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Perry Nuclear Power Plant
Docket No. 50-440
Annual Environmental and Effluent Release Report

Ladies and Gentlemen:

Enclosed is the Annual Environmental and Effluent Release Report for the Perry Nuclear Power Plant (PNPP), Unit 1, for the period of January 1, 2006, through December 31, 2006. This document includes the radiological environmental operating report, radioactive effluent release report, and the non-radiological environmental operating report which satisfies the requirements of the PNPP Technical Specification, the PNPP Offsite Dose Calculation Manual, and the Environmental Protection Plan, Appendix B of the PNPP Operating License.

If you have any questions or require additional information, please contact Mr. Michael J. Alfonso at (440) 280-7204.

L. W. Pearce

Enclosure:

cc: NRC Project Manager
NRC Region III
NRC Resident Inspector Office

IE48


Perry Nuclear Power Plant
Annual
Environmental & Effluent
Release Report
2006

2006

ANNUAL ENVIRONMENTAL AND EFFLUENT RELEASE REPORT

for the Perry Nuclear Power Plant

PREPARED BY:
CHEMISTRY SECTION
PERRY NUCLEAR POWER PLANT
FIRSTENERGY NUCLEAR OPERATING COMPANY
PERRY, OHIO
MARCH, 2007

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EXECUTIVE SUMMARY

The Annual Environmental and Effluent Release Report (AEERR) details the results of environmental and effluent monitoring programs conducted at the Perry Nuclear Power Plant (PNPP) from January 01 through December 31, 2006. This report meets all of the requirements in PNPP Technical Specifications, the Environmental Protection Plan (EPP), and Regulatory Guide 1.21. It incorporates the requirements of the Annual Radioactive Effluent Release Report (ARERR), the Annual Radiological Environmental Operating Report (AREOR) and the Annual Environmental Operating Report (AEOR). Report topics include radioactive effluent releases, radiological environmental monitoring, land use census, clam/mussel monitoring, herbicide use, and special reports. The results of the environmental and effluent programs, for 2005, indicate that the operations of the Perry Nuclear Power Plant did not result in any significant environmental impact.

RADIOACTIVE EFFLUENT RELEASES

During the normal operation of a nuclear power plant, small quantities of radioactivity may be released to the environment in liquid and gaseous effluents. Radioactive material may also be released as solid waste. PNPP maintains a comprehensive program to control and monitor the release of radioactive materials from the site in accordance with Nuclear Regulatory Commission (NRC) release regulations.

The dose to the general public from the plant's liquid and gaseous effluents was below the applicable regulatory limits. The calculated hypothetical maximum individual whole body dose potentially received by an individual resulting from PNPP liquid effluents was 1.64E-03 mrem (0.06 % of the applicable limit). The calculated hypothetical maximum individual whole body dose potentially received by an individual resulting from PNPP gaseous effluents was 4.05E-03 mrem (0.08% of the applicable limit). The summation of the hypothetical maximum individual dose from effluents in 2006 is equivalent to < 0.1 % of the total dose an individual living in the PNPP area receives from all sources of radiation.

Shipments of solid waste consisted of waste generated during water treatment, radioactive material generated during normal daily operations and maintenance, and irradiated components. PNPP complied with applicable regulations governing radioactive shipments in 2006, making shipments of solid radioactive waste to a licensed burial site.

RADIOLOGICAL ENVIRONMENTAL MONITORING

The Radiological Environmental Monitoring Program (REMP) was established in 1981 to monitor the radiological conditions in the environment around PNPP. The REMP is conducted in accordance with PNPP Technical Specifications and the Offsite Dose Calculation Manual (ODCM). This program includes the collection and analysis of environmental samples and evaluation of results.

The REMP was established at PNPP six (6) years before the plant became operational. This pre-operational program was designed to provide data on background radiation and radioactivity normally present in the area. PNPP has continued to monitor the environment during plant operation by collecting and analyzing samples of air, precipitation, milk, fish, produce, water and sediment, as well as by measuring radiation directly.

There were over 3000 radioactivity analyses performed on the 1302 radiological environmental samples collected in 2006. The results of the REMP indicate the adequacy of the control of the release of radioactivity in the effluents from PNPP. These results also demonstrate that PNPP complies with applicable federal regulations. The REMP results are divided into four sections: atmospheric monitoring, terrestrial monitoring, aquatic monitoring, and direct radiation monitoring.

Samples of air were collected to monitor the radioactivity in the atmosphere. The 2006 results were similar to those observed for the pre-operational and operational programs from prior years. Only natural background environmental radioactivity was detected.

Terrestrial monitoring included the analysis of milk and produce. The PNPP ODCM does not require vegetation or soil samples to be included in the monitoring program. The results of the sample analyses in 2006 indicated concentrations of radioactivity similar to that found in previous years. Analyses of other terrestrial samples also detected concentrations of natural radioactivity similar to those observed in previous years, and indicated no build-up of radioactivity attributable to the operation of PNPP.

Aquatic monitoring included the collection and analyses of water, fish, and shoreline sediments. The 2006 analytical results for water and fish samples showed normal background radionuclide concentrations. The results of sediment sample analyses indicated that the annual average cesium radioactivity was similar to previous years for the control location. Cesium-137 activity was detected in five (5) of the twelve (12) samples collected. The average cesium-137 radioactivity for all locations was 480.42 pCi/kg and is within the maximum value of 864 pCi/kg established in 1981.

In 1999, a sediment sample of the northwest drain impoundment (sampling location #64) was analyzed to contain 62 pCi/kg of cobalt-60. During 2006, enhanced monitoring activities continued within the boundaries of the impoundment. The cobalt-60 remains centered within the organic material located at the top of the spillway, with little or no activity found farther upstream. Sample analyses continue to identify cobalt-60 levels similar to those found in previous years. Refer to Table 16 for detailed sample results.

Direct radiation measurements showed no change from previous years. The indicator locations averaged 64.77 mrem/year and control locations averaged 62.56 mrem/year. In 2006, radiation dose in the area of PNPP was similar to the radiation dose measured at locations greater than ten (10) miles away from the Plant.

Based on these results, during 2006, the operation of the PNPP resulted in no significant increase in the radionuclide concentrations observed in the environment.

LAND USE CENSUS

In order to estimate radiation dose attributable to the operation of PNPP, the potential pathways through which public exposure can occur must be known. To identify these exposure pathways, an Annual Land Use Census is performed as part of the REMP. During the census, PNPP personnel travel every public road within a five (5) mile radius of the plant to locate key radiological exposure pathways. These key pathways include the nearest resident, garden, and milk animal in each of the sixteen meteorological sectors. The information obtained from the census is entered into a computer program, which is used to assess the hypothetical dose to members of the public. In recent years, however, it has been noted that tracts of land once used for farming are now being developed as mini-industrial parks and residential housing tracts. This is reflected in the loss of available milking animals within a five mile radius of PNPP to support the Radiological Environmental Monitoring Program (REMP). For 2006, the predominant land use within the census area continues to be rural/agricultural.

CLAM/MUSSEL MONITORING

Clam and mussel shells can clog plant piping and components that use water from Lake Erie. For this reason, sampling for clams and mussels has been conducted in Lake Erie in the vicinity of PNPP since 1971. The monitoring is specifically for Corbicula (Asiatic clams), since their introduction into the Great Lakes, in 1981, and for Dreissena (zebra mussels), since their discovery in Lake Erie, in 1989. Since no Corbicula have ever been found at PNPP, routine Corbicula monitoring will provide early detection capability, when this pest species arrives at PNPP. The Dreissena program includes both monitoring and control and is directed at minimizing the mussel's impact on plant operation. As in past years, this program has successfully prevented Dreissena from causing any major operational problems at PNPP.

HERBICIDE USE

The use of herbicides on the PNPP site is monitored to ensure compliance with Ohio Environmental Protection Agency (OEPA) requirements and to protect the site's natural areas. Based on the results of on-site herbicide applications, and weekly general site inspections, herbicide use has not had a negative impact on the environment around the plant.

SPECIAL REPORTS

Significant environmental events (for example, spills, releases), noncompliance with environmental regulations [e.g., Ohio Environmental Protection Agency (OEPA) discharge limits], and changes in plant design or operation that affect the environment are reported to regulatory agencies as they occur.

Two special reports were submitted in 2006:

- On February 10, 2006, the Perry Plant reported a noncompliance to the OEPA due to exceeding the effluent limit for pH while draining chemically contaminated water from a valve pit.
- On July 8, 2006, the Perry Plant report a noncompliance to the OEPA due to exceeding the maximum daily limit for total suspended solids (TSS) for internal station 601, neutralized demineralizers regenerant waste. This daily exceedance caused the monthly average to be exceeded, which was reported too.

INTRODUCTION

Nuclear energy provides an alternative energy source, which is readily available and has very limited impact upon the environment. To more fully understand nuclear energy as a source of generating electricity, one must understand basic radiation concepts and its occurrence in nature.

RADIATION FUNDAMENTALS

Atoms are the basic building blocks of all matter. Simply described, atoms are made up of positively and negatively charged particles, and particles which are neutral. These particles are called protons, electrons, and neutrons, respectively. The relatively large protons and neutrons are packed together in the center of the atom called the nucleus. Orbiting around the nucleus are one or more smaller electrons. In an electrically neutral atom, the positively charged protons in the nucleus balance the negatively charged electrons. Due to their dissimilar charges, the protons and electrons have a strong attraction for each other, which helps hold the atom together. Other attractive forces between the protons and neutrons keep the densely packed protons from repelling each other, and preventing the nucleus from breaking apart.

Atoms with the same number of protons in their nuclei make up an element. The number of neutrons in the nuclei of an element may vary. Atoms with the same number of protons but different numbers of neutrons are called isotopes. All isotopes of the same element have the same chemical properties and many are stable or non-radioactive. An unstable or radioactive isotope of an element is called a radioisotope, or radionuclide. Radionuclides contain an excess amount of energy in the nucleus, which is usually due to an excess number of neutrons.

Radioactive atoms attempt to reach a stable, non-radioactive state through a process known as radioactive decay. Radioactive decay is the release of energy from an atom's nucleus through the emission of radiation. Radionuclides vary greatly in the frequency with which their atoms release radiation. The length of time an atom remains radioactive is defined in terms of its half-life. Half-life is defined as the time required for a radioactive substance to lose half its activity through the process of radioactive decay. Half-lives vary from millionths of a second to millions of years.

RADIATION AND RADIOACTIVITY

Radioactive decay is a process in which the nucleus of an unstable atom becomes more stable by spontaneously emitting energy. Radiation refers to the energy that is released when radioactive decay occurs within the nucleus. This section includes a discussion on the three (3) primary forms of radiation produced by radioactive decay.

Alpha Particles

Alpha particles consist of two protons and two neutrons and have a positive charge. Because of their charge and large size, alpha particles do not travel very far when released (less than 4 inches, in air). They are unable to penetrate any solid material, such as paper or skin, to any significant depth. However, if alpha particles are released inside the body, they can damage the soft internal tissues because they deposit all their energy in a small area.

Beta Particles

Beta particles are essentially free electrons, which usually carry a negative electrical charge. They are much smaller than alpha particles and travel at nearly the speed of light. Thus they can travel for longer distances than alpha particles. External beta radiation primarily affects the skin. Because of their electrical charge, paper, plastic or thin metals can stop beta particles.

Gamma Rays

Gamma rays are bundles of electromagnetic energy, called photons, which behave as though they were particles. They are similar to visible light, but of a much higher energy. Gamma rays can travel long distances in air and are often released during radioactive decay, along with alpha and beta particles. Potassium-40 is an example of a naturally occurring radionuclide found in all humans that decays by emitting a gamma ray.

Interaction with Matter

When radiation interacts with other materials, it affects the atoms of those materials principally by knocking the negatively charged electrons out of orbit. This causes an atom to lose its electrical neutrality and become positively charged. An atom that is charged, either positively or negatively, is called an ion and the radiation is called ionizing radiation.

UNITS OF MEASURE

Some of the units of measure used in this report require explanation.

Activity

Activity is the number of atoms in a material that decay per unit of time. Each time an atom decays, radiation is emitted. The curie (Ci) is the unit used to describe the activity of a material and indicates the rate at which the atoms are decaying. One curie of activity indicates the decay of 37 billion atoms per second. Smaller units of the curie are often used in this report. Two common units are the microcurie (μCi), one millionth of a curie, and the picocurie (pCi), one trillionth of a curie. The mass, or weight, of radioactive material, which would result in one (1) curie of activity, depends on the disintegration rate. For example, one gram of radium-226 is equivalent to one (1) curie of activity. It would require about 1.5 million grams of natural uranium, however, to equal one (1) curie.

Dose

Biological damage due to alpha, beta, and gamma radiation may result from the ionization caused by these types of radiation. Some types of radiation, especially alpha particles, which causes dense local ionization, can result in much more biological damage for the same energy imparted than does gamma or beta radiation. Therefore, a quality factor must be applied to account for the different ionizing capabilities of various types of ionizing radiation. When the quality factor is multiplied by the absorbed dose (as measured in rads), the result is the dose equivalent, which is an estimate of the possible biological damage resulting from exposure to any type of ionizing radiation. The dose equivalent is measured in terms of the Roentgen Equivalent Man (rem). When discussing environmental radiation effects, the rem is a large unit. Therefore, a smaller unit, the millirem (mrem) is often used. One mrem is equivalent to 1/1000 of a rem.

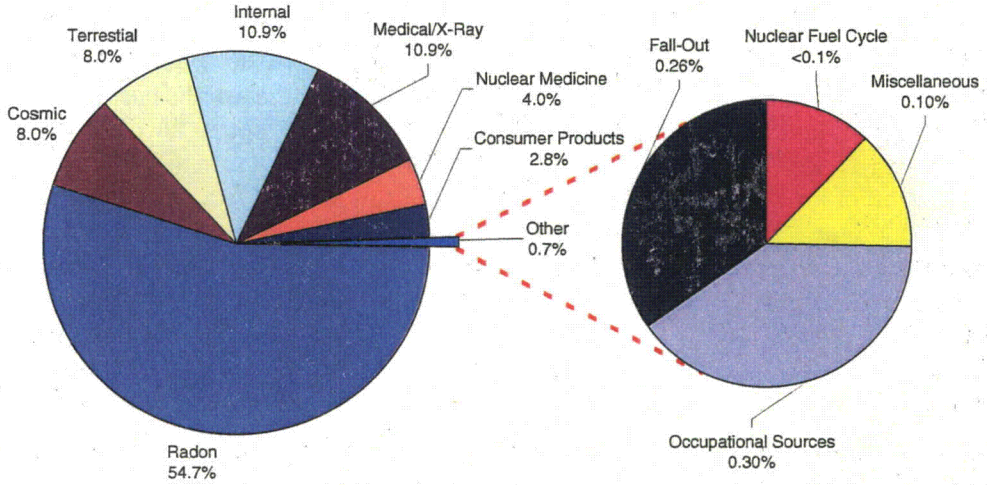
LOWER LIMIT OF DETECTION

Sample results are often reported as below the Lower Limit of Detection (LLD). The LLD for an analysis is the smallest amount of radioactive material that will show a positive result for which there can be a 95% confidence that radioactivity is present. This statistical parameter is used as a measure of the sensitivity of a sample analysis. When a measurement is reported as less than the LLD (<LLD), it means that no radioactivity was detected. Had radioactivity been present at (or above) the stated LLD value, it statistically would have been detected. The NRC has established LLD values for environmental and effluent sample analyses.

BACKGROUND RADIATION

Background radiation is a part of nature. Natural background radioactive decay occurs in the soil, water, air, and space. Common sources of radiation that contribute to the natural background radiation includes: the decay of radioactive elements in the earth's crust, a steady stream of high-energy particles from space (called cosmic radiation), naturally-occurring radioactive isotopes in the human body like potassium-40, the decay of radioisotopes used in medical procedures, man-made phosphate fertilizers (phosphates and uranium are often found together in nature), fallout from nuclear weapons testing, and even household items like smoke detectors. In the United States, a person's average annual exposure from background radiation is 360 mrem, and is due to the sources shown in Figure 1 [Source: National Council on Radiation Protection and Measurements].

Figure 1: Sources of Background Radiation



Many radionuclides are present in the environment due to sources such as cosmic radiation and fallout from nuclear weapons testing. These radionuclides are expected to be present in many of the environmental samples collected in the vicinity of PNPP. Some of the radionuclides normally present include:

- Beryllium-7, present as a result of the interaction of cosmic radiation with the upper atmosphere,
- Potassium-40, a naturally occurring radionuclide normally found in humans and throughout the environment, and
- Radionuclides from nuclear weapons testing fallout, including tritium and cesium-137. These radionuclides may also be released in minute amounts from nuclear facilities.

Beryllium-7 and potassium-40 are especially common in REMP samples. Since they are naturally occurring and are expected to be present, positive results for these radionuclides are not discussed in the section for the 2006 Sampling Program results. These radionuclides are included; however, in Appendix A, 2006 Inter-Laboratory Cross Check Comparison Program Results.

RADIOACTIVE EFFLUENT RELEASES

INTRODUCTION

The source of radioactive material in a nuclear power plant is the generation of fission products (e.g., noble gas, iodine, and particulate) or neutron activation of water and corrosion products (e.g., tritium and cobalt). The majority of the fission products generated remain within the nuclear fuel pellet and fuel cladding. Most fission products that escape from the fuel cladding, as well as the majority of the activated corrosion products, are removed by plant processing equipment.

During the normal operation of a nuclear power plant, small amounts of radioactive material are released in the form of solids, liquids, and gases. PNPP was designed, and is operated in such a manner as to control and monitor these effluent releases. Effluents are controlled to ensure any radioactivity released to the environment is minimal and within regulatory limits. Effluent release programs include the operation of monitoring systems, in-plant sampling and analysis, quality assurance, and detailed procedures covering all aspects of effluent monitoring.

The liquid and gaseous radioactive waste treatment systems at PNPP are designed to collect and process these wastes in order to remove most of the radioactivity. Effluent monitoring systems are used to provide continuous indication of the radioactivity present and are sensitive enough to measure several orders of magnitude lower than the applicable release limits. This monitoring equipment is equipped with alarms and indicators in the plant control room. The alarms are set to provide warnings to alert plant operators when radioactivity levels reach a small fraction of actual limits. The waste streams are sampled and analyzed to identify and quantify the radionuclides being released to the environment.

Gaseous effluent release data is coupled with on-site meteorological data in order to calculate the dose to the general public. Devices are maintained at various locations around PNPP to constantly sample the air in the surrounding environment. Frequent samples of other environmental media are also taken to determine if any radioactive material deposition has occurred. The Radiological Environmental Monitoring Program (REMP) is described in detail in the next section.

Generation of solid waste is carefully monitored to identify opportunities for minimization. Limiting the amount of material taken into the plant, sorting material as radioactive or non-radioactive, shredding and compacting, or incinerating waste once it is identified help to lower the volume of radioactive solid waste generated. Solid waste is shipped to a licensed burial site.

REGULATORY LIMITS

The Nuclear Regulatory Commission has established limits for liquid and gaseous effluents that comply with:

- Title 10 of the Code of Federal Regulations, Part 20 (Standards for Protection Against Radiation) [10CFR20], Appendix B;
- Title 10 of the Code of Federal Regulations, Part 50 (Domestic Licensing of Production and Utilization Facilities) [10CFR50], Appendix I; and
- Title 40 of the Code of Federal Regulations, Part 190 (Environmental Radiation Protection Standards for Nuclear Power Plants) [40CFR190].

These limits were incorporated into the PNPP Technical Specifications, and subsequently into the PNPP Offsite Dose Calculation Manual (ODCM). The ODCM prescribes the maximum doses and dose rates due to radioactive effluents resulting from the operation of PNPP. These limits are defined in several ways to limit the overall impact on persons living near the plant. Since there are

no other fuel sources near the PNPP, the 40CFR190 limits, which are described below, were not exceeded in 2006.

The 40CFR190 limit for total direct-radiation dose is 25 mrem. For 2006, the total whole body dose to a member of the general public, considering all sectors, was 1.17E-2 mrem. This value was determined by summing the annual whole body doses from liquid and gaseous radioactive effluents, the annual gaseous and liquid organ dose (refer to Table 7) and the maximum, direct-radiation dose. Since the direct radiation dose, as determined by TLD, was indistinguishable from natural background (refer to Figure 8), it was not included in the calculation.

Liquid Effluents

The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10CFR20, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases, as required by the ODCM. For dissolved or entrained noble gases, the concentration shall be limited to 2.0E-04 μCi/mL of total activity. These values are the maximum effluent concentrations.

The dose or dose commitment to a member of the public from radioactive materials in liquid effluents released to unrestricted areas shall be limited to the following:

During any calendar quarter:

Less than or equal to 1.5 mrem to the whole body, and

Less than or equal to 5 mrem to any organ.

During any calendar year:

Less than or equal to 3 mrem to the whole body, and

Less than or equal to 10 mrem to any organ.

Gaseous Effluents

Dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to the following:

Noble gases:

Less than or equal to 500 mrem per year to the whole body, and

Less than or equal to 3000 mrem per year to any organ.

Iodine-131, Iodine-133, Tritium, and all radionuclides in particulate form with half lives greater than eight days:

Less than or equal to 1500 mrem per year to any organ

Air dose due to noble gases to areas at, and beyond the site boundary, shall be limited to the following:

During any calendar quarter:

Less than or equal to 5 mrad for gamma radiation, and

Less than or equal to 10 mrad for beta radiation.

During any calendar year:

Less than or equal to 10 mrad for gamma radiation, and

Less than or equal to 20 mrad for beta radiation.

Dose to a member of the public from Iodine-131, Iodine-133, Tritium, and all radionuclides in particulate form with half lives greater than eight days in gaseous effluents released to areas at and beyond the site boundary shall be limited to the following:

Less than or equal to 7.5 mrem to any organ per any calendar quarter, and

Less than or equal to 15 mrem to any organ per any calendar year.

The PNPP ODCM does not contain a concentration reference for gaseous effluents. For this reason, effluent concentrations are not used to calculate maximum release rates for gaseous effluents.

RELEASE SUMMARY

Effluents are sampled and analyzed to identify both the type and quantity of radionuclides present. This information is combined with effluent path flow measurements to determine the composition, concentration, and dose contribution of the radioactive effluents.

Liquid Effluents

The PNPP liquid radioactive waste system is designed to collect and treat all radioactive liquid waste produced in the plant. The treatment process used for radioactive liquid waste depends on its physical and chemical properties. It is designed to reduce the concentration of radioactive material in the liquid by filtration to remove suspended solids and demineralization to remove dissolved solids. Normally, the effluent from the liquid radioactive waste system is returned to plant systems. To reduce the volume of water stored in plant systems; however, the processed liquid effluent may be discharged from the plant via a controlled release. In this case, effluent activity and dose calculations are performed prior to, and after discharging this processed water to Lake Erie to ensure regulatory compliance and dose minimization principals are maintained.

Liquid radioactive waste system effluents may be intermittently released, which are considered to be "batch" releases. Table 1 provides information on the number and duration of these releases for 2006.

Table 1: Liquid Batch Releases

	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	TOTAL
Number of batch releases	1	2	2	19	24
Total time period for batch releases, min	2.62E+03	5.52E+02	5.59E+02	4.68E+03	8.41E+03
Maximum time for a batch release, min	2.62E+03	2.87E+02	3.53E+02	2.88E+02	2.62E+03
Average time period for a batch release, min	2.62E+03	2.76E+02	2.80E+02	2.46E+02	3.50E+02
Minimum time for a batch release, min	2.62E+03	2.65E+02	2.06E+02	2.03E+02	2.03E+02
Average stream flow during periods of effluent release into a flowing stream, L/min	1.70E+05	1.59E+05	2.02E+05	1.84E+05	7.68E+04

In addition to batch releases, a continuous release may occur with the release of the Turbine Building Supply Plenum Drains. The moisture from the outside air is condensed and flows into a drain pan. During hot, humid months with low wind speed, the potential exists for some of the gaseous effluent exhaust from the plant to be recycled back into the plant through the Turbine Building Supply Plenums. Since the air from the plant gaseous effluents can contain tritium, then the water in the exhaust plenums can also contain tritium. One such continuous release did occur during the year with a duration of 192279 minutes and a discharge volume of 7.05E+06 liters. Tritium concentration for this release was 2.35E-07 μCi/ml. Table 2b provides information for releases in 2006.

Table 2 provides information on the nuclide composition for the liquid radioactive effluent system releases. If a radionuclide was not present at a level "greater than or equal to the LLD" (≥LLD), then the value is expressed as "less than the LLD" (<LLD). In each case, LLDs were met, or were below the levels required by the ODCM. Table 2a provides information specific to radioactive effluent batch releases while Table 2b provides information specific to continuous radioactive effluent releases.

Table 2: Summation of All Liquid Effluent Releases

	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. Fission and Activation Products					
1. Total Released, Ci (excluding tritium, gases, alpha)	<LLD	<LLD	<LLD	2.22E-04	1.00E+01
2. Average Diluted Concentration, µCi/mL *	7.51E-04	4.18E-03	1.19E-03	4.78E-01	
3. Percent of Applicable Limit, %	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
B. Tritium					
1. Total Released, Ci	3.38E-01	1.38E+00	1.25E+00	1.42E+01	1.00E+01
2. Average Diluted Concentration, µCi/mL	1.30E-08	4.82E-08	3.14E-08	4.51E-07	
3. Percent of Applicable Limit, %	1.30E-03	4.82E-03	3.14E-03	5.78E-02	
C. Dissolved and Entrained Gases					
1. Total Released, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
2. Average Diluted Concentration, µCi/mL	<LLD	<LLD	<LLD	<LLD	
3. Percent of Applicable Limit, %	0	0	0	0	
D. Alpha Activity, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
E. Waste Volume Released, Liters (prior to dilution)	0	1.63E+06	4.92E+06	3.29E+6	1.00E+01
F. Dilution Water Volume Used, Liters	2.60E+10	2.86E+10	3.98E+10	3.15E+10	1.00E+01

<LLD – Less than the lower limit of detection
N/A – Not Applicable, the ODCM does not have a limit for fission and activation products.
**Average diluted concentrations are based on total volume of water released during quarter.*

Table 2a: Summation of Batch Liquid Effluent Releases

	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. Fission and Activation Products					
Total Released, Ci (excluding tritium, gases, alpha)	LLD	LLD	LLD	2.22E-04	1.00E+01
B. Tritium					
Total Released, Ci	7.44E-02	1.26E+00	1.19E+00	1.34E+01	1.00E+01
C. Dissolved and Entrained Gases					
Total Released, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
D. Alpha Activity, Ci	LLD	<LLD	<LLD	<LLD	1.00E+01
E. Waste Volume Released, Liters (prior to dilution)	0	1.63E+06	4.92E+06	3.29E+6	1.00E+01

<LLD – Less than the lower limit of detection

Table 2b: Summation of Continuous Liquid Effluent Releases

	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	EST. TOTAL ERROR, %
A. Fission and Activation Products					
Total Released, Ci (excluding tritium, gases, alpha)	<LLD	<LLD	<LLD	<LLD	1.00E+01
B. Tritium					
Total Released, Ci	2.63E-01	1.26E-01	5.68E-02	8.92E-01	1.00E+01
C. Dissolved and Entrained Gases					
Total Released, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
D. Alpha Activity, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
E. Waste Volume Released, Liters (prior to dilution)	0	1.63E+06	4.92E+06	3.29E+6	1.00E+01

<LLD – Less than the lower limit of detection

Table 3 lists the total number of curies (Ci) of each radionuclide present in liquid effluent releases for each quarter. If a radionuclide was not present at a level "greater than or equal to the LLD" (≥LLD), then the value is expressed as "less than the LLD" (<LLD). In each case, the LLDs were either met, or were below the levels required by the ODCM.

Table 3: Radioactive Liquid Effluent Nuclide Composition

	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual Total
Tritium	Ci	7.44E-02	1.26E+00	1.19E+00	1.34E+01	1.59E+01
Chromium-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Manganese-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iron-55	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iron-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cobalt-58	Ci	<LLD	<LLD	<LLD	<LLD	2.54E-03
Cobalt-60	Ci	<LLD	<LLD	<LLD	2.22E-04	2.22E-04
Zinc-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Strontium-92	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zirconium-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Niobium-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Technetium-99M	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Rhuthenium-105	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Silver-110m	Ci	>LLD	<LLD	<LLD	<LLD	<LLD
Antimony-124	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Antimony-125	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iodine-131	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xenon-133	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cesium-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cesium-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cesium-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Lanthanum-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Gold-199	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	**Ci**	**7.44E-02**	**1.26E+00**	**1.19E+00**	**1.34E+01**	**1.59E+01**

<LLD – Less than the lower limit of detection

Gaseous Effluents

Gaseous effluents are made up of fission and activation gases, iodine and particulate releases. The fission and activation gas releases are primarily a result of containment purge operations, small steam leaks, and offgas system operation. The iodine and particulate releases are primarily a result of small steam leaks. Gaseous effluents from PNPP exit the plant via one of four effluent vents. Each of these four effluent vents contains radiation detectors that continuously monitor the air to ensure that the levels of radioactivity released are well below regulatory limits. Samples are also collected and analyzed on a routine basis to ensure regulatory compliance and dose minimization principals are maintained. The majority of gaseous effluents released from PNPP are considered continuous and at ground level.

A summation of all gaseous radioactive effluent releases is given in Table 4. If a radionuclide was not present at a level "greater than or equal to the LLD" (≥LLD), then the value is expressed as "less than the LLD" (<LLD). In each case, the measured LLDs either met or were below the levels required by the PNPP ODCM.

Table 4: Summation of All Gaseous Effluents

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error, %
A. Fission and Activation Products					
1. Total Released, Ci	5.84E-03	3.28E-02	9.48E-03	3.80E+00	1.00E+01
2. Average Release Rate, µCi/sec	7.51E-04	4.18E-03	1.19E-03	4.78E-01	
3. Percent of Applicable Limit, %	N/A	N/A	N/A	N/A	
B. Iodine					
1. Total Iodine-131 Released, Ci	<LLD	<LLD	<LLD	8.06E-05	1.00E+01
2. Average Release Rate, µCi/sec	<LLD	<LLD	<LLD	1.01E-05	
3. Percent of Applicable Limit, %	N/A	N/A	N/A	N/A	
C. Particulates with Half-Lives > 8 days					
1. Total Released, Ci	1.21E-05	2.62E-04	5.11E-04	6.24E-04	1.00E+01
2. Average Release Rate, µCi/sec	1.55E-06	3.33E-05	6.42E-05	7.85E-05	
3. Percent of Applicable Limit, %	N/A	N/A	N/A	N/A	
D. Alpha Activity, Ci	2.38E-05	1.07E-07	1.30E-06	6.51E-07	
E. Tritium					
1. Total Released, Ci	<LLD	<LLD	<LLD	<LLD	1.00E+01
2. Average Release Rate, µCi/sec	N/A	N/A	N/A	N/A	
3. Percent of ODCM Limit, %	N/A	N/A	N/A	N/A	

<LLD – Less than the lower limit of detection
N/A – Not Applicable, the ODCM does not have a limit for fission and activation products.

The radionuclide composition of all gaseous radioactive effluents for a continuous-mode, ground-level release is given in Table 5. If a radionuclide was not present at a level "greater than or equal to the LLD" (≥LLD), then the value is expressed as "less than the LLD" (<LLD). In each case, LLDs were met or were below the levels required by the ODCM.

Table 5: Radioactive Gaseous Effluent Nuclide Composition

	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Annual Total
A. Fission and Activation Gases						
Tritium	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Argon-41	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Krypton-85m	Ci	<LLD	6.57E-04	<LLD	7.26E-01	7.27E-01
Krypton-85	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Kryton-87	Ci	<LLD	1.50E-03	<LLD	5.39E-02	5.54E-02
Krypton-88	Ci	<LLD	<LLD	<LLD	1.17E+00	1.17E+00
Xenon-131m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xenon-133m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xenon-133	Ci	<LLD	4.40E-03	3.46E-03	4.49E-01	4.57E-01
Xenon-135m	Ci	<LLD	4.50E-03	<LLD	2.97E-01	3.02E-01
Xenon-135	Ci	5.84E-03	1.66E-02	6.02E-03	7.68E-01	7.96E-01
Xenon-137	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Xenon-138	Ci	<LLD	5.23E-03	<LLD	3.33E-01	3.38E-01
Total for Period	**Ci**	**5.84E-03**	**3.28E-02**	**9.48E-03**	**3.80E+00**	**3.85E+00**
B. Iodine						
Iodine-131	Ci	<LLD	<LLD	<LLD	8.06E-05	8.06E-05
Iodine-132	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iodine-133	Ci	<LLD	<LLD	<LLD	1.14E-04	1.14E-04
Iodine-134	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iodine-135	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	**Ci**	**<LLD**	**<LLD**	**<LLD**	**1.95E-4**	**1.95E-4**
B. Particulate						
Chromium-51	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Manganese-54	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Iron-59	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cobalt-58	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cobalt-60	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zinc-65	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Rubidium-88	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Rubidium-89	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Strontium-89	Ci	1.21E-05	2.62E-04	5.11E-4	6.24E-4	1.41E-3
Strontium-90	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Strontium-91	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Yttrium-91m	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Strontium-92	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Zirconium-95	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Molybdenum-99	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Cesium-137	Ci	<LLD	9.53E-06	<LLD	<LLD	9.53E-06
Cesium-138	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Barium-139	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Barium-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Lanthanum-140	Ci	<LLD	<LLD	<LLD	<LLD	<LLD
Total for Period	**Ci**	**1.21E-05**	**2.72E-04**	**5.11E-4**	**6.24E-4**	**9.53E-06**

<LLD – Less than the lower limit of detection

Solid Waste

There were no shipments of PNPP solid radioactive waste transported, by truck, directly to the Barnwell, South Carolina, disposal facility for burial. Solid radioactive waste from PNPP was processed and combined with waste from several other utilities by intermediate vendors (Duratek in Oak Ridge, TN and Studsvik in Erwin, TN). This waste was ultimately sent to the Barnwell, South Carolina, or Clive, Utah, disposal facilities for burial. No irradiated fuel or components were transported from PNPP in 2006. The solid radioactive waste summary in Table 6 includes all PNPP shipments.

Table 6: Solid Waste Shipped Offsite for Burial or Disposal

A. Type of Solid Waste Shipped	Volume m^3	Activity Ci	Period	Est. Total Error %
Spent resin, filter sludge, evaporator bottoms, etc.	11.450	1320.0	1/1/2006-12/31/2006	+/- 25
Dry compressible waste, contaminated equipment, etc.	62.10	9.672	1/1/2006-12/31/2006	+/- 25
Irradiated components, control rods, etc.	0	0	N/A	N/A
Other (describe)	0	0	N/A	N/A

B. Estimate of Major(1) Nuclide Composition (by type of waste)	Radionuclide	Abundance %	Est. Total Error, %
Spent Resin, Filter Sludge, Evaporator Bottoms, etc.	Mn-54 Fe-55 Zn-65 Co-60	9.2 19.1 6.9 62.7	± 25
Dry Compressible Waste, Contaminated Equipment, etc.	Mn-54 Fe-55 Co-60 Ni-63 Zn-65 Cs-134	4.3 30.9 31.8 2.9 26.1 1.1 2.0	± 25
Irradiated Components, Control Rods, etc.	None	N/A	N/A
Other (describe)	None	N/A	N/A

C. Disposition	Number of Shipments	Mode of Transportation	Destination
Solid Waste(2)	0	N/A	N/A
Irradiated Fuel Shipments	0	N/A	N/A

N/A -- Not Applicable

(1) -- "Major" is defined as any individual radionuclide identified as >1% of the waste type abundance.

(2) -- Additional shipments were made to Studsvik, in Erwin, TN; Duratek, Oak Ridge, TN. This waste was combined with waste from other utilities disposed of at Barnwell, SC or Envirocare of Utah.

METEOROLOGICAL DATA

The Meteorological Monitoring System at PNPP consists of a 60-meter tower equipped with two independent systems for measuring wind speed, wind direction, and temperature at both 10-meter and 60-meter heights. The tower also has instrumentation to measure dew point and barometric pressure. Data is logged from the tower through separate data loggers, and transmitted to a common plant computer. This system compiles the data and calculates a variety of atmospheric parameters, communicates with the Meteorological Information Dose Assessment System (MIDAS), and sends data over communication links to the plant Control Room.

DOSE ASSESSMENT

The maximum concentration for any radioactive release is controlled by the limits set forth in Title 10 of the Code of Federal Regulations, Part 20 (10CFR20). Sampling, analyzing, processing, and monitoring the effluent stream ensures compliance with these concentration limits. Dose limit compliance is verified through periodic dose assessment calculations. Some dose calculations are conservatively performed for a hypothetical individual who is assumed to reside on the site boundary at the highest potential dose location all year. This person, called the "maximum individual", would incur the maximum potential dose from direct exposure (air plus ground plus water), inhalation, and ingestion of water, milk, vegetation, and fish. Because no one actually meets these criteria, the actual dose received by a real member of the public is significantly less than what is calculated for this hypothetical individual.

Dose calculations for this maximum individual at the site boundary are performed for two cases. First, they are performed using data for a 360° radius around the plant site (land and water based meteorological sectors), even though some of these sectors are over Lake Erie, which has no permanent residents. The second calculation is performed considering only those sectors around the plant in which people reside (land-based meteorological sectors).

The calculated hypothetical, maximum individual dose values at the site boundary are provided in Table 7. This table considers all meteorological sectors around PNPP and provides either the whole body or worst-case, organ dose values. If any radionuclide was not present at a level greater than the LLD, it was not used in the dose calculations.

Table 7: Maximum Individual Site Boundary Dose, Considering All Sectors

TYPE OF DOSE	ORGAN	ESTIMATED DOSE, mrem	LIMIT	% OF LIMIT
Liquid Effluent	Whole body	7.17E-04	3.0E+00	2.4E-02
	Liver	7.19E-04	1.0E+01	7.2E-03
Noble Gas - gamma air	N/A	6.41E-03	1.0E+01	6.4E-02
- beta air	N/A	2.15E-03	2.0E+01	1.1E-02
Noble Gas	Whole body	4.05E-03	5.0E+00	8.1E-02
	Skin	6.21E-03	1.5E+01	4.1E-02
Particulate & Iodine	Thyroid	1.34E-02	1.5E+01	8.9E-02

The calculated hypothetical, maximum population dose values at the site boundary are provided in Table 8. This table considers all meteorological sectors around PNPP and provides either the whole body or worst-case, organ dose values.

Table 8: Population Dose, Considering All Sectors

	ORGAN	ESTIMATED DOSE person-rem
Liquid Effluent	Whole body	2.41E-01
	Thyroid	2.4E-01
Gaseous Effluent	Whole body	1.2E-04
	Thyroid	1.1E-04

Table 9 provides the calculated hypothetical maximum site boundary dose values considering only the land-based sectors. If any radionuclide was not present at a level greater than the LLD, it was not used in the dose calculations.

Table 9: Maximum Individual Site Boundary Dose, Considering Sectors on Land

TYPE OF DOSE	ORGAN	ESTIMATED DOSE, mrem	LIMIT	% OF LIMIT
Liquid Effluent	Whole body	1.64E-03	3.0E+00	5.5E-02
	G-I Tract	1.64E-03	1.0E+01	1.6E-02
Noble Gas - gamma air	N/A	6.41E-03	1.0E+01	6.4E-02
- beta air	N/A	2.15E-03	2.0E+01	1.1E-02
Noble Gas	Whole body	4.05E-03	5.0E+00	8.1E-02
	Skin	6.21E-03	1.5E+01	4.1E-02
Particulate & Iodine	Bone	1.34E-02	1.5E+01	8.9E-02

Other dose calculations are performed for a hypothetical individual who is assumed to be inside the site boundary for some specified amount of time. This person would receive the maximum dose during the time spent inside site boundary. Because no one actually meets the criteria established for these conservative calculations, the actual dose received by a real member of the public is significantly less than what is calculated for this hypothetical individual. This dose is assessed relative to the offsite dose, and considers dilution, dispersion, and occupancy factors.

The highest hypothetical dose from liquid effluents to a member of the public inside the site boundary is to a person who is fishing on Lake Erie from the shore on PNPP property. The calculations assume that this person will spend 60 hours per year fishing, with a liquid dilution factor of 10. The ratio of the exposure pathway to the doses calculated for offsite locations yields the dose values shown in Table 10.

Table 10: Maximum Site Dose from Liquid Effluents

	WHOLE BODY DOSE, mrem	ORGAN DOSE, mrem
First Quarter	0.0E+00	0.0E+00
Second Quarter	0.0E+00	0.0E+00
Third Quarter	0.0E+00	0.0E+00
Fourth Quarter	1.3E-05	1.5E-05
Annual	1.3E-05	1.5E-05

Although several cases were evaluated to determine the highest hypothetical dose from gaseous effluents to members of the public inside site boundary, the activity inside the site boundary with the highest dose potential is also shoreline fishing. The cases evaluated included traversing a public road within the site boundary, shoreline fishing (assuming fishing 60 hours per year), non-plant related training, car-pooling, and job interviews. The maximum on-site gaseous doses generated are shown in Table 11.

Table 11: Maximum Site Dose from Gaseous Effluents

	WHOLE BODY DOSE, mrem	ORGAN DOSE, mrem
First Quarter	4.4E-06	9.9E-09
Second Quarter	2.9E-06	8.3E-05
Third Quarter	8.7E-06	7.7E-06
Fourth Quarter	4.4E-04	6.7E-04
Annual	4.4E-04	6.7E-04

An average whole body dose to individual members of the public at or beyond the site boundary is then determined by combining the dose from gaseous and liquid radiological effluents. The dose from gaseous radiological effluents is based upon the population that lives within 50 miles of PNPP (2,420,000 people). The dose from liquid radiological effluents is determined for the population that receives drinking water from intakes within 50 miles of PNPP (1,820,000 people). The results of this calculation are provided in Table 12.

Table 12: Average Individual Whole Body Dose

	Liquid Effluents (mrem)	Gaseous Effluents (mrem)
First Quarter	8.3E-10	2.5E-14
Second Quarter	3.3E-09	2.0E-12
Third Quarter	5.4E-08	9.5E-12
Fourth Quarter	4.5E-08	3.6E-11
Annual	1.0E-07	5.0E-11

ABNORMAL RELEASES

There were no abnormal radioactive release events during 2006.

On September 5, 2006, routine work activities required the use of a Coppus blower to ventilate the Offgas Building. Ventilation was established to an open manway door, and inadvertently created the potential for an unmonitored release path. Sampling of the area verified that no radiological releases occurred. This incident was documented in Condition Report 06-04029.

NON-COMPLIANCES

There was one (1) non-compliance to the ODCM Controls requirements in 2006.

In March, 2006, the Perry Plant began supplemental monitoring of the underdrains system (P72) as a response to tritium releases to groundwater in Region 3. On March 28, 2006, tritium was discovered in the underdrains system at Perry. A root cause investigation was conducted under Condition Report 06-01477, and a comprehensive testing plan was established as part of the corrective actions.

There have been no indications of tritium release from the plant through other pathways besides the underdrains. The underdrain system discharges ultimately to the suction bay of the Emergency Service Water pumphouse, which discharges to the approved plant outfall. All identified tritium releases to date have been incorporated as part of this report.

OFFSITE DOSE CALCULATION MANUAL CHANGES

During this reporting period, there were no (0) revisions to the Offsite Dose Calculation Manual.

PROCESS CONTROL PROGRAM CHANGES

During this reporting period, there was no (0) change to the Process Control Program.

RADIOLOGICAL ENVIRONMENTAL MONITORING

INTRODUCTION

The Radiological Environmental Monitoring Program (REMP) was established at PNPP for several reasons. First, it verifies the adequacy of plant design and operation to control radioactive materials and limit effluent releases. Second, it assesses the radiological impact, if any, that the plant has had on the surrounding environment. Third, it ensures compliance with regulatory guidelines. The REMP is conducted in accordance with the PNPP Operating License, Appendix B, Technical Specifications and the ODCM. The Nuclear Regulatory Commission (NRC) established the REMP requirements.

A wide variety of samples are collected as part of the PNPP REMP. The selection of sample types, sampling locations, and sample collection frequency are based on many things. Potential pathways for the transfer of radionuclides through the environment to humans, sample availability, local meteorology, population characteristics, land use and NRC requirements are all considered.

To ensure that the REMP data are meaningful and useful, detailed sampling methods and procedures are followed. This ensures that samples are collected in the same manner and from the same locations each time. All samples are packaged on site, then shipped to an independent vendor laboratory for analysis. The vendor laboratory analyzes the samples and reports results to the PNPP Chemistry Unit staff, the Lake County General Health District, and the State of Ohio Department of Health.

The REMP began in 1981 with 24 direct radiation monitoring locations, four sediment locations, and two fish sampling locations. In 1982, collections of air, water, milk, food products, and feed/silage were added. Vegetation, precipitation and soil were added in 1985. Although the NRC did not require these last three media, they were incorporated into the program to establish baseline data. In 1993, feed/silage sampling was dropped from the program, based on ten years worth of data. For the same reason, strontium analyses were deleted from the program in 1994, gross beta and tritium were deleted from precipitation analyses in 1995, and precipitation sampling was deleted entirely in 1996. In 1999, grass and soil sampling were dropped from the program.

SAMPLING LOCATIONS

REMP samples are collected at numerous locations, both on site and up to 22 miles away from the plant. Sampling locations are divided into two general categories: indicator and control. Indicator locations are those which would be most likely to display effects caused by plant operation. They are relatively close to the plant. Control locations are those which are considered to be unaffected by plant operation. Typically, they are a greater distance from the plant, in the least prevalent wind directions. Data obtained from the indicator locations are compared with data from the control locations. This comparison allows naturally occurring background radiation to be taken into account when evaluating any radiological impact PNPP may have had on the environment. Table 13, Figure 2, Figure 3 and Figure 4 identify the PNPP REMP sampling locations.

Many REMP samples are collected in addition to those required by the PNPP ODCM. The ODCM requirements for each sample type are discussed in more detail below. Sample types and locations required by the ODCM are shown in **Bold** in Table 13.

Table 13: REMP Sampling Locations [1]

Location #	Description	Miles	Direction	Media[2]
1	Chapel Road	3.4	ENE	TLD, AIP
2	Kanda Garden	1.9	ENE	Food Products
3	Meteorological Tower	1.0	SE	TLD, AIP
4	Site Boundary	0.7	S	TLD, AIP
5	Quincy Substation	0.6	SW	TLD, Air
6	Concord Service Center	11.0	SSW	TLD, AIP
7	Site Boundary	0.6	NE	TLD, AIP
8	Site Boundary	0.8	E	TLD
9	Site Boundary	0.7	ESE	TLD
10	Site Boundary	0.8	SSE	TLD
11	Parmly Rd.	0.6	SSW	TLD
12	Site Boundary	0.6	WSW	TLD
13	Madison-on-the-Lake	4.7	ENE	TLD
14	Hubbard Rd.	4.9	E	TLD
15	Eagle St. Substation	5.1	ESE	TLD
16	Eubank Garden.	0.8	S	Food Products
20	Rainbow Farms	1.9	E	Food Products
21	Hardy Rd.	5.1	WSW	TLD
22	Corfias Farm (goat)	4.9	S	Milk
23	High St. Substation	7.9	WSW	TLD
24	St. Clair Ave.	15.1	SW	TLD
25	Offshore - PNPP discharge	0.6	NNW	Sediment, Fish
26	Offshore - Redbird	4.2	ENE	Sediment
27	Offshore - Fairport Harbor	7.9	WSW	Sediment
28	CEI Ashtabula Plant Intake	22.0	ENE	Water
29	River Rd.	4.3	SSE	TLD
30	Lane Rd.	4.8	SSW	TLD
31	Wood and River Rd.	4.8	SE	TLD
32	Offshore - Mentor	15.8	WSW	Sediment, Fish
33	River Rd.	4.5	S	TLD
34	PNPP Intake	0.7	NW	Water
35	Site Boundary	0.6	E	TLD, AIP
36	Lake County Water Plant	3.9	WSW	TLD, Water
37	Gerlica Farm	1.5	ENE	Food Products
41	Tuttle Farm (goat)	5.8	SSE	Milk
51	Rettger Milk Farm (cow)	9.6	S	Milk
53	Neff Perkins	0.5	WSW	TLD
54	Hale Rd. School	4.6	SW	TLD
55	Center Rd.	2.5	S	TLD
56	Madison High School	4.0	ESE	TLD
58	Antioch Rd.	0.8	ENE	TLD
59	Lake Shoreline at Green Rd.	4.0	ENE	Water
60	Lake Shoreline at Perry Park	1.0	WSW	Water
61	Keller Milk Farm (goat)	7.4	SE	Milk
63	Minor Stream Mouth	0.08	NNE	Sediment
64	Northwest Drain Mouth	0.09	NW	Sediment
65	Major Stream Mouth	0.18	W	Sediment
70	H&H Farm Stand	16.2	SSW	Food Products

(1) chronologically missing location numbers denote deleted or retired sampling locations.

(2) AIP = Air, Iodine and Particulate
Veg = Vegetation
TLD = Thermoluminescent Dosimeter

SAMPLE ANALYSIS

When environmental samples are analyzed for radioactivity, several types of measurements are performed to provide information about the types of radiation and radionuclides present. The major analyses that are performed are discussed below.

Gross beta activity measures the total amount of beta-emitting radioactivity present in a sample, and acts as a tool to identify samples that may require further analysis. Beta radiation may be released by many different radionuclides. Since beta decay results in a continuous energy spectrum rather than the discrete energy levels, or "peaks", associated with gamma radiation, identification of specific beta-emitting nuclides is much more difficult. Therefore, gross beta activity only indicates whether the sample contains normal, or abnormal amounts of beta-emitting radioactivity; it does not specifically identify the radionuclides present.

Gamma spectral analysis provides more specific information than does the analysis for gross beta activity. Gamma spectral analysis identifies each radionuclide, and the amount of radioactivity, present in the sample emitting gamma radiation. Each radionuclide has a very specific "fingerprint" that allows for accurate identification and quantification.

Iodine activity analysis measures the amount of radioactive iodine present in a sample. Some media (for example, air sample charcoal cartridges) are analyzed directly by gamma spectral analysis. With other media (for example, milk), the radioiodines are extracted by chemical separation before being analyzed by gamma spectral analysis.

Tritium activity analysis measures the amount of the radionuclide tritium (H-3) present in a sample. Tritium is an isotope of hydrogen that emits low-energy beta particles. Tritium occurs naturally and is also man-made.

Gamma doses received by Thermoluminescent Dosimeters (TLD) while in the field are determined by a special laboratory procedure. Thermoluminescence is a process by which ionizing radiation interacts with the sensitive phosphor material in the TLD. Energy is trapped in the TLD material and can be stored for months or years. This capability provides an excellent method to measure the dose received over long periods of time. The amount of energy that was stored in the TLD as a result of interaction with radiation is released by a controlled heating process and measured in a calibrated reading system. As the TLD is heated, the phosphor releases the stored energy as light. The amount of light is directly proportional to the amount of radiation to which the TLD was exposed. The reading process also zeroes the TLD and prepares it for reuse. Table 14 provides a list of the analyses performed on environmental samples collected for the PNPP REMP in 2006.

Sample results are often reported as less than the lower limit of detection (< LLD), which is defined as the smallest amount of radioactive material that will show a positive result for which there can be confidence that radioactivity is present. This statistical parameter is used as a measure of the sensitivity of a sample analysis. When a measurement is reported as < LLD, it means that no radioactivity was detected at a value above, or equal to the appropriate ODCM table value. The NRC has established LLD values for REMP sample analyses. The vendor laboratory for REMP sample analyses complied with those values in 2006.

Figure 2: REMP Sampling Locations Within Two Miles of Plant Site

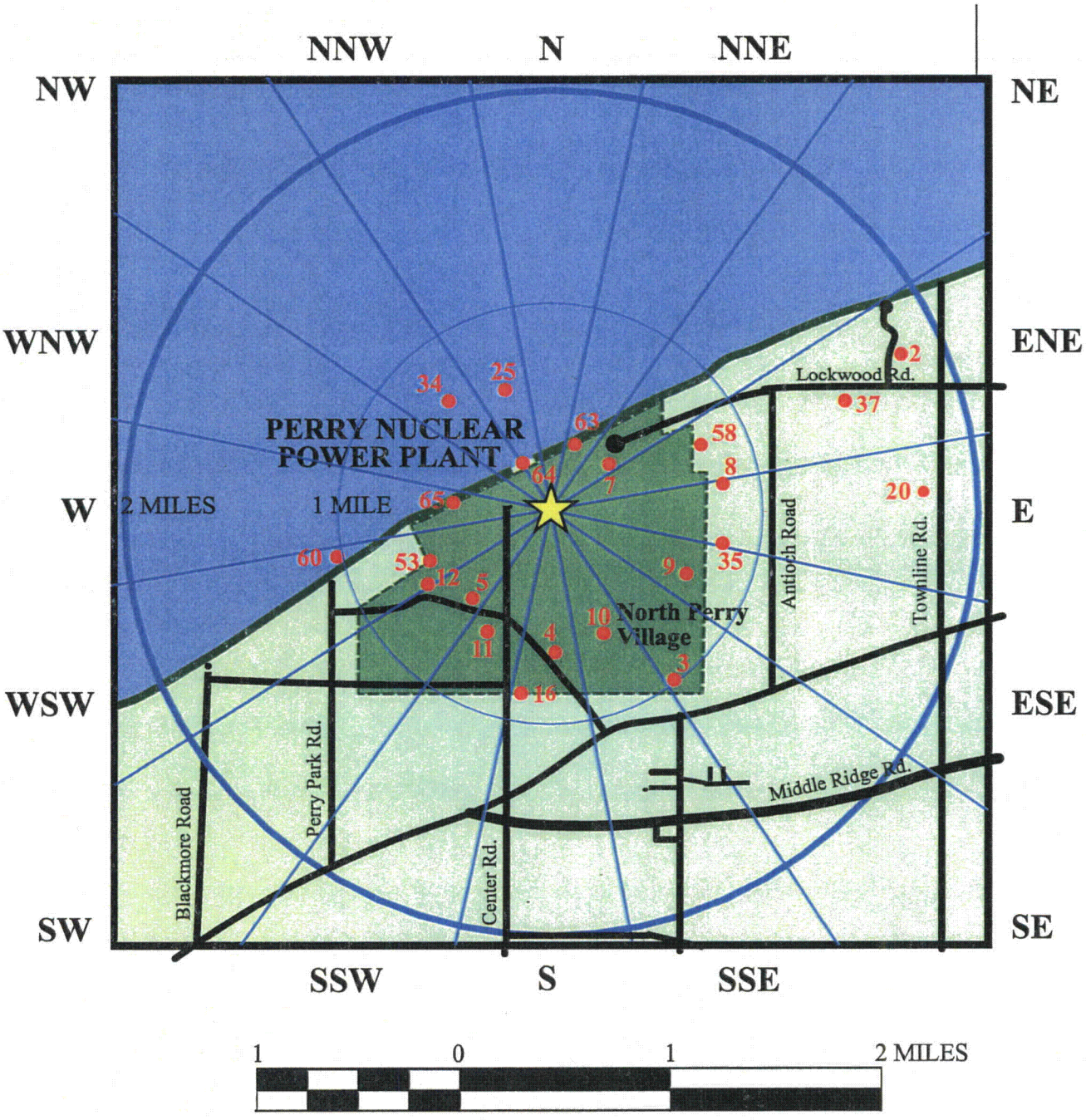
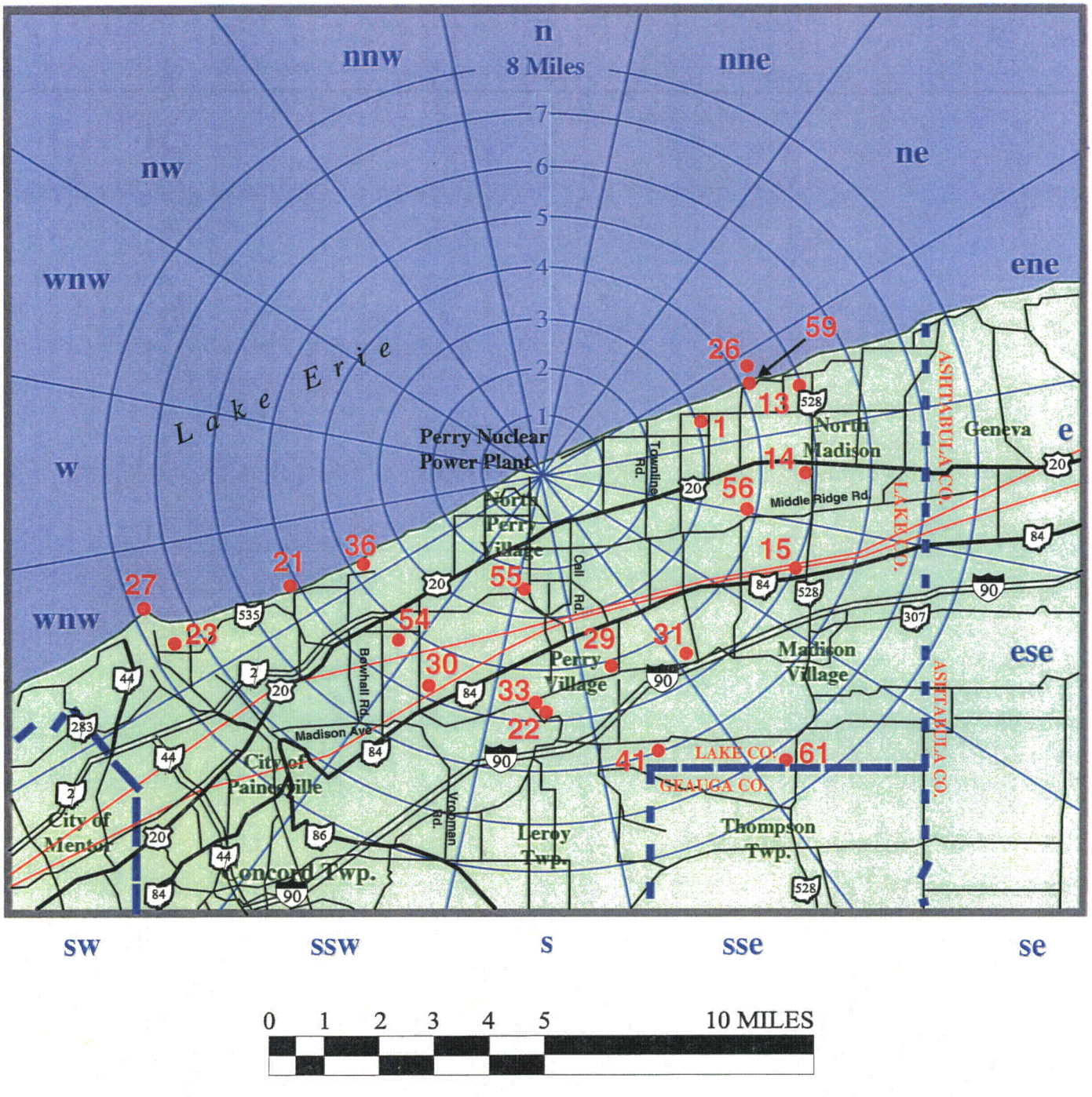


Figure 3: REMP Sampling Locations Between Two and Eight Miles of Plant Site



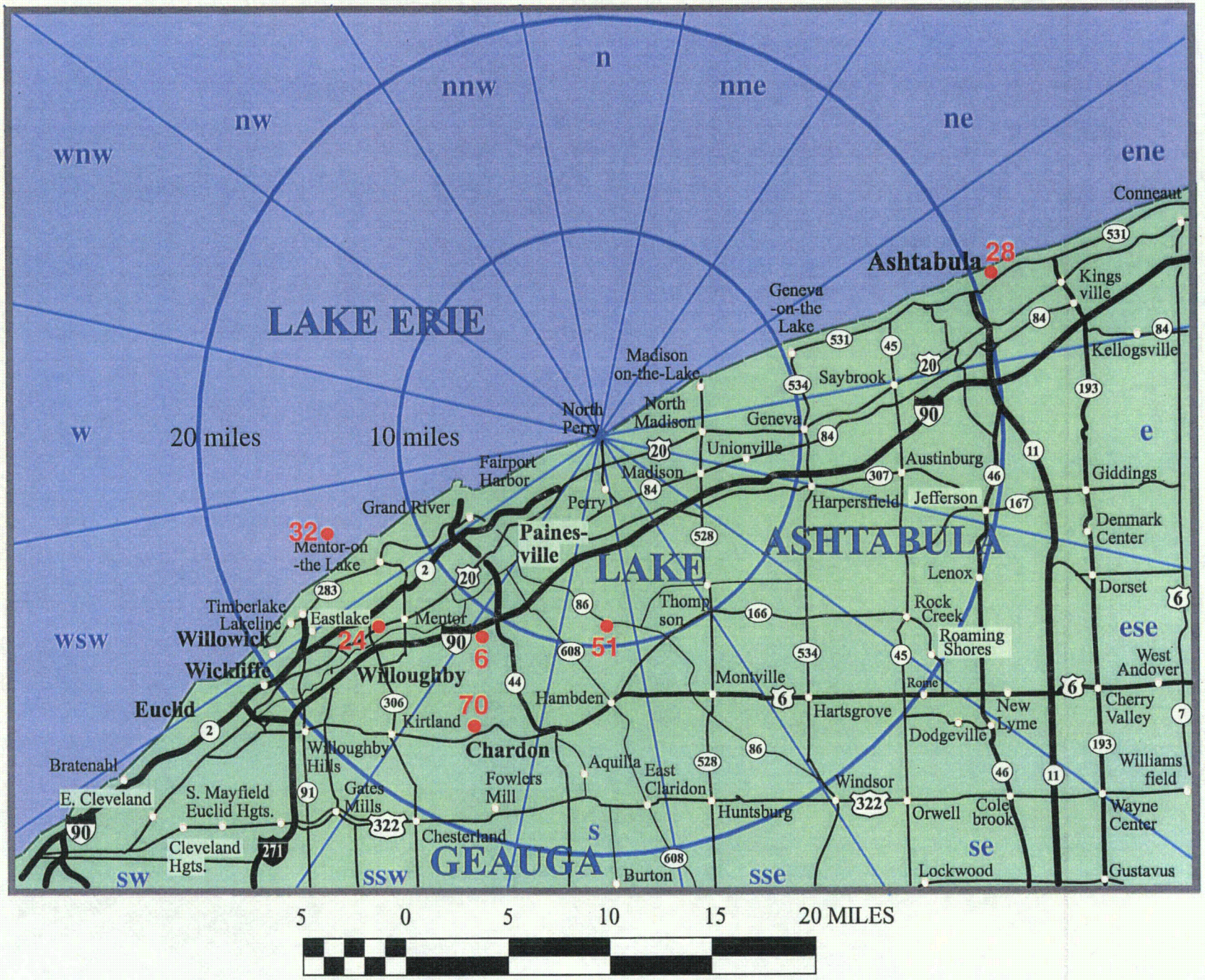


Figure 4: REMP Sampling Locations Greater Than Eight Miles from the Plant Site

Table 14: REMP Sample Analyses

TYPE	SAMPLE	FREQUENCY	ANALYSIS
Atmospheric Monitoring	Airborne Particulates	Weekly, Quarterly	Gross Beta Activity Gamma Spectral Analysis
	Airborne Radioiodine	Weekly	Iodine-131
Terrestrial Monitoring	Milk	Bi-Monthly	Gamma Spectral Analysis Iodine-131
	Food Products	Monthly	Gamma Spectral Analysis
	Vegetation	As Required	Gamma Spectral Analysis
Aquatic Monitoring	Water	Monthly Quarterly	Gross Beta Activity, Gamma Spectral Analysis Tritium Activity
	Fish	Annually	Gamma Spectral Analysis
	Sediment	Biannually	Gamma Spectral Analysis
Direct Radiation Monitoring	TLD	Quarterly	Gamma Dose
		Annually	Gamma Dose

2006 SAMPLING PROGRAM

The contribution of radionuclides to the environment resulting from PNPP operation is assessed by comparing results from the 2006 program with pre-operational data (i.e., data from before 1986), operational data from previous years, and control location data. The results for each sample type are discussed below and compared to historical data to determine if there are any observable trends. All results are expressed as concentrations. Refer to Appendix B, 2006 REMP Data Summary Reports for a detailed listing of these results. The NRC requires special reporting whenever sample analysis results exceed set limits. No values exceeded these reporting levels in 2006.

Program Changes

A new milk animal location was identified during the 2005 Land Use Census. In June 2006, the Corfias Farm (sample location 22) officially began participation in the REMP program.

Missed Samples

On occasion, samples cannot be collected. This can be due to a variety of events, including equipment malfunction, animal husbandry practices, or lost shipments. Events may also occur which prevent a sample from being collected in the normal way, or prevent a complete sample from being collected. The drying period for goats is an annual occurrence, since unlike cows, goats cannot produce milk year-round. Food products are weather dependent and are susceptible to excessive spring rains or summer drought that can significantly impact the garden harvest. Shoreline lake water samples are collected by grab sample utilizing a container and scoop. During the winter months the shoreline can become inaccessible due to ice and snow buildup, preventing the safe collection of these samples. Shoreline sediment samples are collected with spoon and container. On occasion, the accessibility of these locations and sample collection may be impacted due to high lake levels, shifting lake bottom sand or bluff erosion and shoreline collapse. Table 15 provides information on samples missed during 2006.

SAMPLE ANALYSIS

When environmental samples are analyzed for radioactivity, several types of measurements are performed to provide information about the types of radiation and radionuclides present. The major analyses that are performed are discussed below.

Gross beta activity measures the total amount of beta-emitting radioactivity present in a sample, and acts as a tool to identify samples that may require further analysis. Beta radiation may be released by many different radionuclides. Since beta decay results in a continuous energy spectrum rather than the discrete energy levels, or "peaks", associated with gamma radiation, identification of specific beta-emitting nuclides is much more difficult. Therefore, gross beta activity only indicates whether the sample contains normal, or abnormal amounts of beta-emitting radioactivity; it does not specifically identify the radionuclides present.

Gamma spectral analysis provides more specific information than does the analysis for gross beta activity. Gamma spectral analysis identifies each radionuclide, and the amount of radioactivity, present in the sample emitting gamma radiation. Each radionuclide has a very specific "fingerprint" that allows for accurate identification and quantification.

Iodine activity analysis measures the amount of radioactive iodine present in a sample. Some media (for example, air sample charcoal cartridges) are analyzed directly by gamma spectral analysis. With other media (for example, milk), the radioiodines are extracted by chemical separation before being analyzed by gamma spectral analysis.

Tritium activity analysis measures the amount of the radionuclide tritium (H-3) present in a sample. Tritium is an isotope of hydrogen that emits low-energy beta particles. Tritium occurs naturally and is also man-made.

Gamma doses received by Thermoluminescent Dosimeters (TLD) while in the field are determined by a special laboratory procedure. Thermoluminescence is a process by which ionizing radiation interacts with the sensitive phosphor material in the TLD. Energy is trapped in the TLD material and can be stored for months or years. This capability provides an excellent method to measure the dose received over long periods of time. The amount of energy that was stored in the TLD as a result of interaction with radiation is released by a controlled heating process and measured in a calibrated reading system. As the TLD is heated, the phosphor releases the stored energy as light. The amount of light is directly proportional to the amount of radiation to which the TLD was exposed. The reading process also zeroes the TLD and prepares it for reuse. Table 14 provides a list of the analyses performed on environmental samples collected for the PNPP REMP in 2006.

Sample results are often reported as less than the lower limit of detection (< LLD), which is defined as the smallest amount of radioactive material that will show a positive result for which there can be confidence that radioactivity is present. This statistical parameter is used as a measure of the sensitivity of a sample analysis. When a measurement is reported as < LLD, it means that no radioactivity was detected at a value above, or equal to the appropriate ODCM table value. The NRC has established LLD values for REMP sample analyses. The vendor laboratory for REMP sample analyses complied with those values in 2006.

Table 14: REMP Sample Analyses

TYPE	SAMPLE	FREQUENCY	ANALYSIS
Atmospheric Monitoring	Airborne Particulates	Weekly, Quarterly	Gross Beta Activity Gamma Spectral Analysis
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	Food Products	Monthly	Gamma Spectral Analysis
	Vegetation	As Required	Gamma Spectral Analysis
Aquatic Monitoring	Water	Monthly Quarterly	Gross Beta Activity, Gamma Spectral Analysis Tritium Activity
	Fish	Annually	Gamma Spectral Analysis
	Sediment	Biannually	Gamma Spectral Analysis
Direct Radiation Monitoring	TLD	Quarterly	Gamma Dose
		Annually	Gamma Dose

2006 SAMPLING PROGRAM

The contribution of radionuclides to the environment resulting from PNPP operation is assessed by comparing results from the 2006 program with pre-operational data (i.e., data from before 1986), operational data from previous years, and control location data. The results for each sample type are discussed below and compared to historical data to determine if there are any observable trends. All results are expressed as concentrations. Refer to Appendix B, 2006 REMP Data Summary Reports for a detailed listing of these results. The NRC requires special reporting whenever sample analysis results exceed set limits. No values exceeded these reporting levels in 2006.

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Table 15: Missed REMP Samples in 2006

MEDIA	LOCATION	DATE	REASON
Food Products	All	April, May, June, Nov. 2006	Insufficient growth or die-off/frost damage.
	20, 70	July	Excessive rain and unseasonably cold temps.
	20	August	Excessive rain and unseasonably cold temps.
	2, 16, 70	October	Excessive rain and unseasonably cold temps.
Lake Water	59	January, February 2006	Sample unavailable due to frozen shoreline
	60	January, February 2006	Sample unavailable due to frozen shoreline
Milk	22	Oct., Nov., December 2006	Drying period for goats
	41, 61	Jan., Feb., March, Oct., Nov., December 2006	Drying period for goats
Sediment	63	June and October 2006	Bluff collapse, location inaccessible
TLD	7	Annual 2006	Lost due to damage by heavy equipment

Atmospheric Monitoring

Air

Air sampling is conducted to detect any increase in the concentration of airborne radionuclides. The PNPP ODCM requires five locations (four indicator and one control). Air sampling pumps are used to draw continuous samples at a rate of approximately two cubic feet per minute. The air is drawn through glass fiber filters (to collect particulate material) and a charcoal cartridge (to adsorb iodine). The samples are collected on a weekly basis, 52 weeks a year, from each of seven air sampling stations. Six (6) of these locations are within four miles of the plant site; the seventh is used as a control location and is eleven miles from PNPP.

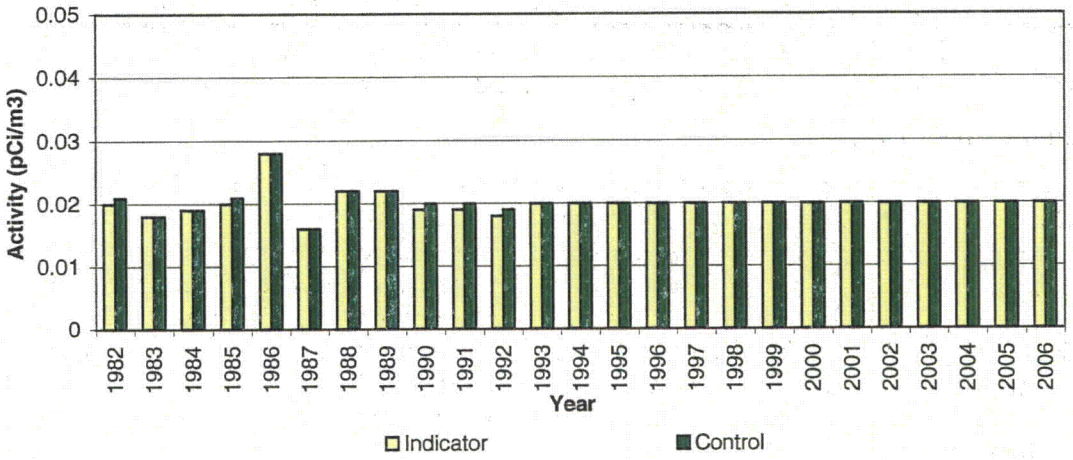
On occasion, air sample locations can experience power losses associated with storms and/or malfunctioning equipment. No power losses or missed samples due to storms or malfunctioning equipment were experienced in 2006.

Air samples are analyzed weekly for gross beta activity and radioiodine activity. The air samples are also analyzed by gamma spectral analysis quarterly. A total of 371 for air particulate and 371 air radioiodine samples were collected and analyzed in 2006.

Gross beta activity was detected in all air samples and ranged up to 0.04 pCi/m^3. The average gross beta activity at both indicator and control locations was 0.02 pCi/m^3 for 2006. Historically, the concentration of gross beta in air has been essentially identical at indicator and control locations. Figure 5 reflects the average gross beta activity for 2006 and the previous years.

Except for naturally occurring beryllium-7, no radionuclides were identified in the gamma spectral analysis above the LLD values. Iodine-131 was not detected in any sample above the LLD of 0.05 pCi/m^3.

Figure 5: Annual Average Gross Beta Activity, in Air



Terrestrial Monitoring

Collecting and analyzing samples of milk, food products and vegetation provides data to assess the build-up of radionuclides that may be ingested by humans. The historical data from soil and vegetation samples provides information on the atmospheric radionuclide deposition. The PNPP ODCM requires neither vegetation nor soil samples.

Milk

Samples of milk are collected once each month from November through March, and twice each month from April through October. Sampling is increased during the summer because animals usually feed outside on pasture and not on stored feed. For 2006 the PNPP REMP included four (4) milk locations located 4.9, 5.8, 7.4 and 9.6 miles away from the plant. In June 2006, a new milk location was added to the Program. Identified during the 2005 Land Use Census, location 22 is 4.9 miles away from the plant in the South sector. Since the majority of milk sampling locations do not meet the requirements of the ODCM (no milk-producing animals located within the required areas), food product sampling (discussed below) was performed. Milk is collected from the available locations, even though they do not meet the ODCM requirements. If new locations that meet the ODCM requirements are identified in the future, they will be added to the program.

Milk samples are analyzed by gamma spectral analysis for radioiodines and other radionuclides. A total of fifty (50) milk samples were collected in 2006. Iodine was not detected above the LLD of 0.75 pCi/L in any of the samples. The concentrations of all radionuclides, except naturally occurring potassium-40, were below LLDs in all samples collected.

Food Products

Food products can provide a direct pathway to humans by ingestion. They can absorb radionuclides from atmospheric deposition on soil or from irrigation water drawn from a lake or pond receiving airborne or liquid effluents. Also, radionuclides in the soil may be absorbed by the roots of the plants and become incorporated into the edible portions. Because there is not a sufficient number of dependable milk sampling locations, the PNPP REMP is required to include two food product indicator locations and one control location. Food products are collected monthly during the growing season from five gardens in the vicinity of PNPP. The control location for food products is 16.2 miles from PNPP.

A total of thirty-five (35) food product samples were collected and analyzed by gamma spectral analysis in 2006. Excessive rain and unseasonably cold temperatures severely limited the 2006 growing season, accounting for the missed samples referenced in Table 15. Five (5) food products were collected which included: beet greens, collard greens, turnip greens, chinese cabbage and swiss chard. Beryllium-7 and potassium-40, naturally-occurring radionuclides, were found in several samples, as expected. No other radionuclides were detected above the required LLDs.

Aquatic Monitoring

Radionuclides may be present in Lake Erie from many sources other than the PNPP. These sources include atmospheric deposition, run-off/soil erosion, and releases of radioactivity in liquid effluents from hospitals, universities or other industrial facilities. These sources provide two forms of potential radiation exposure, external and internal. External exposure can occur from contact with water or shoreline sediments, while internal exposure can occur from either direct ingestion of radionuclides or the transfer of radionuclides through the aquatic food chain. Direct ingestion can occur from drinking the water, while the transfer via the aquatic food chain occurs from the eventual consumption of aquatic organisms, such as fish. To monitor these pathways, PNPP samples water, shoreline sediments, and fish.

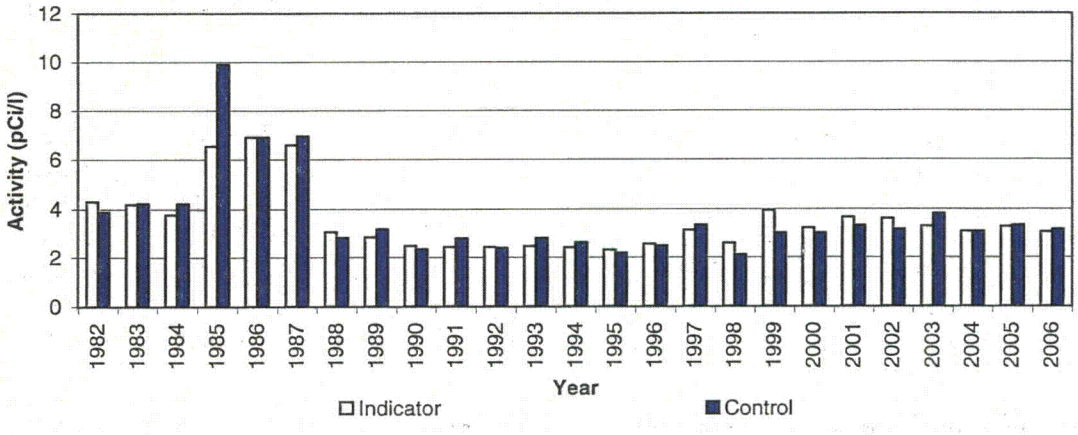
Water

Water is sampled from five locations along Lake Erie in the vicinity of the PNPP as required by the PNPP ODCM. Samples from three locations are collected using composite sample pumps. The pumps are designed to collect water at regular intervals and composite it in a sample container. The containers are emptied monthly and the samples shipped to the laboratory for analysis. Samples from two locations are collected weekly and combined. Each month the combined samples for each location are shipped for analysis.

Fifty-six (56) water samples were collected and analyzed for gross beta activity and gamma spectral analysis in 2006. From these monthly samples, a quarterly composite sample was obtained and analyzed for tritium activity. Refer to Table 15 for an explanation of any missed samples.

Gross beta activity was detected in seven (7) of the fifty-six (56) samples collected. For 2006, the detectable gross beta activity was 3.07 pCi/L vs. the lab LLD value of 3.00 pCi/L. Refer to Figure 6 for the annual average gross beta activity for both indicator and control locations. The significant difference between the pre-1988 data and post-1988 data has been attributed to a change in vendor laboratories in 1987/1988. A comprehensive explanation for the observed difference is provided in the 1988 Annual Environmental Operating Report.

Figure 6: Annual Average Gross Beta Activity, in Water



There were no radionuclides detected by gamma spectral analysis above the LLD. Tritium was not detected above the LLD value in any of the twenty (20) samples analyzed. These results are well within the range of those measured in previous years, which have ranged from below the LLD to 2,200 pCi/L.

Sediment

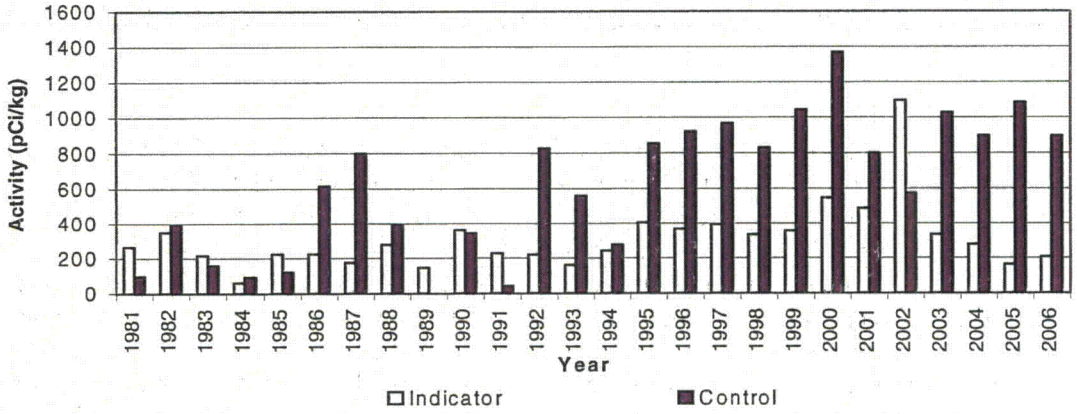
Sampling lake bottom sediments can provide an indication of the accumulation of particulate radionuclides which may lead to internal exposure to humans through the ingestion of fish, the re-suspension into drinking water, or as an external radiation source to fishermen and swimmers from shoreline exposure. Although the PNPP ODCM requires only one location, sediment is sampled twice each year from seven (7) locations. Two (2) of the sampling locations are also fish sampling locations. Sediment samples from offshore are collected using a hand dredge. Shoreline samples are collected using a scoop. Twelve (12) sediment samples were collected in 2006 and analyzed by gamma spectrometry. In 2006, shoreline sample location 63 could not be sampled due to a bluff collapse preventing access. Heavy rains and high lake levels accounted for much of the erosion and collapse.

The predominant radionuclide detected by gamma spectral analysis was naturally-occurring potassium-40. Potassium-40 has been detected in all samples, since the program began in 1981.

Cesium-137 activity was detected in five (5) of the twelve (12) samples collected and ranged from 145.25 pCi/kg to 907.86 pCi/kg. The annual average cesium-137 activity was 204.18 pCi/kg at the indicator locations and 894.77 pCi/kg at the control location. The average cesium-137 radioactivity for all locations was 480.42 pCi/kg and is within the maximum value of 864 pCi/kg established in 1981. Year-to-year variations in lake bottom sediment sample activitiy is expected and beyond the control of PNPP. For example, cesium-137 activity variations (refer to Figure 7) in the control locations from year-to-year may be contributed to:

1. The movement of sediment on the lake bottom due to wave action and currents.
2. Sampling in nearly the same location approximately 4½ miles off-shore, even with GPS, is extremely difficult.

Figure 7: Annual Average Cesium-137 Concentration in Sediment



In 1999, a sediment sample from location #64 (shoreline discharge point of the Northwest Drain Impoundment) was found to contain trace levels of cobalt-60. Ten (10) additional sample locations were established upstream from location #64 and within the Impoundment to identify the boundary of the cobalt-60 activity and to support supplemental monitoring activities. For 2006, sample results for cobalt-60 confirm that no activity was identified at the discharge point (Location #64), and continues to remain within the Northwest Drain Impoundment with activity ranging from <7.3 pCi/kg to 259 +/- 49 pCi/kg (Refer to Table 16). For information purposes, cesium-137 activity within the impoundment is reflected in Table 17.

Table 16: Northwest Drain Impoundment Cobalt-60 Activity, pCi/kg (dry)

Location	06/13/06	06/14/06	10/10/06	10/30/06
64		<7.3	<18.4	
64-1	<14.2			<15.3
64-2	24.3 +/- 12.9			37.0 +/- 19.7
64-3	<18.1			<24.4
64-4	*			*
64-5	*			<14.6
64-6	<28.7			<29.7
64-7	123 +/- 33			126 +/- 30
64-8	<18.0			<14.3
64-9	166 +/- 33			259 +/- 49
64-10	163 +/- 22			176 +/- 31

** No sample available or insufficient sample for analysis*

Table 17: Northwest Drain Impoundment Cesium-137 Activity, pCi/kg (dry)

Location	06/13/06	06/14/06	10/10/06	10/30/06
64		<11.3	<13.6	
64-1	49 +/- 28			38 +/- 23
64-2	580 +/- 51			545 +/- 49
64-3	199 +/- 41			135 +/- 37
64-4	*			*
64-5	*			<10.0
64-6	780 +/- 80			185 +/- 48
64-7	1840 +/- 90			2978 +/- 83
64-8	993 +/- 55			642 +/- 36
64-9	3882 +/- 120			2365 +/- 108
64-10	1988 +/- 64			2337 +/- 76

** No sample available or insufficient sample for analysis*

Fish

Fish are analyzed primarily to quantify the dietary radionuclide intake by humans, and secondarily to serve as indicators of radioactivity in the aquatic ecosystem. Fish are collected from two locations, annually during the fishing season as required by the ODCM. An important sport or commercial species is targeted, and only the fillets are sent to the laboratory for analysis. In 2006, fish sampling was performed for PNPP by a local licensed sport fisherman.

Two (2) fish samples representing yellow perch were collected and analyzed by gamma spectral analysis in 2006. As expected, naturally occurring potassium-40 was found in all samples. No other radionuclides were detected above the LLD.

Direct Radiation Monitoring

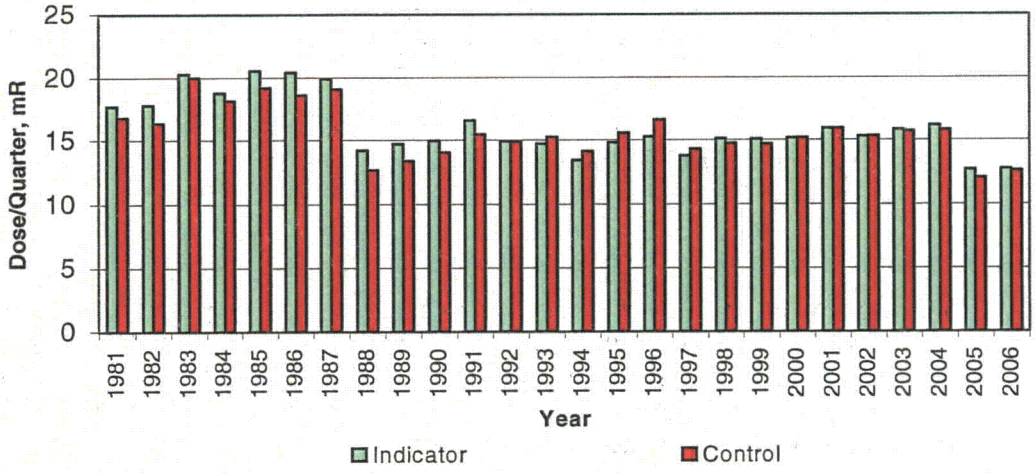
Thermoluminscent Dosimeter (TLD)

Environmental radiation is measured directly at twenty-eight locations around the PNPP site, two of which are control locations. The locations are positioned in two rings around the plant as well as at the site boundary. The inner ring is within a one-mile radius of the plant site; the outer ring is four to five miles from the plant. The control locations are over ten miles from the plant in the two least prevalent wind directions. Each location is equipped with three TLDs, two of which are changed quarterly and one is changed annually.

A total of 251 TLDs were collected and analyzed in 2006. This includes 224 collected on a quarterly basis and twenty-seven (27) of twenty-eight (28) collected annually. One annual TLD, location 7 was lost when the location was hit by construction equipment. Storm culvert repairs adjacent to the sample site were being performed following severe rains/flooding. Annual TLDs are not required per the ODCM and are used for supplemental data only.

For 2006, the annual average dose for all indicator locations was 64.77 mrem, and 62.56 mrem for the control locations. The indicator annual dose is believed to be influenced by location #36 (Figure 3) which has been consistently higher in dose than TLDs positioned closer to the plant (Figure 2). Referring to Figure 8, the average quarterly dose for all indicator locations was 12.77 mrem, and 12.64 mrem for all control locations. Please refer to Appendix B, 2006 REMP Detailed Data Report for all TLD results. Prior to 1988, the TLD results were higher due to a change in the vendor laboratory services. A comprehensive explanation of this difference was provided in the 1988 Annual Environmental Operating Report.

Figure 8: Average Quarterly TLD Dose



Conclusion

Sediment samples continue to confirm cobalt-60 in the northwest drain impoundment. Additional monitoring is being performed to monitor this location. An environmental evaluation determined that there would be less impact upon the environment by leaving this material in place. Atmospheric monitoring results were consistent with past results. The prevalent radionuclide in air was beryllium-7, which is naturally occurring. Naturally occurring potassium-40 was detected in all terrestrial samples, as expected.

Finally, direct radiation measurements are consistent with past data.

INTER-LABORATORY CROSS-CHECK COMPARISON PROGRAM

Introduction

The purpose of the Inter-laboratory Cross-Check Comparison Program (ICCCP) is to provide an independent check on the vendor laboratory's analytical procedures. Samples with a known concentration of specific radionuclides are provided to the vendor laboratory. The vendor laboratory measures and reports the concentration of specified radionuclides. The known values are then compared to the vendor results. Results consistently outside established acceptance criteria indicate a need to check instruments or procedures. Regulatory Guide 4.15 specifically required that contractor laboratories that performed environmental measurement participate in the EPA's Environmental Radioactivity Laboratory Inter-Comparison Studies Program, or an equivalent program.

The EPA's program is no longer funded or offered. The reason that the EPA program was referenced in the regulatory guide is that the EPA standards were traceable to National Bureau of Standards (now known as National Institute Standard Technology). In response to this problem, Teledyne (PNPP vendor lab) incorporated a program offered by Environmental Resource Associates (ERA Company), which covered the same analyses in the same matrix at the same frequency as the EPA program. The ERA Company has received NIST accreditation for its program, as an equivalent program. In addition to comparison cross checks performed with the ERA Company, the vendor laboratory routinely monitors the quality of their analyses by:

- Analyzing "spiked" samples (samples with a specific quantity of radioactive material present in them) and
- Participating in the Department of Energy's Mixed Analyte Performance Program (MAPEP).

Through 2004, Teledyne also participated in the Environmental Measurements Laboratory Quality Assessment Program (EML). This program was discontinued in 2005.

Conclusion

Appendix A, 2006 Inter-Laboratory Cross-Check Comparison Program Results, includes results from both the above referenced programs and the ERA Company cross-check program.

1) Table A-1, Environmental Resource Associates (ERA): Sample STW-1107 for I-131 analysis failed. The control limits were 16.9-27.3 pCi/L. Vendor results were outside the control limits, ranging from 25.36 to 29.23 pCi/L. A fourth analysis was performed which resulted in 24.89 pCi/l.
2) Table A-2 and Table A-3, In-House "Spike" Samples: The Vendor Laboratory's Cross-Check testing of Thermoluminescent Dosimetry were all within their control limits.
3) Table A-4, In-House "Blank" Samples: Two (2) milk samples, SPMI-3991 and SPMI- 6383 analyzed for Sr-90 were found to be outside the program acceptance criteria. Low levels of Sr-90 remain in the environment and concentrations of (1-5 pCi/l) found in milk is not unusual.
4) Table A-5, In-House "Duplicate" Samples: The vendor laboratory failed to duplicate the results for fish samples F-3312 (Gr. Beta) and grass sample G-6798 (K-40). The vendor attributed the cause as extended counting times which resulted in lower than expected errors.

5) Table A-6, Department of Energy MAPEP: Six (6) Sample analyses were found to be outside the expected control limits. The failed acceptance of vegetation sample STVE-1082 (Pu-238), soil samples STSO-1083 (Pu-238, Pu239/40, U-233/4, U-238) and air particulate sample STAP-1085 (Pu-238) were attributed to incomplete dissolution of the samples. All samples were reanalyzed and results found to be within control limits.

LAND USE CENSUS

Introduction

Each year a land use census, which is required by Section 3/4.12.2 of the PNPP ODCM, is conducted to identify the locations of the nearest milk animal, garden (of greater than 500 square feet), and residence in each of the meteorological sectors that is over land. Information gathered during the Land Use Census is used for off-site dose assessment and to update sampling locations for the Radiological Environmental Monitoring Program. The census is conducted by traveling all roads within a five-mile radius of the plant site, and recording and mapping the location of the nearest resident, milk animal, and vegetable garden. The 2006 Land Use Census, which was conducted July 17th and July 18th provided the garden, residence and milk animal locations tabulated in Tables 18, 19 and 20 and depicted in Figure 9. Note that the W, WNW, NNW, NW, N, and NNE sectors extend over Lake Erie, and therefore, are not included in the survey.

Discussions and Results

In general, the predominant land use within the census area continues to be rural/agricultural. In recent years however, it has been noted that tracts of land once used for farming are now being developed as mini-industrial parks and residential housing tracts. This is reflected in the loss of available milking animals within a five mile radius of PNPP to support the Radiological Environmental Monitoring Program (REMP). The 2006 Land Use Survey used the 1999 survey map produced by the Commercial Survey Co. of Cleveland. GPS units are also used for more accurate location identification.

Table 18 identifies the nearest residences, by sector, to the PNPP. The table is updated annually to reflect any changes identified during the annual Land Use Census. For 2006, there were no changes noted for the "nearest residence".

Table 18: Nearest Residence, By Sector

SECTOR	LOCATION ADDRESS	MILES FROM PNPP	X/Q VALUE, sec/m^3	MAP LOCATOR NUMBER
NE	4384 Lockwood	0.7	2.66E-06	1
ENE	4412 Lockwood	0.7	1.96E-06	2
E	2626 Antioch	1.1	6.77E-07	3
ESE	2836 Antioch	1.0	8.57E-07	4
SE	4537 North Ridge	1.3	3.44E-07	5
SSE	4247 Redmill Valley Rd.	1.1	5.52E-06	6
S	3119 Parmly	0.9	2.25E-06	7
SSW	3121 Center	1.0	9.49E-07	8
SW	3440 Clark	1.3	4.42E-07	9
WSW	3462 Parmly	1.1	8.67E-07	10

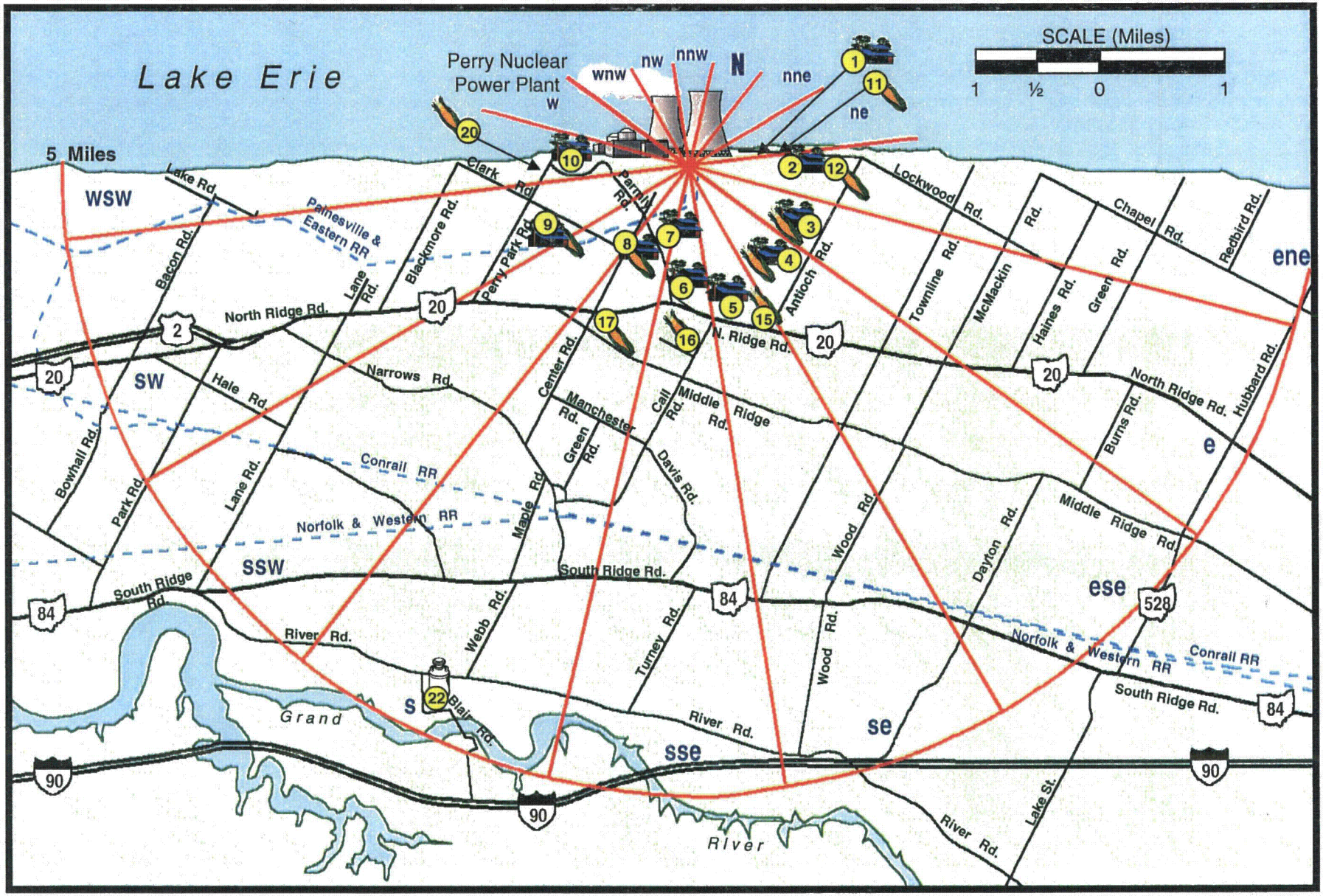


Figure 9: Land Use Census Map

Table 19 identifies the nearest milking animal by sector, to the PNPP. During the 2006 Land Use Census, two (2) changes were identified regarding the nearest milk animal. The milking animal identified in the ESE sector is no longer there. The remaining male goat is being kept only as a pet. The milking animal previously identified in the S sector is now a participant in the REMP program beginning in June 2006.

Table 19: Nearest Milk Animal, By Sector

SECTOR	LOCATION ADDRESS	MILES FROM PNPP	MAP LOCATOR NUMBER
S	5245 Blair Rd.	4.9	22

There was one (1) change in the nearest gardens during this year's census. Changes can include either the loss of the previous year's garden or the addition of a new garden identified in this year's census. Table 20 lists the nearest gardens occupying at least 500 square feet identified during the 2006 Land Use Census.

Table 20: Nearest Garden, By Sector

SECTOR	LOCATION ADDRESS	MILES FROM PNPP	D/Q VALUE, m^{-2}	MAP LOCATOR NUMBER
NE	2330 Lakehurst	0.9	8.91E-09	11
ENE	4630 Lockwood	1.1	4.77E-09	12
E	2626 Antioch	1.1	5.29E-09	3
ESE	2836 Antioch	1.0	3.96E-09	4
SE	3040 Antioch	1.3	1.01E-09	15
SSE	3288 Call Rd.	1.4	2.04E-09	16
S	3964 North Ridge	1.4	2.73E-09	17
SSW	3121 Center	1.0	4.66E-09	8
SW	3440 Clark	1.3	1.95E-09	9
WSW	2975 Perry Park	1.3	2.31E-09	20

CLAM/MUSSEL MONITORING

INTRODUCTION

Sampling for macro-invertebrates (clams and mussels) has been conducted in Lake Erie in the vicinity of PNPP, since 1971. The clam/mussel program currently focuses on two species: *Corbicula fluminea* (Asiatic clam) and *Dreissena polymorpha* (zebra mussel).

CORBICULA PROGRAM

Monitoring specifically for Corbicula was initiated in response to a NRC bulletin and concerns of the Atomic Safety and Licensing Board. The 2006 monitoring was done as part of the Environmental Protection Plan (Operating License, Appendix B). The program consists of visually inspecting the raw water systems, whenever they are opened for maintenance. The purpose of this program is to detect Corbicula, should it appear at PNPP.

No Corbicula have been found in any sample collected from PNPP or from Lake Erie in the vicinity of PNPP. Two Corbicula were found in a sample collected from the Eastlake plant in June, 1987. No Corbicula have been found in any other sample collected since that time. A more detailed program history can be found in the 1986 and 1987 PNPP Annual Environmental Operating Reports.

Monitoring

In 2006, samples were collected from the Service Water (SW), Emergency Service Water (ESW), Circulating Water and Fire Water Systems at PNPP and examined for Asiatic clam shells and fragments. Samples were either collected by hand scoop or scraper. In addition to sample collections, plant components that use raw water are inspected whenever opened for maintenance or repair. Sample collection/inspection dates are listed in Table 21.

Table 21: 2006 Corbicula Monitoring

DATE	SAMPLE LOCATION	DATE	SAMPLE LOCATION
4/12/06	Lube oil cooler 1N34B0001B		
4/22/06	LP condenser inlet/outlet water box		
4/22/06	LP condenser inlet/outlet water box		
5/2/06	Emergency Service Water 1P45 F0520		
5/5/06	N61/N71 LP condenser circ water side		
7/22/06	Lube oil cooler 1N34B0001A tube sheet		
7/22/06	Lube oil cooler 1N34B0001A upper/lower water box		
8/1/06	Lube oil cooler 1N34B0001B		
8/24/06	Lube oil cooler 1N34B0001B		

Conclusions

The sample collected in June, 1987, was the only indication of Corbicula in the vicinity of PNPP. Although the presence of Corbicula was detected at the Eastlake Power Plant, it has not been demonstrated that their presence has created any operational problems there, or at PNPP. As in the past, the 2006 monitoring program did not identify Corbicula in any sample collected.

Dreissena Program

Dreissena, or Zebra mussels were first discovered at PNPP in September, 1988. The initial collection of 19 mussels was made as part of the Corbicula monitoring program. The Dreissena monitoring program began in 1989, with monitoring and testing. The current control program was designed and implemented in 1990.

Monitoring

In addition to visually inspecting the plant's raw water systems when they are opened for maintenance or repair, monitoring methods include the use of commercial divers and side-stream monitors. Commercial divers monitor mussel infestation during the inspection of forebays, basins, and the intake and discharge structures. Divers have also been used to take underwater videotapes of the water basins and intake tunnel. Side-stream monitors are flow-through containers that receive water diverted from plant systems, and are normally used in two in-plant locations during the mussel season. The side-stream monitors are fitted with slides and inspected for veliger settlement and growth of adult mussels.

Treatment

Chemicals used for mussel control in 2006 included chlorine and a commercial molluscicide. The chlorine is intermittently injected into the plant service water, emergency service water, and circulating water systems by metering sodium hypochlorite into each system's influent. Sodium bisulfite is added at the plant discharge structure for dechlorination prior to return into Lake Erie.

The use of a commercial molluscicide requires approval by the Ohio Environmental Protection Agency (OEPA). The chemical selected for use at the PNPP in 2006 was alkyl-dimethyl-benzyl-ammonium chloride. A single treatment was applied on August 23, 2006. The active ingredients were detoxified by adsorption onto bentonite clay, prior to discharge into Lake Erie.

Results

The effectiveness of the intermittent chlorination treatment has been determined in several ways. First, visual inspections of raw water system components are conducted when systems are open during maintenance or repair. In addition, settlement monitors were inspected for new settlement. No live settlement has been found in any plant component to date.

The effectiveness of the application of the commercial molluscicide was measured by observing mortality of mussels placed in a flow-through container placed in plant service water and subjected to the chemical treatment. The observed mortality rate utilizing the flow-through container for 2006 was 100 %. To date, PNPP has had no major problems related to zebra mussels.

CONCLUSIONS

Perry Nuclear Power Plant has taken the approach that the best method for avoiding problems with zebra mussels is preventive treatment of plant water systems. The current program of monitoring and chemical treatment will be continued to minimize the possibility that PNPP will experience future problems due to zebra mussels.

HERBICIDE APPLICATIONS

Herbicides are used sparingly on the PNPP site. A request must be made to, and approved by the PNPP Chemistry Unit prior to spraying to ensure that only approved chemicals are used, and only in approved areas.

In 2006 two (2) general and one (1) specific herbicide requests were initiated for chemical applications. Each application was in compliance with the Ohio Environmental Protection Agency's rules and regulations. There were no adverse environmental impacts observed during weekly site environmental inspections as a result of these applications. The herbicides approved for use in the Owner-Controlled Area are Round-Up, Riverdale, Karmex, Peptoil and Glypro Plus. For each application, the type of weed to be treated dictated the herbicide and concentration to be used. Table 22 provides detailed documentation for each application in 2006. The quantity represents the amount of herbicide applied, after any dilution.

Table 22: 2006 Herbicide Applications

DATE APPLIED	LOCATION	AMOUNT (GAL.)	CHEMICAL NAME
4/26/06	All beds area	0.14	Round-up
5/4/06	Protected Area (NE, NW, SE, SW) quadrants, All beds & transformer alleyway	0.59	Round-up
5/4/06	Training bldg, WHSE, IPC, P&R bldg, Park area	1.76	Round-up
5/4/06	Admin building, Contractor parking lot (South & West) OCA gravel area	0.27	Round-up
5/6/06	Protected Area (NE, NW, SE, SW) Quadrants, Protected Area perimeter	15.8	Round-up
5/22/06	Transmission yard	120 lbs	Krovar
5/22/06	Transmission yard	.70	Oust
5/22/06	Transmission yard	7.5	Razor
5/22/06	Transmission yard	4	2,4D Amine
6/3/06	Protected Area (NE, NW, SE, SW) quadrants, Transmission yard, Gravel area	2.93	Round-up
6/5/06	Admin building	0.05	Round-up
6/21/06	Admin building, Training building, Landscape bed	0.05	Round-up
6/28/06	OCA gravel area	1.17	Round-up
7/5/06	Fire Training grounds, Training, Admin, WHSE, IPC buildings, OCA gravel	3.28	Round-up
7/8/06	Protected area NW, Transmission yard	2.34	Round-up
7/15/06	Training, WHSE and IPC buildings, OCA gravel	2.34	Round-up
7/16/06	Protected area (NE, NW) Quadrants, Protected Area perimeter	4.69	Round-up

Table 22 continued: 2006 Herbicide Applications

APPLICATION DATE	LOCATION	AMOUNT (GAL)	CHEMICAL NAME
717/06	Admin, IPC, P&R buildings, OCA gravel	0.16	Round-up
7/24/06	Waste Accumulation Facility	0.59	Round-up
8/11/06	Fire Training Grounds	2.34	Round-up
8/21/06	Protected Area (NE, NW, SE, SW) Quadrants,	2.34	Round-up
8/26/06	Parmley roadways	0.59	Round-up
8/30/06	Protected Area (NE, NW, SE, SE) Quadrants,	2.34	Round-up
8/31/06	Admin, IPC buildings, East side of P&R building old parking lot	2.34	Round-up
9/5/06	Protected Area (NE, SE, SW) Quadrants, Cooling tower basin	2.93	Round-up
9/6/06	Parmley and Main roadways	2.34	Round-up

SPECIAL REPORTS

NON-COMPLIANCES

NPDES Permit

The National Pollutant Discharge Elimination System (NPDES) permit is issued by the Ohio Environmental Protection Agency (OEPA). It establishes monitoring requirements and limits for discharges from the PNPP. It also specifies the locations from which the plant is allowed to discharge.

Two special reports were submitted in 2006:

- On February 10, 2006, the Perry Plant reported a noncompliance to the OEPA due to exceeding the effluent limit for pH while draining chemically contaminated water from a valve pit. Approximately 10 gallons of chemically contaminated rain water with a pH of 2.6 was pumped to a storm drain from a valve pit. A sample collected where the storm drain meets the northwest drain impoundment indicated a pH of 8.03. The procedure governing the valve pit has been revised and the valve pit has been repaired to prevent re-occurrence.
- On July 8, 2006, the Perry Plant report a noncompliance to the OEPA due to exceeding the maximum daily limit for total suspended solids (TSS) for internal station 601, neutralized demineralizers regenerant waste. This daily exceedance caused the monthly average to be exceeded, which was reported too. The cause of the high TSS was a contaminated sample from dirty sample lines. The dirty sample lines were changed out and site specific procedures have been changed to obtain the analysis of the treated water prior to discharge.

Environmental Protection Plan

The Environmental Protection Plan (EPP), which is Appendix B of the PNPP Operating License, requires a non-radiological environmental monitoring and reporting program be established at the PNPP. There were no instances of an EPP non-compliance identified in 2006.

UNREVIEWED ENVIRONMENTAL QUESTIONS

All proposed changes to the PNPP design or operation, as well as tests or experiments, must be evaluated for potential environmental impacts in accordance with the EPP and administrative quality assurance procedures. In 2006 there were no proposed changes to the facility or programs that if performed, could have resulted in an adverse environmental impact. Therefore, there were no unreviewed environmental questions identified.

APPENDIX A, 2006 INTER-LABORATORY CROSS CHECK COMPARISON PROGRAM RESULTS

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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, 2006 through December, 2006

Appendix A

Interlaboratory Comparison Program Results

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

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

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

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

Table A-3 lists results of the analyses on in-house "spiked" samples for the past twelve months. All samples are prepared using NIST traceable sources. Data for previous years available upon request.

Table A-4 lists results of the analyses on in-house "blank" samples for the past twelve months. Data for previous years available upon request.

Table A-5 list results of the in-house "duplicate" program for the past twelve months. Acceptance is based on the difference of the results being less than the sum of the errors. Data for previous years available upon request.

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

Attachment A lists acceptance criteria for "spiked" samples.

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

Attachment A

ACCEPTANCE CRITERIA FOR "SPIKED" SAMPLES

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

Analysis	Level	One standard deviation for single determination
Gamma Emitters	5 to 100 pCi/liter or kg	5.0 pCi/liter
	> 100 pCi/liter or kg	5% of known value
Strontium-89[b]	5 to 50 pCi/liter or kg	5.0 pCi/liter
	> 50 pCi/liter or kg	10% of known value
Strontium-90[b]	2 to 30 pCi/liter or kg	5.0 pCi/liter
	> 30 pCi/liter or kg	10% of known value
Potassium-40	≥ 0.1 g/liter or kg	5% of known value
Gross alpha	≤ 20 pCi/liter	5.0 pCi/liter
	> 20 pCi/liter	25% of known value
Gross beta	≤ 100 pCi/liter	5.0 pCi/liter
	> 100 pCi/liter	5% of known value
Tritium	≤ 4,000 pCi/liter	$\pm 1\sigma$ = (pCi/liter) = 169.85 x (known)$^{0.0933}$
	> 4,000 pCi/liter	10% of known value
Radium-226,-228	≥ 0.1 pCi/liter	15% of known value
Plutonium	≥ 0.1 pCi/liter, gram, or sample	10% of known value
Iodine-131, Iodine-129[b]	≤ 55 pCi/liter	6.0 pCi/liter
	> 55 pCi/liter	10% of known value
Uranium-238, Nickel-63[b] Technetium-99[b]	≤ 35 pCi/liter	6.0 pCi/liter
	> 35 pCi/liter	15% of known value
Iron-55[b]	50 to 100 pCi/liter	10 pCi/liter
	> 100 pCi/liter	10% of known value
Others[b]	---	20% of known value

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

[b] Laboratory limit.

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

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1078	01/16/06	Sr-89	49.9 ± 3.5	50.2	41.5 - 58.9	Pass
STW-1078	01/16/06	Sr-90	31.5 ± 1.5	30.7	22.0 - 39.4	Pass
STW-1079	01/16/06	Ba-133	86.5 ± 4.1	95.0	78.6 - 111.0	Pass
STW-1079	01/16/06	Co-60	96.3 ± 4.1	95.3	86.6 - 104.0	Pass
STW-1079	01/16/06	Cs-134	22.6 ± 3.0	23.1	14.4 - 31.8	Pass
STW-1079	01/16/06	Cs-137	109.0 ± 5.9	111.0	101.0 - 121.0	Pass
STW-1079	01/16/06	Zn-65	198.0 ± 11.2	192.0	159.0 - 225.0	Pass
STW-1080	01/16/06	Gr. Alpha	10.8 ± 1.4	9.6	1.0 - 18.3	Pass
STW-1080	01/16/06	Gr. Beta	56.9 ± 1.9	61.9	44.6 - 79.2	Pass
STW-1081	01/16/06	Ra-226	4.3 ± 0.4	4.6	3.4 - 5.8	Pass
STW-1081	01/16/06	Ra-228	7.1 ± 1.8	6.6	3.7 - 9.5	Pass
STW-1081	01/16/06	Uranium	20.7 ± 0.5	22.1	16.9 - 27.3	Pass
STW-1088	04/10/06	Sr-89	29.0 ± 1.8	32.4	23.7 - 41.1	Pass
STW-1088	04/10/06	Sr-90	8.7 ± 1.0	9.0	0.3 - 17.7	Pass
STW-1089	04/10/06	Ba-133	10.3 ± 0.4	10.0	1.3 - 18.7	Pass
STW-1089	04/10/06	Co-60	114.0 ± 2.8	113.0	103.0 - 123.0	Pass
STW-1089	04/10/06	Cs-134	41.9 ± 1.4	43.4	34.7 - 52.1	Pass
STW-1089	04/10/06	Cs-137	208.0 ± 1.1	214.0	195.0 - 233.0	Pass
STW-1089	04/10/06	Zn-65	154.0 ± 0.8	152.0	126.0 - 178.0	Pass
STW-1090	04/10/06	Gr. Alpha	13.4 ± 1.1	21.3	12.1 - 30.5	Pass
STW-1090	04/10/06	Gr. Beta	27.7 ± 2.1	23.0	14.3 - 31.7	Pass
STW-1091	04/10/06	I-131	22.0 ± 0.3	19.1	13.9 - 24.3	Pass
STW-1092	04/10/06	H-3	7960.0 ± 57.0	8130.0	6720.0 - 9540.0	Pass
STW-1092	04/10/06	Ra-226	2.9 ± 0.4	3.0	2.2 - 3.8	Pass
STW-1092	04/10/06	Ra-228	20.9 ± 1.2	19.1	10.8 - 27.4	Pass
STW-1092	04/10/06	Uranium	68.6 ± 3.4	69.1	57.1 - 81.1	Pass
STW-1094	07/10/06	Sr-89	15.9 ± 0.7	19.7	11.0 - 28.4	Pass
STW-1094	07/10/06	Sr-90	24.3 ± 0.4	25.9	17.2 - 34.6	Pass
STW-1095	07/10/06	Ba-133	94.9 ± 8.9	88.1	72.9 - 103.0	Pass
STW-1095	07/10/06	Co-60	104.0 ± 1.8	99.7	91.0 - 108.0	Pass
STW-1095	07/10/06	Cs-134	48.7 ± 1.3	54.1	45.4 - 62.8	Pass
STW-1095	07/10/06	Cs-137	236.0 ± 3.0	238.0	217.0 - 259.0	Pass
STW-1095	07/10/06	Zn-65	126.0 ± 8.0	121.0	100.0 - 142.0	Pass
STW-1096	07/10/06	Gr. Alpha	10.9 ± 1.0	10.0	1.3 - 18.6	Pass
STW-1096	07/10/06	Gr. Beta	9.7 ± 0.4	8.9	0.2 - 17.5	Pass
STW-1097	07/10/06	Ra-226	11.0 ± 0.5	10.7	7.9 - 13.5	Pass
STW-1097	07/10/06	Ra-228	12.2 ± 0.8	10.7	6.1 - 15.3	Pass
STW-1097	07/10/06	Uranium	43.4 ± 0.1	40.3	33.3 - 47.3	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory Result[b]	ERA Result[c]	Control Limits	Acceptance
STW-1104	10/06/06	Sr-89	38.4 ± 1.3	39.9	31.2 - 45.7	Pass
STW-1104	10/06/06	Sr-90	15.5 ± 0.5	16.0	7.3 - 24.7	Pass
STW-1105	10/06/06	Ba-133	64.9 ± 2.8	70.2	58.1 - 82.3	Pass
STW-1105	10/06/06	Co-60	61.6 ± 1.0	62.3	53.6 - 71.0	Pass
STW-1105	10/06/06	Cs-134	29.0 ± 0.9	29.9	21.2 - 38.6	Pass
STW-1105	10/06/06	Cs-137	77.8 ± 2.4	78.2	69.5 - 86.9	Pass
STW-1105	10/06/06	Zn-65	293.0 ± 2.4	277.0	229.0 - 325.0	Pass
STW-1106	10/06/06	Gr. Alpha	23.9 ± 2.5	28.7	16.3 - 41.1	Pass
STW-1106	10/06/06	Gr. Beta	23.7 ± 1.4	20.9	12.2 - 29.6	Pass
STW-1107[d]	10/06/06	I-131	28.4 ± 1.2	22.1	16.9 - 27.3	Fail
STW-1108	10/06/06	Ra-226	14.5 ± 0.5	14.4	10.7 - 18.1	Pass
STW-1108	10/06/06	Ra-228	6.6 ± 0.4	5.9	3.3 - 8.4	Pass
STW-1108	10/06/06	Uranium	2.9 ± 0.1	3.2	0.0 - 8.4	Pass
STW-1109	10/06/06	H-3	3000.0 ± 142.0	3050.0	2430.0 - 3670.0	Pass

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

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

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

[d] The reported result was an average of three analyses, results ranged from 25.36 to 29.23 pCi/L. A fourth analysis was performed, result of analysis, 24.89 pCi/L.

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

Lab Code	Date	Description	mR Known Value	mR Lab Result ± 2 sigma	Control Limits	Acceptance
Environmental, Inc.						
2006-1	6/5/2006	30 cm	54.81	70.73 ± 0.69	38.37 - 71.25	Pass
2006-1	6/5/2006	60 cm	13.70	16.71 ± 1.89	9.59 - 17.81	Pass
2006-1	6/5/2006	60 cm	13.70	16.69 ± 0.94	9.59 - 17.81	Pass
2006-1	6/5/2006	90 cm	6.09	6.57 ± 0.82	4.26 - 7.92	Pass
2006-1	6/5/2006	120 cm	3.43	3.65 ± 0.22	2.40 - 4.46	Pass
2006-1	6/5/2006	120 cm	3.43	3.09 ± 0.33	2.40 - 4.46	Pass
2006-1	6/5/2006	150 cm	2.19	2.35 ± 0.38	1.53 - 2.85	Pass
2006-1	6/5/2006	150 cm	2.19	1.98 ± 0.10	1.53 - 2.85	Pass
2006-1	6/5/2006	180 cm	1.52	1.56 ± 0.26	1.06 - 1.98	Pass
Environmental, Inc.						
2006-2	11/6/2006	30 cm.	55.61	60.79 ± 1.32	38.93 - 72.29	Pass
2006-2	11/6/2006	40 cm.	31.28	35.93 ± 3.70	21.90 - 40.66	Pass
2006-2	11/6/2006	50 cm.	20.02	21.55 ± 1.20	14.01 - 26.03	Pass
2006-2	11/6/2006	60 cm.	13.90	14.90 ± 1.42	9.73 - 18.07	Pass
2006-2	11/6/2006	75 cm.	8.90	8.03 ± 0.51	6.23 - 11.57	Pass
2006-2	11/6/2006	90 cm.	6.18	6.88 ± 0.68	4.33 - 8.03	Pass
2006-2	11/6/2006	120 cm.	3.48	2.90 ± 0.20	2.44 - 4.52	Pass
2006-2	11/6/2006	150 cm.	2.22	1.99 ± 0.07	1.55 - 2.89	Pass
2006-2	11/6/2006	180 cm.	1.54	1.79 ± 0.94	1.08 - 2.00	Pass

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

Lab Code [b]	Date	Concentration (pCi/L)[a] Analysis	Laboratory results 2s, n=1 [c]	Known Activity	Control Limits [d]	Acceptance
SPW-301	1/20/2006	Fe-55	2700.10 ± 70.00	2502.50	2002.00 - 3003.00	Pass
SPAP-1224	3/7/2006	Cs-134	37.13 ± 3.70	39.52	29.52 - 49.52	Pass
SPAP-1224	3/7/2006	Cs-137	118.25 ± 8.97	119.30	107.37 - 131.23	Pass
SPAP-1224	3/7/2006	Gr. Beta	520.32 ± 7.42	455.00	364.00 - 637.00	Pass
SPW-1228	3/7/2006	H-3	70891.00 ± 719.00	75394.00	60315.20 - 90472.80	Pass
SPW-1230	3/7/2006	Cs-134	38.58 ± 2.10	39.51	29.51 - 49.51	Pass
SPW-1230	3/7/2006	Cs-137	59.44 ± 4.51	59.65	49.65 - 69.65	Pass
SPMI-1232	3/7/2006	Cs-134	41.20 ± 1.33	39.51	29.51 - 49.51	Pass
SPMI-1232	3/7/2006	Cs-137	57.82 ± 3.96	59.65	49.65 - 69.65	Pass
W-30906	3/9/2006	Gr. Alpha	24.24 ± 0.47	20.08	10.04 - 30.12	Pass
W-30906	3/9/2006	Gr. Beta	63.79 ± 0.48	65.73	55.73 - 75.73	Pass
SPW-2750	4/27/2006	Ni-63	116.00 ± 2.49	100.00	60.00 - 140.00	Pass
SPW-2869	5/1/2006	Fe-55	19473.00 ± 188.00	23332.00	18665.60 - 27998.40	Pass
SPAP-2871	5/1/2006	Cs-134	33.97 ± 1.10	37.50	27.50 - 47.50	Pass
SPAP-2871	5/1/2006	Cs-137	114.44 ± 2.81	118.90	107.01 - 130.79	Pass
SPW-2875	5/1/2006	H-3	71057.00 ± 730.20	75394.00	60315.20 - 90472.80	Pass
STSO-3155	5/1/2006	Co-60	7950.80 ± 67.29	7750.00	6975.00 - 8525.00	Pass
STSO-3155	5/1/2006	Cs-134	12.49 ± 0.13	11.59	1.59 - 21.59	Pass
STSO-3155	5/1/2006	Cs-137	14.10 ± 0.12	11.63	1.63 - 21.63	Pass
SPAP-2873	5/2/2006	Gr. Beta	1724.80 ± 4.51	1744.00	1395.20 - 2441.60	Pass
SPF-3183	5/10/2006	Cs-137	2.47 ± 0.03	2.38	1.43 - 3.33	Pass
SPF-3183	5/10/2006	Cs-134	0.73 ± 0.01	0.74	0.44 - 1.04	Pass
SPW-3460	5/26/2006	C-14	4009.60 ± 14.43	4741.00	2844.60 - 6637.40	Pass
W-60606	6/6/2006	Gr. Alpha	21.94 ± 0.46	20.08	10.04 - 30.12	Pass
W-60606	6/6/2006	Gr. Beta	58.17 ± 0.49	65.73	55.73 - 75.73	Pass
SPW-3988	6/16/2006	Cs-134	35.56 ± 1.40	36.00	26.00 - 46.00	Pass
SPW-3988	6/16/2006	Cs-137	60.23 ± 2.72	59.27	49.27 - 69.27	Pass
SPW-3988	6/16/2006	I-131(G)	94.01 ± 4.38	99.30	89.30 - 109.30	Pass
SPW-3988	6/16/2006	Sr-89	52.40 ± 4.23	58.16	46.53 - 69.79	Pass
SPW-3988	6/16/2006	Sr-90	45.35 ± 1.95	41.21	32.97 - 49.45	Pass
SPMI-3990	6/16/2006	Cs-134	35.52 ± 5.05	36.00	26.00 - 46.00	Pass
SPMI-3990	6/16/2006	Cs-137	56.78 ± 3.86	59.27	49.27 - 69.27	Pass
SPMI-3990	6/16/2006	I-131(G)	95.04 ± 5.05	99.30	89.30 - 109.30	Pass
SPMI-3991	6/16/2006	I-131	96.55 ± 0.87	99.30	79.44 - 119.16	Pass
SPW-4356	7/5/2006	I-131	80.88 ± 1.09	77.23	61.78 - 92.68	Pass
W-90506	9/5/2006	Gr. Alpha	23.11 ± 0.45	20.08	10.04 - 30.12	Pass
W-90506	9/5/2006	Gr. Beta	65.01 ± 0.51	65.73	55.73 - 75.73	Pass
SPAP-6950	9/30/2006	Cs-134	28.93 ± 1.56	32.65	22.65 - 42.65	Pass
SPAP-6950	9/30/2006	Cs-137	116.62 ± 2.97	117.75	105.98 - 129.53	Pass
SPAP-6952	9/30/2006	Gr. Beta	52.96 ± 0.14	53.50	42.80 - 74.90	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L) Laboratory results 2s, n=1[b]	Known Activity	Control Limits[c]	Acceptance
SPW-6954	9/30/2006	Cs-134	63.29 ± 8.24	65.30	55.30 - 75.30	Pass
SPW-6954	9/30/2006	Cs-137	60.41 ± 7.53	58.87	48.87 - 68.87	Pass
SPMI-6956	9/30/2006	Cs-134	69.26 ± 4.85	65.31	55.31 - 75.31	Pass
SPMI-6956	9/30/2006	Cs-137	61.35 ± 7.62	58.87	48.87 - 68.87	Pass
W-120106	12/1/2006	Gr. Alpha	22.40 ± 1.03	20.08	10.04 - 30.12	Pass
W-120106	12/1/2006	Gr. Beta	63.70 ± 1.14	65.73	55.73 - 75.73	Pass
SPAP-9476	12/29/2006	Gr. Beta	57.51 ± 0.14	53.16	42.53 - 74.42	Pass
SPAP-9478	12/29/2006	Cs-134	26.84 ± 1.23	30.06	20.06 - 40.06	Pass
SPAP-9478	12/29/2006	Cs-137	110.54 ± 3.12	117.10	105.39 - 128.81	Pass
SPW-9480	12/29/2006	H-3	68972.20 ± 748.00	72051.60	57641.28 - 86461.92	Pass
SPW-9483	12/29/2006	Tc-99	29.43 ± 0.84	32.98	20.98 - 44.98	Pass
SPW-9488	12/29/2006	Cs-134	61.35 ± 1.65	60.10	50.10 - 70.10	Pass
SPW-9488	12/29/2006	Cs-137	60.30 ± 2.76	56.80	46.80 - 66.80	Pass
SPMI-9490	12/29/2006	Cs-134	58.99 ± 5.43	60.10	50.10 - 70.10	Pass
SPMI-9490	12/29/2006	Cs-137	54.16 ± 7.85	56.80	46.80 - 66.80	Pass
SPF-9492	12/29/2006	Cs-134	0.64 ± 0.01	0.60	0.36 - 0.84	Pass
SPF-9492	12/29/2006	Cs-137	2.61 ± 0.03	2.34	1.40 - 3.28	Pass

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

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

[c] Results are based on single determinations.

[d] Control limits are based on Attachment A, Page A2 of this report.

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

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

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPW-302	water	1/20/2006	Fe-55	21.21	-1.82 ± 12.75	1000
SPAP-1225	Air Filter	3/7/2006	Gr. Beta	1.16	-0.512 ± 51.20	3.2
SPW-1231	water	3/7/2006	Cs-134	2.71		10
SPW-1231	water	3/7/2006	Cs-137	2.05		10
W-30906	water	3/9/2006	Gr. Alpha	0.037	0.005 ± 0.026	1
W-30906	water	3/9/2006	Gr. Beta	0.076	-0.016 ± 0.052	3.2
SPW-2751	water	4/27/2006	Ni-63	1.48	0.37 ± 0.91	20
SPW-2868	water	5/1/2006	Fe-55	18.07	4.33 ± 11.27	1000
SPW-2874	water	5/1/2006	H-3	166.00	-8.3 ± 86.9	200
SPAP-2872	Air Filter	5/2/2006	Gr. Beta	1.18	-3.65 ± 0.64	3.2
SPF-3154	Fish	5/10/2006	Cs-134	16.4		100
SPF-3154	Fish	5/10/2006	Cs-137	13.7		100
SPW-3461	water	5/26/2006	C-14	10.20	-7.9 ± 5.20	200
W-60606	water	6/6/2006	Gr. Alpha	0.05	0.013 ± 0.037	1
W-60606	water	6/6/2006	Gr. Beta	0.16	-0.044 ± 0.11	3.2
SPW-3989	water	6/16/2006	Cs-134	3.00		10
SPW-3989	water	6/16/2006	Cs-137	3.65		10
SPW-3989	water	6/16/2006	I-131	0.21	0.045 ± 0.14	0.5
SPW-3989	water	6/16/2006	I-131(G)	8.34		20
SPW-3989	water	6/16/2006	Sr-89	0.54	0.005 ± 0.45	5
SPW-3989	water	6/16/2006	Sr-90	0.58	-0.079 ± 0.26	1
SPMI-3991	Milk	6/16/2006	Cs-134	4.42		10
SPMI-3991	Milk	6/16/2006	Cs-137	3.88		10
SPMI-3991	Milk	6/16/2006	I-131	0.28	-0.22 ± 0.19	0.5
SPMI-3991	Milk	6/16/2006	I-131(G)	3.76		20
SPMI-3991	Milk	6/16/2006	Sr-89	0.61	-0.25 ± 0.76	5
SPMI-3991 [d]	Milk	6/16/2006	Sr-90	0.52	0.88 ± 0.34	1
W-90506	water	9/5/2006	Gr. Alpha	0.06	0.00 ± 0.04	1
W-90506	water	9/5/2006	Gr. Beta	0.16	0.05 ± 0.11	3.2
SPMI-6383	Milk	9/14/2006	Sr-89	0.97	-0.18 ± 0.92	5
SPMI-6383 [d]	Milk	9/14/2006	Sr-90	0.57	0.65 ± 0.33	1
SPAP-6949	Air Filter	9/30/2006	Cs-134	0.89		100
SPAP-6949	Air Filter	9/30/2006	Cs-137	0.91		100
SPAP-6951	Air Filter	9/30/2006	Gr. Beta	1.12	-0.54 ± 0.64	3.2
SPW-6953	water	9/30/2006	Cs-134	3.91		10
SPW-6953	water	9/30/2006	Cs-137	5.61		10
SPW-6953	water	9/30/2006	Sr-89	0.79	-0.14 ± 0.64	5
SPW-6953	water	9/30/2006	Sr-90	0.60	0.11 ± 0.29	1

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

Lab Code	Sample Type	Date	Analysis[b]	Concentration (pCi/L)[a]		
				Laboratory results (4.66σ)		Acceptance
				LLD	Activity[c]	Criteria (4.66 σ)
SPMI-6955	Milk	9/30/2006	Cs-134	2.86		10
SPMI-6955	Milk	9/30/2006	Cs-137	2.39		10
SPMI-6955	Milk	9/30/2006	I-131(G)	9.98		0.5
W-120106	water	12/1/2006	Gr. Alpha	0.11	0.066 ± 0.072	1
W-120106	water	12/1/2006	Gr. Beta	0.30	0.093 ± 0.16	3.2
SPAP-9477	Air Filter	12/29/2006	Gr. Beta	1.13	-0.37 ± 0.66	3.2
SPAP-9479	Air Filter	12/29/2006	Cs-137	0.87		100
SPW-9481	water	12/29/2006	H-3	146.2	63.2 ± 80.1	200
SPW-9483	water	12/29/2006	Tc-99	0.95	-1.20 ± 0.56	10
SPW-9489	water	12/29/2006	Cs-134	2.30		10
SPMI-9491	Milk	12/29/2006	Cs-134	3.10		10
SPMI-9491	Milk	12/29/2006	Cs-137	2.90		10
SPMI-9491	Milk	12/29/2006	I-131(G)	8.00		20
SPF-9493	Fish	12/29/2006	Cs-134	7.6		100
SPF-9493	Fish	12/29/2006	Cs-137	7.9		100

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

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

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

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

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
AP-7466, 7467	1/3/2006	Be-7	0.053 ± 0.015	0.057 ± 0.011	0.055 ± 0.009	Pass
AP-7513, 7514	1/3/2006	Be-7	0.033 ± 0.008	0.036 ± 0.008	0.035 ± 0.006	Pass
AP-7555, 7556	1/3/2006	Be-7	0.053 ± 0.007	0.054 ± 0.008	0.053 ± 0.005	Pass
MI-154, 155	1/10/2006	K-40	1254.20 ± 87.75	1369.60 ± 102.80	1311.90 ± 67.58	Pass
MI-217, 218	1/11/2006	K-40	1258.00 ± 118.00	1313.00 ± 98.00	1285.50 ± 76.69	Pass
MI-217, 218	1/11/2006	Sr-90	1.27 ± 0.37	0.92 ± 0.33	1.10 ± 0.25	Pass
MI-287, 288	1/17/2006	K-40	1383.10 ± 110.90	1457.80 ± 119.10	1420.45 ± 81.37	Pass
MI-287, 288	1/17/2006	Sr-90	0.74 ± 0.38	0.94 ± 0.37	0.84 ± 0.27	Pass
WW-314, 315	1/19/2006	Gr. Beta	9.21 ± 1.72	11.52 ± 1.93	10.37 ± 1.29	Pass
WW-314, 315	1/19/2006	H-3	168.64 ± 94.94	210.12 ± 96.51	189.38 ± 67.69	Pass
SWT-577, 578	1/31/2006	Gr. Beta	3.06 ± 0.66	3.68 ± 0.64	3.37 ± 0.46	Pass
SWU-598, 599	1/31/2006	Gr. Beta	2.03 ± 0.39	1.97 ± 0.40	2.00 ± 0.28	Pass
SWU-598, 599	1/31/2006	H-3	260.10 ± 98.20	134.10 ± 93.50	197.10 ± 67.80	Pass
F-3311, 3312 [b]	2/9/2006	Gr. Beta	4.12 ± 0.14	3.82 ± 0.13	3.97 ± 0.10	Fail
F-3311, 3312	2/9/2006	K-40	2.68 ± 0.37	2.76 ± 0.39	2.72 ± 0.27	Pass
SW-780, 781	2/14/2006	Gr. Alpha	4.09 ± 1.52	3.22 ± 1.37	3.66 ± 1.03	Pass
SW-780, 781	2/14/2006	Gr. Beta	5.91 ± 0.90	5.89 ± 0.92	5.90 ± 0.64	Pass
DW-934, 935	2/17/2006	I-131	0.35 ± 0.22	0.31 ± 0.25	0.33 ± 0.16	Pass
DW-1024, 1025	2/24/2006	I-131	0.24 ± 0.26	0.53 ± 0.24	0.39 ± 0.18	Pass
MI-1078, 1079	3/1/2006	Sr-90	1.42 ± 0.39	1.30 ± 0.62	1.36 ± 0.37	Pass
F-1357, 1358	3/10/2006	Gr. Beta	3.77 ± 0.07	3.71 ± 0.07	3.74 ± 0.05	Pass
F-1357, 1358	3/10/2006	K-40	2.46 ± 0.32	2.32 ± 0.44	2.39 ± 0.27	Pass
MI-1469, 1470	3/14/2006	K-40	1396.30 ± 120.80	1335.60 ± 113.80	1365.95 ± 82.98	Pass
CF-1538, 1539	3/21/2006	K-40	13.66 ± 0.81	13.97 ± 0.68	13.81 ± 0.53	Pass
WW-1583, 1584	3/22/2006	Gr. Beta	7.66 ± 0.73	8.87 ± 0.75	8.26 ± 0.52	Pass
DW-1955, 1956	3/27/2006	Gr. Beta	2.25 ± 0.60	3.15 ± 0.59	2.70 ± 0.42	Pass
MI-1760, 1761	3/29/2006	K-40	1271.00 ± 89.00	1378.00 ± 113.00	1324.50 ± 71.92	Pass
AP-2603, 2604	3/29/2006	Be-7	0.067 ± 0.015	0.056 ± 0.010	0.062 ± 0.009	Pass
E-1997, 1998	4/3/2006	Gr. Beta	1.82 ± 0.07	1.87 ± 0.07	1.85 ± 0.05	Pass
E-1997, 1998	4/3/2006	K-40	1.28 ± 0.15	1.24 ± 0.21	1.26 ± 0.13	Pass
AP-2818, 2819	4/3/2006	Be-7	0.06 ± 0.01	0.06 ± 0.01	0.06 ± 0.01	Pass
SWU-2863, 2864	4/3/2006	Gr. Beta	3.20 ± 1.26	4.77 ± 1.30	3.99 ± 0.91	Pass
SS-2389, 2390	4/11/2006	Gr. Beta	10.53 ± 0.96	9.38 ± 0.84	9.96 ± 0.64	Pass
SS-2389, 2390	4/11/2006	K-40	5.51 ± 0.42	5.79 ± 0.40	5.65 ± 0.29	Pass
DW-2773, 2774	4/21/2006	I-131	0.74 ± 0.23	0.53 ± 0.40	0.63 ± 0.23	Pass
SL-2932, 2933	5/1/2006	Be-7	1.28 ± 0.19	1.27 ± 0.17	1.28 ± 0.13	Pass
SL-2932, 2933	5/1/2006	Gr. Beta	6.09 ± 0.33	5.65 ± 0.31	5.87 ± 0.23	Pass
SL-2932, 2933	5/1/2006	K-40	3.13 ± 0.41	3.09 ± 0.36	3.11 ± 0.27	Pass
BS-3103, 3104	5/1/2006	Gr. Beta	8.27 ± 1.46	9.03 ± 1.59	8.65 ± 1.08	Pass
BS-3103, 3104	5/1/2006	K-40	6288.20 ± 585.20	5643.70 ± 599.80	5965.95 ± 418.99	Pass
MI-3037, 3038	5/2/2006	K-40	1238.90 ± 98.59	1301.00 ± 103.90	1269.95 ± 71.62	Pass
MI-3037, 3038	5/2/2006	Sr-90	1.76 ± 0.42	1.48 ± 0.42	1.62 ± 0.29	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
MI-3124, 3125	5/9/2006	K-40	1032.30 ± 91.12	1103.60 ± 120.50	1067.95 ± 75.54	Pass
SW-3145, 3146	5/9/2006	Gr. Alpha	4.85 ± 1.68	4.12 ± 1.62	4.48 ± 1.17	Pass
SW-3145, 3146	5/9/2006	Gr. Beta	8.94 ± 1.46	9.14 ± 1.36	9.04 ± 1.00	Pass
MI-3236, 3237	5/10/2006	K-40	1412.40 ± 119.10	1427.90 ± 127.70	1420.15 ± 87.31	Pass
F-3422, 3423	5/19/2006	H-3	8175.00 ± 252.00	8268.00 ± 253.00	8221.50 ± 178.54	Pass
G-3491, 3492	5/24/2006	Gr. Beta	8.89 ± 0.18	9.03 ± 0.19	8.96 ± 0.13	Pass
G-3491, 3492	5/24/2006	K-40	5.60 ± 0.71	6.30 ± 0.78	5.95 ± 0.53	Pass
SO-3539, 3540	5/24/2006	Gr. Beta	19.57 ± 1.99	18.98 ± 1.91	19.27 ± 1.38	Pass
SO-3539, 3540	5/24/2006	K-40	12.55 ± 0.89	11.49 ± 0.59	12.02 ± 0.53	Pass
WW-3751, 3752	5/25/2006	Gr. Beta	9.85 ± 0.79	8.96 ± 0.74	9.41 ± 0.54	Pass
F-3617, 3618	5/30/2006	K-40	2.42 ± 0.38	2.53 ± 0.37	2.47 ± 0.27	Pass
SL-3641, 3642	6/1/2006	Be-7	1.41 ± 0.19	1.31 ± 0.27	1.36 ± 0.17	Pass
SL-3641, 3642	6/1/2006	Gr. Beta	5.03 ± 0.18	5.30 ± 0.19	5.17 ± 0.13	Pass
SL-3641, 3642	6/1/2006	K-40	2.21 ± 0.26	2.14 ± 0.37	2.18 ± 0.23	Pass
MI-3886, 3887	6/12/2006	K-40	1424.20 ± 118.20	1318.80 ± 110.50	1371.50 ± 80.90	Pass
VE-3949, 3950	6/13/2006	Gr. Alpha	0.13 ± 0.06	0.16 ± 0.07	0.15 ± 0.05	Pass
VE-3949, 3950	6/13/2006	Gr. Beta	4.53 ± 0.19	4.47 ± 0.18	4.50 ± 0.13	Pass
VE-3949, 3950	6/13/2006	K-40	6.02 ± 0.66	5.33 ± 0.66	5.67 ± 0.47	Pass
BS-4016, 4017	6/13/2006	Co-60	0.18 ± 0.03	0.15 ± 0.03	0.16 ± 0.02	Pass
BS-4016, 4017	6/13/2006	Cs-137	1.97 ± 0.09	2.01 ± 0.09	1.99 ± 0.06	Pass
BS-4016, 4017	6/13/2006	K-40	11.03 ± 0.76	10.45 ± 0.78	10.74 ± 0.54	Pass
MI-3992, 3993	6/14/2006	K-40	1358.50 ± 166.40	1395.80 ± 122.70	1377.15 ± 103.37	Pass
LW-4175, 4176	6/16/2006	H-3	482.11 ± 90.25	397.50 ± 86.88	439.81 ± 62.63	Pass
W-4130, 4131	6/21/2006	H-3	401.50 ± 87.85	236.28 ± 80.89	318.89 ± 59.71	Pass
AV-4330, 4331	6/26/2006	K-40	1717.10 ± 244.30	1893.10 ± 223.30	1805.10 ± 165.49	Pass
SWU-4489, 4490	6/27/2006	Gr. Beta	1.70 ± 0.38	1.93 ± 0.38	1.82 ± 0.27	Pass
AP-4909, 4910	6/29/2006	Be-7	0.11 ± 0.01	0.11 ± 0.02	0.11 ± 0.01	Pass
AP-4952, 4953	6/29/2006	Be-7	0.08 ± 0.02	0.10 ± 0.02	0.09 ± 0.01	Pass
AP-4930, 4931	7/3/2006	Be-7	0.08 ± 0.02	0.07 ± 0.01	0.08 ± 0.01	Pass
E-4399, 4400	7/5/2006	Gr. Beta	1.85 ± 0.05	1.85 ± 0.05	1.85 ± 0.04	Pass
E-4399, 4400	7/5/2006	K-40	1.25 ± 0.19	1.24 ± 0.18	1.25 ± 0.13	Pass
G-4420, 4421	7/5/2006	Be-7	0.82 ± 0.20	0.61 ± 0.14	0.72 ± 0.12	Pass
G-4420, 4421	7/5/2006	Gr. Beta	13.20 ± 0.40	14.00 ± 0.40	13.60 ± 0.28	Pass
G-4420, 4421	7/5/2006	K-40	9.96 ± 0.44	10.06 ± 0.82	10.01 ± 0.47	Pass
DW-60432, 60433	7/6/2006	Gr. Alpha	3.24 ± 1.35	2.49 ± 1.33	2.87 ± 0.95	Pass
DW-60514, 60515	7/10/2006	Gr. Alpha	3.70 ± 1.12	3.09 ± 1.16	3.40 ± 0.81	Pass
DW-60449, 60450	7/11/2006	Gr. Alpha	6.87 ± 1.26	4.77 ± 1.09	5.82 ± 0.83	Pass
MI-4599, 4600	7/12/2006	K-40	1403.50 ± 118.80	1330.40 ± 116.50	1366.95 ± 83.20	Pass
MI-4599, 4600	7/12/2006	Sr-90	0.59 ± 0.34	0.70 ± 0.35	0.65 ± 0.24	Pass
MI-4667, 4668	7/12/2006	K-40	1286.60 ± 92.62	1358.60 ± 158.40	1322.60 ± 91.75	Pass
LW-4823, 4824	7/14/2006	Gr. Beta	1.75 ± 0.60	2.51 ± 0.59	2.13 ± 0.42	Pass

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

			Concentration (pCi/L)[a]			
Lab Code	Date	Analysis	First Result	Second Result	Averaged Result	Acceptance
DW-60502, 60503	7/19/2006	Gr. Alpha	16.27 ± 2.49	21.41 ± 3.21	18.84 ± 2.03	Pass
DW-60526, 60527	7/21/2006	Gr. Alpha	14.06 ± 1.82	15.57 ± 1.77	14.82 ± 1.27	Pass
DW-60539, 60540	7/21/2006	Gr. Alpha	5.09 ± 0.95	6.23 ± 1.05	5.66 ± 0.71	Pass
MI-5125, 5126	7/25/2006	K-40	1480.60 ± 118.30	1402.60 ± 120.80	1441.60 ± 84.54	Pass
DW-60609, 60610	7/26/2006	Gr. Alpha	1.00 ± 1.10	2.70 ± 1.30	1.85 ± 0.85	Pass
DW-60621, 60622	7/31/2006	Gr. Alpha	3.70 ± 1.00	1.90 ± 0.80	2.80 ± 0.64	Pass
SL-5265, 5266	8/1/2006	Be-7	1.10 ± 0.46	1.38 ± 0.52	1.24 ± 0.35	Pass
SL-5265, 5266	8/1/2006	Sr-90	0.10 ± 0.03	0.16 ± 0.03	0.13 ± 0.02	Pass
SL-5265, 5266	8/1/2006	Gr. Beta	4.41 ± 0.41	3.46 ± 0.57	3.94 ± 0.35	Pass
SL-5265, 5266	8/1/2006	K-40	1.19 ± 0.52	0.87 ± 0.52	1.03 ± 0.37	Pass
VE-5286, 5287	8/1/2006	Be-7	1.21 ± 0.30	1.32 ± 0.20	1.27 ± 0.18	Pass
VE-5286, 5287	8/1/2006	Gr. Beta	9.67 ± 0.35	9.37 ± 0.35	9.52 ± 0.25	Pass
VE-5286, 5287	8/1/2006	K-40	6.25 ± 0.81	6.50 ± 0.48	6.38 ± 0.47	Pass
SW-5383, 5384	8/8/2006	Gr. Alpha	3.24 ± 1.35	2.94 ± 1.35	3.09 ± 0.96	Pass
SW-5383, 5384	8/8/2006	Gr. Beta	4.86 ± 0.86	5.46 ± 0.87	5.16 ± 0.61	Pass
SW-5971, 5972	8/8/2006	H-3	119.90 ± 78.14	144.41 ± 79.23	132.15 ± 55.64	Pass
VE-5404, 5405	8/10/2006	Be-7	0.77 ± 0.24	1.01 ± 0.26	0.89 ± 0.18	Pass
VE-5404, 5405	8/10/2006	K-40	4.71 ± 0.63	4.01 ± 0.58	4.36 ± 0.43	Pass
DW-5480, 5481	8/11/2006	H-3	169.08 ± 85.52	133.65 ± 83.96	151.36 ± 59.92	Pass
DW-60645, 60646	8/15/2006	Gr. Alpha	10.41 ± 1.78	10.97 ± 1.85	10.69 ± 1.28	Pass
W-5602, 5603	8/16/2006	H-3	2118.79 ± 151.55	2181.82 ± 153.09	2150.30 ± 107.71	Pass
DW-60634, 60635	8/18/2006	Gr. Alpha	12.99 ± 1.84	9.67 ± 1.61	11.33 ± 1.22	Pass
DW-60634, 60635	8/18/2006	Gr. Beta	10.51 ± 1.33	8.61 ± 1.18	9.56 ± 0.89	Pass
MI-5793, 5794	8/22/2006	K-40	1264.00 ± 115.00	1377.00 ± 121.00	1320.50 ± 83.47	Pass
SWU-6150, 6151	8/29/2006	Gr. Beta	1.84 ± 0.28	1.81 ± 0.28	1.82 ± 0.20	Pass
DW-60657, 60658	8/29/2006	Gr. Alpha	2.33 ± 0.80	2.90 ± 0.78	2.62 ± 0.56	Pass
CF-7450, 7451	9/5/2006	Be-7	0.78 ± 0.45	0.78 ± 0.27	0.78 ± 0.26	Pass
SL-6085, 6086	9/5/2006	Co-60	0.22 ± 0.03	0.21 ± 0.02	0.22 ± 0.02	Pass
SL-6085, 6086	9/5/2006	Gr. Beta	5.47 ± 0.69	4.63 ± 0.58	5.05 ± 0.45	Pass
SL-6085, 6086	9/5/2006	K-40	1.91 ± 0.28	2.06 ± 0.41	1.99 ± 0.25	Pass
DW-60695, 60696	9/11/2006	Gr. Alpha	3.93 ± 1.17	4.62 ± 1.12	4.28 ± 0.81	Pass
LW-6266, 6267	9/13/2006	Gr. Beta	3.09 ± 0.48	2.98 ± 0.48	3.03 ± 0.34	Pass
MI-6424, 6425	9/19/2006	Sr-90	0.78 ± 0.38	1.11 ± 0.37	0.95 ± 0.27	Pass
DW-60715, 60716	9/19/2006	Gr. Alpha	1.30 ± 1.00	2.23 ± 1.01	1.77 ± 0.71	Pass
SO-6597, 6598	9/22/2006	Cs-137	0.18 ± 0.04	0.18 ± 0.04	0.18 ± 0.03	Pass
SO-6597, 6598	9/22/2006	K-40	10.25 ± 0.66	10.11 ± 0.64	10.18 ± 0.46	Pass
SWU-6718, 6719	9/26/2006	Gr. Beta	3.45 ± 1.21	2.78 ± 1.19	3.12 ± 0.85	Pass
SO-6668, 6669	9/27/2006	Cs-137	0.13 ± 0.04	0.13 ± 0.02	0.13 ± 0.02	Pass
SO-6668, 6669	9/27/2006	K-40	13.04 ± 0.90	12.41 ± 0.54	12.72 ± 0.53	Pass

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

Lab Code	Date	Analysis	Concentration (pCi/L)[a] First Result	Second Result	Averaged Result	Acceptance
MI-6760, 6761	10/2/2006	K-40	1413.10 ± 113.20	1187.30 ± 155.20	1300.20 ± 96.05	Pass
G-6797, 6798	10/2/2006	Be-7	4.70 ± 0.31	4.56 ± 0.41	4.63 ± 0.26	Pass
G-6797, 6798	10/2/2006	Gr. Beta	6.89 ± 0.26	7.04 ± 0.24	6.97 ± 0.18	Pass
G-6797, 6798 [b]	10/2/2006	K-40	5.39 ± 0.35	4.36 ± 0.47	4.88 ± 0.29	Fail
AP-7531, 7532	10/3/2006	Be-7	0.07 ± 0.01	0.08 ± 0.01	0.08 ± 0.01	Pass
AP-7552, 7553	10/3/2006	Be-7	0.08 ± 0.02	0.08 ± 0.01	0.08 ± 0.01	Pass
AP-7573, 7574	10/3/2006	Be-7	0.08 ± 0.02	0.08 ± 0.01	0.08 ± 0.01	Pass
SO-7103, 7104	10/4/2006	Cs-137	0.25 ± 0.05	0.27 ± 0.06	0.26 ± 0.04	Pass
SO-7103, 7104	10/4/2006	K-40	12.95 ± 1.12	12.22 ± 1.07	12.58 ± 0.77	Pass
DW-60759, 60760	10/5/2006	Gr. Alpha	4.93 ± 0.97	5.04 ± 1.03	4.99 ± 0.71	Pass
MI-7037, 7038	10/10/2006	K-40	1326.10 ± 115.20	1251.40 ± 115.70	1288.75 ± 81.64	Pass
VE-7058, 7059	10/10/2006	Gr. Alpha	0.18 ± 0.11	0.32 ± 0.14	0.25 ± 0.09	Pass
VE-7058, 7059	10/10/2006	Gr. Beta	9.21 ± 0.34	8.83 ± 0.36	9.02 ± 0.25	Pass
VE-7058, 7059	10/10/2006	K-40	10.90 ± 0.65	10.42 ± 0.80	10.66 ± 0.52	Pass
SS-7079, 7080	10/10/2006	Cs-137	0.04 ± 0.01	0.04 ± 0.02	0.04 ± 0.01	Pass
SS-7079, 7080	10/10/2006	Gr. Beta	12.23 ± 2.46	11.76 ± 2.23	11.99 ± 1.66	Pass
SS-7079, 7080	10/10/2006	K-40	7.23 ± 0.36	7.37 ± 0.40	7.30 ± 0.27	Pass
MI-7208, 7209	10/11/2006	K-40	1295.20 ± 116.90	1386.90 ± 119.10	1341.05 ± 83.44	Pass
CF-7450, 7451	10/18/2006	K-40	20.40 ± 0.84	19.54 ± 0.99	19.97 ± 0.65	Pass
LW-7945, 7946	10/26/2006	Gr. Beta	1.30 ± 0.37	1.44 ± 0.36	1.37 ± 0.26	Pass
F-7971, 7972	10/29/2006	K-40	3.63 ± 0.54	3.33 ± 0.43	3.48 ± 0.34	Pass
SWU-8194, 8195	10/31/2006	Gr. Beta	1.84 ± 0.28	1.43 ± 0.28	1.64 ± 0.20	Pass
BS-8017, 8018	11/1/2006	Gr. Beta	10.54 ± 1.72	10.17 ± 1.73	10.36 ± 1.22	Pass
BS-8017, 8018	11/1/2006	K-40	10.00 ± 0.53	9.60 ± 0.69	9.80 ± 0.44	Pass
LW-8215, 8216	11/1/2006	Gr. Beta	2.23 ± 0.61	1.64 ± 0.37	1.93 ± 0.35	Pass
F-8345, 8346	11/2/2006	K-40	2.84 ± 0.42	2.89 ± 0.40	2.86 ± 0.29	Pass
BS-8366, 8367	11/2/2006	K-40	13.69 ± 0.66	13.61 ± 0.78	13.65 ± 0.51	Pass
MI-8083, 8084	11/6/2006	K-40	1295.00 ± 121.20	1374.80 ± 162.80	1334.90 ± 101.48	Pass
WW-8259, 8260	11/7/2006	H-3	337.00 ± 95.00	295.00 ± 93.00	316.00 ± 66.47	Pass
MI-8484, 8485	11/22/2006	K-40	1405.80 ± 87.06	1390.70 ± 103.60	1398.25 ± 67.66	Pass
SO-8619, 8620	11/27/2006	Cs-137	0.74 ± 0.08	0.69 ± 0.06	0.71 ± 0.05	Pass
SO-8619, 8620	11/27/2006	Gr. Alpha	16.54 ± 5.65	12.24 ± 4.90	14.39 ± 3.74	Pass
SO-8619, 8620	11/27/2006	Gr. Beta	24.99 ± 3.88	28.66 ± 3.95	26.82 ± 2.77	Pass
SO-8619, 8620	11/27/2006	K-40	12.21 ± 1.11	12.92 ± 0.83	12.57 ± 0.69	Pass
SWT-8641, 8642	11/29/2006	Gr. Beta	2.83 ± 0.47	2.89 ± 0.45	2.86 ± 0.33	Pass
SWT-9436, 9437	12/26/2006	Gr. Beta	2.39 ± 0.64	2.25 ± 0.60	2.32 ± 0.44	Pass

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

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

[b] 200 minute count time or longer, resulting in lower error.

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

Lab Code[c]	Date	Concentration [b] Analysis	Laboratory result	Known Activity	Control Limits [d]	Acceptance
STVE-1082	01/01/06	Am-241	0.16 ± 0.06	0.16	0.11 - 0.20	Pass
STVE-1082	01/01/06	Co-57	10.40 ± 0.20	8.58	6.00 - 11.15	Pass
STVE-1082	01/01/06	Co-60	5.00 ± 0.20	4.52	3.16 - 5.88	Pass
STVE-1082 [e]	01/01/06	Cs-134	< 0.20	0.00		Pass
STVE-1082	01/01/06	Cs-137	3.40 ± 0.20	3.07	2.15 - 4.00	Pass
STVE-1082	01/01/06	Mn-54	6.90 ± 0.20	6.25	4.37 - 8.12	Pass
STVE-1082 [f]	01/01/06	Pu-238	0.08 ± 0.03	0.14	0.10 - 0.18	Fail
STVE-1082	01/01/06	Pu-239/40	0.17 ± 0.03	0.16	0.11 - 0.21	Pass
STVE-1082	01/01/06	Sr-90	1.40 ± 0.20	1.56	1.09 - 2.03	Pass
STVE-1082	01/01/06	U-233/4	0.24 ± 0.05	0.21	0.15 - 0.27	Pass
STVE-1082	01/01/06	U-238	0.19 ± 0.04	0.22	0.15 - 0.28	Pass
STVE-1082	01/01/06	Zn-65	11.10 ± 0.50	9.80	6.86 - 12.74	Pass
STSO-1083	01/01/06	Am-241	54.60 ± 5.50	57.08	39.96 - 74.20	Pass
STSO-1083	01/01/06	Co-57	762.90 ± 12.70	656.29	459.40 - 853.18	Pass
STSO-1083	01/01/06	Co-60	504.90 ± 3.10	447.10	312.97 - 581.23	Pass
STSO-1083 [e]	01/01/06	Cs-134	< 1.70	0.00		Pass
STSO-1083	01/01/06	Cs-137	406.50 ± 3.70	339.69	237.78 - 441.60	Pass
STSO-1083	01/01/06	K-40	719.20 ± 18.40	604.00	422.80 - 785.20	Pass
STSO-1083	01/01/06	Mn-54	415.60 ± 4.80	346.77	242.74 - 450.80	Pass
STSO-1083	01/01/06	Ni-63	261.40 ± 14.70	323.51	226.46 - 420.56	Pass
STSO-1083 [f]	01/01/06	Pu-238	14.60 ± 2.90	61.15	42.81 - 79.50	Fail
STSO-1083	01/01/06	Pu-239/40	14.60 ± 2.40	45.85	32.09 - 59.61	Fail
STSO-1083	01/01/06	U-233/4	13.50 ± 1.70	37.00	25.90 - 48.10	Fail
STSO-1083	01/01/06	U-238	15.40 ± 1.80	38.85	27.20 - 50.50	Fail
STSO-1083	01/01/06	Zn-65	783.40 ± 7.00	657.36	460.15 - 854.57	Pass
STAP-1084	01/01/06	Gr. Alpha	0.26 ± 0.02	0.36	0.00 - 0.72	Pass
STAP-1084	01/01/06	Gr. Beta	0.51 ± 0.03	0.48	0.24 - 0.72	Pass
STAP-1085	01/01/06	Am-241	0.12 ± 0.02	0.09	0.07 - 0.12	Pass
STAP-1085	01/01/06	Co-57	4.32 ± 0.10	4.10	2.87 - 5.32	Pass
STAP-1085	01/01/06	Co-60	2.24 ± 0.16	2.19	1.53 - 2.84	Pass
STAP-1085	01/01/06	Cs-134	2.96 ± 0.19	2.93	2.05 - 3.81	Pass
STAP-1085	01/01/06	Cs-137	2.64 ± 0.20	2.53	1.77 - 3.29	Pass
STAP-1085 [f]	01/01/06	Pu-238	0.03 ± 0.01	0.07	0.05 - 0.09	Fail
STAP-1085 [e]	01/01/06	Pu-239/40	< 0.01	0.00		Pass
STAP-1085	01/01/06	Sr-90	0.77 ± 0.21	0.79	0.55 - 1.03	Pass
STAP-1085	01/01/06	U-233/4	0.03 ± 0.01	0.02	0.01 - 0.03	Pass
STAP-1085	01/01/06	U-238	0.02 ± 0.01	0.02	0.01 - 0.03	Pass
STAP-1085	01/01/06	Zn-65	3.94 ± 0.44	3.42	2.40 - 4.45	Pass

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

Lab Code[c]	Date	Analysis	Concentration[b] Laboratory result	Known Activity	Control Limits[d]	Acceptance
STW-1086	01/01/06	Am-241	1.29 ± 0.05	1.30	0.91 - 1.69	Pass
STW-1086	01/01/06	Co-57	177.10 ± 1.00	166.12	116.28 - 215.96	Pass
STW-1086	01/01/06	Co-60	158.30 ± 1.00	153.50	107.45 - 199.55	Pass
STW-1086	01/01/06	Cs-134	96.40 ± 1.50	95.10	66.57 - 123.63	Pass
STW-1086[e]	01/01/06	Cs-137	< 0.80	0.00		Pass
STW-1086	01/01/06	Fe-55	102.50 ± 18.10	129.60	90.72 - 168.48	Pass
STW-1086	01/01/06	H-3	956.60 ± 16.50	952.01	666.41 - 1238.00	Pass
STW-1086	01/01/06	Mn-54	335.30 ± 2.20	315.00	220.50 - 409.50	Pass
STW-1086	01/01/06	Ni-63	62.90 ± 3.60	60.34	42.24 - 78.44	Pass
STW-1086	01/01/06	Pu-238	0.96 ± 0.07	0.91	0.70 - 1.30	Pass
STW-1086[e]	01/01/06	Pu-239/40	< 0.20	0.00		Pass
STW-1086	01/01/06	Sr-90	12.80 ± 1.60	13.16	9.21 - 17.11	Pass
STW-1086	01/01/06	Tc-99	22.30 ± 1.20	23.38	16.37 - 30.39	Pass
STW-1086	01/01/06	U-233/4	2.02 ± 0.12	2.09	1.46 - 2.72	Pass
STW-1086	01/01/06	U-238	2.03 ± 0.12	2.17	1.52 - 2.82	Pass
STW-1086	01/01/06	Zn-65	249.50 ± 3.40	228.16	159.71 - 296.61	Pass
STW-1087	01/01/06	Gr. Alpha	0.59 ± 0.10	0.58	0.00 - 1.16	Pass
STW-1087	01/01/06	Gr. Beta	1.69 ± 0.07	1.13	0.56 - 1.70	Pass
STVE-1098[e]	07/01/06	Co-57	< 0.14	0.00		Pass
STVE-1098[g]	07/01/06	Co-60	6.89 ± 0.17	5.81	4.06 - 7.55	Pass
STVE-1098	07/01/06	Cs-134	8.46 ± 0.16	7.49	5.24 - 9.73	Pass
STVE-1098	07/01/06	Cs-137	6.87 ± 0.29	5.50	3.85 - 7.14	Pass
STVE-1098	07/01/06	Mn-54	10.36 ± 0.29	8.35	5.85 - 10.86	Pass
STVE-1098	07/01/06	Zn-65	7.46 ± 0.50	5.98	4.19 - 7.78	Pass
STSO-1099	07/01/06	Am-241	130.00 ± 11.60	105.47	73.83 - 137.11	Pass
STSO-1099	07/01/06	Co-57	784.90 ± 3.80	676.33	473.43 - 879.23	Pass
STSO-1099	07/01/06	Co-60	2.10 ± 0.90	1.98	0.00 - 5.00	Pass
STSO-1099	07/01/06	Cs-134	500.70 ± 7.40	452.13	316.49 - 587.77	Pass
STSO-1099	07/01/06	Cs-137	624.20 ± 4.90	525.73	368.01 - 683.45	Pass
STSO-1099	07/01/06	K-40	701.30 ± 3.40	604.00	423.00 - 785.00	Pass
STSO-1099	07/01/06	Mn-54	699.20 ± 5.20	594.25	415.98 - 772.52	Pass
STSO-1099	07/01/06	Ni-63	614.40 ± 17.10	672.30	470.60 - 874.00	Pass
STSO-1099	07/01/06	Pu-238	79.90 ± 5.80	82.00	57.00 - 107.00	Pass
STSO-1099[e]	07/01/06	Pu-239/40	< 0.70	0.00		Pass
STSO-1099	07/01/06	U-233/4	150.50 ± 5.90	152.44	106.71 - 198.17	Pass
STSO-1099	07/01/06	U-238	151.60 ± 6.00	158.73	111.11 - 206.35	Pass
STSO-1099	07/01/06	Zn-65	1021.90 ± 9.20	903.61	632.53 - 1175.00	Pass
STAP-1100	07/01/06	Am-241	0.16 ± 0.03	0.14	0.10 - 0.19	Pass
STAP-1100	07/01/06	Co-57	2.17 ± 0.06	2.58	1.81 - 3.36	Pass
STAP-1100	07/01/06	Co-60	1.38 ± 0.07	1.58	1.10 - 2.05	Pass
STAP-1100	07/01/06	Cs-134	2.52 ± 0.13	3.15	2.20 - 4.09	Pass

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

Lab Code[c]	Date	Analysis	Concentration [b] Laboratory result	Known Activity	Control Limits [d]	Acceptance
STAP-1100	07/01/06	Cs-137	1.64 ± 0.08	1.81	1.26 - 2.35	Pass
STAP-1100	07/01/06	Mn-54	1.76 ± 0.18	1.92	1.34 - 2.50	Pass
STAP-1100	07/01/06	Pu-238	0.09 ± 0.02	0.12	0.08 - 0.15	Pass
STAP-1100	07/01/06	Sr-90	0.66 ± 0.21	0.62	0.43 - 0.81	Pass
STAP-1100	07/01/06	U-233/4	0.15 ± 0.02	0.13	0.09 - 0.17	Pass
STAP-1100	07/01/06	U-238	0.13 ± 0.02	0.14	0.10 - 0.18	Pass
STAP-1100 [e]	07/01/06	Zn-65	< 0.07	0.00		Pass
STAP-1101	07/01/06	Gr. Alpha	0.08 ± 0.03	0.29	0.00 - 0.58	Pass
STAP-1101	07/01/06	Gr. Beta	0.41 ± 0.05	0.36	0.18 - 0.54	Pass
STW-1102	07/01/06	Gr. Alpha	0.76 ± 0.07	1.03	0.00 - 2.07	Pass
STW-1102	07/01/06	Gr. Beta	1.23 ± 0.06	1.03	0.52 - 1.54	Pass
STW-1103	07/01/06	Am-241	1.86 ± 0.09	2.31	1.62 - 3.00	Pass
STW-1103	07/01/06	Co-57	224.10 ± 1.20	213.08	149.16 - 277.00	Pass
STW-1103	07/01/06	Co-60	49.40 ± 0.50	47.50	33.20 - 61.80	Pass
STW-1103	07/01/06	Cs-134	112.70 ± 0.90	112.82	78.97 - 146.66	Pass
STW-1103	07/01/06	Cs-137	206.60 ± 1.40	196.14	137.30 - 254.98	Pass
STW-1103	07/01/06	Fe-55	138.40 ± 5.40	165.40	115.80 - 215.00	Pass
STW-1103	07/01/06	H-3	446.50 ± 11.80	428.85	300.20 - 557.50	Pass
STW-1103 [e]	07/01/06	Mn-54	< 0.30	0.00		Pass
STW-1103	07/01/06	Ni-63	116.70 ± 3.60	118.62	83.03 - 154.21	Pass
STW-1103	07/01/06	Pu-238	1.27 ± 0.07	1.39	0.97 - 1.81	Pass
STW-1103	07/01/06	Pu-239/40	1.67 ± 0.08	1.94	1.36 - 2.52	Pass
STW-1103	07/01/06	Sr-90	16.40 ± 1.90	15.69	10.98 - 20.40	Pass
STW-1103	07/01/06	Tc-99	29.40 ± 1.10	27.15	19.00 - 35.29	Pass
STW-1103	07/01/06	U-233/4	1.97 ± 0.08	2.15	1.50 - 2.80	Pass
STW-1103	07/01/06	U-238	1.97 ± 0.08	2.22	1.55 - 2.89	Pass
STW-1103	07/01/06	Zn-65	192.50 ± 2.40	176.37	123.46 - 229.28	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.

[e] Included in the MAPEP as a false positive.

[f] Difficulties with the analyses for transuranics isotopes in solid samples (Filters, Soil and vegetation), were attributed to incomplete dissolution of the samples. Soil samples were repeated, results of reanalyses: Pu-238, 53.1 ± 5.3 bq/kg. Pu-239/240, 42.4 ± 4.7 bq/kg. U-233/4, 33.3 ± 3.5 bq/kg. U-238, 35.5 ± 3.6 bq/kg.

[g] The July vegetation sample was provided in two separate geometries, (100 ml. and 500 ml.). Results reported here used the 500 ml. standard size geometry. Results for the 100 ml. geometry showed approximately a 15% higher bias.

APPENDIX B, 2006 REMP DATA SUMMARY REPORTS

Air Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Air pCi/m3	Be-7 28	N/A	0.06 27 / 28 0.04 - 0.08	0.06 23 / 24 0.04 - 0.08	4 0.70 S	0.06 3 / 20 0.05 - 0.07	0.06 4 / 4 0.05 - 0.08
Air pCi/m3	Co-58 28	N/A	LLD	-	-	-	-
Air pCi/m3	Co-60 28	N/A	LLD	-	-	-	-
Air pCi/m3	Cs-134 28	0.04	LLD	-	-	-	-
Air pCi/m3	Cs-137 28	0.05	LLD	-	-	-	-

Air Gross Beta Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Air pCi/m3	Gross Beta 371	0.01	0.02 371 / 371 0.01 - 0.04	0.02 318 / 318 0.01 - 0.04	5 0.60 SW	0.02 53 / 53 0.01 - 0.04	0.02 53 / 53 0.01 - 0.04

Air Iodine Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Air pCi/m3	I-131 371	0.05	LLD	-	-	-	-

Fish Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Fish pCi/kg wet	Co-58 2	97.00	LLD	-	-	-	-
Fish pCi/kg wet	Co-60 2	97.00	LLD	-	-	-	-
Fish pCi/kg wet	Cs-134 2	97.00	LLD	-	-	-	-
Fish pCi/kg wet	Cs-137 2	112.00	LLD	-	-	-	-
Fish pCi/kg wet	Fe-59 2	195.00	LLD	-	-	-	-
Fish pCi/kg wet	K-40 2	N/A	1,428.60 2 / 2 1,280.10 - 1,577.10	1,280.10 1 / 1 1,280.10 - 1,280.10	32 15.80 WSW	1,577.10 1 / 8 1,577.10 - 1,577.10	1,577.10 1 / 1 1,577.10 - 1,577.10
Fish pCi/kg wet	Mn-54 2	97.00	LLD	-	-	-	-
Fish pCi/kg wet	Zn-65 2	195.00	LLD	-	-	-	-

Food Products Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Food Products pCi/kg wet	Be-7 35	N/A	490.04 21 / 35 215.25 - 1,764.20	507.94 18 / 30 215.25 - 1,764.20	37 1.50 ENE	646.50 9 / 105 225.40 - 1,764.20	382.60 3 / 5 235.94 - 565.83
Food Products pCi/kg wet	Co-58 35	N/A	LLD	-	-	-	-
Food Products pCi/kg wet	Co-60 35	N/A	LLD	-	-	-	-
Food Products pCi/kg wet	Cs-134 35	45.00	LLD	-	-	-	-
Food Products pCi/kg wet	Cs-137 35	60.00	LLD	-	-	-	-
Food Products pCi/kg wet	I-131 35	45.00	LLD	-	-	-	-
Food Products pCi/kg wet	K-40 35	N/A	5,214.31 35 / 35 3,335.50 - 7,674.40	5,264.36 30 / 30 3,335.50 - 7,674.40	16 0.80 S	5,746.99 5 / 35 4,862.60 - 6,702.20	4,914.04 5 / 5 3,669.90 - 7,189.70

Milk Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Milk pCi/L	Ba-140 50	45.00	LLD	-	-	-	-
Milk pCi/L	Cs-134 50	11.00	LLD	-	-	-	-
Milk pCi/L	Cs-137 50	13.00	LLD	-	-	-	-
Milk pCi/L	K-40 50	N/A	1,565.94 50 / 50 1,087.30 - 2,119.30	1,706.47 31 / 31 1,087.30 - 2,119.30	61 7.40 SE	1,798.65 13 / 65 1,431.80 - 2,119.30	1,336.65 19 / 19 1,108.30 - 1,979.60
Milk pCi/L	La-140 50	11.00	LLD	-	-	-	-

Milk Iodine Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Milk pCi/L	I-131 50	0.75	LLD	-	-	-	-

Sediment Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Sediment pCi/kg dry	Co-58 12	50.00	LLD	-	-	-	-
Sediment pCi/kg dry	Co-60 12	40.00	LLD	-	-	-	-
Sediment pCi/kg dry	Cs-134 12	112.00	LLD	-	-	-	-
Sediment pCi/kg dry	Cs-137 12	135.00	480.42 5 / 12 145.25 - 907.86	204.18 3 / 10 145.25 - 308.79	32 15.80 WSW	894.77 2 / 10 881.68 - 907.86	894.77 2 / 2 881.68 - 907.86
Sediment pCi/kg dry	K-40 12	N/A	14,449.88 12 / 12 7,917.80 - 25,552.00	12,338.66 10 / 10 7,917.80 - 17,405.00	32 15.80 WSW	25,006.00 2 / 10 24,460.00 - 25,552.00	25,006.00 2 / 2 24,460.00 - 25,552.00

TLD Gamma Dose Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
TLD	Direct 112	1.00	12.93 112 / 112 8.45 - 18.23	12.91 104 / 104 8.45 - 18.22	33 4.50 S	16.88 4 / 4 15.47 - 18.00	13.26 8 / 8 10.27 - 18.23
TLD	Direct 112	1.00	12.58 112 / 112 8.93 - 16.91	12.62 104 / 104 8.93 - 16.91	33 4.50 S	16.31 4 / 4 14.67 - 16.91	12.01 8 / 8 10.29 - 12.96
TLD mR/365 days	Direct 27	1.00	64.61 27 / 27 53.40 - 79.99	64.77 25 / 25 53.40 - 79.99	36 3.90 WSW	79.99 1 / 1 79.99 - 79.99	62.56 2 / 2 60.22 - 64.90

Water Gamma Spectral Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Water pCi/L	Mn-54 56	11.00	LLD	-	-	-	-
Water pCi/L	Nb-95 56	11.00	LLD	-	-	-	-
Water pCi/L	Zn-65 56	22.00	LLD	-	-	-	-
Water pCi/L	Zr-95 56	22.00	LLD	-	-	-	-
Water pCi/L	Ba-140 56	45.00	LLD	-	-	-	-
Water pCi/L	Co-58 56	11.00	LLD	-	-	-	-
Water pCi/L	Co-60 56	11.00	LLD	-	-	-	-
Water pCi/L	Cs-134 56	11.00	LLD	-	-	-	-
Water pCi/L	Cs-137 56	13.00	LLD	-	-	-	-
Water pCi/L	Fe-59 56	22.00	LLD	-	-	-	-
Water pCi/L	La-140 56	11.00	LLD	-	-	-	-

Water Gross Beta Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Water pCi/L	Gross Beta 56	3.00	3.07 7 / 56 3.00 - 3.17	3.06 6 / 44 3.00 - 3.15	28 22.00 ENE	3.17 1 / 12 3.17 - 3.17	3.17 1 / 12 3.17 - 3.17

Water Tritium Summary Report 2006
Radiological Environmental Monitoring Program Data Summary
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Type and Units	Type and Number of Analyses Performed	Lower Limit (LLD)	Mean of Results from All Locations and Number Detected/Number Collected and Range	Mean of Results from All Indicator Locations and Number Detected/Number Collected and Range	Location with Highest Annual Mean: Location # and Distance and Direction	Location with Highest Annual Mean: Mean and Number Detected/Number Collected and Range	Mean of Results from All Control Locations and Number Detected/Number Collected and Range
Water	H-3 20	1,500.00	LLD	-	-	-	-
Water pCi/L	H-3 20	1,500.00	LLD	-	-	-	-

APPENDIX C, 2006 REMP DETAILED DATA REPORT

Air Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Quarterly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7	Co-58	Co-60	Cs-134	Cs-137
1	Air	3/29/06	0.055 +/- 0.011	< 0.001	< 0.000	< 0.000	< 0.000
1	Air	6/28/06	0.073 +/- 0.007	< 0.000	< 0.000	< 0.000	< 0.000
1	Air	9/27/06	0.064 +/- 0.009	< 0.000	< 0.000	< 0.000	< 0.000
1	Air	1/3/07	0.048 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
3	Air	3/29/06	0.052 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
3	Air	6/28/06	0.065 +/- 0.009	< 0.000	< 0.000	< 0.000	< 0.000
3	Air	9/27/06	0.062 +/- 0.009	< 0.000	< 0.001	< 0.000	< 0.000
3	Air	1/3/07	0.058 +/- 0.011	< 0.000	< 0.000	< 0.000	< 0.000
4	Air	3/29/06	< 0.014	< 0.002	< 0.002	< 0.001	< 0.001
4	Air	6/28/06	0.068 +/- 0.011	< 0.001	< 0.000	< 0.000	< 0.000
4	Air	9/27/06	0.068 +/- 0.007	< 0.000	< 0.000	< 0.000	< 0.000

Air Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Quarterly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7	Co-58	Co-60	Cs-134	Cs-137
4	Air	1/3/07	0.053 +/- 0.009	< 0.001	< 0.000	< 0.000	< 0.000
5	Air	3/29/06	0.050 +/- 0.010	< 0.001	< 0.000	< 0.000	< 0.000
5	Air	6/28/06	0.063 +/- 0.009	< 0.000	< 0.000	< 0.000	< 0.000
5	Air	9/27/06	0.063 +/- 0.010	< 0.000	< 0.001	< 0.000	< 0.000
5	Air	1/3/07	0.058 +/- 0.009	< 0.001	< 0.000	< 0.000	< 0.000
6	Air	3/29/06	0.047 +/- 0.010	< 0.001	< 0.000	< 0.000	< 0.000
6	Air	6/28/06	0.085 +/- 0.015	< 0.001	< 0.000	< 0.001	< 0.000
6	Air	9/27/06	0.071 +/- 0.012	< 0.000	< 0.001	< 0.000	< 0.000
6	Air	1/3/07	0.049 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
7	Air	3/29/06	0.058 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
7	Air	6/28/06	0.062 +/- 0.010	< 0.000	< 0.000	< 0.000	< 0.000

Air Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Quarterly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7	Co-58	Co-60	Cs-134	Cs-137
7	Air	9/27/06	0.060 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
7	Air	1/3/07	0.055 +/- 0.009	< 0.000	< 0.001	< 0.000	< 0.000
35	Air	3/29/06	0.043 +/- 0.008	< 0.000	< 0.000	< 0.000	< 0.000
35	Air	6/28/06	0.081 +/- 0.011	< 0.000	< 0.000	< 0.000	< 0.000
35	Air	9/27/06	0.067 +/- 0.011	< 0.000	< 0.001	< 0.000	< 0.000
35	Air	1/3/07	0.054 +/- 0.007	< 0.000	< 0.000	< 0.000	< 0.000

Air Gross Beta Detail Report 2006

Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

		Location				
		1	3	4	5	6
Collection Date	Sample Type	7	35			
1/4/06	Air	0.020 +/- 0.003 0.023 +/- 0.003	0.022 +/- 0.003 0.020 +/- 0.003	0.023 +/- 0.003	0.022 +/- 0.003	0.022 +/- 0.003
1/11/06	Air	0.026 +/- 0.003 0.023 +/- 0.003	0.024 +/- 0.003 0.021 +/- 0.003	0.025 +/- 0.003	0.023 +/- 0.003	0.022 +/- 0.003
1/18/06	Air	0.018 +/- 0.003 0.020 +/- 0.003	0.017 +/- 0.003 0.017 +/- 0.003	0.018 +/- 0.003	0.020 +/- 0.003	0.021 +/- 0.003
1/25/06	Air	0.026 +/- 0.003 0.023 +/- 0.003	0.023 +/- 0.003 0.022 +/- 0.003	0.022 +/- 0.003	0.022 +/- 0.003	0.023 +/- 0.003
2/1/06	Air	0.026 +/- 0.003 0.022 +/- 0.003	0.024 +/- 0.003 0.023 +/- 0.003	0.028 +/- 0.003	0.032 +/- 0.003	0.026 +/- 0.003
2/8/06	Air	0.024 +/- 0.003 0.025 +/- 0.003	0.021 +/- 0.003 0.023 +/- 0.003	0.023 +/- 0.003	0.024 +/- 0.003	0.021 +/- 0.003
2/15/06	Air	0.021 +/- 0.003 0.022 +/- 0.003	0.019 +/- 0.003 0.018 +/- 0.003	0.023 +/- 0.003	0.021 +/- 0.003	0.022 +/- 0.003
2/22/06	Air	0.031 +/- 0.003 0.030 +/- 0.003	0.030 +/- 0.003 0.031 +/- 0.003	0.027 +/- 0.003	0.030 +/- 0.003	0.030 +/- 0.003
3/1/06	Air	0.023 +/- 0.003 0.024 +/- 0.003	0.023 +/- 0.003 0.024 +/- 0.003	0.026 +/- 0.003	0.024 +/- 0.003	0.025 +/- 0.003
3/8/06	Air	0.014 +/- 0.003 0.014 +/- 0.003	0.014 +/- 0.002 0.015 +/- 0.003	0.015 +/- 0.003	0.014 +/- 0.003	0.024 +/- 0.003
3/15/06	Air	0.024 +/- 0.003 0.020 +/- 0.003	0.023 +/- 0.003 0.021 +/- 0.003	0.023 +/- 0.003	0.024 +/- 0.003	0.023 +/- 0.003
3/22/06	Air	0.019 +/- 0.003 0.018 +/- 0.003	0.019 +/- 0.003 0.019 +/- 0.003	0.019 +/- 0.003	0.021 +/- 0.003	0.020 +/- 0.003
3/29/06	Air	0.010 +/- 0.002 0.010 +/- 0.002	0.009 +/- 0.002 0.011 +/- 0.002	0.012 +/- 0.003	0.009 +/- 0.003	0.010 +/- 0.003
4/5/06	Air	0.022 +/- 0.003 0.020 +/- 0.003	0.020 +/- 0.003 0.019 +/- 0.003	0.022 +/- 0.003	0.021 +/- 0.003	0.020 +/- 0.003
4/12/06	Air	0.016 +/- 0.003 0.017 +/- 0.003	0.015 +/- 0.003 0.018 +/- 0.003	0.019 +/- 0.003	0.020 +/- 0.003	0.019 +/- 0.003

Air Gross Beta Detail Report 2006

Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

		Location				
		1	3	4	5	6
Collection Date	Sample Type	7	35			
4/19/06	Air	0.018 +/- 0.003 0.018 +/- 0.003	0.015 +/- 0.003 0.017 +/- 0.003	0.019 +/- 0.003	0.019 +/- 0.003	0.018 +/- 0.003
4/26/06	Air	0.014 +/- 0.003 0.013 +/- 0.002	0.014 +/- 0.003 0.014 +/- 0.003	0.016 +/- 0.003	0.015 +/- 0.003	0.013 +/- 0.003
5/3/06	Air	0.020 +/- 0.003 0.019 +/- 0.003	0.021 +/- 0.003 0.018 +/- 0.003	0.017 +/- 0.003	0.019 +/- 0.003	0.021 +/- 0.003
5/10/06	Air	0.018 +/- 0.003 0.018 +/- 0.003	0.018 +/- 0.003 0.018 +/- 0.003	0.021 +/- 0.003	0.016 +/- 0.003	0.020 +/- 0.003
5/17/06	Air	0.014 +/- 0.003 0.012 +/- 0.002	0.015 +/- 0.003 0.017 +/- 0.003	0.015 +/- 0.003	0.015 +/- 0.003	0.014 +/- 0.003
5/24/06	Air	0.010 +/- 0.002 0.010 +/- 0.002	0.010 +/- 0.002 0.009 +/- 0.003	0.009 +/- 0.002	0.009 +/- 0.002	0.011 +/- 0.003
5/31/06	Air	0.028 +/- 0.003 0.025 +/- 0.003	0.030 +/- 0.003 0.030 +/- 0.003	0.028 +/- 0.003	0.028 +/- 0.003	0.031 +/- 0.003
6/7/06	Air	0.017 +/- 0.003 0.017 +/- 0.003	0.020 +/- 0.003 0.021 +/- 0.003	0.018 +/- 0.003	0.019 +/- 0.003	0.019 +/- 0.003
6/14/06	Air	0.014 +/- 0.003 0.013 +/- 0.003	0.014 +/- 0.003 0.016 +/- 0.003	0.013 +/- 0.003	0.015 +/- 0.003	0.016 +/- 0.003
6/21/06	Air	0.022 +/- 0.003 0.022 +/- 0.003	0.023 +/- 0.003 0.024 +/- 0.003	0.023 +/- 0.003	0.025 +/- 0.003	0.022 +/- 0.003
6/28/06	Air	0.020 +/- 0.003 0.018 +/- 0.003	0.020 +/- 0.003 0.019 +/- 0.003	0.017 +/- 0.003	0.021 +/- 0.003	0.020 +/- 0.003
7/5/06	Air	0.025 +/- 0.003 0.025 +/- 0.003	0.025 +/- 0.003 0.028 +/- 0.003	0.024 +/- 0.003	0.028 +/- 0.003	0.027 +/- 0.003
7/12/06	Air	0.023 +/- 0.003 0.018 +/- 0.003	0.021 +/- 0.003 0.021 +/- 0.003	0.019 +/- 0.003	0.022 +/- 0.003	0.019 +/- 0.003
7/19/06	Air	0.028 +/- 0.003 0.023 +/- 0.003	0.026 +/- 0.003 0.023 +/- 0.003	0.023 +/- 0.003	0.024 +/- 0.003	0.026 +/- 0.003
7/26/06	Air	0.027 +/- 0.003 0.026 +/- 0.003	0.025 +/- 0.003 0.029 +/- 0.003	0.024 +/- 0.003	0.028 +/- 0.003	0.026 +/- 0.003

Air Gross Beta Detail Report 2006

Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

		Location				
		1	3	4	5	6
Collection Date	Sample Type	7	35			
8/2/06	Air	0.033 +/- 0.003 0.029 +/- 0.003	0.036 +/- 0.003 0.034 +/- 0.003	0.028 +/- 0.003	0.035 +/- 0.003	0.032 +/- 0.003
8/9/06	Air	0.021 +/- 0.003 0.019 +/- 0.003	0.023 +/- 0.003 0.024 +/- 0.003	0.021 +/- 0.003	0.022 +/- 0.003	0.020 +/- 0.003
8/16/06	Air	0.022 +/- 0.003 0.023 +/- 0.003	0.021 +/- 0.003 0.019 +/- 0.003	0.020 +/- 0.003	0.020 +/- 0.003	0.019 +/- 0.003
8/23/06	Air	0.025 +/- 0.003 0.024 +/- 0.003	0.027 +/- 0.003 0.028 +/- 0.003	0.023 +/- 0.003	0.024 +/- 0.003	0.026 +/- 0.003
8/30/06	Air	0.032 +/- 0.003 0.029 +/- 0.003	0.032 +/- 0.003 0.036 +/- 0.004	0.030 +/- 0.003	0.032 +/- 0.003	0.035 +/- 0.004
9/6/06	Air	0.016 +/- 0.003 0.015 +/- 0.003	0.014 +/- 0.003 0.014 +/- 0.003	0.015 +/- 0.003	0.013 +/- 0.003	0.015 +/- 0.003
9/13/06	Air	0.029 +/- 0.003 0.026 +/- 0.003	0.027 +/- 0.003 0.030 +/- 0.003	0.034 +/- 0.003	0.027 +/- 0.003	0.026 +/- 0.003
9/20/06	Air	0.020 +/- 0.003 0.016 +/- 0.003	0.023 +/- 0.003 0.019 +/- 0.003	0.019 +/- 0.003	0.018 +/- 0.003	0.022 +/- 0.003
9/27/06	Air	0.022 +/- 0.003 0.019 +/- 0.003	0.019 +/- 0.003 0.020 +/- 0.003	0.020 +/- 0.003	0.021 +/- 0.003	0.021 +/- 0.003
10/4/06	Air	0.020 +/- 0.003 0.019 +/- 0.003	0.022 +/- 0.003 0.023 +/- 0.003	0.021 +/- 0.003	0.023 +/- 0.003	0.020 +/- 0.003
10/11/06	Air	0.015 +/- 0.003 0.016 +/- 0.003	0.018 +/- 0.003 0.016 +/- 0.003	0.017 +/- 0.003	0.017 +/- 0.003	0.018 +/- 0.003
10/18/06	Air	0.015 +/- 0.003 0.019 +/- 0.003	0.023 +/- 0.003 0.020 +/- 0.003	0.017 +/- 0.003	0.021 +/- 0.003	0.020 +/- 0.003
10/25/06	Air	0.019 +/- 0.003 0.019 +/- 0.003	0.020 +/- 0.003 0.018 +/- 0.003	0.020 +/- 0.003	0.016 +/- 0.003	0.016 +/- 0.003
11/1/06	Air	0.021 +/- 0.003 0.021 +/- 0.003	0.022 +/- 0.003 0.021 +/- 0.003	0.026 +/- 0.003	0.019 +/- 0.003	0.019 +/- 0.003
11/8/06	Air	0.036 +/- 0.003 0.032 +/- 0.003	0.035 +/- 0.003 0.032 +/- 0.003	0.033 +/- 0.003	0.034 +/- 0.003	0.034 +/- 0.003

Air Gross Beta Detail Report 2006

Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

		Location				
		1	3	4	5	6
Collection Date	Sample Type	7	35			
11/16/06	Air	0.020 +/- 0.002 0.022 +/- 0.003	0.022 +/- 0.003 0.021 +/- 0.003	0.021 +/- 0.003	0.021 +/- 0.003	0.022 +/- 0.003
11/22/06	Air	0.021 +/- 0.003 0.018 +/- 0.003	0.018 +/- 0.003 0.020 +/- 0.003	0.020 +/- 0.003	0.020 +/- 0.003	0.017 +/- 0.003
11/29/06	Air	0.029 +/- 0.003 0.031 +/- 0.003	0.031 +/- 0.003 0.033 +/- 0.003	0.032 +/- 0.003	0.031 +/- 0.003	0.027 +/- 0.003
12/6/06	Air	0.030 +/- 0.003 0.031 +/- 0.003	0.031 +/- 0.003 0.030 +/- 0.003	0.031 +/- 0.003	0.031 +/- 0.003	0.031 +/- 0.003
12/13/06	Air	0.035 +/- 0.003 0.031 +/- 0.003	0.035 +/- 0.003 0.035 +/- 0.003	0.035 +/- 0.003	0.034 +/- 0.003	0.031 +/- 0.003
12/20/06	Air	0.034 +/- 0.003 0.032 +/- 0.003	0.038 +/- 0.003 0.035 +/- 0.003	0.037 +/- 0.003	0.038 +/- 0.003	0.034 +/- 0.003
12/27/06	Air	0.022 +/- 0.003 0.023 +/- 0.003	0.023 +/- 0.003 0.023 +/- 0.003	0.023 +/- 0.003	0.023 +/- 0.003	0.022 +/- 0.003
1/3/07	Air	0.042 +/- 0.003 0.031 +/- 0.003	0.028 +/- 0.003 0.037 +/- 0.003	0.034 +/- 0.003	0.034 +/- 0.003	0.032 +/- 0.003

Air Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
1	Air	1/4/06	< 0.006
1	Air	1/11/06	< 0.009
1	Air	1/18/06	< 0.007
1	Air	1/25/06	< 0.004
1	Air	2/1/06	< 0.008
1	Air	2/8/06	< 0.004
1	Air	2/15/06	< 0.011
1	Air	2/22/06	< 0.008
1	Air	3/1/06	< 0.008
1	Air	3/8/06	< 0.009
1	Air	3/15/06	< 0.007
1	Air	3/22/06	< 0.008
1	Air	3/29/06	< 0.008
1	Air	4/5/06	< 0.005
1	Air	4/12/06	< 0.006
1	Air	4/19/06	< 0.005
1	Air	4/26/06	< 0.008
1	Air	5/3/06	< 0.008
1	Air	5/10/06	< 0.006
1	Air	5/17/06	< 0.003
1	Air	5/24/06	< 0.007
1	Air	5/31/06	< 0.005
1	Air	6/7/06	< 0.009
1	Air	6/14/06	< 0.009
1	Air	6/21/06	< 0.004
1	Air	6/28/06	< 0.003
1	Air	7/5/06	< 0.007
1	Air	7/12/06	< 0.008
1	Air	7/19/06	< 0.004
1	Air	7/26/06	< 0.004
1	Air	8/2/06	< 0.003
1	Air	8/9/06	< 0.006
1	Air	8/16/06	< 0.007
1	Air	8/23/06	< 0.006
1	Air	8/30/06	< 0.007
1	Air	9/6/06	< 0.004
1	Air	9/13/06	< 0.008
1	Air	9/20/06	< 0.005
1	Air	9/27/06	< 0.006
1	Air	10/4/06	< 0.007
1	Air	10/11/06	< 0.003
1	Air	10/18/06	< 0.006

Air Iodine Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
1	Air	10/25/06	< 0.007
1	Air	11/1/06	< 0.006
1	Air	11/8/06	< 0.008
1	Air	11/16/06	< 0.008
1	Air	11/22/06	< 0.010
1	Air	11/29/06	< 0.005
1	Air	12/6/06	< 0.006
1	Air	12/13/06	< 0.004
1	Air	12/20/06	< 0.005
1	Air	12/27/06	< 0.008
1	Air	1/3/07	< 0.004
3	Air	1/4/06	< 0.006
3	Air	1/11/06	< 0.008
3	Air	1/18/06	< 0.007
3	Air	1/25/06	< 0.004
3	Air	2/1/06	< 0.007
3	Air	2/8/06	< 0.004
3	Air	2/15/06	< 0.010
3	Air	2/22/06	< 0.007
3	Air	3/1/06	< 0.008
3	Air	3/8/06	< 0.008
3	Air	3/15/06	< 0.007
3	Air	3/22/06	< 0.008
3	Air	3/29/06	< 0.007
3	Air	4/5/06	< 0.005
3	Air	4/12/06	< 0.006
3	Air	4/19/06	< 0.005
3	Air	4/26/06	< 0.009
3	Air	5/3/06	< 0.008
3	Air	5/10/06	< 0.006
3	Air	5/17/06	< 0.003
3	Air	5/24/06	< 0.007
3	Air	5/31/06	< 0.005
3	Air	6/7/06	< 0.009
3	Air	6/14/06	< 0.009
3	Air	6/21/06	< 0.004
3	Air	6/28/06	< 0.003
3	Air	7/5/06	< 0.007
3	Air	7/12/06	< 0.008
3	Air	7/19/06	< 0.005
3	Air	7/26/06	< 0.004
3	Air	8/2/06	< 0.003

Air Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
3	Air	8/9/06	< 0.006
3	Air	8/16/06	< 0.007
3	Air	8/23/06	< 0.006
3	Air	8/30/06	< 0.007
3	Air	9/6/06	< 0.004
3	Air	9/13/06	< 0.008
3	Air	9/20/06	< 0.005
3	Air	9/27/06	< 0.006
3	Air	10/4/06	< 0.007
3	Air	10/11/06	< 0.003
3	Air	10/18/06	< 0.006
3	Air	10/25/06	< 0.007
3	Air	11/1/06	< 0.005
3	Air	11/8/06	< 0.007
3	Air	11/16/06	< 0.009
3	Air	11/22/06	< 0.010
3	Air	11/29/06	< 0.005
3	Air	12/6/06	< 0.006
3	Air	12/13/06	< 0.004
3	Air	12/20/06	< 0.005
3	Air	12/27/06	< 0.008
3	Air	1/3/07	< 0.004
4	Air	1/4/06	< 0.006
4	Air	1/11/06	< 0.009
4	Air	1/18/06	< 0.008
4	Air	1/25/06	< 0.004
4	Air	2/1/06	< 0.008
4	Air	2/8/06	< 0.005
4	Air	2/15/06	< 0.011
4	Air	2/22/06	< 0.008
4	Air	3/1/06	< 0.008
4	Air	3/8/06	< 0.009
4	Air	3/15/06	< 0.007
4	Air	3/22/06	< 0.009
4	Air	3/29/06	< 0.008
4	Air	4/5/06	< 0.005
4	Air	4/12/06	< 0.007
4	Air	4/19/06	< 0.005
4	Air	4/26/06	< 0.008
4	Air	5/3/06	< 0.008
4	Air	5/10/06	< 0.006
4	Air	5/17/06	< 0.003

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
4	Air	5/24/06	< 0.007
4	Air	5/31/06	< 0.005
4	Air	6/7/06	< 0.009
4	Air	6/14/06	< 0.009
4	Air	6/21/06	< 0.004
4	Air	6/28/06	< 0.003
4	Air	7/5/06	< 0.007
4	Air	7/12/06	< 0.008
4	Air	7/19/06	< 0.005
4	Air	7/26/06	< 0.004
4	Air	8/2/06	< 0.003
4	Air	8/9/06	< 0.006
4	Air	8/16/06	< 0.007
4	Air	8/23/06	< 0.006
4	Air	8/30/06	< 0.007
4	Air	9/6/06	< 0.004
4	Air	9/13/06	< 0.008
4	Air	9/20/06	< 0.005
4	Air	9/27/06	< 0.006
4	Air	10/4/06	< 0.007
4	Air	10/11/06	< 0.004
4	Air	10/18/06	< 0.006
4	Air	10/25/06	< 0.007
4	Air	11/1/06	< 0.005
4	Air	11/8/06	< 0.007
4	Air	11/16/06	< 0.009
4	Air	11/22/06	< 0.010
4	Air	11/29/06	< 0.005
4	Air	12/6/06	< 0.006
4	Air	12/13/06	< 0.004
4	Air	12/20/06	< 0.005
4	Air	12/27/06	< 0.008
4	Air	1/3/07	< 0.004
5	Air	1/4/06	< 0.006
5	Air	1/11/06	< 0.009
5	Air	1/18/06	< 0.007
5	Air	1/25/06	< 0.004
5	Air	2/1/06	< 0.008
5	Air	2/8/06	< 0.004
5	Air	2/15/06	< 0.011
5	Air	2/22/06	< 0.008
5	Air	3/1/06	< 0.008

Air Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
5	Air	3/8/06	< 0.009
5	Air	3/15/06	< 0.007
5	Air	3/22/06	< 0.009
5	Air	3/29/06	< 0.008
5	Air	4/5/06	< 0.005
5	Air	4/12/06	< 0.007
5	Air	4/19/06	< 0.005
5	Air	4/26/06	< 0.008
5	Air	5/3/06	< 0.008
5	Air	5/10/06	< 0.006
5	Air	5/17/06	< 0.003
5	Air	5/24/06	< 0.007
5	Air	5/31/06	< 0.005
5	Air	6/7/06	< 0.009
5	Air	6/14/06	< 0.009
5	Air	6/21/06	< 0.004
5	Air	6/28/06	< 0.003
5	Air	7/5/06	< 0.006
5	Air	7/12/06	< 0.008
5	Air	7/19/06	< 0.004
5	Air	7/26/06	< 0.004
5	Air	8/2/06	< 0.003
5	Air	8/9/06	< 0.006
5	Air	8/16/06	< 0.006
5	Air	8/23/06	< 0.006
5	Air	8/30/06	< 0.006
5	Air	9/6/06	< 0.004
5	Air	9/13/06	< 0.008
5	Air	9/20/06	< 0.005
5	Air	9/27/06	< 0.006
5	Air	10/4/06	< 0.007
5	Air	10/11/06	< 0.003
5	Air	10/18/06	< 0.005
5	Air	10/25/06	< 0.007
5	Air	11/1/06	< 0.005
5	Air	11/8/06	< 0.007
5	Air	11/16/06	< 0.009
5	Air	11/22/06	< 0.011
5	Air	11/29/06	< 0.005
5	Air	12/6/06	< 0.006
5	Air	12/13/06	< 0.004
5	Air	12/20/06	< 0.005
5	Air	12/27/06	< 0.008

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
5	Air	1/3/07	< 0.004
6	Air	1/4/06	< 0.006
6	Air	1/11/06	< 0.009
6	Air	1/18/06	< 0.008
6	Air	1/25/06	< 0.004
6	Air	2/1/06	< 0.008
6	Air	2/8/06	< 0.005
6	Air	2/15/06	< 0.011
6	Air	2/22/06	< 0.008
6	Air	3/1/06	< 0.009
6	Air	3/8/06	< 0.009
6	Air	3/15/06	< 0.007
6	Air	3/22/06	< 0.009
6	Air	3/29/06	< 0.008
6	Air	4/5/06	< 0.006
6	Air	4/12/06	< 0.007
6	Air	4/19/06	< 0.005
6	Air	4/26/06	< 0.009
6	Air	5/3/06	< 0.008
6	Air	5/10/06	< 0.007
6	Air	5/17/06	< 0.004
6	Air	5/24/06	< 0.008
6	Air	5/31/06	< 0.005
6	Air	6/7/06	< 0.009
6	Air	6/14/06	< 0.009
6	Air	6/21/06	< 0.005
6	Air	6/28/06	< 0.003
6	Air	7/5/06	< 0.007
6	Air	7/12/06	< 0.008
6	Air	7/19/06	< 0.005
6	Air	7/26/06	< 0.004
6	Air	8/2/06	< 0.003
6	Air	8/9/06	< 0.006
6	Air	8/16/06	< 0.007
6	Air	8/23/06	< 0.006
6	Air	8/30/06	< 0.007
6	Air	9/6/06	< 0.004
6	Air	9/13/06	< 0.008
6	Air	9/20/06	< 0.005
6	Air	9/27/06	< 0.006
6	Air	10/4/06	< 0.008
6	Air	10/11/06	< 0.004

Air Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
6	Air	10/18/06	< 0.006
6	Air	10/25/06	< 0.007
6	Air	11/1/06	< 0.005
6	Air	11/8/06	< 0.007
6	Air	11/16/06	< 0.009
6	Air	11/22/06	< 0.010
6	Air	11/29/06	< 0.005
6	Air	12/6/06	< 0.006
6	Air	12/13/06	< 0.004
6	Air	12/20/06	< 0.005
6	Air	12/27/06	< 0.008
6	Air	1/3/07	< 0.004
7	Air	1/4/06	< 0.006
7	Air	1/11/06	< 0.009
7	Air	1/18/06	< 0.007
7	Air	1/25/06	< 0.004
7	Air	2/1/06	< 0.008
7	Air	2/8/06	< 0.004
7	Air	2/15/06	< 0.011
7	Air	2/22/06	< 0.008
7	Air	3/1/06	< 0.008
7	Air	3/8/06	< 0.009
7	Air	3/15/06	< 0.007
7	Air	3/22/06	< 0.008
7	Air	3/29/06	< 0.007
7	Air	4/5/06	< 0.005
7	Air	4/12/06	< 0.006
7	Air	4/19/06	< 0.005
7	Air	4/26/06	< 0.008
7	Air	5/3/06	< 0.008
7	Air	5/10/06	< 0.006
7	Air	5/17/06	< 0.003
7	Air	5/24/06	< 0.007
7	Air	5/31/06	< 0.005
7	Air	6/7/06	< 0.009
7	Air	6/14/06	< 0.009
7	Air	6/21/06	< 0.004
7	Air	6/28/06	< 0.003
7	Air	7/5/06	< 0.006
7	Air	7/12/06	< 0.008
7	Air	7/19/06	< 0.004
7	Air	7/26/06	< 0.004

Air Iodine Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
7	Air	8/2/06	< 0.003
7	Air	8/9/06	< 0.006
7	Air	8/16/06	< 0.006
7	Air	8/23/06	< 0.006
7	Air	8/30/06	< 0.006
7	Air	9/6/06	< 0.004
7	Air	9/13/06	< 0.008
7	Air	9/20/06	< 0.005
7	Air	9/27/06	< 0.006
7	Air	10/4/06	< 0.007
7	Air	10/11/06	< 0.003
7	Air	10/18/06	< 0.006
7	Air	10/25/06	< 0.007
7	Air	11/1/06	< 0.005
7	Air	11/8/06	< 0.007
7	Air	11/16/06	< 0.009
7	Air	11/22/06	< 0.011
7	Air	11/29/06	< 0.006
7	Air	12/6/06	< 0.006
7	Air	12/13/06	< 0.004
7	Air	12/20/06	< 0.005
7	Air	12/27/06	< 0.008
7	Air	1/3/07	< 0.005
35	Air	1/4/06	< 0.003
35	Air	1/11/06	< 0.008
35	Air	1/18/06	< 0.009
35	Air	1/25/06	< 0.006
35	Air	2/1/06	< 0.008
35	Air	2/8/06	< 0.005
35	Air	2/15/06	< 0.010
35	Air	2/22/06	< 0.013
35	Air	3/1/06	< 0.002
35	Air	3/8/06	< 0.008
35	Air	3/15/06	< 0.005
35	Air	3/22/06	< 0.001
35	Air	3/29/06	< 0.008
35	Air	4/5/06	< 0.004
35	Air	4/12/06	< 0.028
35	Air	4/19/06	< 0.029
35	Air	4/26/06	< 0.009
35	Air	5/3/06	< 0.010
35	Air	5/10/06	< 0.012

Air Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Weekly Results in pCi/m3 +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
35	Air	5/17/06	< 0.013
35	Air	5/24/06	< 0.007
35	Air	5/31/06	< 0.008
35	Air	6/7/06	< 0.014
35	Air	6/14/06	< 0.006
35	Air	6/21/06	< 0.003
35	Air	6/28/06	< 0.008
35	Air	7/5/06	< 0.004
35	Air	7/12/06	< 0.004
35	Air	7/19/06	< 0.007
35	Air	7/26/06	< 0.012
35	Air	8/2/06	< 0.009
35	Air	8/9/06	< 0.004
35	Air	8/16/06	< 0.005
35	Air	8/23/06	< 0.009
35	Air	8/30/06	< 0.008
35	Air	9/6/06	< 0.003
35	Air	9/13/06	< 0.004
35	Air	9/20/06	< 0.005
35	Air	9/27/06	< 0.004
35	Air	10/4/06	< 0.002
35	Air	10/11/06	< 0.004
35	Air	10/18/06	< 0.004
35	Air	10/25/06	< 0.007
35	Air	11/1/06	< 0.004
35	Air	11/8/06	< 0.004
35	Air	11/16/06	< 0.009
35	Air	11/22/06	< 0.009
35	Air	11/29/06	< 0.007
35	Air	12/6/06	< 0.006
35	Air	12/13/06	< 0.008
35	Air	12/20/06	< 0.006
35	Air	12/27/06	< 0.008
35	Air	1/3/07	< 0.007

Fish Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Annually Results in pCi/kg wet +/- 2 Sigma

Location	Sample Type	Collection Date	Co-58 K-40	Co-60 Mn-54	Cs-134 Zn-65	Cs-137	Fe-59
25	perch	8/2/06	< 27.33 1,280.10 +/- 518.20	< 24.04 < 10.54	< 25.55 < 51.27	< 28.45	< 60.29
32	perch	8/2/06	< 11.06 1,577.10 +/- 556.30	< 19.45 < 28.73	< 32.06 < 43.21	< 27.79	< 51.34

Food Products Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/kg wet +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7 I-131	Co-58 K-40	Co-60	Cs-134	Cs-137
2	beet greens	7/6/06	246.31 +/- 143.80 < 11.94	< 10.47 4,620.30 +/- 377.30	< 7.79	< 11.60	< 9.71
2	swiss chard	7/6/06	215.25 +/- 117.60 < 16.50	< 7.11 5,081.20 +/- 376.70	< 10.55	< 8.53	< 11.62
2	beet greens	7/25/06	< 186.61 < 36.35	< 10.72 6,482.30 +/- 623.60	< 12.92	< 17.85	< 12.14
2	swiss chard	7/25/06	< 176.86 < 37.03	< 10.95 5,189.80 +/- 478.40	< 14.01	< 11.68	< 17.58
2	beet greens	8/15/06	247.10 +/- 104.60 < 9.61	< 6.02 7,464.40 +/- 320.40	< 5.08	< 8.19	< 9.94
2	swiss chard	8/15/06	< 103.17 < 16.17	< 10.40 6,004.40 +/- 319.10	< 5.54	< 9.52	< 10.74
2	beet greens	9/15/06	469.81 +/- 217.70 < 17.43	< 12.83 5,128.60 +/- 625.40	< 12.23	< 13.46	< 22.14
16	turnip greens	7/6/06	< 157.69 < 14.54	< 12.73 5,881.85 +/- 382.95	< 13.01	< 14.54	< 11.65
16	collard greens	7/25/06	< 86.50 < 26.25	< 7.66 5,238.90 +/- 353.90	< 5.40	< 9.81	< 9.94
16	turnip greens	7/25/06	408.04 +/- 180.80 < 16.97	< 14.19 6,049.40 +/- 495.90	< 13.56	< 10.89	< 18.10
16	collard greens	8/15/06	< 156.16 < 18.86	< 19.23 4,862.60 +/- 501.00	< 13.40	< 17.08	< 16.11
16	swiss chard	9/15/06	412.20 +/- 187.10 < 27.94	< 10.89 6,702.20 +/- 614.70	< 14.31	< 13.04	< 20.70

Food Products Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/kg wet +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7 I-131	Co-58 K-40	Co-60	Cs-134	Cs-137
20	chinese cabbage	9/15/06	352.10 +/- 116.70 < 15.71	< 14.04 3,954.60 +/- 438.40	< 9.14	< 11.62	< 9.74
20	turnip greens	9/15/06	375.15 +/- 77.41 < 9.00	< 7.30 3,961.90 +/- 265.90	< 6.74	< 5.04	< 8.25
20	chinese cabbage	10/25/06	598.53 +/- 118.80 < 12.16	< 6.95 3,689.70 +/- 308.10	< 10.24	< 5.26	< 8.79
37	collard greens	7/6/06	396.76 +/- 190.60 < 27.17	< 12.28 5,479.10 +/- 645.50	< 15.18	< 15.52	< 23.09
37	swiss chard	7/6/06	225.40 +/- 135.20 < 16.68	< 9.19 4,546.70 +/- 405.00	< 14.10	< 10.24	< 12.10
37	turnip greens	7/6/06	336.83 +/- 117.30 < 13.49	< 11.52 5,090.80 +/- 498.30	< 9.92	< 11.78	< 12.09
37	collard greens	7/25/06	< 178.11 < 27.41	< 7.49 3,871.80 +/- 336.80	< 11.70	< 7.27	< 15.29
37	swiss chard	7/25/06	< 161.34 < 30.49	< 12.15 3,922.60 +/- 443.70	< 16.24	< 11.83	< 12.36
37	turnip greens	7/25/06	< 162.06 < 22.76	< 12.49 4,600.40 +/- 387.10	< 6.05	< 10.02	< 13.82
37	beet greens	8/15/06	563.61 +/- 238.40 < 40.91	< 11.72 7,341.70 +/- 577.30	< 24.74	< 16.20	< 21.71
37	collard greens	8/15/06	< 111.39 < 18.85	< 11.31 3,379.00 +/- 217.40	< 7.72	< 9.26	< 9.69
37	swiss chard	8/15/06	310.71 +/- 125.90 < 16.94	< 8.43 5,966.20 +/- 395.30	< 6.81	< 8.40	< 13.20

Food Products Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/kg wet +/- 2 Sigma

Location	Sample Type	Collection Date	Be-7 I-131	Co-58 K-40	Co-60	Cs-134	Cs-137
37	collard greens	9/15/06	< 154.35 < 34.82	< 11.07 4,130.60 +/- 392.70	< 15.17	< 11.84	< 11.92
37	swiss chard	9/15/06	< 119.10 < 36.05	< 11.19 3,335.50 +/- 289.50	< 6.51	< 8.60	< 11.91
37	turnip greens	9/15/06	961.90 +/- 109.20 < 13.72	< 8.51 5,858.30 +/- 315.80	< 9.69	< 4.18	< 9.33
37	beet greens	10/25/06	766.35 +/- 174.80 < 20.61	< 10.58 6,385.50 +/- 475.80	< 10.80	< 12.71	< 13.95
37	swiss chard	10/25/06	492.72 +/- 91.09 < 21.04	< 4.96 6,036.05 +/- 295.21	< 8.42	< 11.56	< 8.95
37	turnip greens	10/25/06	1,764.20 +/- 172.50 < 17.20	< 10.96 7,674.40 +/- 417.30	< 7.71	< 7.44	< 9.03
70	collard greens	8/15/06	< 58.29 < 10.05	< 5.53 4,451.70 +/- 249.40	< 6.90	< 6.70	< 8.70
70	swiss chard	8/15/06	235.94 +/- 140.90 < 24.39	< 6.22 7,189.70 +/- 424.20	< 5.00	< 9.50	< 10.75
70	turnip greens	8/15/06	565.83 +/- 115.80 < 14.38	< 3.21 5,437.30 +/- 358.60	< 8.47	< 7.37	< 12.01
70	collard greens	9/15/06	< 130.04 < 32.29	< 9.31 3,669.90 +/- 287.70	< 10.44	< 11.77	< 9.78
70	swiss chard	9/15/06	346.03 +/- 134.10 < 30.58	< 8.33 3,821.60 +/- 360.50	< 11.59	< 8.63	< 14.21

Milk Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Date	Ba-140	Cs-134	Cs-137	K-40	La-140
22	Milk	6/19/06	< 23	< 3	< 3	1,549 +/- 95	< 3
22	Milk	7/5/06	< 30	< 7	< 6	1,521 +/- 195	< 4
22	Milk	7/17/06	< 21	< 4	< 4	1,823 +/- 131	< 2
22	Milk	8/7/06	< 10	< 4	< 4	1,686 +/- 128	< 2
22	Milk	8/21/06	< 13	< 3	< 4	1,712 +/- 127	< 2
22	Milk	9/5/06	< 16	< 3	< 5	1,810 +/- 139	< 3
22	Milk	9/18/06	< 22	< 6	< 8	1,087 +/- 158	< 3
41	Milk	4/3/06	< 19	< 4	< 4	1,399 +/- 86	< 4
41	Milk	5/1/06	< 12	< 2	< 2	1,596 +/- 80	< 1
41	Milk	5/15/06	< 23	< 5	< 7	1,759 +/- 197	< 3
41	Milk	6/5/06	< 15	< 4	< 4	1,556 +/- 128	< 3
41	Milk	6/19/06	< 30	< 6	< 8	1,595 +/- 185	< 3

Milk Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Date	Ba-140	Cs-134	Cs-137	K-40	La-140
41	Milk	7/5/06	< 11	< 3	< 5	1,676 +/- 138	< 3
41	Milk	7/18/06	< 9	< 3	< 4	1,819 +/- 146	< 3
41	Milk	8/7/06	< 15	< 4	< 3	1,732 +/- 131	< 3
41	Milk	8/21/06	< 14	< 5	< 5	1,744 +/- 169	< 4
41	Milk	9/5/06	< 21	< 5	< 5	1,742 +/- 175	< 4
41	Milk	9/18/06	< 21	< 5	< 8	1,714 +/- 185	< 5
51	Milk	1/3/06	< 18	< 3	< 5	1,214 +/- 109	< 4
51	Milk	2/6/06	< 19	< 3	< 3	1,292 +/- 112	< 3
51	Milk	3/9/06	< 11	< 3	< 5	1,288 +/- 119	< 1
51	Milk	4/3/06	< 26	< 3	< 5	1,163 +/- 114	< 7
51	Milk	4/18/06	< 23	< 5	< 5	1,173 +/- 130	< 9
51	Milk	5/1/06	< 20	< 4	< 5	1,421 +/- 116	< 2

Milk Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Date	Ba-140	Cs-134	Cs-137	K-40	La-140
51	Milk	5/15/06	< 25	< 4	< 6	1,108 +/- 174	< 7
51	Milk	6/5/06	< 10	< 3	< 3	1,309 +/- 116	< 3
51	Milk	6/20/06	< 12	< 3	< 6	1,364 +/- 117	< 1
51	Milk	7/5/06	< 10	< 3	< 4	1,322 +/- 109	< 2
51	Milk	7/17/06	< 18	< 3	< 3	1,980 +/- 147	< 4
51	Milk	8/7/06	< 16	< 6	< 6	1,666 +/- 188	< 4
51	Milk	8/21/06	< 16	< 3	< 4	1,369 +/- 122	< 2
51	Milk	9/5/06	< 18	< 5	< 3	1,286 +/- 145	< 2
51	Milk	9/18/06	< 16	< 3	< 4	1,270 +/- 113	< 1
51	Milk	10/2/06	< 9	< 3	< 5	1,327 +/- 111	< 1
51	Milk	10/16/06	< 14	< 4	< 4	1,251 +/- 118	< 3
51	Milk	11/6/06	< 10	< 4	< 5	1,326 +/- 119	< 2

Milk Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Date	Ba-140	Cs-134	Cs-137	K-40	La-140
51	Milk	12/4/06	< 11	< 3	< 3	1,269 +/- 110	< 2
61	Milk	4/3/06	< 26	< 6	< 7	1,769 +/- 158	< 7
61	Milk	4/18/06	< 25	< 3	< 4	1,645 +/- 134	< 5
61	Milk	5/1/06	< 13	< 3	< 4	1,702 +/- 131	< 3
61	Milk	5/15/06	< 34	< 4	< 5	1,432 +/- 196	< 7
61	Milk	6/5/06	< 11	< 3	< 4	1,610 +/- 126	< 1
61	Milk	6/19/06	< 10	< 4	< 4	1,702 +/- 118	< 3
61	Milk	7/5/06	< 13	< 4	< 7	1,703 +/- 186	< 5
61	Milk	7/17/06	< 19	< 3	< 4	1,805 +/- 131	< 4
61	Milk	8/7/06	< 14	< 3	< 4	1,951 +/- 140	< 2
61	Milk	8/21/06	< 22	< 5	< 7	1,951 +/- 199	< 4
61	Milk	9/5/06	< 14	< 6	< 6	2,119 +/- 186	< 5

Milk Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Date	Ba-140	Cs-134	Cs-137	K-40	La-140
61	Milk	9/18/06	< 13	< 3	< 5	1,929 +/- 131	< 2
61	Milk	10/2/06	< 12	< 4	< 4	2,066 +/- 149	< 2

Milk Iodine Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
22	Milk	6/19/06	< 0.34
22	Milk	7/5/06	< 0.27
22	Milk	7/17/06	< 0.25
22	Milk	8/7/06	< 0.18
22	Milk	8/21/06	< 0.44
22	Milk	9/5/06	< 0.24
22	Milk	9/18/06	< 0.45
22	Milk	10/2/06	
41	Milk	4/3/06	< 0.28
41	Milk	4/18/06	
41	Milk	5/1/06	< 0.31
41	Milk	5/15/06	< 0.25
41	Milk	6/5/06	< 0.22
41	Milk	6/19/06	< 0.24
41	Milk	7/5/06	< 0.28
41	Milk	7/18/06	< 0.28
41	Milk	8/7/06	< 0.18
41	Milk	8/21/06	< 0.32
41	Milk	9/5/06	< 0.20
41	Milk	9/18/06	< 0.24
41	Milk	10/2/06	
51	Milk	1/3/06	< 0.14
51	Milk	2/6/06	< 0.31
51	Milk	3/9/06	< 0.41
51	Milk	4/3/06	< 0.50
51	Milk	4/18/06	< 0.42
51	Milk	5/1/06	< 0.34
51	Milk	5/15/06	< 0.27
51	Milk	6/5/06	< 0.27
51	Milk	6/20/06	< 0.26
51	Milk	7/5/06	< 0.26
51	Milk	7/17/06	< 0.29
51	Milk	8/7/06	< 0.21
51	Milk	8/21/06	< 0.44
51	Milk	9/5/06	< 0.23
51	Milk	9/18/06	< 0.45
51	Milk	10/2/06	< 0.43
51	Milk	10/16/06	< 0.39
51	Milk	11/6/06	< 0.23
51	Milk	12/4/06	< 0.31

Milk Iodine Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Bi-Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Dat	I-131
61	Milk	4/3/06	< 0.34
61	Milk	4/18/06	< 0.38
61	Milk	5/1/06	< 0.45
61	Milk	5/15/06	< 0.31
61	Milk	6/5/06	< 0.24
61	Milk	6/19/06	< 0.24
61	Milk	7/5/06	< 0.24
61	Milk	7/17/06	< 0.28
61	Milk	8/7/06	< 0.30
61	Milk	8/21/06	< 0.41
61	Milk	9/5/06	< 0.22
61	Milk	9/18/06	< 0.31
61	Milk	10/2/06	< 0.45
61	Milk	10/16/06	

Sediment Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Annually Results in pCi/kg dry +/- 2 Sigma

Location	Sample Type	Collection Date	Co-58	Co-60	Cs-134	Cs-137	K-40
25	Sediment	6/14/06	< 20.93	< 24.28	< 31.21	LLD	11,527.00 +/- 591.00
25	Sediment	10/9/06	< 36.03	< 28.19	< 42.26	LLD	11,898.00 +/- 701.00
26	Sediment	6/14/06	< 15.27	< 28.25	< 33.69	145.25 +/- 31.53	16,569.00 +/- 765.20
26	Sediment	10/9/06	< 31.13	< 14.91	< 40.92	LLD	14,042.00 +/- 680.80
27	Sediment	6/14/06	< 16.89	< 15.94	< 36.47	308.79 +/- 58.46	17,405.00 +/- 823.70
27	Sediment	10/9/06	< 24.75	< 11.43	< 33.35	158.51 +/- 30.96	15,967.00 +/- 853.70
32	Sediment	6/14/06	< 32.22	< 23.47	< 51.25	907.86 +/- 82.00	25,552.00 +/- 1,153.00
32	Sediment	10/9/06	< 44.56	< 39.63	< 57.65	881.68 +/- 68.16	24,460.00 +/- 1,246.00
64	Sediment	6/14/06	< 11.81	< 7.34	< 13.23	< 11.35	8,472.80 +/- 421.50
64	Sediment	10/10/06	< 13.72	< 18.42	< 17.24	< 13.56	8,910.00 +/- 519.60

Sediment Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Bi-Annually Results in pCi/kg dry +/- 2 Sigma

Location	Sample Type	Collection Date	Co-58	Co-60	Cs-134	Cs-137	K-40
65	Sediment	6/14/06	< 20.56	< 14.28	< 36.89	< 23.22	10,678.00 +/- 664.60
65	Sediment	10/10/06	< 8.21	< 13.07	< 21.91	< 11.36	7,917.80 +/- 497.70

TLD Gamma Dose Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
1	TLD	1/6/06 to 4/12/06	10.53 +/- 0.91
1	TLD	4/12/06 to 7/11/06	8.89 +/- 0.61
1	TLD	7/11/06 to 10/12/06	11.33 +/- 1.39
1	TLD	10/12/06 to 1/4/07	11.83 +/- 0.66
3	TLD	1/6/06 to 4/12/06	10.94 +/- 0.75
3	TLD	4/12/06 to 7/11/06	9.59 +/- 0.45
3	TLD	7/11/06 to 10/12/06	11.04 +/- 0.75
3	TLD	10/12/06 to 1/4/07	12.63 +/- 0.67
4	TLD	1/6/06 to 4/12/06	11.70 +/- 0.89
4	TLD	4/12/06 to 7/11/06	9.63 +/- 0.56
4	TLD	7/11/06 to 10/12/06	12.34 +/- 0.69
4	TLD	10/12/06 to 1/4/07	12.76 +/- 0.64
5	TLD	1/6/06 to 4/12/06	10.16 +/- 0.76
5	TLD	4/12/06 to 7/11/06	9.40 +/- 0.49
5	TLD	7/11/06 to 10/12/06	11.20 +/- 0.65
5	TLD	10/12/06 to 1/4/07	12.76 +/- 0.43
6	TLD	1/6/06 to 4/12/06	11.96 +/- 0.81
6	TLD	4/12/06 to 7/11/06	10.27 +/- 0.42
6	TLD	7/11/06 to 10/12/06	13.10 +/- 0.71
6	TLD	10/12/06 to 1/4/07	13.86 +/- 0.48
7	TLD	1/6/06 to 4/12/06	11.63 +/- 0.89
7	TLD	4/12/06 to 7/11/06	10.42 +/- 0.41
7	TLD	7/11/06 to 10/12/06	12.65 +/- 0.90
7	TLD	10/12/06 to 1/4/07	13.94 +/- 0.38
8	TLD	1/6/06 to 4/12/06	10.11 +/- 0.72
8	TLD	4/12/06 to 7/11/06	9.71 +/- 0.49
8	TLD	7/11/06 to 10/12/06	11.07 +/- 0.59
8	TLD	10/12/06 to 1/4/07	12.60 +/- 0.53
9	TLD	1/6/06 to 4/12/06	10.18 +/- 0.71
9	TLD	4/12/06 to 7/11/06	9.54 +/- 0.56
9	TLD	7/11/06 to 10/12/06	11.22 +/- 0.65
9	TLD	10/12/06 to 1/4/07	12.11 +/- 0.41
10	TLD	1/6/06 to 4/12/06	13.12 +/- 0.89
10	TLD	4/12/06 to 7/11/06	11.92 +/- 0.71
10	TLD	7/11/06 to 10/12/06	14.38 +/- 0.72

[redacted] TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
10	TLD	10/12/06 to 1/4/07	16.14 +/- 1.80
11	TLD	1/6/06 to 4/12/06	12.96 +/- 0.73
11	TLD	4/12/06 to 7/11/06	10.68 +/- 0.46
11	TLD	7/11/06 to 10/12/06	13.97 +/- 0.68
11	TLD	10/12/06 to 1/4/07	13.89 +/- 0.51
12	TLD	1/6/06 to 4/12/06	12.14 +/- 0.73
12	TLD	4/12/06 to 7/11/06	10.39 +/- 0.71
12	TLD	7/11/06 to 10/12/06	12.97 +/- 0.89
12	TLD	10/12/06 to 1/4/07	13.30 +/- 0.74
13	TLD	1/6/06 to 4/12/06	12.47 +/- 0.86
13	TLD	4/12/06 to 7/11/06	9.95 +/- 0.74
13	TLD	7/11/06 to 10/12/06	13.21 +/- 0.87
13	TLD	10/12/06 to 1/4/07	13.36 +/- 0.80
14	TLD	1/6/06 to 4/12/06	10.89 +/- 0.89
14	TLD	4/12/06 to 7/11/06	9.53 +/- 0.34
14	TLD	7/11/06 to 10/12/06	11.37 +/- 0.73
14	TLD	10/12/06 to 1/4/07	12.67 +/- 0.55
15	TLD	1/6/06 to 4/12/06	10.82 +/- 0.86
15	TLD	4/12/06 to 7/11/06	8.45 +/- 0.60
15	TLD	7/11/06 to 10/12/06	11.20 +/- 0.66
15	TLD	10/12/06 to 1/4/07	9.01 +/- 0.65
21	TLD	1/6/06 to 4/12/06	13.78 +/- 0.79
21	TLD	4/12/06 to 7/11/06	15.34 +/- 0.39
21	TLD	7/11/06 to 10/12/06	14.84 +/- 0.81
21	TLD	10/12/06 to 1/4/07	15.08 +/- 0.56
23	TLD	1/6/06 to 4/12/06	14.41 +/- 0.81
23	TLD	4/12/06 to 7/11/06	15.51 +/- 0.43
23	TLD	7/11/06 to 10/12/06	14.91 +/- 0.69
23	TLD	10/12/06 to 1/4/07	15.19 +/- 0.36
24	TLD	1/6/06 to 4/12/06	12.21 +/- 0.87
24	TLD	4/12/06 to 7/11/06	18.23 +/- 0.66
24	TLD	7/11/06 to 10/12/06	12.45 +/- 0.60
24	TLD	10/12/06 to 1/4/07	13.98 +/- 0.66
29	TLD	1/6/06 to 4/12/06	16.35 +/- 0.95
29	TLD	4/12/06 to 7/11/06	13.93 +/- 0.55

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
29	TLD	7/11/06 to 10/12/06	16.84 +/- 0.84
29	TLD	10/12/06 to 1/4/07	18.22 +/- 0.63
30	TLD	1/6/06 to 4/12/06	14.30 +/- 1.04
30	TLD	4/12/06 to 7/11/06	16.00 +/- 0.71
30	TLD	7/11/06 to 10/12/06	14.89 +/- 0.95
30	TLD	10/12/06 to 1/4/07	16.25 +/- 1.24
31	TLD	1/6/06 to 4/12/06	14.33 +/- 0.92
31	TLD	4/12/06 to 7/11/06	17.59 +/- 0.78
31	TLD	7/11/06 to 10/12/06	15.36 +/- 0.72
31	TLD	10/12/06 to 1/4/07	16.65 +/- 1.24
33	TLD	1/6/06 to 4/12/06	15.47 +/- 0.90
33	TLD	4/12/06 to 7/11/06	18.00 +/- 0.74
33	TLD	7/11/06 to 10/12/06	16.23 +/- 0.75
33	TLD	10/12/06 to 1/4/07	17.79 +/- 0.46
35	TLD	1/6/06 to 4/12/06	10.31 +/- 0.88
35	TLD	4/12/06 to 7/11/06	12.91 +/- 1.11
35	TLD	7/11/06 to 10/12/06	11.55 +/- 0.64
35	TLD	10/12/06 to 1/4/07	12.74 +/- 0.45
36	TLD	1/6/06 to 4/12/06	14.73 +/- 0.94
36	TLD	4/12/06 to 7/11/06	16.64 +/- 1.08
36	TLD	7/11/06 to 10/12/06	15.80 +/- 0.84
36	TLD	10/12/06 to 1/4/07	16.61 +/- 0.83
53	TLD	1/6/06 to 4/12/06	11.29 +/- 0.80
53	TLD	4/12/06 to 7/11/06	13.75 +/- 0.50
53	TLD	7/11/06 to 10/12/06	12.86 +/- 0.80
53	TLD	10/12/06 to 1/4/07	13.62 +/- 0.49
54	TLD	1/6/06 to 4/12/06	11.16 +/- 1.28
54	TLD	4/12/06 to 7/11/06	12.97 +/- 0.50
54	TLD	7/11/06 to 10/12/06	12.75 +/- 1.02
54	TLD	10/12/06 to 1/4/07	13.84 +/- 1.21
55	TLD	1/6/06 to 4/12/06	12.12 +/- 1.71
55	TLD	4/12/06 to 7/11/06	14.40 +/- 0.61
55	TLD	7/11/06 to 10/12/06	13.14 +/- 1.56
55	TLD	10/12/06 to 1/4/07	14.42 +/- 0.57
56	TLD	1/6/06 to 4/12/06	12.03 +/- 0.86

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
56	TLD	4/12/06 to 7/11/06	13.35 +/- 0.64
56	TLD	7/11/06 to 10/12/06	12.69 +/- 0.68
56	TLD	10/12/06 to 1/4/07	13.66 +/- 0.79
58	TLD	1/6/06 to 4/12/06	10.21 +/- 0.77
58	TLD	4/12/06 to 7/11/06	11.77 +/- 0.71
58	TLD	7/11/06 to 10/12/06	11.16 +/- 0.71
58	TLD	10/12/06 to 1/4/07	12.10 +/- 0.42

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
1	TLB	1/6/06 to 4/12/06	10.65 +/- 1.27
1	TLB	4/12/06 to 7/11/06	10.29 +/- 0.69
1	TLB	7/11/06 to 10/12/06	11.00 +/- 1.32
1	TLB	10/12/06 to 1/4/07	10.75 +/- 0.82
3	TLB	1/6/06 to 4/12/06	11.94 +/- 0.80
3	TLB	4/12/06 to 7/11/06	8.93 +/- 0.78
3	TLB	7/11/06 to 10/12/06	12.26 +/- 1.19
3	TLB	10/12/06 to 1/4/07	9.45 +/- 0.80
4	TLB	1/6/06 to 4/12/06	12.08 +/- 0.59
4	TLB	4/12/06 to 7/11/06	12.68 +/- 0.64
4	TLB	7/11/06 to 10/12/06	12.03 +/- 1.05
4	TLB	10/12/06 to 1/4/07	13.04 +/- 0.65
5	TLB	1/6/06 to 4/12/06	12.19 +/- 0.57
5	TLB	4/12/06 to 7/11/06	10.87 +/- 0.76
5	TLB	7/11/06 to 10/12/06	12.49 +/- 1.22
5	TLB	10/12/06 to 1/4/07	11.84 +/- 0.69
6	TLB	1/6/06 to 4/12/06	12.19 +/- 0.76
6	TLB	4/12/06 to 7/11/06	10.84 +/- 0.57
6	TLB	7/11/06 to 10/12/06	12.31 +/- 1.11
6	TLB	10/12/06 to 1/4/07	12.34 +/- 0.57
7	TLB	1/6/06 to 4/12/06	13.25 +/- 0.65
7	TLB	4/12/06 to 7/11/06	12.22 +/- 0.79
7	TLB	7/11/06 to 10/12/06	12.94 +/- 1.16
7	TLB	10/12/06 to 1/4/07	13.49 +/- 0.80
8	TLB	1/6/06 to 4/12/06	11.66 +/- 0.66
8	TLB	4/12/06 to 7/11/06	10.55 +/- 0.62
8	TLB	7/11/06 to 10/12/06	12.19 +/- 1.02
8	TLB	10/12/06 to 1/4/07	11.65 +/- 0.57
9	TLB	1/6/06 to 4/12/06	11.36 +/- 0.67
9	TLB	4/12/06 to 7/11/06	10.09 +/- 0.73
9	TLB	7/11/06 to 10/12/06	11.29 +/- 1.10
9	TLB	10/12/06 to 1/4/07	11.11 +/- 0.59
10	TLB	1/6/06 to 4/12/06	13.93 +/- 0.73
10	TLB	4/12/06 to 7/11/06	12.95 +/- 0.57
10	TLB	7/11/06 to 10/12/06	14.06 +/- 1.37
10	TLB	10/12/06 to 1/4/07	14.44 +/- 0.69

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
11	TLB	1/6/06 to 4/12/06	11.96 +/- 0.53
11	TLB	4/12/06 to 7/11/06	11.80 +/- 0.61
11	TLB	7/11/06 to 10/12/06	12.89 +/- 1.88
11	TLB	10/12/06 to 1/4/07	13.32 +/- 0.79
12	TLB	1/6/06 to 4/12/06	13.32 +/- 0.47
12	TLB	4/12/06 to 7/11/06	11.37 +/- 0.49
12	TLB	7/11/06 to 10/12/06	13.61 +/- 1.04
12	TLB	10/12/06 to 1/4/07	12.49 +/- 0.78
13	TLB	1/6/06 to 4/12/06	11.74 +/- 0.53
13	TLB	4/12/06 to 7/11/06	10.80 +/- 0.85
13	TLB	7/11/06 to 10/12/06	12.00 +/- 0.99
13	TLB	10/12/06 to 1/4/07	11.94 +/- 1.04
14	TLB	1/6/06 to 4/12/06	10.34 +/- 0.64
14	TLB	4/12/06 to 7/11/06	10.25 +/- 0.64
14	TLB	7/11/06 to 10/12/06	10.19 +/- 1.14
14	TLB	10/12/06 to 1/4/07	11.61 +/- 0.93
15	TLB	1/6/06 to 4/12/06	10.07 +/- 0.58
15	TLB	4/12/06 to 7/11/06	9.32 +/- 0.64
15	TLB	7/11/06 to 10/12/06	9.73 +/- 1.12
15	TLB	10/12/06 to 1/4/07	10.72 +/- 0.95
21	TLB	1/6/06 to 4/12/06	13.11 +/- 0.79
21	TLB	4/12/06 to 7/11/06	11.96 +/- 0.84
21	TLB	7/11/06 to 10/12/06	14.03 +/- 1.14
21	TLB	10/12/06 to 1/4/07	13.39 +/- 0.91
23	TLB	1/6/06 to 4/12/06	12.42 +/- 1.10
23	TLB	4/12/06 to 7/11/06	12.06 +/- 0.65
23	TLB	7/11/06 to 10/12/06	12.54 +/- 1.36
23	TLB	10/12/06 to 1/4/07	13.50 +/- 0.67
24	TLB	1/6/06 to 4/12/06	12.96 +/- 1.03
24	TLB	4/12/06 to 7/11/06	10.29 +/- 0.65
24	TLB	7/11/06 to 10/12/06	12.81 +/- 1.44
24	TLB	10/12/06 to 1/4/07	12.33 +/- 0.68
29	TLB	1/6/06 to 4/12/06	16.28 +/- 0.88
29	TLB	4/12/06 to 7/11/06	14.92 +/- 0.92
29	TLB	7/11/06 to 10/12/06	16.65 +/- 1.17

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
29	TLB	10/12/06 to 1/4/07	16.80 +/- 1.14
30	TLB	1/6/06 to 4/12/06	15.06 +/- 0.77
30	TLB	4/12/06 to 7/11/06	12.52 +/- 0.60
30	TLB	7/11/06 to 10/12/06	15.14 +/- 1.08
30	TLB	10/12/06 to 1/4/07	14.57 +/- 0.54
31	TLB	1/6/06 to 4/12/06	15.77 +/- 1.04
31	TLB	4/12/06 to 7/11/06	13.60 +/- 0.57
31	TLB	7/11/06 to 10/12/06	16.21 +/- 1.57
31	TLB	10/12/06 to 1/4/07	15.41 +/- 0.94
33	TLB	1/6/06 to 4/12/06	16.86 +/- 0.90
33	TLB	4/12/06 to 7/11/06	14.67 +/- 0.80
33	TLB	7/11/06 to 10/12/06	16.91 +/- 1.11
33	TLB	10/12/06 to 1/4/07	16.80 +/- 0.71
35	TLB	1/6/06 to 4/12/06	12.04 +/- 0.62
35	TLB	4/12/06 to 7/11/06	10.11 +/- 0.51
35	TLB	7/11/06 to 10/12/06	12.01 +/- 1.03
35	TLB	10/12/06 to 1/4/07	11.69 +/- 0.49
36	TLB	1/6/06 to 4/12/06	16.32 +/- 0.67
36	TLB	4/12/06 to 7/11/06	14.04 +/- 0.74
36	TLB	7/11/06 to 10/12/06	16.34 +/- 1.06
36	TLB	10/12/06 to 1/4/07	16.20 +/- 0.65
53	TLB	1/6/06 to 4/12/06	13.01 +/- 0.56
53	TLB	4/12/06 to 7/11/06	11.65 +/- 0.75
53	TLB	7/11/06 to 10/12/06	12.85 +/- 1.24
53	TLB	10/12/06 to 1/4/07	13.24 +/- 0.65
54	TLB	1/6/06 to 4/12/06	13.76 +/- 0.77
54	TLB	4/12/06 to 7/11/06	10.88 +/- 0.57
54	TLB	7/11/06 to 10/12/06	13.73 +/- 1.18
54	TLB	10/12/06 to 1/4/07	12.96 +/- 0.58
55	TLB	1/6/06 to 4/12/06	13.20 +/- 0.72
55	TLB	4/12/06 to 7/11/06	11.58 +/- 0.80
55	TLB	7/11/06 to 10/12/06	13.04 +/- 1.20
55	TLB	10/12/06 to 1/4/07	13.41 +/- 0.77
56	TLB	1/6/06 to 4/12/06	13.39 +/- 0.73
56	TLB	4/12/06 to 7/11/06	10.82 +/- 0.74

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Quarterly

Location	Sample Type	Collection Period	Exposure
56	TLB	7/11/06 to 10/12/06	13.12 +/- 1.05
56	TLB	10/12/06 to 1/4/07	12.54 +/- 0.97
58	TLB	1/6/06 to 4/12/06	10.86 +/- 0.76
58	TLB	4/12/06 to 7/11/06	9.46 +/- 0.91
58	TLB	7/11/06 to 10/12/06	9.80 +/- 1.08
58	TLB	10/12/06 to 1/4/07	10.41 +/- 0.59

TLD Gamma Dose Detail Report 2006
Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Annual Results in mR/365 days +/- 2 Sigma

Location	Sample Type	Collection Period	Exposure
1	TLA	1/6/06 to 1/4/07	53.93 +/- 2.24
3	TLA	1/6/06 to 1/4/07	54.77 +/- 2.13
4	TLA	1/6/06 to 1/4/07	63.00 +/- 2.21
5	TLA	1/6/06 to 1/4/07	58.88 +/- 2.47
6	TLA	1/6/06 to 1/4/07	64.90 +/- 3.45
7	TLA	1/6/06 to 1/4/07	
7	TLA	1/6/06 to 1/4/07	
8	TLA	1/6/06 to 1/4/07	60.27 +/- 1.99
9	TLA	1/6/06 to 1/4/07	56.89 +/- 2.14
10	TLA	1/6/06 to 1/4/07	77.15 +/- 3.16
11	TLA	1/6/06 to 1/4/07	69.00 +/- 2.21
12	TLA	1/6/06 to 1/4/07	64.72 +/- 1.66
13	TLA	1/6/06 to 1/4/07	63.68 +/- 2.25
14	TLA	1/6/06 to 1/4/07	59.17 +/- 3.04
15	TLA	1/6/06 to 1/4/07	54.58 +/- 1.77
21	TLA	1/6/06 to 1/4/07	67.67 +/- 4.49
23	TLA	1/6/06 to 1/4/07	65.30 +/- 1.62
24	TLA	1/6/06 to 1/4/07	60.22 +/- 3.98
29	TLA	1/6/06 to 1/4/07	79.37 +/- 2.34
30	TLA	1/6/06 to 1/4/07	67.41 +/- 1.68
31	TLA	1/6/06 to 1/4/07	74.01 +/- 4.18
33	TLA	1/6/06 to 1/4/07	75.79 +/- 1.71

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data
Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441
Sample Frequency is: Annual Results in mR/365 days +/- 2 Sigma

Location	Sample Type	Collection Period	Exposure
35	TLA	1/6/06 to 1/4/07	60.12 +/- 1.35
36	TLA	1/6/06 to 1/4/07	79.99 +/- 2.05
53	TLA	1/6/06 to 1/4/07	68.14 +/- 1.68
54	TLA	1/6/06 to 1/4/07	61.47 +/- 2.07
55	TLA	1/6/06 to 1/4/07	68.67 +/- 2.09
56	TLA	1/6/06 to 1/4/07	61.88 +/- 1.70
58	TLA	1/6/06 to 1/4/07	53.40 +/- 1.17

TLD Gamma Dose Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Annual Results in mR/365 days +/- 2 Sigma

Location	Sample Type	Collection Period	Exposure

Water Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Period	Ba-140 Fe-59 Zr-95	Co-58 La-140	Co-60 Mn-54	Cs-134 Nb-95	Cs-137 Zn-65
28	Water	12/29/05 to 1/26/06	< 18.21 < 5.22 < 6.02	< 2.85 < 2.74	< 2.66 < 3.15	< 2.64 < 3.92	< 3.67 < 2.00
28	Water	1/26/06 to 2/23/06	< 10.04 < 5.21 < 5.36	< 3.34 < 2.13	< 4.25 < 2.48	< 3.59 < 4.15	< 2.18 < 3.68
28	Water	2/23/06 to 3/30/06	< 25.22 < 3.30 < 7.50	< 2.75 < 2.39	< 3.01 < 3.62	< 2.92 < 4.91	< 4.03 < 4.93
28	Water	3/30/06 to 4/27/06	< 11.50 < 2.55 < 8.23	< 2.45 < 1.78	< 2.28 < 3.44	< 3.01 < 3.73	< 3.64 < 3.79
28	Water	4/27/06 to 5/31/06	< 8.99 < 3.14 < 2.52	< 1.97 < 2.43	< 1.32 < 1.70	< 1.42 < 1.88	< 1.89 < 2.97
28	Water	5/31/06 to 6/29/06	< 28.64 < 8.85 < 12.91	< 4.61 < 6.69	< 3.94 < 5.72	< 6.59 < 6.23	< 4.81 < 14.39
28	Water	6/29/06 to 7/26/06	< 17.66 < 7.98 < 9.16	< 4.97 < 5.57	< 2.98 < 4.82	< 5.36 < 4.44	< 3.61 < 4.87
28	Water	7/26/06 to 8/30/06	< 19.65 < 4.14 < 5.31	< 4.38 < 5.41	< 3.61 < 3.72	< 4.03 < 4.75	< 4.39 < 8.54
28	Water	8/31/06 to 9/28/06	< 31.89 < 9.43 < 10.18	< 2.52 < 3.44	< 3.78 < 4.64	< 6.75 < 6.03	< 3.48 < 10.43
28	Water	9/28/06 to 10/26/06	< 25.88 < 3.59 < 13.84	< 4.28 < 5.63	< 4.49 < 4.59	< 4.64 < 6.88	< 3.22 < 4.00
28	Water	11/29/06 to 11/29/06	< 12.94 < 6.03 < 6.75	< 3.27 < 3.35	< 3.91 < 5.67	< 4.43 < 2.93	< 4.97 < 7.88
28	Water	11/29/06 to 12/28/06	< 19.70 < 4.32 < 11.52	< 4.24 < 7.75	< 4.33 < 4.09	< 4.50 < 4.27	< 5.94 < 6.87

Water Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Period	Ba-140 Fe-59 Zr-95	Co-58 La-140	Co-60 Mn-54	Cs-134 Nb-95	Cs-137 Zn-65
34	Water	12/29/05 to 1/26/06	< 13.35 < 4.24 < 6.39	< 1.76 < 1.62	< 2.98 < 2.57	< 2.68 < 3.03	< 2.85 < 3.37
34	Water	1/26/06 to 2/23/06	< 8.85 < 6.18 < 4.20	< 2.39 < 2.19	< 2.30 < 2.59	< 4.15 < 4.20	< 2.88 < 5.18
34	Water	2/23/06 to 3/30/06	< 18.27 < 5.73 < 6.61	< 3.90 < 6.86	< 5.45 < 4.34	< 2.99 < 3.06	< 4.43 < 7.04
34	Water	3/30/06 to 4/27/06	< 16.14 < 5.30 < 4.05	< 2.17 < 4.05	< 2.61 < 2.63	< 2.72 < 2.93	< 3.39 < 6.61
34	Water	4/27/06 to 5/31/06	< 9.07 < 6.64 < 6.65	< 3.57 < 5.17	< 3.96 < 4.43	< 3.62 < 3.70	< 2.99 < 6.46
34	Water	5/31/06 to 6/29/06	< 42.38 < 6.24 < 16.69	< 4.73 < 9.90	< 5.63 < 4.46	< 5.35 < 7.95	< 5.94 < 6.15
34	Water	6/29/06 to 7/26/06	< 16.61 < 8.79 < 7.13	< 4.06 < 7.86	< 2.33 < 4.64	< 4.31 < 3.72	< 5.63 < 8.91
34	Water	7/26/06 to 8/30/06	< 13.01 < 7.88 < 6.81	< 5.65 < 3.83	< 4.58 < 4.32	< 3.26 < 5.93	< 5.07 < 7.10
34	Water	8/31/06 to 9/28/06	< 31.31 < 3.79 < 7.51	< 3.01 < 6.54	< 3.36 < 4.45	< 5.37 < 2.35	< 6.12 < 4.10
34	Water	9/28/06 to 10/26/06	< 21.48 < 10.14 < 9.30	< 3.83 < 6.25	< 5.62 < 3.34	< 3.72 < 3.79	< 5.14 < 3.78
34	Water	10/26/06 to 11/29/06	< 15.14 < 5.03 < 8.19	< 5.19 < 3.05	< 5.70 < 3.95	< 3.55 < 4.24	< 3.60 < 4.13
34	Water	11/29/06 to 12/28/06	< 9.82 < 3.55 < 5.81	< 3.72 < 3.09	< 1.80 < 4.08	< 2.24 < 3.61	< 2.88 < 2.57

Water Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Period	Ba-140 Fe-59 Zr-95	Co-58 La-140	Co-60 Mn-54	Cs-134 Nb-95	Cs-137 Zn-65
36	Water	12/29/05 to 1/26/06	< 12.70 < 3.46 < 3.09	< 2.51 < 2.32	< 2.84 < 3.64	< 3.09 < 4.86	< 3.91 < 3.16
36	Water	1/26/06 to 2/23/06	< 9.25 < 4.57 < 4.36	< 1.64 < 1.25	< 2.32 < 2.31	< 2.80 < 2.98	< 3.80 < 6.33
36	Water	2/23/06 to 3/30/06	< 38.09 < 11.87 < 14.33	< 7.15 < 7.58	< 5.20 < 4.34	< 5.01 < 4.97	< 5.02 < 12.22
36	Water	3/30/06 to 4/27/06	< 12.97 < 4.90 < 4.92	< 1.91 < 2.97	< 1.39 < 2.04	< 2.42 < 2.81	< 2.40 < 3.03
36	Water	4/27/06 to 5/31/06	< 17.06 < 5.00 < 3.69	< 1.37 < 1.95	< 1.63 < 1.97	< 3.14 < 3.15	< 2.41 < 2.76
36	Water	5/31/06 to 6/29/06	< 13.43 < 9.29 < 5.00	< 3.85 < 6.07	< 2.21 < 4.28	< 2.38 < 4.13	< 3.97 < 7.84
36	Water	6/29/06 to 7/26/06	< 19.52 < 4.20 < 6.93	< 3.25 < 5.76	< 2.22 < 4.17	< 4.64 < 3.60	< 6.87 < 3.83
36	Water	7/26/06 to 8/30/06	< 22.90 < 4.90 < 7.96	< 4.05 < 9.53	< 5.76 < 4.71	< 4.33 < 7.09	< 5.30 < 13.86
36	Water	8/31/06 to 9/28/06	< 24.85 < 4.64 < 4.36	< 2.92 < 4.40	< 1.60 < 2.81	< 3.00 < 3.51	< 3.28 < 4.31
36	Water	9/28/06 to 10/26/06	< 33.89 < 5.51 < 8.75	< 3.98 < 9.27	< 4.82 < 5.31	< 4.47 < 5.74	< 5.12 < 10.52
36	Water	10/26/06 to 11/29/06	< 14.79 < 11.57 < 9.72	< 4.47 < 6.69	< 4.27 < 2.68	< 5.36 < 4.09	< 3.92 < 6.27
36	Water	11/29/06 to 12/28/06	< 14.30 < 4.40 < 5.77	< 1.49 < 3.88	< 1.65 < 2.34	< 2.81 < 3.41	< 3.54 < 3.33

Water Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Period	Ba-140 Fe-59 Zr-95	Co-58 La-140	Co-60 Mn-54	Cs-134 Nb-95	Cs-137 Zn-65
59	Water	3/30/06 to 3/30/06	< 25.94 < 11.31 < 7.95	< 2.50 < 4.81	< 5.21 < 5.19	< 5.88 < 6.20	< 6.07 < 7.04
59	Water	3/30/06 to 4/27/06	< 22.41 < 4.33 < 9.21	< 4.16 < 6.61	< 5.52 < 3.92	< 4.02 < 3.73	< 4.70 < 3.95
59	Water	4/27/06 to 5/31/06	< 11.23 < 4.11 < 3.51	< 2.29 < 3.84	< 1.68 < 2.34	< 2.21 < 1.94	< 2.02 < 3.13
59	Water	5/31/06 to 6/29/06	< 18.98 < 5.85 < 6.50	< 5.28 < 4.46	< 2.85 < 5.24	< 4.40 < 4.93	< 3.32 < 5.58
59	Water	6/29/06 to 7/26/06	< 12.49 < 4.88 < 5.02	< 4.19 < 9.23	< 1.95 < 3.32	< 2.90 < 4.67	< 4.25 < 5.10
59	Water	7/26/06 to 8/30/06	< 11.29 < 3.72 < 3.78	< 2.02 < 4.97	< 2.89 < 2.26	< 2.65 < 3.06	< 1.96 < 4.66
59	Water	8/31/06 to 9/28/06	< 31.51 < 12.27 < 10.22	< 3.21 < 4.81	< 4.97 < 3.20	< 2.49 < 5.97	< 4.15 < 3.58
59	Water	9/28/06 to 10/26/06	< 31.02 < 6.21 < 12.61	< 5.54 < 8.39	< 5.48 < 3.23	< 5.60 < 3.45	< 5.97 < 4.07
59	Water	10/26/06 to 11/29/06	< 9.97 < 6.59 < 5.45	< 2.52 < 1.98	< 1.98 < 3.03	< 3.23 < 2.99	< 3.62 < 5.65
59	Water	11/29/06 to 12/28/06	< 13.43 < 6.02 < 5.79	< 1.39 < 1.61	< 1.99 < 2.04	< 3.06 < 2.56	< 3.07 < 2.85
60	Water	3/30/06 to 3/30/06	< 35.72 < 8.60 < 10.69	< 3.71 < 5.48	< 5.42 < 4.59	< 6.69 < 4.45	< 5.48 < 8.43
60	Water	3/30/06 to 4/27/06	< 15.03 < 4.86 < 6.88	< 1.53 < 3.70	< 2.79 < 4.01	< 2.16 < 2.13	< 2.99 < 1.82

Water Gamma Spectral Detail Report 2006

Radiological Environmental Monitoring Program Detail Data

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

Location	Sample Type	Collection Period	Ba-140 Fe-59 Zr-95	Co-58 La-140	Co-60 Mn-54	Cs-134 Nb-95	Cs-137 Zn-65
60	Water	4/27/06 to 5/31/06	< 9.47 < 4.72 < 2.85	< 1.77 < 2.60	< 2.02 < 2.14	< 2.48 < 2.84	< 1.96 < 3.45
60	Water	5/31/06 to 6/29/06	< 27.64 < 12.45 < 7.71	< 5.45 < 4.52	< 5.67 < 3.92	< 5.28 < 4.96	< 3.39 < 4.83
60	Water	6/29/06 to 7/26/06	< 20.63 < 7.56 < 7.50	< 3.01 < 2.63	< 4.41 < 3.15	< 3.29 < 5.67	< 4.08 < 5.89
60	Water	7/26/06 to 8/30/06	< 21.45 < 4.44 < 7.12	< 4.21 < 3.54	< 3.49 < 2.92	< 3.69 < 3.38	< 3.26 < 5.32
60	Water	8/31/06 to 9/28/06	< 27.75 < 6.01 < 7.80	< 3.98 < 4.11	< 2.72 < 2.37	< 2.80 < 1.36	< 3.07 < 3.04
60	Water	9/28/06 to 10/26/06	< 28.08 < 7.43 < 7.96	< 3.25 < 6.65	< 3.29 < 2.87	< 3.14 < 3.95	< 4.34 < 4.73
60	Water	10/26/06 to 11/29/06	< 13.74 < 3.84 < 3.60	< 2.61 < 2.51	< 3.45 < 1.98	< 3.44 < 2.62	< 3.36 < 3.17
60	Water	11/29/06 to 12/28/06	< 9.31 < 5.64 < 3.57	< 3.51 < 3.58	< 3.30 < 1.27	< 2.68 < 3.13	< 3.13 < 4.52

Water Gross Beta Detail Report 2006

Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

		Location				
Collection Period	Sample Type	28	34	36	59	60
12/29/05 to 1/26/06	Water	LLD	LLD	LLD		
1/26/06 to 2/23/06	Water	LLD	LLD	LLD		
2/23/06 to 3/30/06	Water	LLD	LLD	LLD		
3/30/06 to 3/30/06	Water				LLD	LLD
3/30/06 to 4/27/06	Water	LLD	LLD	LLD	LLD	LLD
4/27/06 to 5/31/06	Water	LLD	LLD	LLD	LLD	LLD
5/31/06 to 6/29/06	Water	LLD	LLD	LLD	LLD	LLD
6/29/06 to 7/26/06	Water	LLD	LLD	LLD	3.02 +/- 0.62	3.15 +/- 0.64
7/26/06 to 8/30/06	Water	LLD	LLD	LLD	LLD	3.00 +/- 0.66
8/31/06 to 9/28/06	Water	LLD	LLD	LLD	LLD	LLD
9/28/06 to 10/26/06	Water	LLD	LLD	LLD	LLD	LLD
10/26/06 to 11/29/06	Water		LLD	3.01 +/- 0.64	3.05 +/- 0.60	3.10 +/- 0.66

Water Gross Beta Detail Report 2006

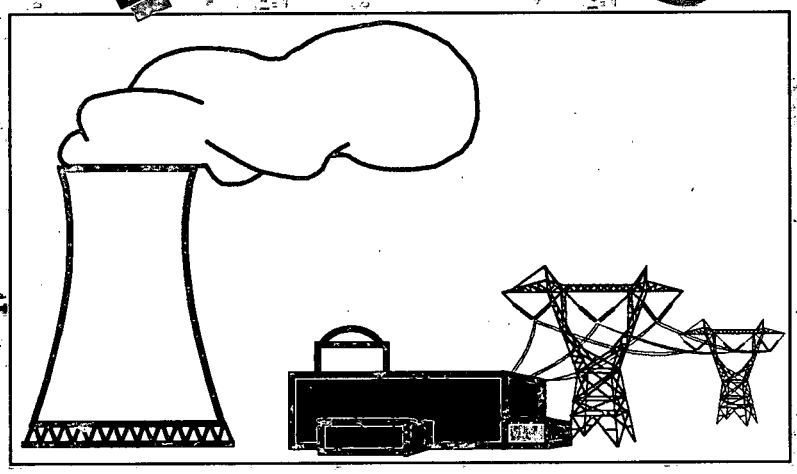
Radiological Environmental Monitoring Program Data Summary

Perry Nuclear Power Plant, Lake County Ohio Docket no. : 50-440/50-441

Sample Frequency is: Monthly Results in pCi/L +/- 2 Sigma

		Location				
Collection Period	Sample Type	28	34	36	59	60
11/29/06 to 11/29/06	Water	LLD				
11/29/06 to 12/28/06	Water	3.17 +/- 0.67	LLD	LLD	LLD	LLD

PNPPD



Generating Success!

For more information, write :

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