monitoring report notes.

CA 142447 (CR 325344) to review K-7 performance for possible resolution of sampler not running resulted in obtaining replacement air sampler units that are planned to be installed later this year.

Ref. and close to WO KW100656651 to repair the timer and CA to document issue in annual report if needed

Comments:

Old Record #:

Section 2

Trend Review Complete?: No

Process Code: UNK (Unknown) Activity Codes: UNK(Unknown)

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): KW100656651

Status Description: CLOSED

Status Date: 5/7/2010 12:23:23

Actual Finish Date: 4/21/2010 11:32:24

Work Performed Description: REPAIRED AIR SAMPLET PER W.O. AND PROCEDURE, THEN

Section 5

CR Completed Date: CR Printed Date:

CR Validated Date: CR Who Validated: (None)

RM Attachment Links:

4

[-] Subtasks

[-] Show Subtasks

Expand All

[-] Attachments

[-] Principal to: CA160667: KEWA - Ensure the Annual Environmental Monitoring Report notes are updated as necessary by ERICSON, JANICE L (2/17/2010 9:49:26)

[-] Change History

2/16/2010 13:32:33 by BRANTMEIER, MICHELLE L

System(s) Changed From (None) To N/A
Additional C/A processes req'd? 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, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LOFTEN, BRUCE J, MARCHESE, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS
Last Modified Date Changed From 2/16/2010 13:31:39 To 2/16/2010 13:32:33
Last State Change Date Changed From 2/16/2010 13:31:39 To 2/16/2010 13:32:33
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR369046: KEWA - K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection

2/16/2010 14:53:43 by BERNSDORF, MIKE A

Description Changed From '[Original Text]' To '[Appended:] 02/16/10 1430 sampler was rechecked and the meter is running but the hour meter is not progressing'
Last Modified Date Changed From 2/16/2010 13:32:33 To 2/16/2010 14:53:43
Last Modifier Changed From BRANTMEIER, MICHELLE L To BERNSDORF, MIKE A

2/16/2010 14:54:11 by BERNSDORF, MIKE A

Owner Changed From BERNSDORF, MIKE A To FICTUM, HOLLY C
Secondary Owner Changed From AITKEN, PAUL C, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LOFTEN, BRUCE J, MARCHESE, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS To ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F
Last Modified Date Changed From 2/16/2010 14:53:43 To 2/16/2010 14:54:11
Last State Change Date Changed From 2/16/2010 13:32:33 To 2/16/2010 14:54:11
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

2/16/2010 16:31:56 by PROKASH, ALVIN I

Tag Number Changed From " To 'NA'
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: The K-7 Environmental Air Sampler was NON-FUNCTIONAL at the time of discovery since it can't be determined definitively that the sampler operated for the required amount of time with the hour meter not functioning. The K-7 En[...]'
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
Text Answer 3 Changed From " To 'None'
Last Modified Date Changed From 2/16/2010 14:54:11 To 2/16/2010 16:31:56
Last Modifier Changed From BERNSDORF, MIKE A To PROKASH, ALVIN I

2/16/2010 16:55:07 by DYKSTRA, DALE E

Text Answer 2 Changed From '[Original Text]' To '[Appended:] I agree with the above assessment.'

Last Modified Date Changed From 2/16/2010 16:31:56 To 2/16/2010 16:55:07
Last Modifier Changed From PROKASH, ALVIN I To DYKSTRA, DALE E
Last State Change Date Changed From 2/16/2010 14:54:11 To 2/16/2010 16:55:07
Last State Changer Changed From BERNSDORF, MIKE A To DYKSTRA, DALE E
State Changed From O/R Review To CRT Review Via Transition: Complete

2/17/2010 6:31:26 by LANGER JR, JAMES E

Previous Issues (PIs, CRs) Changed From " To 'searched "K-7 Air Sampler": -CR353663 [10/20/09], CR352454 [10/13/09], CR350028 [9/09], CR342776 [7/09]; all power found off and w/ ref to CA142447 [CR342776-7/09]. -Others CR13785, 101593, 92318, 116348, 325344.'
CR FLAGS Changed From (None) To Environmental - VPDES
CRT Comments Changed From " To '[Appended:]Ref CA 130373.(CR 325344) to ensure the Annual Environmental Monitoring Report notes, update as necessary that the sample pump was not working during this time period. [RP to update?] -Ref CA 142447 (CR 325344) to review K-7 performance fo[...]'
Last Modified Date Changed From 2/16/2010 16:55:07 To 2/17/2010 6:31:26
Last Modifier Changed From DYKSTRA, DALE E To LANGER JR, JAMES E

2/17/2010 6:32:30 by LANGER JR, JAMES E

CRT Comments Changed From '-Ref CA 130373 (CR 325344) to ensure the Annual Environmental Monitoring Report notes, update as necessary that the sample pump was not working during this time period. [RP to update?] -Ref CA 142447 (CR 325344) to review K-7 performance for pos[...]' To '-Ref CA 130373 (CR 325344) to ensure the Annual Environmental Monitoring Report notes, update as necessary that the sample pump was not working during this time period. [CHEM to update?] -Ref CA 142447 (CR 325344) to review K-7 performance for p[...]'
Last Modified Date Changed From 2/17/2010 6:31:26 To 2/17/2010 6:32:30

2/17/2010 6:32:53 by LANGER JR, JAMES E

Significance Changed From (None) To 3
Deficiency Type Changed From (None) To Equipment
Potential Repeat Changed From (None) To Yes
Last Modified Date Changed From 2/17/2010 6:32:30 To 2/17/2010 6:32:53

2/17/2010 6:46:17 by ADAMS, RICHARD W

Last Modified Date Changed From 2/17/2010 6:32:53 To 2/17/2010 6:46:17
Last Modifier Changed From LANGER JR, JAMES E To ADAMS, RICHARD W
Attachment Added: CA130373: KEWA - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period

2/17/2010 6:47:23 by ADAMS, RICHARD W

Last Modified Date Changed From 2/17/2010 6:46:17 To 2/17/2010 6:47:23
Attachment Deleted: CA130373: KEWA - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period

2/17/2010 8:07:53 by ADAMS, RICHARD W

CRT Comments Changed From '[...]-Ref CA 130373 (CR 325344) to ensure the Annual Environmental Monitoring Report notes, update as necessary that the sample pump was not working during this time period. [CHEM to update?] -Ref CA 142447 (CR 325344) to review K-7 performance. [more diffs...]' To '[...]CA to RP to ensure the Annual Environmental Monitoring Report notes are updated as necessary that the sample pump was not working during this time period. This CA will also be the 2010 placeholder for all environmental monitoring report notes. [more diffs...]'
Last Modified Date Changed From 2/17/2010 6:47:23 To 2/17/2010 8:07:53

2/17/2010 8:08:00 by ADAMS, RICHARD W

Last Modified Date Changed From 2/17/2010 8:07:53 To 2/17/2010 8:08:00
To Work Management Changed From " To 'Y'

2/17/2010 8:08:35 by ADAMS, RICHARD W

Process Code Changed From (None) To UNK (Unknown)
RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)
Last Modified Date Changed From 2/17/2010 8:08:00 To 2/17/2010 8:08:35

2/17/2010 9:16:18 by ADAMS, RICHARD W

CRT Comments Changed From '[...]-7 performance for possible resolution of sampler not running resulted in obtaining replacement air sampler units that are planned to be installed later this year. Close to WO to repair the timer and CA to document issue in annual report if needed' To '[...]ce for possible resolution of sampler not running resulted in obtaining replacement air sampler units that are planned to be installed later this year. Close to WO KW100656651 to repair the timer and CA to document issue in annual report if needed'
Secondary Owner Changed From ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, ROBERT J, KUEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F To ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F
Last Modified Date Changed From 2/17/2010 8:08:35 To 2/17/2010 9:16:18

2/17/2010 9:48:00 by ERICSON, JANICE L

CRT Report Section(s) Changed From (None) To 2
CRT Comments Changed From '[...]ce for possible resolution of sampler not running resulted in obtaining replacement air sampler units that are planned to be installed later this year. Close to WO KW100656651 to repair the timer and CA to document issue in annual report if needed' To '[...]ssible resolution of sampler not running resulted in obtaining replacement air sampler units that are planned to be installed later this year. Ref. and close to WO KW100656651 to repair the timer and CA to document issue in annual report if needed'
Last Modified Date Changed From 2/17/2010 9:16:18 To 2/17/2010 9:48:00
Last Modifier Changed From ADAMS, RICHARD W To ERICSON, JANICE L

2/17/2010 9:48:13 by ERICSON, JANICE L

Last Modified Date Changed From 2/17/2010 9:48:00 To 2/17/2010 9:48:13
Last State Change Date Changed From 2/16/2010 16:55:07 To 2/17/2010 9:48:13
Last State Changer Changed From DYKSTRA, DALE E To ERICSON, JANICE L
State Changed From CRT Review To CRT Assignment Creation Via Transition: CA

2/17/2010 9:49:26 by ERICSON, JANICE L

2/17/2010 9:49:45 by ERICSON, JANICE L

Secondary Owner Changed From ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F To AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HALE, JAMES M., HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F
Last Modified Date Changed From 2/17/2010 9:49:26 To 2/17/2010 9:49:45
Last State Change Date Changed From 2/17/2010 9:48:13 To 2/17/2010 9:49:45
State Changed From CRT Assignment Creation To Assignments Pending Via Transition: Complete

2/17/2010 9:51:30 by ERICSON, JANICE L - power

Description Changed From 'K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection K-7 Air Sampler located at 17620 Nero Road was found to have a shortage of run hours. On 02/08/10 @ 0949 run hours was 16361.5. On 12/16/10 @ 1210 run hours was found to be 16[...]' To 'K-7 Air Sampler-Unexpected Run Hours Found during Air Filter Collection K-7 Air Sampler located at 17620 Nero Road was found to have a shortage of run hours. On 02/08/10 @ 0949 run hours was 16361.5. On 2/16/10 @ 1210 run hours was found to be 164[...]'
Last Modified Date Changed From 2/17/2010 9:49:45 To 2/17/2010 9:51:30
Last Modifier Changed From ERICSON, JANICE L To ERICSON, JANICE L - power

12/9/2010 12:39:50 by FICTUM, HOLLY C

Activity Codes Changed From (None) To UNK(Unknown)
Secondary Owner Changed From AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BAUSCH, JAMES, BENNETT, JANETH L, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HALE, JAMES M., HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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, YEARGIN, BARRY K
Last Modified Date Changed From 2/17/2010 9:51:30 To 12/9/2010 12:39:50
Last Modifier Changed From ERICSON, JANICE L - power To FICTUM, HOLLY C

☐ **State Change History**

7

| | | | | | | | |
|---|---|--|--|--------------------------------------|---|----------------------------------|---|
| Submit by HICKMANN, MICHAEL A | Draft 3/2/2010 13:17:06 Owner : HICKMANN, MICHAEL A | Submit by HICKMANN, MICHAEL A | Supervisor Review 3/2/2010 13:17:24 Owner : BERNSDORF, MIKE A | Complete by THORPE, RANDAL | O/R Review 3/2/2010 13:41:14 Owner : FICTUM, HOLLY C | Complete by BROWN, DAN | CRT Review 3/2/2010 20:37:11 Owner : FICTUM, HOLLY C |
| Complete by ERICSON, JANICE L | Trend Review 3/4/2010 12:04:42 Owner : FICTUM, HOLLY C | Trend Review Complete by FICTUM, HOLLY C | All Assignments Complete 3/16/2010 12:12:27 Owner : (None) | Transfer by RECORDS MGMT | Transferred 3/18/2010 16:44:40 Owner : (None) | Print by RECORDS MGMT | Printed 3/22/2010 11:23:19 Owner : (None) |
| Validate by RECORDS MGMT | Validated 3/22/2010 11:23:29 Owner : (None) | | | | | | |

☐ **Section 1**

Applicable to site: KEWA
 Record #: CR370747
Revision Number: 0
 Submitter: HICKMANN, MICHAEL A
Submitter Dept.: KEWA - Chemistry
 Submitter Phone Number: 8214
Submitter Pager Number: 9
 One-Line Description: k-8 air sampler hours not equal to time sample being taken
 Description: K-8 air sampler at Catholic church in Tisch Mills hours were off by 3.73 hours. The counter was observed to be working, there was one set of footprints observed that went just west of the sample, but not near the plug area. The footprints were fresh, not from last week sample collection. Possible power outage could have caused this. The sampler was found working fine and drawing sample as designed. Discrepancy was noted by time difference.

Discovery Date: 3/2/2010
Discovery Time: 11:55:00
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: Unit 1
 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, inform supervision
 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: 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?

8

Yes/No H: Yes

Question I: Does this CR affect plant safety?

Yes/No I: Yes

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: FUNCTIONAL - Air Sampler required to support the Radiological Environmental Monitoring Program (REMP).

At the time of discovery air sampler, K-8, was functional. The sampler was found working fine and drawing sample as designed.

I agree with Mr. Gauger's assessment.

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.: 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?: 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: Fully Qualified

Reportable condition?: No

Text Question 3: Reportability Comments:

Text Answer 3: not an immediate reportable, accumulated run time and discrepancies maybe be required to be included in the Annual Environmental Report to the NRC.

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: 3

Deficiency Type: Equipment

Potential Repeat: No

Previous Issues (PIs, CRs): -Ref CR363969 w/VO KW100633894 to Install the new Offsite Air Sampling Systems to replace the old systems of RAS pumps [for locations K-7, K-1f, K-2, K-8, K-31 and K-41]. K-8 CRs350028, 349152, 345943, 332502, 103641.

CR FLAGS: Emergency Planning

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

CRT Comments: -Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA160667 - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending & WO KW100633894.

Comments:

Old Record #:

Section 2

Trend Review Complete?: No

Process Code: UNK (Unknown) **Activity Codes:** UNK(Unknown)

| | |
|---|--|
| Human Error Types: (None) | <input checked="" type="checkbox"/> Process Related Failure: (None) |
| Org. & Mgmt Failure mode: (None) | <input checked="" type="checkbox"/> HU Failure modes: (None) |
| Equipment Failure Modes: (None) | <input checked="" type="checkbox"/> 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: 3/16/2010 13:12:27 **CR Printed Date:** 3/22/2010 11:23:19

CR Validated Date: 3/22/2010 11:23:29 **CR Who Validated:** RECORDS MGMT

RM Attachment Links:

Attachments

Linked to: CA160667: KEWA - Ensure the Annual Environmental Monitoring Report notes are updated as necessary by ADAMS, RICHARD W (3/4/2010 6:46:04)

Change History

3/2/2010 13:17:24 by HICKMANN, MICHAEL A
 Owner Changed From HICKMANN, MICHAEL A To BERNSDORF, MIKE A
 Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LOFTEN, BRUCE J, MARCHESE, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS

R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS

Last Modified Date Changed From 3/2/2010 13:17:06 To 3/2/2010 13:17:24

Last State Change Date Changed From 3/2/2010 13:17:06 To 3/2/2010 13:17:24

State Changed From Draft To Supervisor Review Via Transition: Submit

Parent CR Changed From (None) To CR370747: KEWA - k-8 air sampler hours not equal to time sample being taken (Inactive)

3/2/2010 13:41:14 by THORPE, RANDAL

Owner Changed From BERNSDORF, MIKE A To FICTUM, HOLLY C

Secondary Owner Changed From AITKEN, PAUL C, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LOFTEN, BRUCE J, MARCHESI, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS To ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F

Last Modified Date Changed From 3/2/2010 13:17:24 To 3/2/2010 13:41:14

Last Modifier Changed From HICKMANN, MICHAEL A To THORPE, RANDAL

Last State Change Date Changed From 3/2/2010 13:17:24 To 3/2/2010 13:41:14

Last State Changer Changed From HICKMANN, MICHAEL A To THORPE, RANDAL

State Changed From Supervisor Review To O/R Review Via Transition: Complete

NewCR Changed From Yes To No

3/2/2010 17:12:09 by GAUGER, BRAD R

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 'FUNCTIONAL - Air Sampler required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-8, was functional. The sampler was found working fine and drawing sample as designed.'

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 Functional

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 Fully Qualified

Reportable condition? Changed From (None) To No

Text Answer 3 Changed From " To 'not an immediate reportable, accumulated run time and discrepancies maybe be required to be included in the Annual Environmental Report to the NRC.'

Last Modified Date Changed From 3/2/2010 13:41:14 To 3/2/2010 17:12:09

Last Modifier Changed From THORPE, RANDAL To GAUGER, BRAD R

3/2/2010 20:37:11 by BROWN, DAN

Text Answer 2 Changed From '[Original Text]' To '[Appended:] I agree with Mr. Gauger's assessment.'

Last Modified Date Changed From 3/2/2010 17:12:09 To 3/2/2010 20:37:11

Last Modifier Changed From GAUGER, BRAD R To BROWN, DAN

Last State Change Date Changed From 3/2/2010 13:41:14 To 3/2/2010 20:37:11

Last State Changer Changed From THORPE, RANDAL To BROWN, DAN

State Changed From O/R Review To CRT Review Via Transition: Complete

3/3/2010 5:50:00 by SMITH III, ROY E

Process Code Changed From (None) To UNK (Unknown)

Activity Codes Changed From (None) To UNK(Unknown)

Last Modified Date Changed From 3/2/2010 20:37:11 To 3/3/2010 5:50:00

Last Modifier Changed From BROWN, DAN To SMITH III, ROY E

3/3/2010 5:56:01 by SMITH III, ROY E

Significance Changed From (None) To 3

Deficiency Type Changed From (None) To Equipment

Potential Repeat Changed From (None) To No

Previous Issues (Pls, CRs) Changed From " To '-Ref CR363969 w/WO KW100633894 to Install the new Offsite Air Sampling Systems to replace the old system of RAS pumps [for locations K-7, K-1f, K-2, K-8, K-31 and K-41]. K-8 CRs350028, 349152, 345943, 332502, 103641.'

CR FLAGS Changed From (None) To Emergency Planning

CRT Comments Changed From " To '-Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA130373 -

Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending.'

Last Modified Date Changed From 3/3/2010 5:50:00 To 3/3/2010 5:56:01

3/3/2010 5:59:53 by SMITH III, ROY E

CRT Comments Changed From '-Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA130373 - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending.' To '-Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA130373 - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending & WO KW100633894.'

Last Modified Date Changed From 3/3/2010 5:56:01 To 3/3/2010 5:59:53

3/3/2010 6:10:05 by SMITH III, ROY E

CRT Report Section(s) Changed From (None) To '1

3/4/2010 6:45:37 by ADAMS, RICHARD W

CRT Comments Changed From '-Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA130373 - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending & WO KW100633894.' To '-Ref to WO KW100633894 [status 20-schd'd 7/10] to Install the new Offsite Air Sampling Systems. -Ref. CA160667 - Ensure Annual Env. Mon. Report notes this situation occurred for sampl. period. +Close to department trending & WO KW100633894.'

Last Modified Date Changed From 3/3/2010 6:10:05 To 3/4/2010 6:45:37
Last Modifier Changed From SMITH III, ROY E To ADAMS, RICHARD W

3/4/2010 6:46:04 by ADAMS, RICHARD W

Last Modified Date Changed From 3/4/2010 6:45:37 To 3/4/2010 6:46:04
Attachment Added: CA160667: KEWA - Ensure the Annual Environmental Monitoring Report notes are updated as necessary

3/4/2010 12:04:40 by ERICSON, JANICE L

CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 3/4/2010 6:46:04 To 3/4/2010 12:04:40
Last Modifier Changed From ADAMS, RICHARD W To ERICSON, JANICE L

3/4/2010 12:04:42 by ERICSON, JANICE L

Secondary Owner Changed From ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, O'CONNER, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F To AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BAUSCH, JAMES, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HALE, JAMES M., HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F

Last Modified Date Changed From 3/4/2010 12:04:40 To 3/4/2010 12:04:42
Last State Change Date Changed From 3/2/2010 20:37:11 To 3/4/2010 12:04:42
Last State Changer Changed From BROWN, DAN To ERICSON, JANICE L
State Changed From CRT Review To Trend Review Via Transition: Complete

3/16/2010 12:12:27 by FICTUM, HOLLY C

CR Completed Date Changed From Unassigned To 3/16/2010 13:12:27
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, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BAUSCH, JAMES, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HALE, JAMES M., HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, O'CONNER, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F 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 3/4/2010 12:04:42 To 3/16/2010 12:12:27
Last Modifier Changed From ERICSON, JANICE L To FICTUM, HOLLY C
Close Date Changed From Unassigned To 3/16/2010 12:12:27
Last State Change Date Changed From 3/4/2010 12:04:42 To 3/16/2010 12:12:27
Last State Changer Changed From ERICSON, JANICE L 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

3/18/2010 16:44:40 by RECORDS MGMT

Last Modified Date Changed From 3/16/2010 12:12:27 To 3/18/2010 16:44:40
Last Modifier Changed From FICTUM, HOLLY C To RECORDS MGMT
Last State Change Date Changed From 3/16/2010 12:12:27 To 3/18/2010 16:44:40
Last State Changer Changed From FICTUM, HOLLY C To RECORDS MGMT
State Changed From All Assignments Complete To Transferred Via Transition: Transfer

3/22/2010 11:23:19 by RECORDS MGMT

CR Printed Date Changed From Unassigned To 3/22/2010 11:23:19
Last Modified Date Changed From 3/18/2010 16:44:40 To 3/22/2010 11:23:19
Last State Change Date Changed From 3/18/2010 16:44:40 To 3/22/2010 11:23:19
State Changed From Transferred To Printed Via Transition: Print

3/22/2010 11:23:29 by RECORDS MGMT

CR Validated Date Changed From Unassigned To 3/22/2010 11:23:29
CR Who Validated Changed From (None) To RECORDS MGMT
Secondary Owner Changed From 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 To (None)
Last Modified Date Changed From 3/22/2010 11:23:19 To 3/22/2010 11:23:29
Last State Change Date Changed From 3/22/2010 11:23:19 To 3/22/2010 11:23:29
State Changed From Printed To Validated Via Transition: Validate

State Change History

| | | | | | | | |
|---|---|--|--|--------------------------------------|--|---------------------------------------|--|
| Submit by HICKMANN, MICHAEL A | Draft 3/30/2010 13:38:07 Owner : HICKMANN, MICHAEL A | Submit by HICKMANN, MICHAEL A | Supervisor Review 3/30/2010 13:38:26 Owner : THORPE, RANDAL | Complete by THORPE, RANDAL | O/R Review 3/30/2010 13:42:17 Owner : FICTUM, HOLLY C | Complete by DYKSTRA, DALE E | CRT Review 3/30/2010 16:35:07 Owner : FICTUM, HOLLY C |
| Complete by WALES, DEBRA J | Trend Review 4/5/2010 11:43:48 Owner : FICTUM, HOLLY C | Trend Review Complete by FICTUM, HOLLY C | All Assignments Complete 4/12/2010 9:47:59 Owner : (None) | Transfer by RECORDS MGMT | Transferred 4/12/2010 16:10:27 Owner : (None) | Print by RECORDS MGMT | Printed 4/13/2010 6:36:39 Owner : (None) |
| Validate by RECORDS MGMT | Validated 4/13/2010 6:36:52 Owner : (None) | | | | | | |

Section 1

Applicable to site: KEWA
 Record #: CR374322
Revision Number: 0
 Submitter: HICKMANN, MICHAEL A
Submitter Dept.: KEWA - Chemistry
 Submitter Phone Number: 8214
Submitter Pager Number: 9
 One-Line Description: K-31 air sampler found off during filter changeout
 Description: K-31 air sampler at the East Krok substation was found off during the SP-63-164 weekly filter changeout. The air sampler stopped running approximately Wednesday March 24 about 0730. The substation plug is inside the WPS fence, not accessible to check ground fault on outlet. Filter was changed.

Discovery Date: 3/30/2010
Discovery Time: 0:16:40
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: Unit 1
 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: inform supervision and write cr
 Additional C/A processes req'd?: WO - Work Order
Text Question 1: Provide details for any Additional C/A processes needed:
Text Answer 1:
 C/As Initiated (REA, WR, ETC):
Tag Hung: No
 Tag Number: NA
 Additional Contacts:
 Supervisor - CR Review: THORPE, RANDAL
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: Yes

Question I: Does this CR affect plant safety?
Yes

Yes/No I: Yes

Question J: Does this CR involve plant equipment?
Yes

Yes/No J: Yes

Question K: Is this CR an environmental concern?
Yes

Yes/No K: Yes

Literal 2: Unit Conditions:
100

Unit 1% Pwr: NA

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:
NON-FUNCTIONAL. K-31 Environmental Air Sampler is NON-FUNCTIONAL.

Text Answer 2: 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.

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?
No

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-Functional

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: None

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: 3
Deficiency Type: Non-Equipment
Potential Repeat: No
Previous Issues (PIs, CRs): This is an additional instance of the Environmental Air Samplers being found without power. WPS contacted to reset the GFCI.
CR FLAGS: zz - reviewed / none selected
CRT Report Section(s): 2
Screening Date:
License Renewal Flags: (None)
Affected Department: (None)

CRT Comments: CA 160667 is the place holder for all items found in 2010 that need to be documented in the 2010 Annual Environmental Monitoring Report. This CR has been linked and a note added to that CA. Close this CR to that CA which will ensure the annual report is annotated with this missed sample

[4/1/10 BRING BACK to address past CA159425 Contact WPS to gain access to/resolve issue with K-31. -SSTCjel-] Chemistry personnel contacted WPS to reset the outlet. As of 4/1/2010 CA personnel confirmed the air sampler was running. CA142447 reviewed past history of Air sampler and determined that change out of the air samplers, scheduled for this summer with instruments purchased in 2009, should help address issues associated with these old units. These units are being installed under WO 100633894. No additional actions needed.

Comments: 3/30/2010 13:42:17 - THORPE, RANDAL:
 CY supervision notified the WPS manager in charge of the East Krok substation. WPS will be sending an individual out to reset the GFCI breaker and inspect the area.- Entered by [THORPE, RANDAL] from [CR] [Supervisor Review]

Old Record #:

Section 2

| | | | |
|--|---------------------------------|---|----------------|
| Trend Review Complete?: | No | Activity Codes: | SAA(Sampling) |
| Process Code: | EVC (Environmental Controls) | <input checked="" type="checkbox"/> Process Related Failure: | (None) |
| Human Error Types: | (None) | <input checked="" type="checkbox"/> HU Failure modes: | (None) |
| <input checked="" type="checkbox"/> Org. & Mgmt Failure mode: | (None) | <input checked="" type="checkbox"/> Primary INPO criteria: | (None) |
| Equipment Failure Modes: | (None) | Operations Hot Buttons: | EAL-Equipment |
| <input checked="" type="checkbox"/> Secondary INPO criteria: | (None) | Maintenance Hot Buttons: | (None) |
| Engineering Hot Buttons: | (None) | Chemistry Hot Buttons: | (None) |
| RP Hot Buttons: | Environmental Monitoring (REMP) | Training Hot Buttons: | (None) |
| EP Hot Buttons: | (None) | OR Hot Buttons: | CRT Bring Back |
| Security Hot Buttons: | (None) | NSS Hot Buttons: | (None) |
| O&P Hot Buttons: | (None) | Procedures Hot Buttons: | (None) |
| Supply Chain Hot Buttons: | (None) | Other Hot Buttons: | (None) |
| Reactivity Mgmt Hot Buttons: | (None) | | |

Section 3

Work Order Number(s):
Status Description:
Status Date:
Actual Finish Date:
Work Performed Description:

Section 5

CR Completed Date: 4/12/2010 10:47:59 **CR Printed Date:** 4/13/2010 6:36:39
CR Validated Date: 4/13/2010 6:36:52 **CR Who Validated:** RECORDS MGMT
RM Attachment Links:

Attachments

Linked to: CA160667: KEWA - Ensure the Annual Environmental Monitoring Report notes are updated as necessary by ADAMS,

Change History

3/30/2010 13:38:26 by HICKMANN, MICHAEL A

Owner Changed From HICKMANN, MICHAEL A To THORPE, RANDAL

Secondary Owner Changed From THORPE, RANDAL To AITKEN, PAUL C, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, MARCHESE, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS

Last Modified Date Changed From 3/30/2010 13:38:07 To 3/30/2010 13:38:26

Last State Change Date Changed From 3/30/2010 13:38:07 To 3/30/2010 13:38:26

State Changed From Draft To Supervisor Review Via Transition: Submit

Parent CR Changed From (None) To CR374322: KEWA - K-31 air sampler found off during filter changeout (Inactive)

3/30/2010 13:42:17 by THORPE, RANDAL

Comments Changed From " To '[Appended:] CY supervision notified the WPS manager in charge of the East Krok substation. WPS will be sending an individual out to reset the GFCI breaker and inspect the area.- Entered by [THORPE, RANDAL] from [CR] [Supervisor Review]'

Owner Changed From THORPE, RANDAL To FICTUM, HOLLY C

Secondary Owner Changed From AITKEN, PAUL C, ALLEN, ROBERT C, ANDERSON, PAMELA J, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HENRY, WILLIAM GENE, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, MARCHESE, PETER A, MATHEWS, BRIAN M, MCMAHON, BRADLY J, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., SOMMERS, DAVID ARTHUR, STAFFORD, JEFFREY T, STECKLER, BART R, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALLEN, CLIFFORD S, WILSON, MICHAEL J, WOOD, STEPHEN M, ZEPNICK, BRIAN THOMAS To ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T., STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS III, GEORGE F

Last Modified Date Changed From 3/30/2010 13:38:26 To 3/30/2010 13:42:17

Last Modifier Changed From HICKMANN, MICHAEL A To THORPE, RANDAL

Last State Change Date Changed From 3/30/2010 13:38:26 To 3/30/2010 13:42:17

Last State Changer Changed From HICKMANN, MICHAEL A To THORPE, RANDAL

State Changed From Supervisor Review To O/R Review Via Transition: Complete

NewCR Changed From Yes To No

3/30/2010 14:44:05 by PROKASH, ALVIN I

Tag Number Changed From " To 'NA'

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-31 Environmental Air Sampler is NON-FUNCTIONAL. 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[...]

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

Text Answer 3 Changed From " To 'None'

Last Modified Date Changed From 3/30/2010 13:42:17 To 3/30/2010 14:44:05

Last Modifier Changed From THORPE, RANDAL To PROKASH, ALVIN I

3/30/2010 16:35:07 by DYKSTRA, DALE E

Last Modified Date Changed From 3/30/2010 14:44:05 To 3/30/2010 16:35:07

Last Modifier Changed From PROKASH, ALVIN I To DYKSTRA, DALE E

Last State Change Date Changed From 3/30/2010 13:42:17 To 3/30/2010 16:35:07

Last State Changer Changed From THORPE, RANDAL To DYKSTRA, DALE E

State Changed From O/R Review To CRT Review Via Transition: Complete

3/31/2010 4:09:28 by PRIBEK, BARBARA A

Significance Changed From (None) To 3

Last Modified Date Changed From 3/30/2010 16:35:07 To 3/31/2010 4:09:28

Last Modifier Changed From DYKSTRA, DALE E To PRIBEK, BARBARA A

3/31/2010 6:51:23 by ADAMS, RICHARD W

Last Modified Date Changed From 3/31/2010 4:09:28 To 3/31/2010 6:51:23

Last Modifier Changed From PRIBEK, BARBARA A To ADAMS, RICHARD W

Attachment Added: CA160667: KEWA - Ensure the Annual Environmental Monitoring Report notes are updated as necessary

3/31/2010 6:56:31 by ADAMS, RICHARD W

Deficiency Type Changed From (None) To Non-Equipment

Potential Repeat Changed From (None) To No
Previous Issues (PIs, CRs) Changed From " To 'This is an additional instance of the Environmental Air Samplers being found without power.'
CRT Comments Changed From " To '[Appended:]CA 160667 is the place holder for all items found in 2010 that need to be documented in the 2010 Annual
Environmental Monitoring Report. This CR has been linked and a note added to that CA. Close this CR to that CA which will ensure the annual[...]'
Last Modified Date Changed From 3/31/2010 6:51:23 To 3/31/2010 6:56:31

3/31/2010 6:56:48 by ADAMS, RICHARD W
RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)
Last Modified Date Changed From 3/31/2010 6:56:31 To 3/31/2010 6:56:48

3/31/2010 7:01:17 by FITZWATER, DAVID I
Operations Hot Buttons Changed From (None) To EAL-Equipment
Last Modified Date Changed From 3/31/2010 6:56:48 To 3/31/2010 7:01:17
Last Modifier Changed From ADAMS, RICHARD W To FITZWATER, DAVID I

3/31/2010 10:03:55 by ADAMS, RICHARD W
CRT Report Section(s) Changed From (None) To 1
Last Modified Date Changed From 3/31/2010 7:01:17 To 3/31/2010 10:03:55
Last Modifier Changed From FITZWATER, DAVID I To ADAMS, RICHARD W

4/1/2010 11:01:09 by ADAMS, RICHARD W
Previous Issues (PIs, CRs) Changed From 'This is an additional instance of the Environmental Air Samplers being found without power.' To 'This is an additional
instance of the Environmental Air Samplers being found without power. WPS contacted to reset the GFCL.'
Last Modified Date Changed From 3/31/2010 10:03:55 To 4/1/2010 11:01:09

4/1/2010 12:45:56 by LANGER JR, JAMES E - power
CRT Comments Changed From '[Original Text]' To '[Appended:] [4/1/10 BRING BACK to address past CA to resolve this issue w/K-31. -SSTCjel-]'.
Last Modified Date Changed From 4/1/2010 11:01:09 To 4/1/2010 12:45:56
Last Modifier Changed From ADAMS, RICHARD W To LANGER JR, JAMES E - power

4/1/2010 12:48:02 by LANGER JR, JAMES E - power
CRT Comments Changed From '[...]ring Report. This CR has been linked and a note added to that CA. Close this CR to that CA which will ensure the annual
report is annotated with this missed sample. [4/1/10 BRING BACK to address past CA to resolve this issue w/K-31. -SSTCjel-]' To '[...]linked and a note added
to that CA. Close this CR to that CA which will ensure the annual report is annotated with this missed sample. [4/1/10 BRING BACK to address past CA15942
Contact WPS to gain access to/resolve issue with K-31. -SSTCjel-]'
Last Modified Date Changed From 4/1/2010 12:45:56 To 4/1/2010 12:48:02

4/1/2010 12:54:59 by ADAMS, RICHARD W
CRT Comments Changed From '[Original Text]' To '[Appended:] Chemistry personnel contacted WPS to reset the outlet. As of 4/1/2010 CY personnel confirm
the air sampler was running. CA142447 reviewed past history of Air samplers and determined that change out of the air samplers, scheduled for this su[...]'
Last Modified Date Changed From 4/1/2010 12:48:02 To 4/1/2010 12:54:59
Last Modifier Changed From LANGER JR, JAMES E - power To ADAMS, RICHARD W

4/5/2010 5:16:21 by FICTUM, HOLLY C
Process Code Changed From (None) To EVC (Environmental Controls).
Activity Codes Changed From (None) To SAA(Sampling)
Last Modified Date Changed From 4/1/2010 12:54:59 To 4/5/2010 5:16:21
Last Modifier Changed From ADAMS, RICHARD W To FICTUM, HOLLY C

4/5/2010 9:33:35 by ADAMS, RICHARD W
CRT Comments Changed From '[...]A142447 reviewed past history of Air samplers and determined that change out of the air samplers, scheduled for this
summer with instruments purchased in 2009, should help address issues associated with these old units. No additional actions needed.' To '[...]termed that
change out of the air samplers, scheduled for this summer with instruments purchased in 2009, should help address issues associated with these old units.
These units are being installed under WO 100633894. No additional actions needed.'
Last Modified Date Changed From 4/5/2010 5:16:21 To 4/5/2010 9:33:35
Last Modifier Changed From FICTUM, HOLLY C To ADAMS, RICHARD W

4/5/2010 11:41:03 by WALES, DEBRA J
CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 4/5/2010 9:33:35 To 4/5/2010 11:41:03
Last Modifier Changed From ADAMS, RICHARD W To WALES, DEBRA J

4/5/2010 11:43:48 by WALES, DEBRA J
CR FLAGS Changed From (None) To zz - reviewed / none selected
Secondary Owner Changed From ALLEN, ROBERT C, ANDERSON, PAMELA J, BOUCHE, DANNY L, BRINKMAN, CHARLES A, BROWN, DAN, CASTIGLIA,
BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS,
CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN,
PATRICIA B, HENRY, WILLIAM GENE, HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L,
KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS J, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MASARIK, DAVID L, MATHEWS, BRIAN M, MCKENNA,
JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R,
PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMOLINSKI, ANDREW T.,
STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WHITE, DARYN A, WINKS,
GEORGE F To AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BOUCHE, DANNY L, BRADLEY, DEBRA A,
CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN,
EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B,
HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN,
TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M,
MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK,
BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E,
TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F
Last Modified Date Changed From 4/5/2010 11:41:03 To 4/5/2010 11:43:48
Last State Change Date Changed From 3/30/2010 16:35:07 To 4/5/2010 11:43:48
Last State Changer Changed From DYKSTRA, DALE E To WALES, DEBRA J
State Changed From CRT Review To Trend Review Via Transition: Complete

4/6/2010 12:05:26 by FICTUM, HOLLY C
OR Hot Buttons Changed From (None) To CRT Bring Back
Secondary Owner Changed From AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BOUCHE, DANNY L, BRADLEY,
DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC
WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN,
PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, ---
KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS,

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BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F To AHRENS, GARY M, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F
Last Modified Date Changed From 4/5/2010 11:43:48 To 4/6/2010 12:05:26
Last Modifier Changed From WALESH, DEBRA J To FICTUM, HOLLY C.

4/12/2010 9:47:59 by FICTUM, HOLLY C

CR Completed Date Changed From Unassigned To 4/12/2010 10:47:59

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, ALLEN, ROBERT C, ANDERSON, PAMELA J, ASBEL, DENNIS C, BOUCHE, DANNY L, BRADLEY, DEBRA A, CAMPBELL, DWIGHT D, CASTIGLIA, BRAD K, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HELING, DEBRA A., HENRY, WILLIAM GENE, HESCHER, DOUGLAS J, HOUSE, ALEX J, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MASARIK, DAVID L, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, SHIELDS, DAVID F, SIMMONS JR, ROY L, SMITH, JACQUELINE K, STAFFORD, JEFFREY T, STERNITZKY, COLLEEN A, STREICH, ERIC E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, VISTE, GLEN R, VORPAHL, DWIGHT J., WALESH, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F 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 4/6/2010 12:05:26 To 4/12/2010 9:47:59

Close Date Changed From Unassigned To 4/12/2010 9:47:59

Last State Change Date Changed From 4/5/2010 11:43:48 To 4/12/2010 9:47:59

Last State Changer Changed From WALESH, DEBRA J 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

4/12/2010 16:10:27 by RECORDS MGMT

Last Modified Date Changed From 4/12/2010 9:47:59 To 4/12/2010 16:10:27

Last Modifier Changed From FICTUM, HOLLY C To RECORDS MGMT

Last State Change Date Changed From 4/12/2010 9:47:59 To 4/12/2010 16:10:27

Last State Changer Changed From FICTUM, HOLLY C To RECORDS MGMT

State Changed From All Assignments Complete To Transferred Via Transition: Transfer

4/13/2010 6:36:39 by RECORDS MGMT

CR Printed Date Changed From Unassigned To 4/13/2010 6:36:39

Last Modified Date Changed From 4/12/2010 16:10:27 To 4/13/2010 6:36:39

Last State Change Date Changed From 4/12/2010 16:10:27 To 4/13/2010 6:36:39

State Changed From Transferred To Printed Via Transition: Print

4/13/2010 6:36:52 by RECORDS MGMT

CR Validated Date Changed From Unassigned To 4/13/2010 6:36:52

CR Who Validated Changed From (None) To RECORDS MGMT

Secondary Owner Changed From 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 To (None)

Last Modified Date Changed From 4/13/2010 6:36:39 To 4/13/2010 6:36:52

Last State Change Date Changed From 4/13/2010 6:36:39 To 4/13/2010 6:36:52

State Changed From Printed To Validated Via Transition: Validate

State Change History

| | | | | | | | |
|--|---|--|--|---|--|--|--|
| Submit by WAAK, GREGORY D | Draft 9/22/2010 7:21:03 Owner : WAAK, GREGORY D | Submit by WAAK, GREGORY D | Supervisor Review 9/22/2010 7:22:08 Owner : BERNSDORF, MIKE A | Complete by BERNSDORF, MIKE A | O/R Review 9/22/2010 8:36:52 Owner : FICTUM, HOLLY C | Complete by IRLBECK, DAVID E | CRT Review 9/22/2010 15:34:45 Owner : FICTUM, HOLLY C |
| To Supervisor by CIESLEWICZ, SCOTT M | Supervisor Review 9/22/2010 15:42:05 Owner : BERNSDORF, MIKE A | Complete by TERRY, MICHAEL E | O/R Review 9/22/2010 15:43:41 Owner : FICTUM, HOLLY C | Complete by IRLBECK, DAVID E | CRT Review 9/22/2010 16:09:28 Owner : FICTUM, HOLLY C | CA by WALES, DEBRA J | CRT Assignment Creation 9/24/2010 8:51:27 Owner : FICTUM, HOLLY C |
| Complete by WALES, DEBRA J | Assignments Pending 9/24/2010 8:53:31 Owner : FICTUM, HOLLY C | Assignments Complete by ADAMS, RICHARD W | Trend Review 12/15/2010 6:50:12 Owner : FICTUM, HOLLY C | | | | |

Section 1

| | |
|---|--|
| Applicable to site: | KEWA |
| Record #: | CR395885 |
| Revision Number: | 0 |
| Submitter: | WAAK, GREGORY D |
| Submitter Dept.: | KEWA - Chemistry |
| Submitter Phone Number: | 7630 |
| Submitter Pager Number: | 920-218-3368 |
| One-Line Description: | Low air flow on K-2 air sampler. |
| Description: | When performing SP-63-164 Weekly Environmental Sample Collection it was noted that air flow on k-2 air sampler had dropped from 30 L.P.M. on 9/14/10 to 14 L.P.M. on 9/21/10. Flow would not normally drop at all over the course of one week. When a clean filter was installed flow remained steady at the reduced rate. The pump check indicated that the pump is pulling as it should. H.P. was notified and will investigate. |
| Discovery Date: | 9/21/2010 |
| Discovery Time: | 10:15:00 |
| 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: | Unit 1 |
| 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: | Reported to H.P. for resolution. |
| 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: | BERNSDORF, MIKE A |

Question G: Is this CR an Operability/Reportability Issue Requiring O/R Review? **Yes**

Yes/No G: **Yes**

Question H: Does this CR affect personnel safety? **Yes**

Yes/No H: **Yes**

Question I: Does this CR affect plant safety? **Yes**

Yes/No I: **Yes**

Question J: Does this CR involve plant equipment? **Yes**

Yes/No J: **Yes**

Question K: Is this CR an environmental concern? **Yes**

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: FUNCTIONAL - Air Sampler K-2 is required to support the Radiological Environmental Monitoring Program (REMP).

At the time of discovery air sampler, K-2, was functional. Per discussion with Chemistry, the sampler has no minimum air flow requirements and remains capable of drawing samples as designed.

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? **No**

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: 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?: 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: I agree with the above assessment

Significance: 3

Deficiency Type: Non-Equipment

Potential Repeat: No

Previous Issues (PIs, CRs): This equipment is the recently installed environmental air samplers. This (and the situation noted in CR 395889) are the first issues noted with the installed instruments.

CR FLAGS: Self-Revealing Event

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

CRT Comments: *HI LEVEL*

This is similar to the situation noted in CR 395889, for K-41. In both cases, the actual flow was as needed, this is just an indication issue.

CA to CY to inform the vendor of the actual volumes sampled for K-2 and for K-41 for their analysis of the samples.

CA to RP to track replacement of the flow turbines.

**Per CRT on 10-27-2010- CR400655- k-41 air sampler digital readout and calculated total reading zero and CR400661 - k-2 air sampler digital readout lower than calculated indicated total flow are being closed to CA 179723.

Comments:

Old Record #:

Section 2

Trend Review Complete?: No

Process Code: UNK (Unknown)

Activity Codes: UNK(Unknown)

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

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Notes

RP Supervisor Comments by ADAMS, RICHARD W (9/22/2010 11:17:07)

9/21/2010 approximately 1300, sent RP Instruments techs to investigate low flow indication at K-2 (Kewaunee WPS office) and K-41, (Green Bay EOF). The flow rates were measured using an F&J air flow-calibrator. The flow rate at K-2 indicated 28.4 LPM, flow rate at K-41 was 29.4 LPM. The required flow rate for the environmental air samplers is 30 LPM. The acceptance band for flow rate +/- 20%, 24 to 36 LPM, so the actual flow rates were in spec. The apparent problem is with the flow turbine which sends pump speed information to the flow totalizer. Contacted the vendor and they are sending two replacement flow turbines and requested that we send the other two suspect flow turbines back so that they can evaluate and determine the cause. These units have been in service at other nuclear power plants for over 5 years without issue.

Recommendations:

1. SP-63-164, Environmental Sample Collection should be revised to include the acceptable flow rate band for these samplers (30 LPM, +/- 20%, 24 to 36LPM) and that RP should be notified if the flow rates fall out of band.
2. Chemistry needs to provide updated total volumes for K-2 & K-41 to offsite vendor performing the sample analysis.

Additional Air Samplers Involved by ADAMS, RICHARD W (10/6/2010 7:27:05)

CR's 397945, 397949, 397953 and 397957 were written 10/5/10 identifying the same problems for K-1f, K-8 and K-41 and K-2 (redundant to this CR). The closure of this CA needs to include those samplers also.

Attachments

Principal to: CA179722: KEWA - Inform the vendor of the actual volumes sampled for K-2 and for K-41 for their a (Inactive) by WALESH, DEBRA J (9/24/2010 8:52:07)

Principal to: CA179723: KEWA - Track replacement of the flow turbines. (Inactive) by WALESH, DEBRA J (9/24/2010 8:53:08)

Change History

9/22/2010 7:22:08 by WAAK, GREGORY D

Associated w/ Equipment Location? Changed From (None) To No
Additional C/A processes req'd? Changed From (None) To N/A
Owner Changed From WAAK, GREGORY D To BERNSDORF, MIKE A
Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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.
Last Modified Date Changed From 9/22/2010 7:21:03 To 9/22/2010 7:22:08
Last State Change Date Changed From 9/22/2010 7:21:03 To 9/22/2010 7:22:08
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR395885: KEWA - Low air flow on K-2 air sampler.

9/22/2010 8:36:52 by BERNSDORF, MIKE A

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, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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 To ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, 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
Last Modified Date Changed From 9/22/2010 7:22:08 To 9/22/2010 8:36:52
Last Modifier Changed From WAAK, GREGORY D To BERNSDORF, MIKE A
Last State Change Date Changed From 9/22/2010 7:22:08 To 9/22/2010 8:36:52
Last State Changer Changed From WAAK, GREGORY D To BERNSDORF, MIKE A
State Changed From Supervisor Review To O/R Review Via Transition: Complete
NewCR Changed From Yes To No

9/22/2010 10:11:33 by TERRY, MICHAEL E

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 'FUNCTIONAL - Air Sampler K-2 is required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-8, was functional. The sampler remains capable of drawing samples as designed.'
 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 Functional
 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 9/22/2010 8:36:52 To 9/22/2010 10:11:33
 Last Modifier Changed From BERNSDORF, MIKE A To TERRY, MICHAEL E

9/22/2010 10:12:38 by TERRY, MICHAEL E
 Text Answer 2 Changed From 'FUNCTIONAL - Air Sampler K-2 is required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-8, was functional. The sampler remains capable of drawing samples as designed.' To 'FUNCTIONAL - Air Sampler K-2 is required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-2, was functional. The sampler remains capable of drawing samples as designed.'
 Last Modified Date Changed From 9/22/2010 10:11:33 To 9/22/2010 10:12:38

9/22/2010 11:17:07 by ADAMS, RICHARD W
 Last Modified Date Changed From 9/22/2010 10:12:38 To 9/22/2010 11:17:07
 Last Modifier Changed From TERRY, MICHAEL E To ADAMS, RICHARD W
 Attachment Added: RP Supervisor Comments

9/22/2010 15:34:45 by IRLBECK, DAVID E
 O/R Comments Changed From " To 'I agree with the above assessment'
 Last Modified Date Changed From 9/22/2010 11:17:07 To 9/22/2010 15:34:45
 Last Modifier Changed From ADAMS, RICHARD W To IRLBECK, DAVID E
 Last State Change Date Changed From 9/22/2010 8:36:52 To 9/22/2010 15:34:45
 Last State Changer Changed From BERNSDORF, MIKE A To IRLBECK, DAVID E
 State Changed From O/R Review To CRT Review Via Transition: Complete

9/22/2010 15:42:05 by CIESLEWICZ, SCOTT M
 CRT Comments Changed From " To 'Returned to add additional information'
 Owner Changed From FICTUM, HOLLY C To BERNSDORF, MIKE A
 Secondary Owner Changed From ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, 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 To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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
 Last Modified Date Changed From 9/22/2010 15:34:45 To 9/22/2010 15:42:05.
 Last Modifier Changed From IRLBECK, DAVID E To CIESLEWICZ, SCOTT M
 Last State Change Date Changed From 9/22/2010 15:34:45 To 9/22/2010 15:42:05
 Last State Changer Changed From IRLBECK, DAVID E To CIESLEWICZ, SCOTT M
 State Changed From CRT Review To Supervisor Review Via Transition: To Supervisor

9/22/2010 15:43:41 by TERRY, MICHAEL E
 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, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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 To ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, 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
 Last Modified Date Changed From 9/22/2010 15:42:05 To 9/22/2010 15:43:41
 Last Modifier Changed From CIESLEWICZ, SCOTT M To TERRY, MICHAEL E
 Last State Change Date Changed From 9/22/2010 15:42:05 To 9/22/2010 15:43:41
 Last State Changer Changed From CIESLEWICZ, SCOTT M To TERRY, MICHAEL E
 State Changed From Supervisor Review To O/R Review Via Transition: Complete

9/22/2010 15:44:03 by TERRY, MICHAEL E

time of discovery air sampler, K-2, was functional. The sampler remains capable of drawing samples as designed.' To [...]'e Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-2, was functional. Per discussion with Chemistry, the sampler has no minimum air flow requirements and remains capable of drawing samples as designed.'

Last Modified Date Changed From 9/22/2010 15:43:41 To 9/22/2010 15:44:03

23

9/22/2010 16:09:28 by IRLBECK, DAVID E

Last Modified Date Changed From 9/22/2010 15:44:03 To 9/22/2010 16:09:28

Last Modifier Changed From TERRY, MICHAEL E To IRLBECK, DAVID E

Last State Change Date Changed From 9/22/2010 15:43:41 To 9/22/2010 16:09:28

Last State Changer Changed From TERRY, MICHAEL E To IRLBECK, DAVID E

State Changed From O/R Review To CRT Review Via Transition: Complete

9/23/2010 4:52:40 by LANGER JR, JAMES E

CRT Comments Changed From 'Returned to add additional information' To "HI LEVEL* Returned to add additional information"

Last Modified Date Changed From 9/22/2010 16:09:28 To 9/23/2010 4:52:40

Last Modifier Changed From IRLBECK, DAVID E To LANGER JR, JAMES E

9/23/2010 7:19:01 by ADAMS, RICHARD W

Significance Changed From (None) To 3

Deficiency Type Changed From (None) To Non-Equipment

Potential Repeat Changed From (None) To No

Previous Issues (Pls, CRs) Changed From " To 'This equipment is the recently installed environmental air samplers. This (and the situation noted in CR 395889) are the first issues noted with the installed instruments.'

CR FLAGS Changed From (None) To Self-Revealing Event

CRT Comments Changed From "HI LEVEL* Returned to add additional information" To "HI LEVEL* This is similar to the situation noted in CR 395889, for K-41. CA to CY to inform the vendor of the actual volumes sampled for K-2 and for K-41 for their analysis of the samples.'

Last Modified Date Changed From 9/23/2010 4:52:40 To 9/23/2010 7:19:01

Last Modifier Changed From LANGER JR, JAMES E To ADAMS, RICHARD W

9/23/2010 9:14:18 by ADAMS, RICHARD W

CRT Report Section(s) Changed From (None) To 1

CRT Comments Changed From "HI LEVEL* This is similar to the situation noted in CR 395889, for K-41. CA to CY to inform the vendor of the actual volumes sampled for K-2 and for K-41 for their analysis of the samples." To "[...] In both cases, the actual flow was as needed, this is just an indication issue. CA to CY to inform the vendor of the actual volumes sampled for K-2 and for K-41 for their analysis of the samples. CA to RP to track replacement of the flow[more diffs...]"

Last Modified Date Changed From 9/23/2010 7:19:01 To 9/23/2010 9:14:18

9/23/2010 9:17:56 by ADAMS, RICHARD W

RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)

Last Modified Date Changed From 9/23/2010 9:14:18 To 9/23/2010 9:17:56

9/24/2010 8:51:27 by WALESH, DEBRA J

Last Modified Date Changed From 9/23/2010 9:17:56 To 9/24/2010 8:51:27

Last Modifier Changed From ADAMS, RICHARD W To WALESH, DEBRA J

Last State Change Date Changed From 9/22/2010 16:09:28 To 9/24/2010 8:51:27

Last State Changer Changed From IRLBECK, DAVID E To WALESH, DEBRA J

State Changed From CRT Review To CRT Assignment Creation Via Transition: CA

9/24/2010 8:52:07 by WALESH, DEBRA J

Last Modified Date Changed From 9/24/2010 8:51:27 To 9/24/2010 8:52:07

Attachment Added: CA179722: (None) - Inform the vendor of the actual volumes sampled for K-2 and for K-41 for their a

9/24/2010 8:52:23 by WALESH, DEBRA J

Last Modified Date Changed From 9/24/2010 8:52:07 To 9/24/2010 8:52:23

9/24/2010 8:53:09 by WALESH, DEBRA J

Last Modified Date Changed From 9/24/2010 8:52:23 To 9/24/2010 8:53:09

Attachment Added: CA179723: (None) - Track replacement of the flow turbines.

9/24/2010 8:53:31 by WALESH, DEBRA J

CRT Report Section(s) Changed From 1 To 2

Secondary Owner Changed From ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, HELING, DEBRA A., HOUSE, ALEX J, IRLBECK, DAVID E, KARST JR, DAVID A, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFREY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, 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 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, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, HALE, JAMES M., HELING, DEBRA A., HOUSE, ALEX J, KASPER, JAMES MICHAEL, KASTNER, ROBERT J, KOEHLER, BRIAN L, KULTERMAN, TIMOTHY W, LANGAN, JEFFREY A, LAWRENCE, DOUGLAS C, LLEWELLYN, DAVID T, LOFTEN, BRUCE J, LONG, CRAIG D, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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

Last Modified Date Changed From 9/24/2010 8:53:09 To 9/24/2010 8:53:31

Last State Change Date Changed From 9/24/2010 8:51:27 To 9/24/2010 8:53:31

State Changed From CRT Assignment Creation To Assignments Pending Via Transition: Complete

9/30/2010 13:22:31 by FICTUM, HOLLY C

Process Code Changed From (None) To UNK (Unknown)

Activity Codes Changed From (None) To UNK(Unknown)

Last Modified Date Changed From 9/24/2010 8:53:31 To 9/30/2010 13:22:31

Last Modifier Changed From WALESH, DEBRA J To FICTUM, HOLLY C

10/6/2010 7:27:05 by ADAMS, RICHARD W

Last Modified Date Changed From 9/30/2010 13:22:31 To 10/6/2010 7:27:05

Last Modifier Changed From FICTUM, HOLLY C To ADAMS, RICHARD W

Attachment Added: Additional Air Samplers Involved

10/27/2010 8:52:23 by WALESH, DEBRA J - power

CRT Comments Changed From [Original Text] To [Appended:] **Per CRT on 10-27-2010- CR400655- k-41 air sampler digital readout and calculated total reading zero and CR400661 - k-2 air sampler digital readout lower than calculated indicated total flow are being closed to CA 179723.'

Secondary Owner Changed From 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, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, LONG, CRAIG D, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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., WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F, YEARGIN, BARRY K

Last Modified Date Changed From 10/6/2010 7:27:05 To 10/27/2010 8:52:23

Last Modifier Changed From ADAMS, RICHARD W To WALES, DEBRA J - power

12/15/2010 6:50:12 by ADAMS, RICHARD W

Secondary Owner Changed From 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K

Last Modified Date Changed From 10/27/2010 8:52:23 To 12/15/2010 6:50:12

Last Modifier Changed From WALES, DEBRA J - power To ADAMS, RICHARD W

Last State Change Date Changed From 9/24/2010 8:53:31 To 12/15/2010 6:50:12

Last State Changer Changed From WALES, DEBRA J To ADAMS, RICHARD W

State Changed From Assignments Pending To Trend Review Via Transition: Assignments Complete

State Change History

| | | | | | | | |
|--------------------------------------|--|-----------------------------------|---|--------------------------------------|--|---------------------------------------|--|
| Submit by SIMON, PAUL A | Draft 12/8/2010 9:16:46 Owner : SIMON, PAUL A | Submit by SIMON, PAUL A | Supervisor Review 12/8/2010 9:17:11 Owner : THORPE, RANDAL | Complete by THORPE, RANDAL | O/R Review 12/8/2010 10:06:52 Owner : FICTUM, HOLLY C | Return by TAYLOR, STEVEN C. | Supervisor Review 12/8/2010 14:33:51 Owner : THORPE, RANDAL |
| Complete by THORPE, RANDAL | O/R Review 12/8/2010 15:48:23 Owner : FICTUM, HOLLY C | Complete by BROWN, DAN | CRT Review 12/8/2010 17:02:33 Owner : FICTUM, HOLLY C | CA by FICTUM, HOLLY C | CRT Assignment Creation 12/10/2010 10:08:34 Owner : FICTUM, HOLLY C | Complete by FICTUM, HOLLY C | Assignments Pending 12/10/2010 10:11:12 Owner : FICTUM, HOLLY C |

Section 1

Applicable to site: KEWA

Record #: CR406655

Revision Number: 0

Submitter: SIMON, PAUL A

Submitter Dept.: KEWA - Chemistry

Submitter Phone Number: 8214

Submitter Pager Number: 7666

One-Line Description: Environmental Air Sampler indicated air flow outside the range of 27-33 LPM

Description: Environmental Air Samplers K-1F and K-2 indicated air flow outside the range of 27-33 LPM on 12-7-2010. K-1F indicated high outside of the band. K-2 indicated low outside of the band. CR written per SP-63-164 step 6.1.2.11.2. RP instrumentation group was informed and made the necessary adjustments to the sampler flow meter.

Discovery Date: 12/8/2010

Discovery Time: 8:00:00

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: RP instrumentation group informed and corrective actions are complete.

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: No

Tag Number:

Additional Contacts:

Supervisor - CR Review: THORPE, RANDAL

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: Yes

Question I: Does this CR affect plant safety?

Yes/No I: Yes

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: FUNCTIONAL: Environmental monitors K-1f and K-2 remain functional to support the Radiological Environmental Monitoring Program (REMM).
Environmental monitors are configured with two independent flow indications - a flow turbine (with totalizer) and a rotometer. SP-63-164 compares the totalizer indication to the rotometer. Based on rotometer indication, adequate sample flow was maintained. Additionally, SP-63-164 contains no acceptance criteria for sample flow.
I agree Mr. Taylor's assessment

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.: 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?: 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: 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: Correct procedure ref (SP-63-164) and monitor designation (K-1f)
Significance: 3
Deficiency Type: Non-Equipment

Potential Repeat: No

Previous Issues (PIs, CRs): No history found of SP's without acceptance criteria.

CR FLAGS: Administrative Procedure Issues

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

CRT Comments: *HI LEVEL*

Relative to the sample flow rates and the various devices, the rotometer was indicating as expected and does provide for accurate volume determination for input to the air concentration values. RP is tracking the issues with the new flow turbines and working with the vendor to resolve. No actions are needed for this aspect of this CR.

CA to RP (REMP program owner) to review need for specific acceptance criteria in the SP. If needed, then specify to CY the value (ranges) and initiate CA to implement change to procedure. Any follow-on actions to resolve an identified CAQ must be completed IAW PI-AA-200 priority model from date of identification.

Comments: 12/8/2010 10:05:58 - THORPE, RANDAL:
Please close this condition report to the actions taken and tracking and trending.- Entered by [THORPE, RANDAL] from [CR] [Supervisor Review]

Old Record #:

Section 2

Trend Review Complete?: No

Process Code: UNK (Unknown) **Activity Codes:** ESS(Establish Specifications)

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: CA187177: KEWA - Review need for specific acceptance criteria in the SP by FICTUM, HOLLY C (12/10/2010 10:09:47)

Change History

12/8/2010 9:17:11 by SIMON, PAUL A

Additional, C/A processes req'd? Changed From (None) To N/A

Owner Changed From SIMON, PAUL A To THORPE, RANDAL

Secondary Owner Changed From THORPE, RANDAL To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, 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'CONNOR, 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

Last Modified Date Changed From 12/8/2010 9:16:46 To 12/8/2010 9:17:11

Last State Change Date Changed From 12/8/2010 9:16:46 To 12/8/2010 9:17:11

State Changed From Draft To Supervisor Review Via Transition: Submit

Parent CR Changed From (None) To CR406655: KEWA - Environmental Air Sampler indicated air flow outside the range of 27-33 LPM

12/8/2010 10:05:58 by THORPE, RANDAL

Description Changed From '[...]ronmental Air Samplers K-f1 and K-2 indicated air flow outside the range of 27-33 LPM on 12--7 -2010 . CR written per SP-63-163 step 6.1.2.11.2 RP instrumentation group informed .adjustments made to sampler flow meter by RP instrumentation group .' To '[...]f 27-33 LPM on 12-7-2010. K-F1 indicated high outside of the band. K-2 indicated low outside of the band. CR written per SP-63-163 step 6.1.2.11.2. RP instrumentation group was informed and made the necessary adjustments to the sampler flow meter.'

Initial Actions Changed From 'RP instrumentation group informed.' To 'RP instrumentation group informed and corrective actions are complete.'

Comments Changed From " To '[Appended:] Please close this condition report to the actions taken and tracking and trending.- Entered by [THORPE, RANDAL] from [CR] [Supervisor Review]'

Last Modified Date Changed From 12/8/2010 9:17:11 To 12/8/2010 10:05:58

Last Modifier Changed From SIMON, PAUL A To THORPE, RANDAL

12/8/2010 10:06:52 by THORPE, RANDAL

Owner Changed From THORPE, RANDAL 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, CORBIN, WILLIAM D, 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'CONNOR, 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 To ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, RENNERT, CHERYL SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K

Last Modified Date Changed From 12/8/2010 10:05:58 To 12/8/2010 10:06:52

Last State Change Date Changed From 12/8/2010 9:17:11 To 12/8/2010 10:06:52

Last State Changer Changed From SIMON, PAUL A To THORPE, RANDAL

State Changed From Supervisor Review To O/R Review Via Transition: Complete

NewCR Changed From Yes To No

12/8/2010 14:32:16 by TAYLOR, STEVEN C.

Tag Hung Changed From (None) To No

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:]FUNCTIONAL: Environmental monitors K-1f and K-2 remain functional to support the Radiological Environmental Monitoring Program (REMM). Environmental monitors are configured with two independent flow indications - a flow turbine (with totalize[...])'

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 Functional

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 Fully Qualified

Reportable condition? Changed From (None) To No

Last Modified Date Changed From 12/8/2010 10:06:52 To 12/8/2010 14:32:16

Last Modifier Changed From THORPE, RANDAL To TAYLOR, STEVEN C.

12/8/2010 14:33:51 by TAYLOR, STEVEN C.

O/R Comments Changed From " To 'Correct procedure ref (SP-63-164) and monitor designation (K-1f)'

Owner Changed From FICTUM, HOLLY C To THORPE, RANDAL

Secondary Owner Changed From ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, 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, YEARGIN, BARRY K TO AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, 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'CONNOR, 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

Last Modified Date Changed From 12/8/2010 14:32:16 To 12/8/2010 14:33:51
Last State Change Date Changed From 12/8/2010 10:06:52 To 12/8/2010 14:33:51
Last State Changer Changed From THORPE, RANDAL To TAYLOR, STEVEN C.
State Changed From O/R Review To Supervisor Review Via Transition: Return

12/8/2010 15:48:02 by THORPE, RANDAL

Description Changed From 'Environmental Air Samplers K-f1 and K-2 indicated air flow outside the range of 27-33 LPM on 12-7-2010. K-F1 indicated high outside of the band. K-2 indicated low outside of the band. CR written per SP-63-163 step 6.1.2.11.2. RP instrumentation gr[...]' To 'Environmental Air Samplers K-1F and K-2 indicated air flow outside the range of 27-33 LPM on 12-7-2010. K-1F indicated high outside of the band. K-2 indicated low outside of the band. CR written per SP-63-164 step 6.1.2.11.2. RP instrumentation gr[...]'
Last Modified Date Changed From 12/8/2010 14:33:51 To 12/8/2010 15:48:02
Last Modifier Changed From TAYLOR, STEVEN C. To THORPE, RANDAL

12/8/2010 15:48:23 by THORPE, RANDAL

Owner Changed From THORPE, RANDAL 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, CORBIN, WILLIAM D, 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'CONNOR, 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 To ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, 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, YEARGIN, BARRY K
Last Modified Date Changed From 12/8/2010 15:48:02 To 12/8/2010 15:48:23
Last State Change Date Changed From 12/8/2010 14:33:51 To 12/8/2010 15:48:24
Last State Changer Changed From TAYLOR, STEVEN C. To THORPE, RANDAL
State Changed From Supervisor Review To O/R Review Via Transition: Complete

12/8/2010 17:02:33 by BROWN, DAN

Text Answer 2 Changed From '[Original Text]' To '[Appended:] I agree Mr. Taylor's assessment'
Last Modified Date Changed From 12/8/2010 15:48:23 To 12/8/2010 17:02:33
Last Modifier Changed From THORPE, RANDAL To BROWN, DAN
Last State Change Date Changed From 12/8/2010 15:48:24 To 12/8/2010 17:02:33
Last State Changer Changed From THORPE, RANDAL To BROWN, DAN
State Changed From O/R Review To CRT Review Via Transition: Complete

12/9/2010 5:53:02 by IRION, ROBERT W

Operations Hot Buttons Changed From (None) To EAL-Equipment
Last Modified Date Changed From 12/8/2010 17:02:33 To 12/9/2010 5:53:02
Last Modifier Changed From BROWN, DAN To IRION, ROBERT W

12/9/2010 5:59:59 by LANGER JR, JAMES E

CRT Comments Changed From " To "HI LEVEL" -Ref Supervisor comments; "Please close this condition report to the actions taken and tracking and trending."
Last Modified Date Changed From 12/9/2010 5:53:02 To 12/9/2010 5:59:59
Last Modifier Changed From IRION, ROBERT W To LANGER JR, JAMES E

12/9/2010 9:33:33 by ADAMS, RICHARD W

Significance Changed From (None) To 3
Deficiency Type Changed From (None) To Non-Equipment
Potential Repeat Changed From (None) To No
Previous Issues (PIs, CRs) Changed From " To 'No history found of SP's without acceptance criteria.'
CR FLAGS Changed From (None) To Administrative Procedure Issues
CRT Report Section(s) Changed From (None) To 1
CRT Comments Changed From "HI LEVEL" -Ref Supervisor comments; "Please close this condition report to the actions taken and tracking and trending." To "[...]Relative to the sample flow rates and the various devices, the rotometer was indicating as expected and does provide for accurate volume determination for input to the air concentration values. RP is tracking the issues with the new flow turbin[more diffs...]"
Last Modified Date Changed From 12/9/2010 5:59:59 To 12/9/2010 9:33:33
Last Modifier Changed From LANGER JR, JAMES E To ADAMS, RICHARD W

12/9/2010 9:44:46 by ADAMS, RICHARD W

RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)
Last Modified Date Changed From 12/9/2010 9:33:33 To 12/9/2010 9:44:46

12/9/2010 12:43:08 by FICTUM, HOLLY C

Process Code Changed From (None) To UNK (Unknown)
Activity Codes Changed From (None) To ESS(Establish Specifications)
Last Modified Date Changed From 12/9/2010 9:44:46 To 12/9/2010 12:43:08
Last Modifier Changed From ADAMS, RICHARD W To FICTUM, HOLLY C

12/10/2010 10:08:34 by FICTUM, HOLLY C

Last State Change Date Changed From 12/8/2010 17:02:33 To 12/10/2010 10:08:34

Last State Changer Changed From BROWN, DAN To FICTUM, HOLLY C

State Charged From CRT Review To CRT Assignment Creation Via Transition: CA

12/10/2010 10:09:47 by FICTUM, HOLLY C

Last Modified Date Changed From 12/10/2010 10:08:34 To 12/10/2010 10:09:47

Attachment Added: CA187177: (None) - Review need for specific acceptance criteria in the SP

12/10/2010 10:10:20 by FICTUM, HOLLY C

CRT Comments Changed From '[Original Text]' To '[Appended:] Any follow-on actions to resolve an identified CAQ must be completed IAW PI-AA-200 priority model from date of identification.'

Last Modified Date Changed From 12/10/2010 10:09:47 To 12/10/2010 10:10:20

12/10/2010 10:11:12 by FICTUM, HOLLY C

CRT Report Section(s) Changed From 1 To 2

Secondary Owner Changed From ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, 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, WALES, DEBRA J, WHITE, DARYN A, 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K

Last Modified Date Changed From 12/10/2010 10:10:20 To 12/10/2010 10:11:12

Last State Change Date Changed From 12/10/2010 10:08:34 To 12/10/2010 10:11:12

State Changed From CRT Assignment Creation To Assignments Pending Via Transition: Complete

2/10/2011 8:11:03 by BRADLEY, DEBRA A

Operations Hot Buttons Changed From EAL-Equipment To (None)

Secondary Owner Changed From 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, 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, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K

Last Modified Date Changed From 12/10/2010 10:11:12 To 2/10/2011 8:11:03

Last Modifier Changed From FICTUM, HOLLY C To BRADLEY, DEBRA A

State Change History

| | | | | | | | |
|----------------------------|----------------------------|----------------------------|--------------------------|--------------------------|------------------------|------------------------|------------------------|
| Submit | Draft | Submit | Supervisor Review | Complete | O/R Review | Complete | CRT Review |
| 12/28/2010 13:05:32 | 12/28/2010 13:05:32 | 12/28/2010 14:40:36 | 12/28/2010 14:40:36 | 12/28/2010 15:05:49 | 12/28/2010 15:05:49 | 12/28/2010 16:10:14 | 12/28/2010 16:10:14 |
| Owner: HENDRICKSON, CHAD M | Owner: HENDRICKSON, CHAD M | Owner: HENDRICKSON, CHAD M | Owner: BERNSDORF, MIKE A | Owner: BERNSDORF, MIKE A | Owner: FICTUM, HOLLY C | Owner: FICTUM, HOLLY C | Owner: FICTUM, HOLLY C |
| by HENDRICKSON, CHAD M | | by HENDRICKSON, CHAD M | | by BERNSDORF, MIKE A | | by BROWN, DAN | |
| Complete | Trend Review | Trend Review Complete | All Assignments Complete | | | | |
| 1/3/2011 9:38:56 | 1/3/2011 9:38:56 | 1/5/2011 5:33:16 | 1/5/2011 5:33:16 | | | | |
| Owner: FICTUM, HOLLY C | Owner: FICTUM, HOLLY C | Owner: (None) | Owner: (None) | | | | |
| by WALESH, DEBRA J - power | | by FICTUM, HOLLY C | | | | | |

Section 1

Applicable to site: KEWA

Record #: CR408777

Revision Number: 0

Submitter: HENDRICKSON, CHAD M

Submitter Dept.: KEWA - Chemistry

Submitter Phone Number: 7353

Submitter Pager Number: 704-0500

One-Line Description: Environmental air sampler indicated flow does not match Rotometer Flow Rate

Description: During the 12/28/10 performance of SP-63-164, Environmental Sample Collection, one of the samplers was not indicating proper flow rate (per step 6.1.2.11). The indicated air flow on air sampler at K-41 (Emergency Offsite Facility in Green Bay) does not match within 10% of the Rotometer Flow Rate (step 6.1.2.11.1) and the indicated flow rate was outside of 27 - 33 liters per minute (step 6.1.2.11.2). The digital reading was 22 liters per minute and the rotometer was indicating 30 liters per minute.

Discovery Date: 12/28/2010

Discovery Time: 10:00:00

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?: Yes

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 supervisor.
Calculated total air flow using rotometer flow rate and hours in service per step 6.1.2.11.1.
Notified instrumentation group and wrote CR per step 6.1.2.11.2

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: BERNSDORF, MIKE A

Question G: Is this CR an Operability/Reportability Issue Requiring O/R Review?

Yes/No G: No

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: FUNCTIONAL: Environmental monitor K-41 remains functional to support the Radiological Environmental Monitoring Program (REMM).

Environmental monitors are configured with two independent flow indications - a flow turbine (with totalizer) and a rotometer. SP-63-164 compares the totalizer indication to the rotometer. Based on rotometer indication, adequate sample flow was maintained. Therefore, K-41 remains FUNCTIONAL.

I agree with Mr. Neuser's assessment.

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: 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?: 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: 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: No
 Previous Issues (PIs, CRs): sig 4
 CR FLAGS: Self-Identified
 CRT Report Section(s): 2
 Screening Date:
 License Renewal Flags: (None)
 Affected Department: (None)

CRT Comments: *HI LEVEL*
 Environmental monitors are configured with two independent flow indications - a flow turbine (with totalizer) and a rotometer. SP-63-164 compares the totalizer indication to the rotometer. Based on rotometer indication, adequate sample flow was maintained. Therefore, K-41 remains FUNCTIONAL.
 Close to Department track and trend. RP has been working with the vendor to determine any issues with the flow turbines, which are new in the recently installed air samplers. Until they are proven reliable, rotometers will be used as a secondary device. If it is not possible to get these reliable, we will return to relying solely on the rotometers.
 BRING BACK to CRT on Monday, Jan3, 2011 - RP to address how are we trending this equipment. Should this be Sig Level 3?*
 Per CRT on 01/03/2011 - RP added verbiage as requested. Approved Sig 4.
 As screened

Comments:
 Old Record #:

Section 2

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

Section 3

Work Order Number(s):
 Status Description:
 Status Date:
 Actual Finish Date:
 Work Performed Description:

Section 5

CR Completed Date: 1/5/2011 6:33:16 CR Printed Date:
 CR Validated Date: CR Who Validated: (None)

RM Attachment Links:

Change History

12/28/2010 14:40:36 by HENDRICKSON, CHAD M

Owner Changed From HENDRICKSON, CHAD M To BERNSDORF, MIKE A
Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, 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
Last Modified Date Changed From 12/28/2010 13:05:32 To 12/28/2010 14:40:36
Last State Change Date Changed From 12/28/2010 13:05:32 To 12/28/2010 14:40:36
State Changed From Draft To Supervisor Review Via Transition: Submit
Parent CR Changed From (None) To CR408777: KEWA - Environmental air sampler indicated flow does not match Rotometer Flow Rate (Inactive)

12/28/2010 15:05:49 by BERNSDORF, MIKE A

Yes/No G Changed From Yes 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, BLAKE JR, HARRY H, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, 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 To ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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 SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K
Last Modified Date Changed From 12/28/2010 14:40:36 To 12/28/2010 15:05:49
Last Modifier Changed From HENDRICKSON, CHAD M To BERNSDORF, MIKE A
Last State Change Date Changed From 12/28/2010 14:40:36 To 12/28/2010 15:05:49
Last State Changer Changed From HENDRICKSON, CHAD M To BERNSDORF, MIKE A
State Changed From Supervisor Review To O/R Review Via Transition: Complete
NewCR Changed From Yes To No

12/28/2010 15:26:56 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 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:]FUNCTIONAL: Environmental monitor K-41 remains functional to support the Radiological Environmental Monitoring Program (REMM). Environmental monitors are configured with two independent flow indications - a flow turbine (with totalizer) and 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 Functional
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 Fully Qualified
Reportable condition? Changed From (None) To No
Text Answer 3 Changed From " To 'N/A'
Last Modified Date Changed From 12/28/2010 15:05:49 To 12/28/2010 15:26:56
Last Modifier Changed From BERNSDORF, MIKE A To NEUSER, CRAIG J

12/28/2010 16:10:14 by BROWN, DAN

Text Answer 2 Changed From '[Original Text]' To '[Appended:] I agree with Mr. Neuser's assessment.'
Last Modified Date Changed From 12/28/2010 15:26:56 To 12/28/2010 16:10:14
Last Modifier Changed From NEUSER, CRAIG J To BROWN, DAN
Last State Change Date Changed From 12/28/2010 15:05:49 To 12/28/2010 16:10:14
Last State Changer Changed From BERNSDORF, MIKE A To BROWN, DAN
State Changed From O/R Review To CRT Review Via Transition: Complete

12/29/2010 6:04:46 by LANGER JR, JAMES E

CRT Comments Changed From " To "HI LEVEL"
Last Modified Date Changed From 12/28/2010 16:10:14 To 12/29/2010 6:04:46
Last Modifier Changed From BROWN, DAN To LANGER JR, JAMES E

12/29/2010 12:14:09 by WALES, DEBRA J

Significance Changed From (None) To 4
Deficiency Type Changed From (None) To Equipment
Potential Repeat Changed From (None) To No
Previous Issues (Pls, CRs) Changed From " To 'sig 4'
CR FLAGS Changed From (None) To Self-Identified
CRT Report Section(s) Changed From (None) To 1

CRT Comments Changed From '[Original Text]' To '[Appended:] Environmental monitors are configured with two independent flow indications - a flow turbine

(with totalizer) and a rotometer. SP-63-164 compares the totalizer indication to the rotometer. Based on rotometer indication, adequate sample flow wa[...]

Last Modified Date Changed From 12/29/2010 6:04:46 To 12/29/2010 12:14:09

Last Modifier Changed From LANGER JR, JAMES E To WALES, DEBRA J

12/30/2010 9:39:00 by WALES, DEBRA J

CRT Comments Changed From '[Original Text]' To '[Appended:]**BRING BACK to CRT on Monday, Jan3, 2011 - RP to address how are we trending this equipment. Should this be Sig Level 3?***'

Last Modified Date Changed From 12/29/2010 12:14:09 To 12/30/2010 9:39:00

12/30/2010 9:39:19 by WALES, DEBRA J

OR Hot Buttons Changed From (None) To CRT Bring Back

Last Modified Date Changed From 12/30/2010 9:39:00 To 12/30/2010 9:39:19

1/3/2011 9:11:15 by ADAMS, RICHARD W

CRT Comments Changed From '[...]' To '[Appended:]**BRING BACK to CRT on Monday, Jan3, 2011 - RP to address how are we trending this equipment. Should this be Sig Level 3?***' To '[...]' RP has been working with the vendor to determine any issues with the flow turbines, which are new in the recently installed air samplers. Until they are proven reliable, rotometers will be used as a secondary device. If it is not possible to[more diffs...]

Last Modified Date Changed From 12/30/2010 9:39:19 To 1/3/2011 9:11:15

Last Modifier Changed From WALES, DEBRA J To ADAMS, RICHARD W

1/3/2011 9:13:00 by ADAMS, RICHARD W

RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)

Last Modified Date Changed From 1/3/2011 9:11:15 To 1/3/2011 9:13:00

1/3/2011 9:38:49 by WALES, DEBRA J - power

CRT Report Section(s) Changed From 1 To 2

CRT Comments Changed From '[Original Text]' To '[Appended:] Per CRT on 01/03/2011 - RP added verbiage as requested. Approved Sig 4. As screened'

Last Modified Date Changed From 1/3/2011 9:13:00 To 1/3/2011 9:38:49

Last Modifier Changed From ADAMS, RICHARD W To WALES, DEBRA J - power

1/3/2011 9:38:56 by WALES, DEBRA J - power

Secondary Owner Changed From ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, MCMAHON, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, 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, WALES, DEBRA J, WHITE, DARYN A, 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, YEARGIN, BARRY K

Last Modified Date Changed From 1/3/2011 9:38:49 To 1/3/2011 9:38:56

Last State Change Date Changed From 12/28/2010 16:10:14 To 1/3/2011 9:38:56

Last State Changer Changed From BROWN, DAN To WALES, DEBRA J - power

State Changed From CRT Review To Trend Review Via Transition: Complete

1/5/2011 5:33:16 by FICTUM, HOLLY C

CR Completed Date Changed From Unassigned To 1/5/2011 6:33:16

RM Attachment Links Changed From '' To '<table width=100% border=1 cellpadding=2 cellspacing=2></table>'

Owner Changed From FICTUM, HOLLY C To (None)

Secondary Owner Changed From 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, 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., WALES, DEBRA J, WHITE, DARYN A, 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 1/3/2011 9:38:56 To 1/5/2011 5:33:16

Last Modifier Changed From WALES, DEBRA J - power To FICTUM, HOLLY C

Close Date Changed From Unassigned To 1/5/2011 5:33:16

Last State Change Date Changed From 1/3/2011 9:38:56 To 1/5/2011 5:33:16

Last State Changer Changed From WALES, DEBRA J - power 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

State Change History

| | | | | | | | |
|--|---|--|--|---|---|--|--|
| Submit by WAAK, GREGORY D | Draft 9/22/2010 7:34:09 Owner : WAAK, GREGORY D | Submit by WAAK, GREGORY D | Supervisor Review 9/22/2010 7:35:00 Owner : BERNSDORF, MIKE A | Complete by BERNSDORF, MIKE A | O/R Review 9/22/2010 8:38:02 Owner : FICTUM, HOLLY C | Complete by IRLBECK, DAVID E | CRT Review 9/22/2010 16:10:04 Owner : FICTUM, HOLLY C |
| Complete by WALES, DEBRA J - power | Trend Review 9/24/2010 8:51:12 Owner : FICTUM, HOLLY C | Trend Review Complete by FICTUM, HOLLY C | All Assignments Complete 10/5/2010 9:23:13 Owner : (None) | Transfer by RECORDS MGMT | Transferred 10/5/2010 16:15:28 Owner : (None) | Print by RECORDS MGMT | Printed 10/6/2010 13:04:10 Owner : (None) |
| Validate by RECORDS MGMT | Validated 10/6/2010 13:04:19 Owner : (None) | | | | | | |

Section 1

Applicable to site: KEWA
 Record #: CR395889
Revision Number: 0
 Submitter: WAAK, GREGORY D
Submitter Dept.: KEWA - Chemistry
 Submitter Phone Number: 7630
Submitter Pager Number: 920-218-3368
 One-Line Description: Low air flow on K-41 air sampler.
 Description: When performing SP-63-164 it was noted that air flow on K-41 air sampler had dropped from 11 L.P.M. on 9/14/2010 to 4.0 L.P.M. on 9/21/2010. Flow would not normally drop at all over the course of one week. When a clean filter was installed flow remained steady at 4.0 L.P.M. The pump check indicated that the pump was pulling as it should. R.P. was notified and will investigate.
Discovery Date: 9/21/2010
Discovery Time: 11:00:00
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: Reported to R.P. for resolution.
 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: 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

Yes/No H: Yes

Question I: Does this CR affect plant safety? Yes

Yes/No I: Yes

Question J: Does this CR involve plant equipment? Yes

Yes/No J: Yes

Question K: Is this CR an environmental concern? Yes

Yes/No K: Yes

Literal 2: Unit Conditions: 100

Unit 1% Pwr: NA

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: FUNCTIONAL - Air Sampler K-41 is required to support the Radiological Environmental Monitoring Program (REMP).

At the time of discovery air sampler, K-41, was functional. Per discussion with Chemistry, the sampler has no minimum air flow requirements and remains capable of drawing samples as designed.

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? No

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.: 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: 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: I agree with the above assessment

Significance: 3
 Deficiency Type: Equipment
 Potential Repeat: No
 Previous Issues (PIs, CRs): This is similar to the issue noted in CR 395885. These two CRs document the same issue with two of the newly installed environmental air samplers. These are the first time this issue has been noted.
 CR FLAGS: Self-Identified
 CRT Report Section(s): 2
 Screening Date:
 License Renewal Flags: (None)
 Affected Department: (None)
 CRT Comments: *HI LEVEL*

CR 395885 has actions for RP and CY that will address the issues for both K-2 and K-41. Close to actions being taken under CR 395885.

Comments:

Old Record #:

Section 2

Trend Review Complete?: No
 Process Code: UNK (Unknown) Activity Codes: UNK(Unknown)
 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: 10/5/2010 10:23:13 CR Printed Date: 10/6/2010 13:04:10
 CR Validated Date: 10/6/2010 13:04:19 CR Who Validated: RECORDS MGMT
 RM Attachment Links:

Notes

RP FLS Comments by ADAMS, RICHARD W (9/22/2010 11:36:58)
 9/21/2010 approximately 1300, sent RP Instruments techs to investigate low flow indication at K-2 (Kewaunee WPS office) and K-41, (Green Bay EOF). The flow rates were measured using an F&J air flow calibrator. The flow rate at K-2 indicated 28.4 LPM, flow rate at K-41 was 29.4 LPM. The required flow rate for the environmental air samplers is 30 LPM. The acceptance band for flow rate +/- 20%, 24 to 36 LPM, so the actual flow rates were in spec. The apparent problem is with the flow turbine which sends pump speed information to the flow totalizer. Contacted the vendor and they are sending two replacement flow turbines and requested that we send the other two suspect flow turbines back so they can evaluate and determine the cause. These units have been in service at other nuclear power plants for over 5 years without issue.

Recommendations:

1. SP-63-164, Environmental Sample Collection should be revised to include the acceptable flow rate band for these samplers (30 LPM, +/- 20%, 24 to 36LPM) and that RP should be notified if the flow rates fall out of band.
2. Chemistry needs to provide updated total volumes for K-2 & K-41 to offsite vendor performing the sample analysis.

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Change History

9/22/2010 7:35:00 by WAAK, GREGORY D

Initial Actions Changed From " To 'Reported to H.P. for resolution.'

Owner Changed From WAAK, GREGORY D To BERNSDORF, MIKE A

Secondary Owner Changed From BERNSDORF, MIKE A To AITKEN, PAUL C, ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BERKEY, BONITA M, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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

Last Modified Date Changed From 9/22/2010 7:34:09 To 9/22/2010 7:35:00

Last State Change Date Changed From 9/22/2010 7:34:09 To 9/22/2010 7:35:00

State Changed From Draft To Supervisor Review Via Transition: Submit

Parent CR Changed From (None) To CR395889: KEWA - Low air flow on K-41 air sampler. (Inactive)

9/22/2010 8:38:02 by BERNSDORF, MIKE A

Description Changed From '[...] 9/21/2010. Flow would not normally drop at all over the course of one week. When a clean filter was installed flow remained steady at 4.0 L.P.M. The pump check indicated that the pump was pulling as it should. H.P. was notified and will investigate.' To '[...] 9/21/2010. Flow would not normally drop at all over the course of one week. When a clean filter was installed flow remained steady at 4.0 L.P.M. The pump check indicated that the pump was pulling as it should. R.P. was notified and will investigate.'

Initial Actions Changed From 'Reported to H.P. for resolution.' To 'Reported to R.P. for resolution.'

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, BLAKE JR, HARRY H, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, FIELD JR, JOHN R, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, PROKASH, ALVIN I, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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 To ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, SHIELDS, DAVID F, SIMMONS JR, ROY L, STAFFORD, JEFFREY T, TERRY, MICHAEL E, TURNER, ANTHONY JEROME, VIEITEZ, CARL R, WALES, DEBRA J, WHITE, DARYN A, WINKS III, GEORGE F

Last Modified Date Changed From 9/22/2010 7:35:00 To 9/22/2010 8:38:02

Last Modifier Changed From WAAK, GREGORY D To BERNSDORF, MIKE A

Last State Change Date Changed From 9/22/2010 7:35:00 To 9/22/2010 8:38:02

Last State Changer Changed From WAAK, GREGORY D To BERNSDORF, MIKE A

State Changed From Supervisor Review To O/R Review Via Transition: Complete

NewCR Changed From Yes To No

9/22/2010 10:12:16 by TERRY, MICHAEL E

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 'FUNCTIONAL - Air Sampler K-41 is required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-41, was functional. The sampler remains capable of drawing samples as designed.'

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 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 N/A

Reportable condition? Changed From (None) To No

Last Modified Date Changed From 9/22/2010 8:38:02 To 9/22/2010 10:12:16

Last Modifier Changed From BERNSDORF, MIKE A To TERRY, MICHAEL E

9/22/2010 11:36:58 by ADAMS, RICHARD W

Last Modified Date Changed From 9/22/2010 10:12:16 To 9/22/2010 11:36:58

Last Modifier Changed From TERRY, MICHAEL E To ADAMS, RICHARD W

Attachment Added: RP FLS Comments

9/22/2010 15:38:45 by TERRY, MICHAEL E

Text Answer 2 Changed From '[...]FUNCTIONAL - Air Sampler K-41 is required to support the Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-41, was functional. The sampler remains capable of drawing samples as designed.' To '[...] Radiological Environmental Monitoring Program (REMP). At the time of discovery air sampler, K-41, was functional. Per discussion with Chemistry, the sampler has no minimum air flow requirements and remains capable of drawing samples as designed.'

Last Modified Date Changed From 9/22/2010 11:36:58 To 9/22/2010 15:38:45

Last Modifier Changed From ADAMS, RICHARD W To TERRY, MICHAEL E

9/22/2010 16:10:04 by IRLBECK, DAVID E

O/R Comments Changed From " To 'I agree with the above assessment'
Last Modified Date Changed From 9/22/2010 15:38:45 To 9/22/2010 16:10:04
Last Modifier Changed From TERRY, MICHAEL E To IRLBECK, DAVID E
Last State Change Date Changed From 9/22/2010 8:38:02 To 9/22/2010 16:10:04
Last State Changer Changed From BERNSDORF, MIKE A To IRLBECK, DAVID E
State Changed From O/R Review To CRT Review Via Transition: Complete

9/23/2010 4:53:20 by LANGER JR, JAMES E

CRT Comments Changed From " To "HI LEVEL"
Last Modified Date Changed From 9/22/2010 16:10:04 To 9/23/2010 4:53:20
Last Modifier Changed From IRLBECK, DAVID E To LANGER JR, JAMES E

9/23/2010 9:17:04 by ADAMS, RICHARD W

Significance Changed From (None) To 3
Deficiency Type Changed From (None) To Non-Equipment
Potential Repeat Changed From (None) To No
Previous Issues (Pls, CRs) Changed From " To 'This is similar to the issue noted in CR 395885. These two CRs document the same issue with two of the newly installed environmental air samplers. These are the first time this issue has been noted.'
CR FLAGS Changed From (None) To Self-Identified
CRT Report Section(s) Changed From (None) To 1
CRT Comments Changed From "HI LEVEL" To "HI LEVEL* CR 395885 has actions for RP anc CY that will address the issues for both K-2 and K-41. Close to actions being taken under CR 395885.'
Last Modified Date Changed From 9/23/2010 4:53:20 To 9/23/2010 9:17:04
Last Modifier Changed From LANGER JR, JAMES E To ADAMS, RICHARD W

9/23/2010 9:17:30 by ADAMS, RICHARD W

RP Hot Buttons Changed From (None) To Environmental Monitoring (REMP)
Last Modified Date Changed From 9/23/2010 9:17:04 To 9/23/2010 9:17:30

9/24/2010 8:51:09 by WALESH, DEBRA J - power

CRT Report Section(s) Changed From 1 To 2
Last Modified Date Changed From 9/23/2010 9:17:30 To 9/24/2010 8:51:09
Last Modifier Changed From ADAMS, RICHARD W To WALESH, DEBRA J - power

9/24/2010 8:51:12 by WALESH, DEBRA J - power

Secondary Owner Changed From ANDERSON, PAMELA J, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FIELD JR, JOHN R, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, MATHEWS, BRIAN M, MCKENNA, JOANNE M, MCMAHON, BRADLY J, MCMAHON, DARRYL D, MIELKE, DAVID D, NEUSER, CRAIG J, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, PROKASH, ALVIN I, 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 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, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, LONG, CRAIG D, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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
Last Modified Date Changed From 9/24/2010 8:51:09 To 9/24/2010 8:51:12
Last State Change Date Changed From 9/22/2010 16:10:04 To 9/24/2010 8:51:12
Last State Changer Changed From IRLBECK, DAVID E To WALESH, DEBRA J - power
State Changed From CRT Review To Trend Review Via Transition: Complete

9/30/2010 13:23:14 by FICTUM, HOLLY C

Process Code Changed From (None) To UNK (Unknown)
Activity Codes Changed From (None) To UNK(Unknown)
Last Modified Date Changed From 9/24/2010 8:51:12 To 9/30/2010 13:23:14
Last Modifier Changed From WALESH, DEBRA J - power To FICTUM, HOLLY C

10/5/2010 9:22:49 by FICTUM, HOLLY C - power

Deficiency Type Changed From Non-Equipment To Equipment
Last Modified Date Changed From 9/30/2010 13:23:14 To 10/5/2010 9:22:49
Last Modifier Changed From FICTUM, HOLLY C To FICTUM, HOLLY C - power

10/5/2010 9:23:13 by FICTUM, HOLLY C

CR Completed Date Changed From Unassigned To 10/5/2010 10:23:13
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, 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, EVANS, WENDY L, FASENMYER, TED IRA, FICTUM, HOLLY C, FIELD JR, JOHN R, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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, LOFTEN, BRUCE J, LONG, CRAIG D, MATHEWS, BRIAN M, MCMAHON, DARRYL D, NISSEL, THOMAS E, O'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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 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 10/5/2010 9:22:49 To 10/5/2010 9:23:13
Last Modifier Changed From FICTUM, HOLLY C - power To FICTUM, HOLLY C
Close Date Changed From Unassigned To 10/5/2010 9:23:13
Last State Change Date Changed From 9/24/2010 8:51:12 To 10/5/2010 9:23:13
Last State Changer Changed From WALESH, DEBRA J - power 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

Last Modified Date Changed From 10/5/2010 9:23:13 To 10/5/2010 16:15:28
Last Modifier Changed From FICTUM, HOLLY C To RECORDS MGMT
Last State Change Date Changed From 10/5/2010 9:23:13 To 10/5/2010 16:15:28
Last State Changer Changed From FICTUM, HOLLY C To RECORDS MGMT
State Changed From All Assignments Complete To Transferred Via Transition: Transfer

10/6/2010 13:04:10 by RECORDS MGMT
CR Printed Date Changed From Unassigned To 10/6/2010 13:04:10
Last Modified Date Changed From 10/5/2010 16:15:28 To 10/6/2010 13:04:10
Last State Change Date Changed From 10/5/2010 16:15:28 To 10/6/2010 13:04:10
State Changed From Transferred To Printed Via Transition: Print

10/6/2010 13:04:19 by RECORDS MGMT
CR Validated Date Changed From Unassigned To 10/6/2010 13:04:19
CR Who Validated Changed From (None) To RECORDS MGMT
Secondary Owner Changed From 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 To (None)
Last Modified Date Changed From 10/6/2010 13:04:10 To 10/6/2010 13:04:19
Last State Change Date Changed From 10/6/2010 13:04:10 To 10/6/2010 13:04:19
State Changed From Printed To Validated Via Transition: Validate

State Change History

| | | | | | | | |
|-----------------------------|---|--------------------------------|---|---|---|---|--|
| Submit by MALY, AZIZ A | Draft 10/21/2010 16:46:29 Owner : MALY, AZIZ A | Submit by MALY, AZIZ A | Supervisor Review 10/21/2010 16:56:46 Owner : OLSON, CHERYL L | Complete by OLSON, CHERYL L | O/R Review 10/21/2010 17:05:26 Owner : FICTUM, HOLLY C | Complete by MCMAHON, BRADLY J | CRT Review 10/21/2010 17:36:01 Owner : FICTUM, HOLLY C |
| CA by WALESH, DEBRA J | CRT Assignment Creation 10/25/2010 10:31:41 Owner : FICTUM, HOLLY C | Complete by WALESH, DEBRA J | Assignments Pending 10/25/2010 10:33:22 Owner : FICTUM, HOLLY C | Assignments Complete by ADAMS, RICHARD W | Trend Review 2/14/2011 13:36:25 Owner : FICTUM, HOLLY C | Trend Review Complete by FICTUM, HOLLY C | All Assignments Complete 2/26/2011 21:12:04 Owner : (None) |
| Transfer by RECORDS MGMT | Transferred 2/27/2011 18:01:31 Owner : (None) | Print by RECORDS MGMT | Printed 2/28/2011 10:01:59 Owner : (None) | Validate by RECORDS MGMT | Validated 2/28/2011 10:02:08 Owner : (None) | | |

Section 1

Applicable to site: KEWA
 Record #: CR400075
 Revision Number: 0
 Submitter: MALY, AZIZ A
 Submitter Dept.: KEWA - Rad Protection
 Submitter Phone Number: 8731
 Submitter Pager Number: 7741
 One-Line Description: Environmental Air sample location is different from Current REMM
 Description: Environmental Air sample K-7 located at Ron Zimmerman Farm, 17620 Nero Rd, Two Rivers. has been moved and relocated as K-43 at location Gary Maigatter Property, 17333 Highway 42, Two Rivers. the relocation was captured in the ITS REMM which will be effective DEC,4th. this CR is to determine how physical location was changed prior to REMM Revision showing location
 Discovery Date: 10/21/2010
 Discovery Time: 0:00:16
 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: none
 Additional C/A processes req'd?: Other
 Text Question 1: Provide details for any Additional C/A processes needed:
 Text Answer 1:
 C/As Initiated (REA, WR, ETC):
 Tag Hung: No
 Tag Number:
 Additional Contacts:
 Supervisor - CR Review: OLSON, CHERYL L
 Question G: Is this CR an Operability/Reportability Issue Requiring O/R Review?

| | |
|---|--|
| <input type="checkbox"/> Yes/No G: | Yes |
| <input type="checkbox"/> Question H: | Does this CR affect personnel safety? |
| <input type="checkbox"/> Yes/No H: | No |
| <input type="checkbox"/> Question I: | Does this CR affect plant safety? |
| <input type="checkbox"/> Yes/No I: | No |
| <input type="checkbox"/> Question J: | Does this CR involve plant equipment? |
| <input type="checkbox"/> Yes/No J: | No |
| <input type="checkbox"/> Question K: | Is this CR an environmental concern? |
| <input type="checkbox"/> Yes/No K: | No |
| <input type="checkbox"/> Literal 2: | Unit Conditions: |
| <input type="checkbox"/> Unit 1% Pwr: | 100 |
| <input type="checkbox"/> Unit 2% Pwr: | NA |
| <input checked="" type="checkbox"/> Unit 3% Pwr: | NA |
| <input type="checkbox"/> Unit 1 Mode: | 1 - OPERATING |
| <input type="checkbox"/> Unit 2 Mode: | NA |
| <input type="checkbox"/> Unit 3 Mode: | NA |
| <input type="checkbox"/> OP-AA-102 Review Req'd?: | No |
| <input checked="" type="checkbox"/> Is a TS SSC Affected?: | No |
| <input type="checkbox"/> TS SSC Operability Assessment: | N/A |
| <input type="checkbox"/> Text Question 2: | Basis for operability: |
| <input type="checkbox"/> Text Answer 2: | N/A - as noted this is a paperwork issue only all evaluations have been complete. |
| <input type="checkbox"/> 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? |
| <input type="checkbox"/> Yes / No L: | No |
| <input type="checkbox"/> 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. |
| <input checked="" type="checkbox"/> Is an IOD Assignment Required?: | No |
| <input type="checkbox"/> LCO entered: | No |
| <input checked="" type="checkbox"/> Applicable LCO: | |
| <input checked="" type="checkbox"/> Non-TS SSC Functionality Assessment.: | N/A |
| <input type="checkbox"/> 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. |
| <input checked="" type="checkbox"/> Does it impact a TS SSC?: | N/A |
| <input type="checkbox"/> 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. |
| <input type="checkbox"/> Is a RAS Assignment Needed?: | No |
| <input type="checkbox"/> 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. |
| <input type="checkbox"/> SSC Qualification Status: | N/A |
| <input checked="" type="checkbox"/> Reportable condition?: | No |
| <input type="checkbox"/> Text Question 3: | Reportability Comments: |
| <input type="checkbox"/> Text Answer 3: | |
| <input type="checkbox"/> Can IOD be established?: | (None) |
| <input type="checkbox"/> Literal 3: | If this CR is associated with any system leakage, provide answers to the following: |
| <input checked="" type="checkbox"/> Leak Classification: | (None) |
| <input type="checkbox"/> Leakage Severity: | (None) |
| <input type="checkbox"/> O/R Comments: | |
| <input type="checkbox"/> Significance: | 3 |
| <input type="checkbox"/> Deficiency Type: | Non-Equipment |

Potential Repeat: No

Previous Issues (PIs, CRs): No history of the REMM not being updated when sample locations change.

CR FLAGS: Administrative Procedure Issues
Prompted - External (NRC,INPO,Etc)

CRT Report Section(s): 2

Screening Date:

License Renewal Flags: (None)

Affected Department: (None)

☑ CRT Comments: CA to RP to determine, document and resolve issue of the REMM having a newly replaced sample location not listed in the current revision.

☑ Comments: 10/21/2010 17:05:26 - OLSON, CHERYL L:
The sampler was moved across the road. It does not effect the ability monitor any airborne releases from the plant. This is not a regulatory issue as the justification for moving the sampler location was done prior to the move.- Entered by [OLSON, CHERYL L] from [CR] [Supervisor Review]

Old Record #:

Section 2

Trend Review Complete?: No

Process Code: EVC (Environmental Controls) **Activity Codes:** COA(Coordination of Activities)

| | |
|---|--|
| 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: 2/26/2011 22:12:04 **CR Printed Date:** 2/28/2011 10:01:59

CR Validated Date: 2/28/2011 10:02:08 **CR Who Validated:** RECORDS MGMT

RM Attachment Links:

Subtasks

[Show Subtasks](#)

[Expand All](#)

Attachments

[Principal to: CA182606: KEWA - Determine, document and resolve issue of the REMM having a newly replaced sample \(Inactive\) by WALESH, DEBRA J \(10/25/2010 10:32:43\)](#)

Change History

10/21/2010 16:51:37 by MALY, AZIZ A

Description Changed From '[...]n Farm, 17620 Nero Rd, Two Rivers. has been moved and relocated as K-43 at location Gary Maigatter Property, 17333 Highway 42, Two Rivers. the relocation was captured in the ITS REMM which will be effective Dec,4th. this CR is to document the change' To '[...]as K-43 at location Gary

Maigatter Property, 17333 Highway 42, Two Rivers. the relocation was captured in the ITS REMM which will be effective DEC.4th. this CR is to determine how physical location was changed prior to REMM Revision showing location'
Last Modified Date Changed From 10/21/2010 16:46:29 To 10/21/2010 16:51:37

10/21/2010 16:56:46 by MALY, AZIZ A

Method of Discovery Changed From (None) To SEFI (Self Identified)
Associated w/ Equipment Location? Changed From (None) To Yes
System(s) Changed From (None) To 63-MET--METEOROLOGICAL/ENV
Initial Actions Changed From " To 'none'

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, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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

Last Modified Date Changed From 10/21/2010 16:51:37 To 10/21/2010 16:56:46

Last State Change Date Changed From 10/21/2010 16:46:29 To 10/21/2010 16:56:46

State Changed From Draft To Supervisor Review Via Transition: Submit

Parent CR Changed From (None) To CR400075: KEWA - Environmental Air sample location is different from Current REMM (Inactive)

10/21/2010 17:05:26 by OLSON, CHERYL L

Associated w/ Equipment Location? Changed From Yes To No
System(s) Changed From 63-MET--METEOROLOGICAL/ENV To N/A
Additional C/A processes req'd? Changed From N/A To Other

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

Comments Changed From " To '[Appended:] The sampler was moved across the road. It does not effect the ability monitor any airborne releases from the plant. This is not a regulatory issue as the justification for moving the sampler location was done prior to the move.- Entered by [O...]

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, BLASIOLI, PAUL A, BRENNAN JR, EDWARD, CHRISTENSEN, ALAN R, CORBIN, WILLIAM D, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DOERING JR, BARRY J, EVANS, WENDY L, FARINHOLT III, LUTHER, FASENMYER, TED IRA, GAUGER, BRAD R, GUINAN, PATRICIA B, GUM, CLARENCE L, GUTNER, SOPHIE, GWYNN, GLENN ROXY, HANLEY, ROBERT J, HARRIS, BRIAN LLOYD, HENRY, ERNEST R, HOLDSWORTH, EDNA K, HOUSE, ALEX J, KASTNER, ROBERT J, KULTERMAN, TIMOTHY W, LANGAN, JEFFRY A, LAWRENCE, DOUGLAS C, MORRIS JR, KENNETH BRUCE, NELSON, THOMAS M, NICHOLAS, CANDACE G, NICHOLS, MICHAEL A, O'CONNOR, THOMAS R, PHELPS, PAUL A, PIETRYK, CAROL L, PORTER, ROBERT J, PRIBEK, BARBARA A, ROTH, JAMES R, SCACE, STEPHEN E, SIERACKI, DIANE J, 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 To ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, 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 10/21/2010 16:56:46 To 10/21/2010 17:05:26

Last Modifier Changed From MALY, AZIZ A To OLSON, CHERYL L

Last State Change Date Changed From 10/21/2010 16:56:46 To 10/21/2010 17:05:26

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

10/21/2010 17:36:01 by MCMAHON, BRADLY J

Tag Hung Changed From (None) To No

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 - as noted this is a paperwork issue only all evaluations have been complete.'

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 10/21/2010 17:05:26 To 10/21/2010 17:36:01

Last Modifier Changed From OLSON, CHERYL L To MCMAHON, BRADLY J

Last State Change Date Changed From 10/21/2010 17:05:26 To 10/21/2010 17:36:01

Last State Changer Changed From OLSON, CHERYL L To MCMAHON, BRADLY J

State Changed From O/R Review To CRT Review Via Transition: Complete

10/22/2010 9:10:58 by ADAMS, RICHARD W

Significance Changed From (None) To 3

Deficiency Type Changed From (None) To Non-Equipment

Potential Repeat Changed From (None) To No

Previous Issues (PIs, CRs) Changed From " To 'No history of the REMM not being updated when sample locations change.'

CRT Report Section(s) Changed From (None) To 1
CRT Comments Changed From " To 'CA to RP to determine, document and resolve issue of the REMM having a newly replaced sample location not listed in the current revision.'

Last Modified Date Changed From 10/21/2010 17:36:01 To 10/22/2010 9:10:58

Last Modifier Changed From MCMAHON, BRADLY J To ADAMS, RICHARD W

10/25/2010 7:02:19 by FICTUM, HOLLY C

Process Code Changed From (None) To EVC (Environmental Controls)

Activity Codes Changed From (None) To COA(Coordination of Activities)

Last Modified Date Changed From 10/22/2010 9:10:58 To 10/25/2010 7:02:19

Last Modifier Changed From ADAMS, RICHARD W To FICTUM, HOLLY C

10/25/2010 10:31:41 by WALESH, DEBRA J

Last Modified Date Changed From 10/25/2010 7:02:19 To 10/25/2010 10:31:41

Last Modifier Changed From FICTUM, HOLLY C To WALESH, DEBRA J

Last State Change Date Changed From 10/21/2010 17:36:01 To 10/25/2010 10:31:41

Last State Changer Changed From MCMAHON, BRADLY J To WALESH, DEBRA J

State Changed From CRT Review To CRT Assignment Creation Via Transition: CA

10/25/2010 10:32:44 by WALESH, DEBRA J

Last Modified Date Changed From 10/25/2010 10:31:41 To 10/25/2010 10:32:44

Attachment Added: CA182606: (None) - Determine, document and resolve issue of the REMM having a newly replaced sample

10/25/2010 10:33:22 by WALESH, DEBRA J

CRT Report Section(s) Changed From 1 To 2

Secondary Owner Changed From ANDERSON, PAMELA J, ASBEL, DENNIS C, BAILEY, JEFFREY NOEL, BOUCHE, DANNY L, BRADLEY, DEBRA A, BRENNAN JR, EDWARD, BRINKMAN, CHARLES A, BROWN, DAN, CAMPBELL, DWIGHT D, CHRISTENSEN, ALAN R, CRIST, MICHAEL D, CURFMAN, LAWRENCE J, DILANDRO, ERIC WARREN, DYKSTRA, DALE E, EDWARDS, CHARLES K, EVANS, WENDY L, FASENMYER, TED IRA, FITZWATER, DAVID I, FRANSON, DALE M, GAUGER, BRAD R, GUINAN, PATRICIA B, 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'CONNOR, THOMAS R, PATTERSON, DALE A, PRESL, BRIAN G, PRIBEK, BARBARA A, 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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 10/25/2010 10:32:44 To 10/25/2010 10:33:22

Last State Change Date Changed From 10/25/2010 10:31:41 To 10/25/2010 10:33:22

State Changed From CRT Assignment Creation To Assignments Pending Via Transition: Complete

2/14/2011 13:36:25 by ADAMS, RICHARD W

Secondary Owner Changed From 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, FASENMYER, TED IRA, FICTUM, HOLLY C, FITZWATER, DAVID I, GUINAN, PATRICIA B, 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'CONNOR, THOMAS R, PATTERSON, DALE A, POWELL, HEATHER S, PRESL, BRIAN G, PRIBEK, BARBARA A, 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 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, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNOR, 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, YEARGIN, BARRY K

Last Modified Date Changed From 10/25/2010 10:33:22 To 2/14/2011 13:36:25

Last Modifier Changed From WALESH, DEBRA J To ADAMS, RICHARD W

Last State Change Date Changed From 10/25/2010 10:33:22 To 2/14/2011 13:36:25

Last State Changer Changed From WALESH, DEBRA J To ADAMS, RICHARD W

State Changed From Assignments Pending To Trend Review Via Transition: Assignments Complete

2/26/2011 21:12:04 by FICTUM, HOLLY C

CR Completed Date Changed From Unassigned To 2/26/2011 22:12:04

RM Attachment Links Changed From " To '<table width=100% border=1 cellpadding=2 cellspacing=2></table>'

Owner Changed From FICTUM, HOLLY C To (None)

Secondary Owner Changed From 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, MILLER, JEANNINE R, NISSEL, THOMAS E, O'CONNOR, 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, 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 2/14/2011 13:36:25 To 2/26/2011 21:12:04

Last Modifier Changed From ADAMS, RICHARD W To FICTUM, HOLLY C

Close Date Changed From Unassigned To 2/26/2011 21:12:04

Last State Change Date Changed From 2/14/2011 13:36:25 To 2/26/2011 21:12:04

Active/Inactive Changed From Active To Inactive
State Changed From Trend Review To All Assignments Complete Via Transition: Trend Review Complete

47

2/27/2011 18:01:31 by RECORDS MGMT
Last Modified Date Changed From 2/26/2011 21:12:04 To 2/27/2011 18:01:31
Last Modifier Changed From FICTUM, HOLLY C To RECORDS MGMT
Last State Change Date Changed From 2/26/2011 21:12:04 To 2/27/2011 18:01:31
Last State Changer Changed From FICTUM, HOLLY C To RECORDS MGMT
State Changed From All Assignments Complete To Transferred Via Transition: Transfer

2/28/2011 10:01:59 by RECORDS MGMT
CR Printed Date Changed From Unassigned To 2/28/2011 10:01:59
Last Modified Date Changed From 2/27/2011 18:01:31 To 2/28/2011 10:01:59
Last State Change Date Changed From 2/27/2011 18:01:31 To 2/28/2011 10:01:59
State Changed From Transferred To Printed Via Transition: Print

2/28/2011 10:02:08 by RECORDS MGMT
CR Validated Date Changed From Unassigned To 2/28/2011 10:02:08
CR Who Validated Changed From (None) To RECORDS MGMT
Secondary Owner Changed From 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 To (None)
Last Modified Date Changed From 2/28/2011 10:01:59 To 2/28/2011 10:02:08
Last State Change Date Changed From 2/28/2011 10:01:59 To 2/28/2011 10:02:08
State Changed From Printed To Validated Via Transition: Validate