

1987
RADIOLOGICAL ENVIRONMENTAL MONITORING REPORT
FOR
OYSTER CREEK NUCLEAR GENERATING STATION

Prepared by
OYSTER CREEK ENVIRONMENTAL CONTROLS
GPU NUCLEAR CORPORATION

8806030387 371231
PDR ADOCK 05000219
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SUMMARY AND CONCLUSIONS

The operation of a nuclear power plant results in the release of small amounts of radioactive materials to the environment. A radiological environmental monitoring program (REMP) has been established to monitor radiation and radioactive materials in the environment around the Oyster Creek Nuclear Generating Station (OCNGS). The program evaluates the relationship between amounts of radioactive material released in effluents to the environment and resultant radiation doses to individuals. The radiological environmental monitoring performed by the GPU Nuclear Environmental Controls Department for 1987 is discussed in this report. Summaries and interpretations of the data are published annually. Additional information concerning releases of radioactive materials to the environment is contained in the Semiannual Effluent Reports submitted to the United States Nuclear Regulatory Commission.

During 1987 the radioactive liquid and gaseous effluents associated with OCNGS were a small fraction of the applicable federal regulatory limits and have not had significant or measurable effects on the quality of the environment. Estimated radiation doses to the public attributable to 1987 operations at OCNGS were well below all applicable regulatory limits and were significantly less than doses received from common sources of radiation. Similar conclusions were reached in previous reports.

Because most of the radioactive materials considered in this report are normally present in the environment, either naturally or as a result of non-OCNGS activities such as atmospheric nuclear weapon testing, measurements made in the vicinity of the site were compared to background measurements. Samples of air, surface water, soil and sediment, shellfish, fish, vegetation, groundwater, and precipitation were collected. External penetrating radiation dose measurements also were made in the vicinity of OCNGS. Samples were analyzed for radioactivity including tritium (H-3), gross beta and gamma-emitting radionuclides. The results of environmental measurements are used to assess the environmental impact of OCNGS operations, to demonstrate compliance with the Technical Specifications and applicable federal regulations, and to verify the adequacy of containment and radioactive effluent control systems. The data collected by the REMF provide a historical

record of the levels of radionuclides and radiation attributable to natural causes, worldwide fallout from prior nuclear weapons tests, the Chernobyl incident, and OCNGS operations. Radiological impacts in terms of radiation dose as a result of OCNGS operations were calculated and also are discussed. The results provided in this report are summarized in the following highlights.

- During 1987 there were over 3350 samples taken from the aquatic, atmospheric, and terrestrial environments around OCNGS. More than 4275 analyses were performed on these samples.
- In addition to natural radioactivity, low levels of fission products such as cesium-137 were detected in various media and were attributed to fallout from prior nuclear weapons testing and the Chernobyl accident. Clam and sediment samples also located in and immediately downstream of the Oyster Creek discharge canal contained low levels of manganese-54, cobalt-60, and zinc-65, as documented in previous semiannual reports.
- Dose rates measured with TLDs around OCNGS were consistent with historical natural background radiation. Background stations TLD's ranged from 3.3 to 5.6 mRem per standard month and indicator station TLD's ranged from 2.9 to 7.0 mRem per standard month.
- All radioactive effluent releases were small fractions of the federal regulatory and Technical Specification limits. The predominant radionuclides released were xenon-135 (Xe-135) in gases and H-3 in liquids.
- Operations at OCNGS during 1987 caused radiation doses to the public well below all applicable regulatory limits, and significantly less than doses received from other common sources of radiation. The maximum hypothetical whole body exposure potentially received by an individual from liquid and gaseous effluents was conservatively calculated to be about 0.17 mRem total. The maximum hypothetical whole body dose to the surrounding population from liquid and airborne effluents was conservatively calculated to be 15.2 person-Rem. This is 1,766 times lower than the doses that the total population in the Oyster Creek area receives from natural background sources.

INTRODUCTION

Background information is provided on basic radiation characteristics, plant operations, radioactive effluent controls, and environmental monitoring to assist the reader in reviewing this document.

Characteristics of Radiation

Atoms whose nuclei contain an excess of energy are called radioactive atoms. They release this excess energy by expelling electromagnetic or particulate radiation from their atomic centers to become stable (non-radioactive). This process is called "radioactive decay." Electromagnetic radiation is x-rays and gamma rays and is similar in many ways to light waves, microwaves, and radiowaves. Particulate radiation may be either electrically charged such as alpha and beta particles or have no charge (neutrons). The term "half-life" refers to the time it takes for one half of a given amount of a radionuclide to decay. Some radionuclides have a half-life as short as a fraction of a second while others have half-lives as long as millions of years. Each radionuclide has unique decay characteristics in terms of its energy, the types of radiation emitted, and its half-life. Radionuclides may decay directly into stable elements or may undergo a series of decays which ultimately reach a stable element. Radionuclides are found in nature (e.g. U-235, Th-228, and K-40), and may also be produced artificially such as with accelerators and nuclear reactors (e.g., I-131, Cs-137, and Co-60).

The activity of a radioactive source is the number of nuclear disintegrations (decays) of the source per unit of time. The unit of activity is the curie. A one-curie radioactive source undergoes 2.2 trillion disintegrations per minute; but in the realm of nuclear power plant effluents and environmental radioactivity, this is a large unit. So, two fractional units--the microcurie and the picocurie--are more commonly used. The microcurie is one millionth of a curie and represents 2.2 million decays per minute. The picocurie is one billionth of a curie and represents 2.2 decays per minute. The mass of a radionuclide corresponding to one curie is directly proportional to the

half-life and the atomic weight of the nuclide. For example, uranium-235 (U-235) with a half-life of 7810 million years requires about 465,000 grams to obtain an activity of one curie. The mass-activity relationship for I-131 with a half-life of 8.0 days requires about 8 millionths of a gram to produce a curie.

Any mechanism that can supply the energy necessary to ionize an atom, break a chemical bond, or alter the chemistry of a living cell is capable of producing biological damage. Electromagnetic and particulate radiation can produce cellular damage by any of these mechanisms. In assessing the biological effects of radiation, the type, energy, and amount of radiation must all be considered.

Total body radiation involves exposure of all organs. Most background exposures are of this form. When radioactive elements enter the body through inhalation or ingestion, their distribution is not uniform. For example, radioiodine selectively concentrates in the thyroid gland, whereas radiocesium collects in muscle and liver tissue and radiostrontium in mineralized bone. The total dose to organs by a given radionuclide is also influenced by the quantity and the duration of time that the radionuclide remains in the body. Owing to their rapid radioactive decay as well as their removal from the body, certain radionuclides stay in the body for very short times while some remain for years.

The amount of radiation dose which an individual receives is most frequently expressed in rem. Since human exposure to radiation usually involves very small exposures, the millirem (mRem) is most commonly used (1 mRem = 1/1000 rem). Sometimes, it is desirable to express the collective radiation dose to a population. Such a collective dose is expressed in person-rem, which is calculated by adding up each individual dose (e.g., 1 rem to each of 100 persons = 100 person-rem).

Sources of Radiation Exposure

Life on earth has evolved amid the constant exposure to natural radiation. In fact, the single major source of radiation to which the

general population is exposed comes from natural sources. Although everyone on the planet is exposed to natural radiation, some people receive more than others. Radiation exposure from natural background has three components (i.e., cosmic, terrestrial, and internal) and varies with altitude and geographic location, as well as with living habits.

For example, cosmic radiation originating from deep interstellar space and the sun increases with altitude, since there is less air which acts as a shield. Similarly, terrestrial radiation resulting from the presence of naturally occurring radionuclides in the soil varies and may be significantly higher in some areas of the country than in others. Even the use of particular building materials for houses, cooking with gas, and home insulation affect exposure to natural radiation.

The presence of radioactivity in the human body results from the inhalation and ingestion of air, food, and water containing naturally occurring radionuclides. For example, drinking water contains trace amounts of uranium and radium and milk contains radioactive potassium. Table 1 summarizes the common sources of radiation and their average annual doses.

TABLE 1
Sources and Doses of Radiation*

| <u>Natural</u> (82%) | | <u>Man-made</u> (18%) | |
|--|-------------------------|---|-------------------------|
| <u>Radiation Dose</u> <u>Source</u> | <u>(millirems/year)</u> | <u>Radiation Dose</u> <u>Source</u> | <u>(millirems/year)</u> |
| Radon | 200 (55%)** | Medical X-rays | 39 (11%) |
| Cosmic rays | 27 (8%) | Nuclear Medicine | 14 (4%) |
| Terrestrial | 28 (8%) | Consumer products | 10 (3%) |
| Internal | 40 (11%) | Other | Less than 1 (1%) |
| | | (Releases from nat. gas, phosphate mining, burning of coal, weapons fallout, & nuclear fuel cycle) | |
| APPROXIMATE TOTAL | 300 | APPROXIMATE TOTAL | 63 |

* Reference: NCRP 93, Ionizing Radiation Exposure of the Population of the United States, 1987.

** Percentage contribution of the total dose is shown in parentheses.

The average person in the United States receives about 300 millirems (0.3 rem) per year from natural background radiation sources. This estimate was revised from about 100 to 300 millirems because of the inclusion of radon gas which has always been present but has not previously figured in the calculations. In some regions of the country, the amount of natural radiation is significantly higher. Residents of Colorado, for example, receive an additional 60 millirems per year due to the increase in cosmic and terrestrial radiation levels. In fact, for every 1,000 feet above sea level, a person will receive an additional 1 millirem per year from cosmic radiation. In several regions of the world, high concentrations of uranium and radium deposits result in doses of several thousand millirems each year to their residents.

Reference: CRC Handbook, Radioecology: Nuclear Energy and the Environment, E. Ward Whicker, Vincent Schultz, Vol. 1, 1982.

Recently, public attention has focused on radon, a naturally occurring radioactive gas produced from uranium and radium decay. These elements are widely distributed in trace amounts in the earth's crust. Unusually high concentrations have been found in certain parts of eastern Pennsylvania and northern New Jersey. Radon levels in some homes in these areas are hundreds of times greater than levels found elsewhere in the United States. However, additional surveys are needed to determine the full extent of the problem nationwide. Radon is the largest component of natural background radiation and may be responsible for a substantial number of lung cancer deaths annually. The National Council on Radiation Protection and Measurements (NCRP) estimates that the average individual in the United States receives an annual dose of about 2,400 millirems to the lung from natural radon gas. This lung dose is considered to be equivalent to a whole body dose of 200 millirems. The NCRP has recommended actions to control indoor radon sources and reduce exposures.

Reference: NCRP 93, Ionizing Radiation Exposure of the Population of the United States, 1987.

When radioactive substances are inhaled or swallowed, they are distributed within the body in a nonuniform fashion. For example, radioactive iodine selectively concentrates in the thyroid gland, radioactive cesium is distributed throughout the body water and muscles,

and radioactive strontium concentrates in the bones. The total dose to organs by a given radionuclide is also influenced by the quantity and the duration of time that the radionuclide remains in the body, including its physical, biological and chemical characteristics. Depending on their rate of radioactive decay and biological elimination from the body, some radionuclides stay in the body for very short times while others remain for years.

In addition to natural radiation, we are exposed to radiation from a number of man-made sources. The single largest of these sources comes from diagnostic medical x-rays, and nuclear medicine procedures. Some 180 million Americans receive medical x-rays each year. The annual dose to an individual from such radiation averages about 53 millirems. Much smaller doses come from nuclear weapons fallout and consumer products such as televisions, smoke detectors, fertilizers. Production of nuclear power and its associated fuel cycle contributes less than 1 millirem to the annual dose of about 300 millirems for the average individual living in the United States.

Fallout commonly refers to the radioactive debris that settles to the surface of the earth following the detonation of nuclear weapons. It is dispersed throughout the environment either by dry deposition or washed down to the earth's surface by rain or snow. There are approximately 200 radionuclides produced in the nuclear weapon detonation process; a number of these are detected in fallout. The radionuclides found in fallout which produce most of the fallout radiation exposures to humans are iodine-131 (I-131), strontium-89 (Sr-89), cesium-137 (Cs-137), and strontium-90 (Sr-90). There has been no atmospheric nuclear weapon testing since 1980 and many of the radionuclides have decayed significantly. Consequently, doses to the public from fallout have been decreasing.

As a result of the nuclear accident at Chernobyl, USSR, on April 26, 1986, fallout was dispersed throughout the environment and detected in various media such as air, milk, and soil.

Description of the Oyster Creek Site

General Information

The Oyster Creek Nuclear Generating Station (OCNGS) has generated electricity since December, 1969. The operating license permits station operation up to a power level of 1930 megawatts (thermal) at a levelized, installed annual capacity of 620 megawatts (electrical).

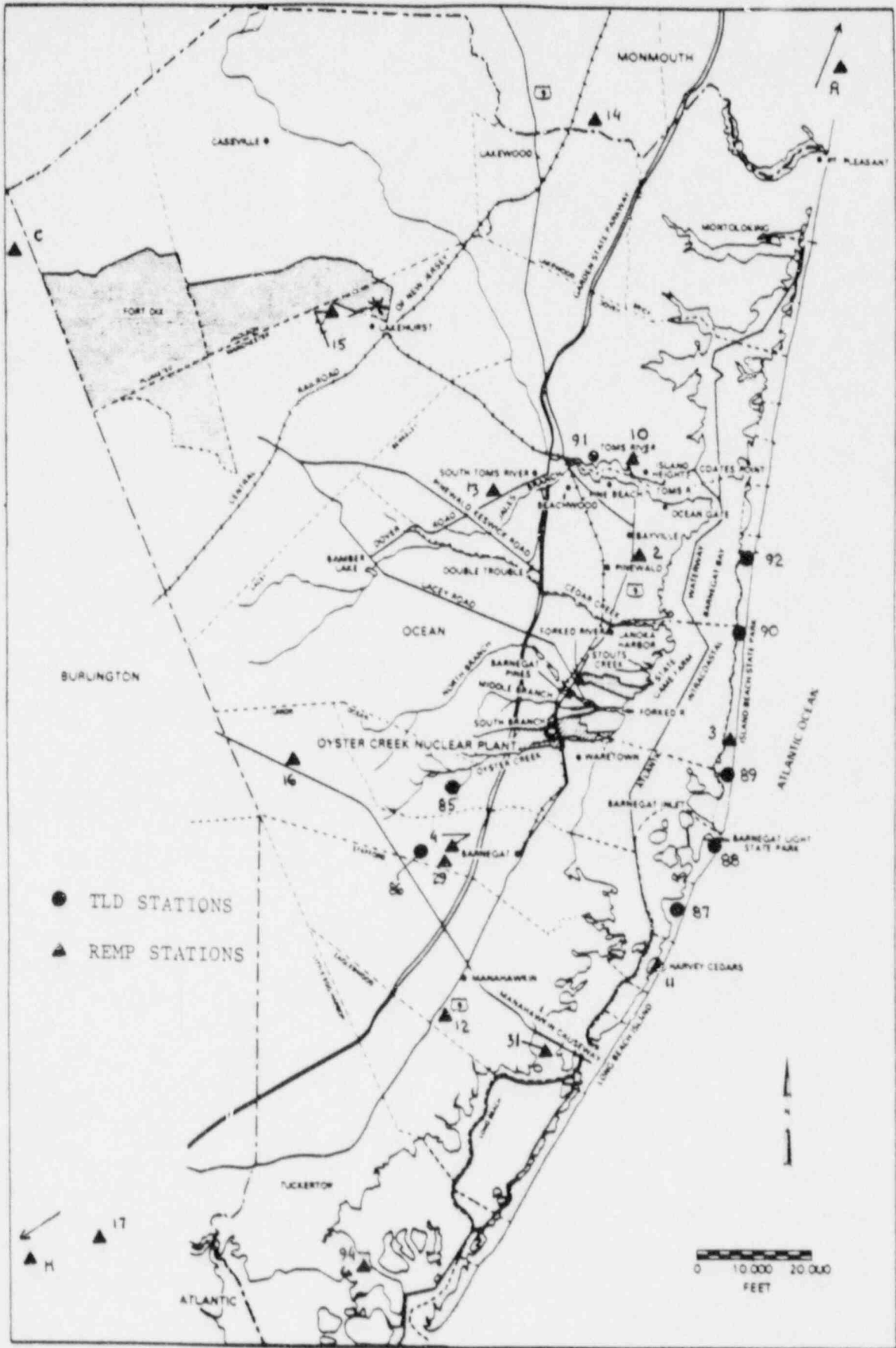
The Oyster Creek Nuclear Generating Station is located in Ocean County, New Jersey, 2 miles inland from Barnegat Bay (Figure 1 - page 9). The 1416-acre site is owned by Jersey Central Power & Light Company. It is situated partly in Lacey Township and, to a lesser extent, in Ocean Township. The site is about 60 miles South of Newark, 9 miles south of Toms River and 55 miles north of Atlantic City. The Garden State Parkway bounds the site on the west. Overland access to the site is provided by U. S. Route 9, passing through the site and separating a 661-acre eastern portion from the balance of the property west of the highway. The station is about 1/4 mile west of the highway and 1-1/4 miles east of the Parkway. The site property extends about 3-1/2 miles inland from the bay; the maximum width in the north-south direction is almost 1 mile. Figure 1, page 9, relates the site to the more pertinent features of the county, as well as indicating the locations of some of Oyster Creek REMP stations in Ocean County.

The site location is part of the New Jersey shore area with its relatively flat topography and extensive freshwater and saltwater marshlands. The south branch of Forked River runs across the northern side of the site, and Oyster Creek partly borders the southern side. The region adjacent to the bay is one of the state's most rapidly developing areas. In addition to the resident population, a sizeable seasonal influx of people occurs during the summer. This influx resides almost exclusively along the waterfront.

Climatological Summary

For the first half of 1987 the predominant winds were divided into two periods. From January through March, the predominant wind directions

FIGURE 1
OYSTER CREEK REMP STATIONS
(OCEAN COUNTY)



● TLD STATIONS
▲ REMP STATIONS

0 10,000 20,000
FEET

were from the northwest and west-northwest. The normal northwest wind direction is expected as the winter months are dominated by Canadian air masses. From April through June, the wind directions were evenly divided between the northeast/east-northeast and southeast/south-southwest sectors. This defines the second half of the period as the transition months between the winter and summer seasons. Summer months usually have the predominant wind direction from the southwest and south. During the July through September period, the predominant wind direction was from the west, southwest, and south. Winds from the west are characteristic of a modified continental polar air mass that follows cold frontal passages. Winds from the southwest are usually associated with maritime tropical air normally present prior to cold frontal passages. The most frequent wind direction was from the south and is the end result of the sea-breeze phenomenon. At the height of this mesoscale effect (approximately 2:00 to 4:00 in the afternoon) the wind will parallel the coast - the result created from uneven heating between land and sea coupled with the natural rotation of the earth. The period from October through December is usually described as a transition period between the previously described summer patterns and those found in winter (winds from the west-northwest and north). However, the entire second quarter was slightly cooler than usual and represents those conditions found during the winter months. The predominant wind direction during the latter three months was from the northwest.

Other characteristics for the second half of 1987 include a small maxima of wind direction from the northeast, especially from October through December. This is due to the airflow around large high pressure systems. Periods with this onshore fetch have characteristic low clouds, drizzle and fog (stable atmospheres).

A total of 51.19 (water equivalent) inches of precipitation fell during 1987, which amounts to approximately 8 inches above the annual average. Near normal precipitation levels were recorded during the first three months of the reporting period (Figure 2, page 11). The reference data were obtained from the closest and most accurate National Weather Service station located in Atlantic City, NJ. Recent comparison studies have

Monthly Precipitation Oyster Creek 1987

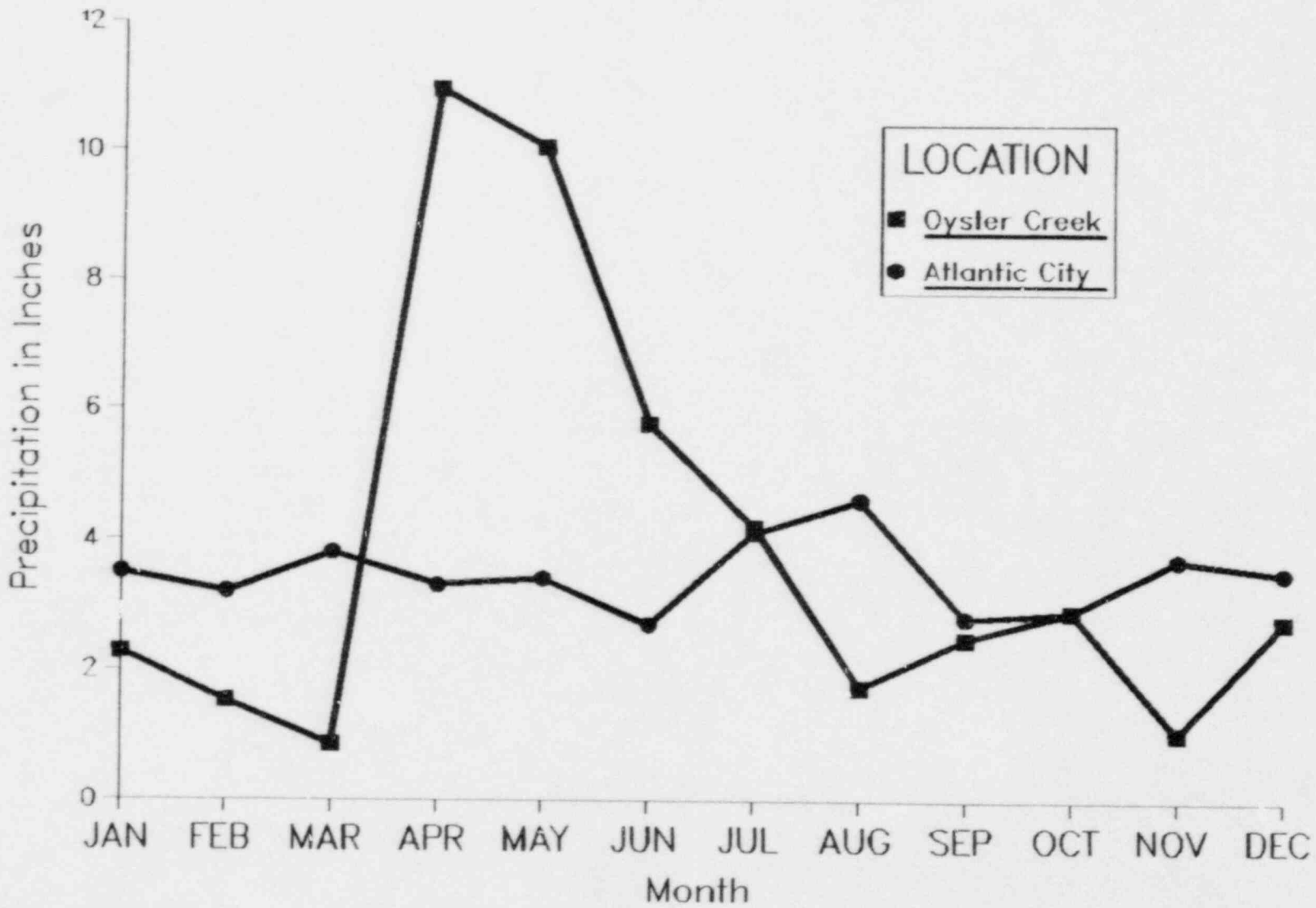


FIGURE 2
MONTHLY PRECIPITATION IN 1987
OYSTER CREEK NUCLEAR GENERATING STATION

shown close similarities of hourly meteorological data between the Oyster Creek and Atlantic City sites. For the period of April through June, April and May were the wettest months (10.95 and 10.04 inches, respectively).

Precipitation during this latter half of the second quarter was primarily due to thundershower activity. Other rainfall activity did not reach the site due to the stabilizing effect of the sea-breeze, common in the month of June and throughout the summer. Due to this highly stable weather phenomenon, showers build up to the west, move east-northeastward, then become stagnant and eventually decay up to 15 miles inland.

For the period of July through December, precipitation was below normal (15.12 inches). The six-month average total from the Atlantic City National Weather Service historical record is 22.0 inches. During summer months precipitation is generally characterized by events of short duration but strong intensity (convective showers). With this type of precipitation event, there will be increased particulate fallout (washout) from the atmosphere, which has implications for radionuclide deposition. During the summer, marine air, which is stable, will generally suppress these convective-type storms and decrease precipitation at most coastal locations. The sea-breeze can produce the same result. This effect can occur along the coast up to 12 miles inland. Rainfall events during the six-month period were, for the most part, due to extratropical storms of light to moderate intensity and long duration, especially during the second quarter.

For a more complete meteorological summary refer to the Semiannual Effluent Release Reports for 1987.

EFFLUENTS

Limits

Radioactive effluent releases at OCNCS are under the jurisdiction of the United States Nuclear Regulatory Commission (USNRC). Since its inception, the USNRC (previously known as the Atomic Energy Commission - AEC) has depended upon the recommendations of the International Commission on Radiological Protection (ICRP) established in 1928, the National Council on Radiation Protection and Measurements (NCRP) established in 1929, and since 1959, the Federal Radiation Council (FRC) (incorporated in the United States Environmental Protection Agency in 1970) for basic radiation protection standards and guidance. These guides and recommendations form the basis for the Nuclear Regulatory Commission's regulation in Title 10 of the Code of Federal Regulations Part 20, (10 CFR 20), "Standards for Protection Against Radiation" used in the regulatory program for the commercial nuclear power industry. One recommendation of the ICRP, NCRP, and FRC is that radiation exposures should be maintained at levels which are as low as reasonably achievable (ALARA) commensurate with the societal benefit derived from the activities resulting in such exposures. This philosophy was incorporated into the numerical guidelines of Appendix I to 10 CFR 50 and was adopted by GPU Nuclear.

Technical Specifications imposed by the NRC as a condition of the operating license, govern the operating requirements of the plant including the effluent control program. These requirements include operation of gaseous and liquid processing systems, installation and operation of radiation monitoring systems, establishment of an inplant and environmental sampling and analysis program, establishment of a quality assurance program for effluents, procedures covering all aspects of effluents, and calculation of doses to the public.

Table 2 (page 14), outlines the OCNCS effluent technical specifications.

TABLE 2
OCNGS EFFLUENT TECHNICAL SPECIFICATION LIMITS

1. Tech. Spec. Limits

a. Fission and Activation Gases:

Technical Specification 3.6.E.1

The gross radioactivity in noble gases discharged from the main condenser air ejector shall not exceed a $0.21/\bar{E}$ Ci/sec after the holdup line where \bar{E} is the average gamma energy (Mev per atomic transformation).

Technical Specification 3.6.K.1

The dose equivalent rate outside of the EXCLUSION AREA due to radioactive noble gas in gaseous effluent shall not exceed 500 mRem/year to the total body or 3000 mRem/year to the skin.

Technical Specification 3.6.L.1

The air dose outside of the EXCLUSION AREA due to noble gas released in gaseous effluent shall not exceed:
5 mrad/calendar quarter due to gamma radiation,
10 mrad/calendar quarter due to beta radiation,
10 mrad/calendar year due to gamma radiation, or
20 mrad/calendar year due to beta radiation.

Technical Specification 3.6.N.1

The annual dose to a MEMBER OF THE PUBLIC due to radiation and radioactive material in effluents from the OCNGS outside of the EXCLUSION AREA shall not exceed 75 mRem to his thyroid or 25 mRem to his total body or to any other organ.

b. Iodines and Particulates

Technical Specification 3.6.K.2

The dose equivalent rate outside of the EXCLUSION AREA due to H-3, I-131, I-133, and to radioactive material in particulate having half-lives of 8 days or more in gaseous effluents shall not exceed 1500 mRem/year to any body organ when the dose rate due to H-3, Sr-89, Sr-90, and alpha-emitting radionuclides is averaged over no more than 3 months and the dose rate due to other radionuclides is averaged over no more than 31 days.

Technical Specification 3.6.M.1

The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, and from radionuclides in particulate form having half-lives of 8 days or more in gaseous effluents, outside of the EXCLUSION AREA shall not exceed 7.5 mRem to any body organ per calendar quarter or 15 mRem to any body organ per calendar year.

c. Liquid Effluents:

Technical Specification 3.6.I.1

The concentration of radioactive material, other than noble gases, in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed the concentrations specified in 10CFR Part 20, Appendix B, Table II, Column 2.

Technical Specification 3.6.I.2

The concentration of noble gases dissolved or entrained in liquid effluent in the discharge canal at the Route 9 bridge shall not exceed 2×10^{-4} microcuries/milliliter.

Technical Specification 3.6.J.1

The dose to a MEMBER OF THE PUBLIC due to radioactive material in liquid effluents beyond the outside of the EXCLUSION AREA shall not exceed:

- 1.5 mRem to the total body during any calendar quarter,
- 5 mRem to any body organ during any calendar quarter,
- 3 mRem to the total body during any calendar year, or
- 10 mRem to any body organ during any calendar year.

Sources of Radioactive Liquid and Gaseous Effluents

At the Oyster Creek Nuclear Generating Station, most of the fission products are retained within the fuel and fuel cladding. However small amounts of radioactive fission products are able to diffuse or migrate through the fuel cladding and into the reactor coolant. Trace quantities of the component and structure surfaces which have been activated, also get into the reactor coolant water. Many of the soluble fission and activation product levels such as radioactive iodines, strontiums, cobalts, and cesiums are greatly reduced by demineralizers in the purification system of the coolant. The noble gas fission products have a very low solubility in the coolant and cannot be removed by the demineralizers. Instead they are given off as gas when the coolant is depressurized and are collected by a system designed for gas collection, holdup and emission. This represents the principal source of gaseous effluents.

Minute drainage of radioactive liquids from valves, piping, and/or equipment associated with the coolant system may occur in the Reactor, and/or Turbine Buildings. The noble gases become part of the gaseous wastes while the remaining radioactive liquids are collected in floor and equipment drains and sumps and are pumped to and processed in the Radwaste Building. Water processed in the radwaste facility that does not meet strict chemical specifications for primary system reuse becomes the source of liquid effluents.

Radioactivity Removal from Liquid and Gaseous Wastes

At the Oyster Creek Nuclear Generating Station, radioactive liquid and gaseous wastes are collected, stored, and processed through processing systems to remove or reduce most of the radioactivity (exclusive of tritium) prior to reuse within the plant or discharge to the environment. These processing systems are required by the Technical Specifications to be installed and operable and help to ensure all releases of radioactive liquid and gaseous effluents are as low as reasonably achievable.

The liquid waste processing system receives water contaminated with radioactivity and processes it by filtration, demineralization, and distillation. Purified radwaste water is recycled to the plant. Occasionally, it is necessary to discharge this purified water to the environment. Contaminants removed during the purification process are disposed of via the solids disposal systems. When purified water is discharged to the environment, it is first sampled, analyzed, assigned a release rate, and then discharged to a receiving stream which has a flow rate of 460,000 to 960,000 gallons per minute.

Reactor off-gas, consisting primarily of hydrogen and radioactive non-condensable gases, is withdrawn from the reactor primary system by steam jet air ejectors. These air ejectors drive the process stream through a 60 minute holdup pipe at approximately 110 cubic feet per minute and then into the Augmented Off-Gas (AOG) System. The holdup pipe allows radionuclides with short half-lives to decay. The Augmented Off-Gas System is a gaseous processing system which provides hydrogen conversion to water via a catalytic recombiner, removes the water (vapor) from the process stream, holds up the process stream to allow further decay of short-lived nuclides, and filters the off-gas using charcoal beds and High Efficiency Particulate (HEPA) filters prior to discharge to the stack.

Once the process stream enters the stack, it is diluted by building ventilation, which averages 200,000 cubic feet per minute, is monitored and sampled, and then is discharged out the top of the 368-foot stack. The Augmented Off-Gas System is a series of complex smaller systems which, when operating at optimum, reduce radioactive off-gas emission to near background. A single component failure within the AOG can cause system isolation which results in reactor off-gas being discharged from the end of the holdup pipe to the stack. When AOG isolation occurs, the activity released out of the stack increases. The Augmented Off-Gas System is typically valved in and out of the reactor gaseous process stream during startups and shutdowns at approximately 40% power.

Ventilation from two buildings (AOG and turbine) does not discharge to the elevated stack and exhausts to the environment via roof vents. These systems are designed to maintain suitable ambient conditions for personnel and equipment. Each vent is monitored for noble gas, iodine, and particulate activity using in-line monitors and grab samples.

Effluent Data

Radioactive liquids and gaseous releases from OCNGS did not exceed Federal regulatory and Technical Specification limits during 1987. Radiological releases from OCNGS are calculated from installed plant effluent monitor readings and sample analyses for gaseous and liquid discharge points. These methods provide a means for accurate determination of the type and quantities of radioactive materials being released to the environment.

Ten radioactive liquid releases totalling 199,207 gallons were made from the OCNGS in 1987. The total radioactivity released to the environment was 0.00663 curies of fission and activation products, 1.96 curies of Tritium and 0.00284 curies of dissolved and entrained gases. Gaseous releases during 1987 resulted in 3,391 curies of fission and activation gases, 0.085 curies of Iodine-131, 0.020 curies of particulate nuclides with half-lives greater than 8 days, and 7.86 curies of Tritium being discharged to the environment. For each category, these releases were well within the regulatory limits specified in sections 3.6 and 4.6 of the OCNGS Technical Specifications.

Table 3 (page 20), presents a brief operations summary for 1987.

TABLE 3

1987 OCNGS PLANT OPERATIONS SUMMARY

| | |
|--------------------|---------------------------------------|
| January 1, 1987 | Reactor Shutdown |
| January 6, 1987 | Reactor Start-up |
| January 7, 1987 | Generator On Line |
| January 15, 1987 | Generator on line at 63% Rated Power |
| January 16, 1987 | Reactor Scram |
| January 19, 1987 | Reactor Start-up |
| January 20, 1987 | Reactor Shutdown |
| | Reactor Start-up |
| January 21, 1987 | Generator On Line |
| January 31, 1987 | Generator on line at 96% Rated Power |
| February 14, 1987 | Reactor Scram |
| February 18, 1987 | Reactor Start-up |
| February 19, 1987 | Reactor Shutdown |
| February 28, 1987 | Reactor Shutdown |
| March 9, 1987 | Reactor Start-up |
| March 10, 1987 | Generator On Line |
| March 15, 1987 | Generator on line at 100% Rated Power |
| March 31, 1987 | Generator on line at 100% Rated Power |
| April 15, 1987 | Generator on line at 93% Rated Power |
| April 24, 1987 | Reactor Shutdown |
| April 30, 1987 | Reactor Shutdown |
| May 14, 1987 | Reactor Start-up |
| May 16, 1987 | Generator On Line |
| May 31, 1987 | Generator on line at 100% Rated Power |
| June 15, 1987 | Generator on line at 100% Rated Power |
| June 30, 1987 | Generator on line at 99% Rated Power |
| July 15, 1987 | Generator on line at 85% Rated Power |
| July 30, 1987 | Reactor Scram |
| August 4, 1987 | Reactor Startup |
| August 5, 1987 | Generator on line |
| August 15, 1987 | Generator on line at 95% Rated Power |
| August 31, 1987 | Generator on line at 95% Rated Power |
| September 9, 1987 | Reactor Shutdown |
| September 15, 1987 | Reactor Shutdown |
| September 30, 1987 | Reactor Shutdown |
| October 15, 1987 | Reactor Shutdown |
| October 31, 1987 | Reactor Shutdown |
| November 15, 1987 | Reactor Shutdown |
| November 20, 1987 | Reactor Startup |
| November 24, 1987 | Generator on line |
| November 30, 1987 | Generator on line at 100% Rated Power |
| December 15, 1987 | Generator on line at 100% Rated Power |
| December 31, 1987 | Generator on line at 99% Rated Power |

RADIOLOGICAL ENVIRONMENTAL MONITORING

Program Design

The radiological environmental monitoring program (REMP) was established at Oyster Creek to monitor radiation and radioactive materials in the environment and to evaluate the relationship between amounts of radioactive material released in effluents and resultant radiation doses to individuals from principal pathways of exposure. The Oyster Creek Technical Specifications require this program to be implemented. The Oyster Creek REMP meets all these requirements and in most cases far exceeds them.

The Oyster Creek REMP was designed on the basis of USNRC regulatory guides along with the USNRC Radiological Assessment Branch Technical Position on Environmental Monitoring. The important objectives of the REMP are:

- assessing dose impacts to the public from OCNGS operations
- verifying in-plant controls for the containment of radioactive materials
- monitoring to determine buildup of long-lived radionuclides in the environment and changes in background radiation levels
- providing reassurance to the public that the program is capable of adequately assessing impacts and identifying noteworthy changes in the radiological status of the environment.

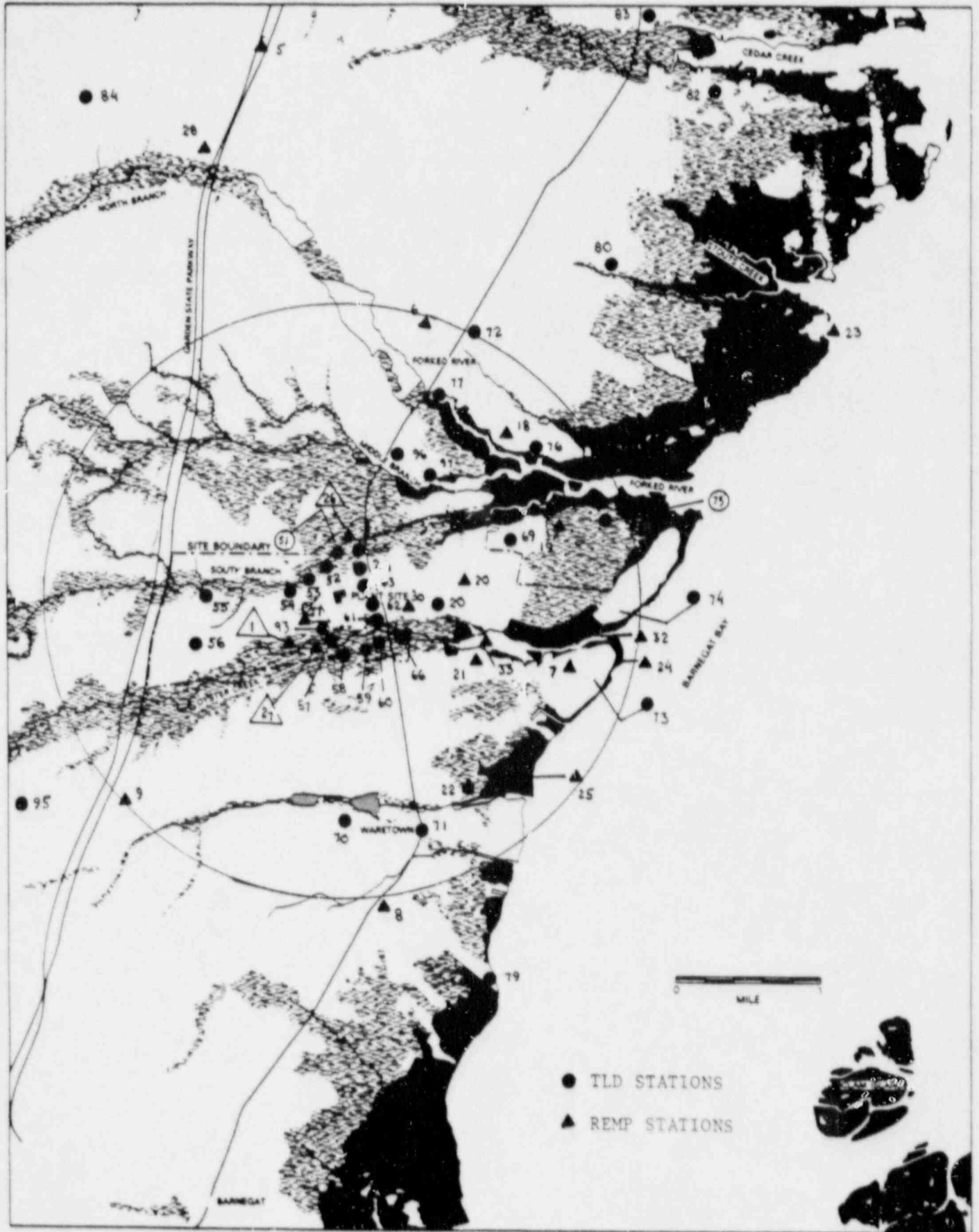
Published information concerning amounts of principal radionuclides released to the environment in liquid and gaseous effluents and data on distribution of radionuclides in environmental media can be used to determine the population critical exposure pathways that should be monitored and to identify media in which there is potential for long-term buildup of radioactivity.

The program consists of collecting samples from the environment, analyzing them for radiation and radioactivity content, and interpreting the results. With emphasis on the critical pathways to man, sampling consists of five general types of monitoring: atmospheric-radiation, fallout, domestic water, surface water, and marine life. These samples include, but are not limited to, air, soil, surface water, fin fish, shellfish, marine sediment, vegetables, groundwater, and precipitation. Thermoluminescent dosimeters (TLDs) are placed in the environment to measure ambient gamma radiation levels. The Oyster Creek Technical Specifications Offsite Dose Calculation Manual (ODCM) and recommendations from the scientific staff at Oyster Creek Environmental Controls Department specify the sample types to be collected and appropriate analyses.

Sampling locations have been established by considering meteorology, population distribution, hydrology, and land use characteristics of the local area. The sampling locations are divided into two classes, indicator and background. Indicator locations are those which are expected to show that plant effects, if any, exist. These locations were primarily selected on the basis of where the highest predicted environmental concentrations would occur. While the indicator locations are typically within a few miles of the plant, the background stations are generally at least 10 miles from the plant and some as far away as 35 miles. Therefore, background samples are collected at locations which should be unaffected by plant operations. They provide a basis on which to evaluate fluctuations at indicator locations relative to natural background radiation and radioactivity and fallout from prior nuclear weapon tests. Figures 1 (page 9) and 3 (page 23) show the sampling locations of the Oyster Creek REMP, while a description of each location is outlined in Table 4, page 25.

In addition to specifying the minimum media to be collected and the minimum number of sampling locations, the Technical Specifications also specify the frequency of sample collection, the types of analyses to be performed, the analytical sensitivity (detection limit), and reporting levels. Tables 5, page 33, and 6, page 35, provide a summary of the

FIGURE 3
 OYSTER CREEK REMP STATIONS
 2-MILE RADIUS



sample type, analyses performed, collection frequency, number of sampling locations, and type of analysis. Table A-1 in Appendix A, page 151, presents problems encountered in the sample collection process. Sample analyses which did not meet the required analytical sensitivity are presented in Appendix B, page 155. Reporting level violations are reported in Appendix C, page 157.

The analytical results are routinely reviewed by environmental scientists at Oyster Creek to assure that sensitivities have been achieved and that the proper analyses have been performed. Investigations are conducted when activities fall outside ranges previously determined based upon historical data or when anomalous values are discovered. These ranges are purposely set narrow so that corrective action can be initiated before a reporting level is reached.

Procedures were written and approved by Environmental Controls, Quality Assurance, and the Contractor laboratories to cover all aspects of the radiological environmental monitoring program. These procedures cover such areas as sample collection, sampling equipment calibration and maintenance, laboratory analysis, and data review.

Because of low radionuclide concentrations in environmental media, special analysis techniques have been developed. Analytical laboratories contracted by GPU Nuclear use state-of-the-art laboratory equipment designed to measure the types of radiation emitted (beta and gamma) and meet the required analytical sensitivities. Examples of laboratory equipment used are germanium detectors with multichannel analyzers for specific gamma emitting radionuclides, liquid scintillation detectors for tritium, and low level beta counters. Computer hardware and software used in conjunction with the counting equipment perform calculations, data analysis and provide data management.

The base REMP program analytical laboratory responsibilities were transferred on October 15, 1987 from Teledyne Isotopes, Inc., Westwood, New Jersey to the GPU Nuclear Corporation Environmental Radioactivity Laboratory, Harrisburg, Pennsylvania. The QC REMP program analytical laboratory responsibilities were unaffected and remained with Teledyne Midwest Laboratories, Inc., Northbrook, Illinois.

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|------------------------|-----------------------|--|
| 1 | 0.3 | 226.5 | SW | Air Iodine | N | Oyster Creek fire pond |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| | | | | TLD-quarterly | Y | |
| | 0.1 | 180.0 | S | Well Water | N | Oyster Creek pretreatment building lab |
| | | | | | | |
| 3 | 6.1 | 94.0 | E | Air Iodine | N | Island Beach State Park; near Coast Guard station |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| | | | | TLD-quarterly | Y | |
| 4 | 4.7 | 215.0 | SSW | Air Iodine | N | Rt. 554 and Garden State Parkway, Barnegat |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| | | | | TLD-quarterly | Y | |
| 5 | 5.2 | 355.0 | N | Air Iodine | N | Garden State Parkway service area; Forked River |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| | | | | TLD-quarterly | Y | |
| 6 | 2.2 | 14.0 | NNE | TLD-monthly | N | Forked River, Lane Place, behind St. Pius Church |
| | | | | TLD-Panasonic | Y | |
| | | | | TLD-quarterly | Y | |
| 7 | 1.8 | 110.5 | ESE | TLD-monthly | N | Bay Parkway, Sands Point Harbor, Waretown (QC Station) |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 8 | 2.3 | 180.0 | S | TLD-monthly | N | Waretown; Rt. 9 at Waretown substation |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|------------------------|-----------------------|--|
| 9 | 2.0 | 230.0 | SW | TLD-monthly | N | Waretown, Rt. 532 and Garden State Parkway |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| A | 31.1 | 25.0 | NNE | Air Iodine | N | Allenhurst; JCP&L office in parking lot next to substation |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| TLD-quarterly | Y | | | | | |
| C | 35.1 | 309.0 | NW | Air Iodine | Y | Cookstown; JCP&L office in rear parking lot |
| | | | | Air Particulate | Y | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | Y | |
| TLD-quarterly | Y | | | | | |
| H | 35.0 | 248.0 | WSW | Air Iodine | N | Hammonton; Atlantic Electric office |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | N | |
| TLD-quarterly | N | | | | | |
| 10 | 10.2 | 21.0 | NNE | TLD-monthly | N | Toms River; Rt. 37 E. near Eastern Off-Rd Supply |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 11 | 8.3 | 155.5 | SSE | TLD-monthly | N | Harvey Cedars; 80th & Anchor Sts @ water tower |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 12 | 9.4 | 192.0 | SSW | TLD-monthly | N | Cedar Run; Atlantic Electric substation access road |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 13 | 8.3 | 344.5 | N | TLD-monthly | N | South Toms River; Dover Road, next to last pole traveling west |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 14 | 18.0 | 1.0 | N | Air Iodine | N | Lakewood; Larrabee substation on Randolph Rd |
| | | | | Air Particulate | N | |
| | | | | Precipitation | N | |
| | | | | TLD-monthly | N | |
| | | | | TLD-Panasonic | N | |
| TLD-quarterly | N | | | | | |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| Station | Distance (miles) | Azimuth (degrees) | Sector | Sample Type | Tech* Spec | Location Description |
|---------|---------------------|----------------------|--------|---|----------------------------|--|
| 15 | 19.0 | 309.0 | NW | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | New Egypt; Rt. 539, last pole on south side across from BOMARC site |
| 16 | 18.0 | 271.0 | W | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Intersection of Rts. 563 and 72, 2 poles south |
| 17 | 19.0 | 214.0 | SW | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | New Gretna; Rt. 563, 2 miles north at high voltage line |
| 18 | 1.7 | 42.0 | NE | Well Water | Y | Townsend's Marina, Lacey Rd., Forked River |
| 19 | 1.6 | 73.0 | ENE | Well Water | N | 1015 Inland Rd., Forked River Beach |
| 20 | 1.0 | 80.0 | E | Well Water | N | Finninger Farm at Environmental lab |
| | 0.7 | 93.0 | E | Air Iodine Air Particulate Precipitation TLD-monthly TLD-Panasonic TLD-quarterly | N N N N N N | Finninger Farm on south side of access road; pole BT17 |
| 21 | 1.0 | 115.0 | ESE | Well Water | Y | 215 Dock Avenue, Waretown |
| 22 | 1.6 | 146.0 | SE | TLD-monthly TLD-Panasonic TLD-quarterly Well Water | N N N Y | 27 Long John Silver Way, Skipper's Cove; pole BT152 ON |
| 23 | 4.0 | 63.0 | ENE | Aquatic Sediment Clams Surface Water | N N N | Barnegat Bay off Stouts Creek 400 yds SE of PL 1 |
| 24 | 2.0 | 104.0 | E | Aquatic Sediment Clams Surface Water | N Y Y | Barnegat Bay 250 yds SE of PL*3* |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|--|-----------------------|---|
| 25 | 1.8 | 127.0 | SE | Aquatic Sediment Clams Surface Water | N N N | Barnegat Bay off Holiday Harbor, 200 yds SE of lagoon mouth |
| 31 | 10.5 | 183.0 | S | Aquatic Sediment Clams Surface Water | N N N | Manahawkin Bay 25 yds SE of C "23" and N "24" |
| 32 | 1.9 | 98.0 | E | Aquatic Sediment Surface Water | N N | mouth of Oyster Creek discharge canal |
| 33 | 1.1 | 104.0 | ESE | Aquatic Sediment Blue Crab Fish Surface Water | Y N Y N | 1200 yards east of Rt. 9 bridge; Discharge Canal |
| 35 | 0.4 | 110 | ESE | Vegetation Soil | Y N | East of Rt. 9 and North of Discharge Canal |
| 36 | 24 | 315 | NW | Vegetation Soil | Y N | DeWolfs U-Pick Farm, New Egypt, NJ |
| 51 | 0.4 | 358.0 | N | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | access road to Forked River site, north sector |
| 52 | 0.4 | 340.0 | NNW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | access road to Forked River site, NNW sector |
| 53 | 0.3 | 310.0 | NN | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Energy Spectrum |
| 54 | 0.3 | 294.0 | WNW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | access road to Forked River site, WNW sector |
| 55 | 1.5 | 273.0 | W | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | pole next to basin #1 on Forked River site |
| 56 | 1.1 | 258.0 | WSW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | siren pole in building 12 parking lot, Forked River |
| 57 | 0.2 | 203.0 | SSW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Oyster Creek; south access road; pole BT375 L |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| Station | Distance (miles) | Azimuth (degrees) | Sector | Sample Type | Tech* Spec | Location Description |
|---------|---------------------|----------------------|--------|---|--------------------------------------|---|
| 58 | 0.4 | 180.0 | S | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Oyster Creek; south access road; pole JC-7-L |
| 59 | 0.3 | 163.0 | SSE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Oyster Creek; south access road on gray post |
| 60 | 0.4 | 136.0 | SE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Oyster Creek; south access road entrance- |
| 61 | 0.3 | 116.0 | ESE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 9 south of plant main gate entrance; pole BT1458 |
| 62 | 0.2 | 98.5 | E | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 9, access road to main gate - pole BT-61 |
| 63 | 0.2 | 70.0 | ENE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 9 at north gate entrance to plant; pole BT 14D63 |
| 64 | 0.3 | 48.0 | NE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 9 north of main gate entrance on pole JC407X |
| 65 | 0.4 | 22.0 | NNE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 9, NNE sector on pole JC406L at intake canal bridge |
| 66 | 0.5 | 127.0 | SE | Air Iodine Air Particulate Precipitation TLD-monthly TLD-Panasonic TLD-quarterly Vegetation Soil | Y Y N N Y Y Y N | East of Rt. 9 and south of Discharge Canal inside fence |
| 67 | 1.0 | 161.0 | SSE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Rt. 9 on west side at Waretown Plaza |
| 69 | 1.3 | 70.0 | ENE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Chesapeake Dr. and Buena Vista Rd., FR; pole JC1347L |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|---|----------------------------|---|
| 70 | 1.6 | 183.0 | S | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Rt. 532 3/4 mile west of Rt. 9 in front of Martin residence |
| 71 | 1.7 | 165.0 | SSE | Air Iodine Air Particulate Precipitation TLD-monthly TLD-Panasonic TLD-quarterly | Y Y N N Y Y | Rt. 9 and 532 at Waretown Municipal bldg |
| 72 | 1.9 | 27.0 | NNE | Air Iodine Air Particulate Precipitation | Y Y N | Forked River, Lacey Township Community Hall |
| 73 | 1.8 | 110.5 | ESE | Air Iodine Air Particulate Precipitation TLD-monthly TLD-Panasonic TLD-quarterly | Y Y N N N N | Bay Parkway, Sands Point Harbor, Waretown |
| 74 | 2.0 | 90.0 | E | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Orlando Dr. & Penguin Ct., Forked River; pole JC6472L |
| 75 | 2.0 | 69.0 | ENE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | 1225 Beach Blvd. and Maui Drive, Forked River |
| 76 | 1.7 | 50.5 | NE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Lacey Rd across from Captain's Inn Restaurant |
| 77 | 1.5 | 26.0 | NNE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Forked River, State Marina parking lot |
| 78 | 1.8 | 2.0 | N | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Forked River, corner of Arient and Whitcomb Roads |
| 79 | 2.9 | 161.0 | ESE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Barneгат Bay and Bonita Drive; pole JCl33 ON |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|---|-----------------------|--|
| 80 | 3.1 | 38.0 | NE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Lanoka Harbor; Riviera Dr. and Dewey Dr.; pole BT787 |
| 81 | 4.6 | 192.0 | S | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Barnegat; east of Rt 9 at Brook & School Sts.; pole JC257BGT |
| 82 | 4.4 | 38.0 | NE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Lanoka Harbor; Bay Way & Clairmore Ave; pole JCl273L |
| 83 | 5.8 | 28.5 | NNE | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Berkeley; Rt. 9 and Harbor Inn Road; pole BT666B |
| 84 | 4.8 | 339.0 | NNW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Lacey Road, 1.3 mi. west of GSP on siren pole; Lacey Twp. |
| 85 | 3.8 | 253.5 | WSW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 532 west, just before landfill; pole BT 354; Ocean Twp. |
| 86 | 4.8 | 226.0 | SW | TLD-monthly TLD-Panasonic TLD-quarterly | N Y Y | Rt. 554, 1 mile west of Garden State Parkway; Barnegat |
| 87 | 7.2 | 143.0 | SE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Loveladies; north of Seaview Drive on siren pole |
| 88 | 6.6 | 126.5 | ESE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Barnegat Light; Eastern End of 3rd Street |
| 89 | 6.2 | 110.0 | ESE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Island Beach State Park; Job Francis residence |
| 90 | 6.6 | 74.0 | ENE | TLD-monthly TLD-Panasonic TLD-quarterly | N N N | Island Beach State Park; parking lot A-5; pole JCl81 |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SAMPLING LOCATIONS

| <u>Station</u> | <u>Distance (miles)</u> | <u>Azimuth (degrees)</u> | <u>Sector</u> | <u>Sample Type</u> | <u>Tech* Spec</u> | <u>Location Description</u> |
|----------------|-----------------------------|------------------------------|---------------|------------------------|-----------------------|---|
| 91 | 9.5 | 4.0 | N | TLD-monthly | N | Toms River; Horner St., near Lobster Shanty restaurant |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 92 | 9.2 | 48.0 | NE | TLD-monthly | N | Island Beach State Park; guard shack at toll booth |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 93 | 0.1 | 205.0 | SSW | Aquatic Sediment | N | OC discharge canal; between point of discharge and Route 9 |
| | | | | Blue Crab | N | |
| | | | | Fish | N | |
| | | | | Surface Water | N | |
| 94 | 21.8 | 201.0 | S | Blue Crab | Y | Great Bay, adjacent to docks of Cape Horn marina |
| | 21.8 | 201.0 | S | Aquatic Sediment | Y | Great Bay, mouth of Jimmies Creek west of channel marker 1 discharge and Route 9 |
| | | | Clams | Y | | |
| | | | Fish | Y | | |
| | | | Surface Water | Y | | |
| 95 | 2.5 | 243.0 | WSW | TLD-monthly | N | Waretown at Ocean County VoTech School on siren pole |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 96 | 1.1 | 15.0 | NNE | TLD-monthly | N | Route 9 north of plant across from Oyster Bay Restaurant at pumping station |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| 97 | 1.3 | 43.0 | NE | TLD-monthly | N | Forked River at Twin Rivers pumping station |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |
| T1 | 0.2 | 228.0 | S. | TLD-monthly | N | Oyster Creek fire pond; on east side of building |
| | | | | TLD-Panasonic | N | |
| | | | | TLD-quarterly | N | |

*Required by Technical Specifications

N = No

Y = Yes

TABLE 5

OYSTER CREEK
ANALYSIS SPECIFICATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

| <u>MEDIA</u> | <u>ANALYSIS</u> | <u>SAMPLING FREQUENCY</u> | <u>NO. OF SAMPLING STATIONS</u> |
|-----------------|-----------------|---|-------------------------------------|
| Air Particulate | Gross Beta | weekly | 13 |
| | Gamma | weekly* | 13 |
| Air Iodine | I-131 | weekly | 13 |
| Precipitation | H-3 | MC | 13 |
| | Gamma | MC | 13 |
| Surface Water | Gamma | monthly | 8 |
| | H-3 | monthly | |
| TLD | Immersion Dose | monthly | 65 |
| | | quarterly | 65 |
| Well Water | Gamma | monthly | 6 |
| | H-3 | monthly | |
| Clams | Gamma | monthly | 5 |
| Fish | Gamma | monthly | 3 |
| Blue Crab | Gamma | monthly | 3 |
| Soil | Gamma | quarterly (only when vegetables collected) | 3 |
| Sediment | Gamma | monthly | 8 |
| Vegetables | Gamma | monthly (when available) | 3 |

MC = monthly composite

* Monthly composite after October 15, 1987.

Quality Assurance Program

The quality assurance program associated with the Radiological Environmental Monitoring Program (REMP) at the OCNCS is governed and documented by written policies, procedures and records in accordance with Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs". All procedures associated with sampling, packaging, shipment and storage of samples were developed to ensure sample integrity from the time of collection to the time of analysis. Each laboratory which provides analytical services maintains a quality assurance program in accordance with the requirements of Reg. Guide 4.15. Each laboratory submits a quality assurance program document with revisions as necessary to the OCNCS Environmental Controls Department for review to ensure that program requirements are satisfied.

The Quality Assurance Program is composed of the following:

REMP QA SAMPLING PROGRAM

The number and frequency of REMP quality control samples collected in 1987 are listed on Table 6, page 35. Each of these samples, with the exception of the TLD's, are divided into three equal subsamples with two samples forwarded to the primary contractor laboratory for analysis having one designated as a blind sample. The other subsample is forwarded to the independent QA contractor laboratory for analysis. Analytical results from each laboratory are evaluated to determine acceptable agreement. If evaluation results in the determination that the results are in non-agreement, then reanalyzing or recounting the samples may result. This system of dividing each sample into three subsamples provides both intralaboratory and interlaboratory comparison.

TABLE 6

OYSTER CREEK NUCLEAR GENERATING STATION
QA SAMPLING PROGRAM

| SAMPLE MEDIUM | NUMBER OF REGULAR SAMPLING LOCATIONS | REGULAR COLLECTION FREQUENCY | NUMBER OF QA LOCATIONS | QA COLLECTION FREQUENCY |
|------------------|--|--|------------------------------|--|
| Precipitation | 13 | MONTHLY | 1 | QUARTERLY WHEN AVAILABLE |
| Surface Water | 8 | MONTHLY | 1 | QUARTERLY |
| Well Water | 6 | MONTHLY | 1 | QUARTERLY |
| Clams | 5 | MONTHLY | 1 | QUARTERLY |
| Soil | 3 | QUARTERLY WHEN VEGETATION AVAILABLE | 1 | QUARTERLY WHEN VEGETATION AVAILABLE |
| Sediment | 8 | MONTHLY | 1 | QUARTERLY |
| Vegetables | 3 | MONTHLY WHEN AVAILABLE | 1 | QUARTERLY WHEN AVAILABLE |
| TLD | 65 | MONTHLY AND QUARTERLY | 2 | MONTHLY AND QUARTERLY |

INTRALABORATORY ANALYSES

The primary analytical laboratory performed duplicate analyses on every tenth sample prior to October 15, 1987 and every twentieth sample after October 15, 1987. The number of duplicate analyses performed during 1987 are listed by media on Table 7, page 37. Intralaboratory analysis of both blank and spiked samples also are performed on a routine basis. The results of all of these analyses are reported on a bimonthly basis as well as results of detector backgrounds and efficiencies. Review of data produced by this program and the REMP QA Sampling Program discussed above indicate satisfactory performance by all laboratories during 1987.

US EPA CROSS-CHECK PROGRAM

Each laboratory providing analytical services participates in the EPA's Environmental Radioactivity Laboratory Intercomparison Studies (Cross-Check) Program. Results of this program are included as Appendix D, page 158.

AUDITS

Each contracted laboratory is audited by GPUN personnel on a routine basis to ensure compliance with contractual, procedural and regulatory requirements.

TABLE 7

OYSTER CREEK NUCLEAR GENERATING STATION
 DUPLICATE ANALYSES BY MEDIA FOR 1987
 PERFORMED BY PRIMARY LABORATORY

| | GAMMA SCAN | GROSS BETA | Sr-89 | Sr-90 | I-131 | Ra-226 | Uranium | H-3 | K-40 |
|------|---------------|---------------|-------|-------|-------|--------|---------|-----|------|
| APT | 54 | 61 | | | | | | | |
| AIO | | | | | 61 | | | | |
| RWA | 15 | | | | | | | 14 | |
| WWA | 8 | | | | 1 | | | 9 | |
| SWA | 8 | | | | 2 | | 1 | 10 | |
| AQS | 11 | | 1 | 1 | | 1 | | | 1 |
| CLAM | 5 | | 1 | 1 | | | | | |
| VGTN | 2 | | | | | | | | |
| SOIL | 1 | 1 | | | | | | | |
| FISH | 1 | | | | | | | | 2 |

APT = Air Particulate
 AIO = Air Iodine
 RWA = Precipitation
 WWA = Well Water
 SWA = Surface Water
 AQS = Aquatic Sediment
 CLAM = Clams
 VGTN = Vegetation
 SOIL = Soil
 FISH = Fish

DIRECT RADIATION MONITORING

Dose rates from external radiation sources were measured at a number of locations in the vicinity of OCNCS using thermoluminescent dosimeters (TLDs). Naturally occurring sources, including radiation of cosmic origin and natural radioactive materials in the air and ground, as well as fallout from prior nuclear weapons testing, resulted in a certain amount of penetrating radiation being recorded at all monitoring locations. Indicator TLD's were placed systematically in sectors of predominant wind direction at the site boundary, 1 mile, 2 miles, 5 miles, and 8 miles distant from the site. Background TLDs were located in locations typically greater than ten miles distance from OCNCS. The results of their exposure are shown in Table 8, page 39.

Sample Collection and Analysis

A state-of-the-art thermoluminescent dosimeter is used in Oyster Creek's REMP. Thermoluminescence is a process in which ionizing radiation, upon interacting with the sensitive material of the TLD (the phosphor or 'element') causes some of the energy deposited in the phosphor to be stored in stable 'traps' in the TLD Material. These TLD traps are so stable that they do not decay appreciably over the course of months or even years. This provides an excellent method of integrating the exposure received over a period of time. The energy stored in the TLDs as a result of interactions with radiation is removed and measured by a controlled heating process in a calibrated reading system. As the TLD is heated, the phosphor releases the stored energy as light. The amount of light given off is directly proportional to the radiation dose the TLD received. The reading process 'zeros' the TLD and prepares it for reuse. During 1987, TLDs were collected on a monthly and quarterly basis from locations shown in Figures 1, page 9, and 3, page 23, and described in Table 4, page 25. The results of the quarterly TLD's are listed on Table 8, page 39.

TABLE 8

GAMMA DOSE TO THE ENVIRONMENT (mR/STD. MONTH)
AS MEASURED BY
THERMOLUMINESCENT DOSIMETER - 1987

| STATION | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE |
|---------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|
| A | 25 FEB 87 | 4.0 | 21 MAY 87 | 4.3 | 11 AUG 87 | 4.2 | 02 NOV 87 | 4.2 | 25 JAN 88 | 3.9 |
| C | 24 FEB 87 | 3.6 | 18 MAY 87 | 4.2 | 10 AUG 87 | 4.5 | 02 NOV 87 | 3.9 | 25 JAN 88 | 4.7 |
| H | 24 FEB 87 | 3.4 | 18 MAY 87 | 4.4 | 10 AUG 87 | 3.7 | 02 NOV 87 | 3.6 | 25 JAN 88 | 4.0 |
| 1 | 26 FEB 87 | 3.7 | 20 MAY 87 | 4.1 | 12 AUG 87 | 5.2 | 02 NOV 87 | 4.1 | 25 JAN 88 | 4.7 |
| 3 | 25 FEB 87 | 3.6 | 19 MAY 87 | 3.9 | 11 AUG 87 | 3.9 | 02 NOV 87 | 4.2 | 25 JAN 88 | 3.3 |
| 4 | 24 FEB 87 | 3.5 | 21 MAY 87 | 3.7 | 10 AUG 87 | 4.5 | 02 NOV 87 | 3.6 | 25 JAN 88 | 4.3 |
| 5 | 25 FEB 87 | 4.2 | 19 MAY 87 | 4.0 | 11 AUG 87 | 4.0 | 02 NOV 87 | 3.7 | 25 JAN 88 | 3.5 |
| 6 | 25 FEB 87 | 4.3 | 21 MAY 87 | 3.8 | 13 AUG 87 | 4.5 | 03 NOV 87 | 3.8 | 25 JAN 88 | 3.4 |
| 7 | 26 FEB 87 | 4.7 | 20 MAY 87 | LOST | 12 AUG 87 | 3.4 | 02 NOV 87 | 3.6 | 25 JAN 88 | 3.2 |
| 8 | 26 FEB 87 | 4.2 | 20 MAY 87 | 4.0 | 12 AUG 87 | 3.6 | 03 NOV 87 | 3.6 | 26 JAN 88 | 3.4 |
| 9 | 24 FEB 87 | 4.3 | 21 MAY 87 | 3.9 | 14 AUG 87 | 3.8 | 03 NOV 87 | 4.0 | 26 JAN 88 | 3.4 |
| 10 | 25 FEB 87 | 4.4 | 19 MAY 87 | 3.9 | 11 AUG 87 | 3.7 | 03 NOV 87 | 3.6 | 25 JAN 88 | 3.4 |
| 11 | 26 FEB 87 | 3.3 | 20 MAY 87 | 3.7 | 12 AUG 87 | 4.5 | 04 NOV 87 | 3.5 | 26 JAN 88 | 5.5 |
| 12 | 24 FEB 87 | 3.7 | 18 MAY 87 | 4.0 | 10 AUG 87 | 4.4 | 02 NOV 87 | 3.8 | 25 JAN 88 | 3.4 |
| 13 | 25 FEB 87 | 3.5 | 19 MAY 87 | 3.7 | 11 AUG 87 | 4.3 | 03 NOV 87 | 3.4 | 25 JAN 88 | 4.2 |
| 14 | 25 FEB 87 | 4.2 | 19 MAY 87 | 4.9 | 11 AUG 87 | 5.0 | 02 NOV 87 | 4.5 | 25 JAN 88 | 4.1 |
| 15 | 24 FEB 87 | 3.6 | 18 MAY 87 | 4.1 | 10 AUG 87 | 4.8 | 02 NOV 87 | 3.9 | 25 JAN 88 | 3.3 |
| 16 | 26 FEB 87 | 3.3 | 20 MAY 87 | 3.7 | 12 AUG 87 | 3.4 | 04 NOV 87 | 3.6 | 26 JAN 88 | 3.0 |
| 17 | 24 FEB 87 | 3.5 | 18 MAY 87 | 4.0 | 10 AUG 87 | 3.6 | 04 NOV 87 | 3.6 | 25 JAN 88 | 3.3 |
| 20 | 27 FEB 87 | 3.5 | 20 MAY 87 | 3.8 | 12 AUG 87 | 3.6 | 02 NOV 87 | 4.8 | 25 JAN 88 | 3.2 |
| 22 | 26 FEB 87 | 3.5 | 20 MAY 87 | 3.8 | 12 AUG 87 | 4.5 | 03 NOV 87 | 4.6 | 26 JAN 88 | 4.1 |
| 51 | 27 FEB 87 | 4.5 | 21 MAY 87 | 5.4 | 13 AUG 87 | 4.9 | 05 NOV 87 | 4.7 | 27 JAN 88 | 4.7 |
| 52 | 27 FEB 87 | 5.0 | 21 MAY 87 | LOST | 13 AUG 87 | 5.4 | 05 NOV 87 | 5.3 | 27 JAN 88 | 6.5 |
| 53 | 27 FEB 87 | 4.1 | 21 MAY 87 | 4.7 | 13 AUG 87 | 5.5 | 05 NOV 87 | 4.3 | 27 JAN 88 | 6.2 |
| 54 | 27 FEB 87 | 3.7 | 21 MAY 87 | 5.2 | 13 AUG 87 | 4.6 | 05 NOV 87 | 3.9 | 27 JAN 88 | 3.7 |
| 55 | 27 FEB 87 | 4.4 | 21 MAY 87 | 4.5 | 13 AUG 87 | 5.0 | 05 NOV 87 | 4.0 | 27 JAN 88 | 3.4 |
| 56 | 27 FEB 87 | 4.2 | 21 MAY 87 | 5.3 | 13 AUG 87 | 4.6 | 05 NOV 87 | 4.4 | 27 JAN 88 | 3.9 |
| 57 | 27 FEB 87 | 5.4 | 21 MAY 87 | 7.0 | 13 AUG 87 | 5.4 | 05 NOV 87 | 4.8 | 27 JAN 88 | 4.5 |
| 58 | 27 FEB 87 | 3.7 | 21 MAY 87 | 5.4 | 13 AUG 87 | 5.2 | 05 NOV 87 | 3.9 | 27 JAN 88 | 4.0 |
| 59 | 27 FEB 87 | 4.3 | 21 MAY 87 | 5.7 | 13 AUG 87 | 5.2 | 05 NOV 87 | 4.8 | 27 JAN 88 | 4.2 |
| 60 | 27 FEB 87 | 5.6 | 21 MAY 87 | 4.9 | 13 AUG 87 | 4.8 | 06 NOV 87 | LOST | 27 JAN 88 | 4.5 |
| 61 | 27 FEB 87 | 4.5 | 21 MAY 87 | 4.3 | 13 AUG 87 | 5.0 | 05 NOV 87 | 4.0 | 27 JAN 88 | 4.6 |
| 62 | 27 FEB 87 | 3.7 | 21 MAY 87 | 4.9 | 13 AUG 87 | 4.1 | 05 NOV 87 | 3.9 | 27 JAN 88 | 4.5 |

TABLE 8 (Cont'd)

GAMMA DOSE TO THE ENVIRONMENT (mR/STD. MONTH)
AS MEASURED BY
THERMOLUMINESCENT DOSIMETER - 1987

| STATION | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE | COLLECTION DATE | DOSE |
|---------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|
| 63 | 27 FEB 87 | 4.7 | 21 MAY 87 | 5.6 | 13 AUG 87 | 4.2 | 05 NOV 87 | 4.2 | 27 JAN 88 | 3.8 |
| 64 | 27 FEB 87 | 3.5 | 21 MAY 87 | 5.2 | 13 AUG 87 | 3.9 | 05 NOV 87 | 3.8 | 27 JAN 88 | 3.3 |
| 65 | 27 FEB 87 | 3.6 | 21 MAY 87 | 5.1 | 13 AUG 87 | 4.4 | 05 NOV 87 | 3.9 | 27 JAN 88 | 3.3 |
| 66 | 26 FEB 87 | 3.4 | 20 MAY 87 | 4.0 | 12 AUG 87 | 4.5 | 02 NOV 87 | 3.9 | 25 JAN 88 | 4.4 |
| 67 | 26 FEB 87 | 3.7 | 20 MAY 87 | 5.1 | 12 AUG 87 | 3.8 | 03 NOV 87 | 3.9 | 26 JAN 88 | 4.2 |
| 69 | 27 FEB 87 | 4.4 | 21 MAY 87 | 5.3 | 13 AUG 87 | 3.6 | 04 NOV 87 | 3.7 | 27 JAN 88 | 3.2 |
| 70 | 24 FEB 87 | 4.4 | 21 MAY 87 | 4.7 | 10 AUG 87 | 3.6 | 03 NOV 87 | 5.4 | 26 JAN 88 | 2.9 |
| 71 | 24 FEB 87 | 4.3 | 21 MAY 87 | 5.0 | 10 AUG 87 | 3.7 | 02 NOV 87 | 4.8 | 25 JAN 88 | 3.1 |
| 73 | 26 FEB 87 | 4.3 | 20 MAY 87 | LOST | 12 AUG 87 | 3.5 | 02 NOV 87 | 3.6 | 25 JAN 88 | 3.0 |
| 74 | 27 FEB 87 | 4.7 | 21 MAY 87 | 5.4 | 13 AUG 87 | 3.7 | 04 NOV 87 | 3.9 | 27 JAN 88 | 3.3 |
| 75 | 27 FEB 87 | 3.5 | 21 MAY 87 | 5.2 | 13 AUG 87 | 3.9 | 04 NOV 87 | 4.2 | 27 JAN 88 | 3.5 |
| 76 | 27 FEB 87 | 3.4 | 21 MAY 87 | 5.3 | 13 AUG 87 | 4.9 | 04 NOV 87 | 3.6 | 27 JAN 88 | 3.2 |
| 77 | 27 FEB 87 | 3.4 | 21 MAY 87 | 3.8 | 13 AUG 87 | 3.7 | 04 NOV 87 | 3.8 | 27 JAN 88 | 3.2 |
| 78 | 25 FEB 87 | 5.0 | 19 MAY 87 | 4.2 | 13 AUG 87 | LOST | 03 NOV 87 | 4.0 | 25 JAN 88 | 3.5 |
| 79 | 26 FEB 87 | 3.3 | 20 MAY 87 | 3.7 | 12 AUG 87 | 4.2 | 03 NOV 87 | 4.3 | 26 JAN 88 | 3.6 |
| 80 | 27 FEB 87 | 3.4 | 21 MAY 87 | 3.9 | 13 AUG 87 | 3.8 | 05 NOV 87 | 3.8 | 27 JAN 88 | 4.3 |
| 81 | 26 FEB 87 | 4.0 | 20 MAY 87 | 5.7 | 12 AUG 87 | 4.1 | 03 NOV 87 | 4.2 | 26 JAN 88 | 4.2 |
| 82 | 27 FEB 87 | 3.9 | 21 MAY 87 | 5.8 | 13 AUG 87 | 4.2 | 05 NOV 87 | LOST | 27 JAN 88 | 4.9 |
| 83 | 27 FEB 87 | 4.7 | 21 MAY 87 | 4.0 | 13 AUG 87 | 3.8 | 05 NOV 87 | 4.6 | 27 JAN 88 | 3.3 |
| 84 | 24 FEB 87 | 3.9 | 18 MAY 87 | 4.4 | 10 AUG 87 | 4.2 | 02 NOV 87 | 5.1 | 25 JAN 88 | 3.4 |
| 85 | 24 FEB 87 | 5.0 | 21 MAY 87 | 4.1 | 14 AUG 87 | 4.6 | 03 NOV 87 | 6.2 | 26 JAN 88 | 4.2 |
| 86 | 24 FEB 87 | 4.3 | 21 MAY 87 | 3.9 | 10 AUG 87 | 4.7 | 03 NOV 87 | 4.6 | 25 JAN 88 | 3.2 |
| 87 | 26 FEB 87 | 5.1 | 20 MAY 87 | 4.6 | 12 AUG 87 | 5.1 | 04 NOV 87 | 4.3 | 26 JAN 88 | 3.6 |
| 88 | 26 FEB 87 | 4.3 | 20 MAY 87 | 3.8 | 12 AUG 87 | 3.5 | 04 NOV 87 | 3.5 | 26 JAN 88 | 3.0 |
| 89 | 25 FEB 87 | 4.0 | 19 MAY 87 | 3.8 | 11 AUG 87 | 3.4 | 02 NOV 87 | 4.4 | 25 JAN 88 | 3.0 |
| 90 | 25 FEB 87 | 3.2 | 19 MAY 87 | 3.8 | 11 AUG 87 | 3.4 | 02 NOV 87 | 4.7 | 25 JAN 88 | 2.9 |
| 91 | 25 FEB 87 | 3.6 | 19 MAY 87 | 4.3 | 11 AUG 87 | 3.7 | 03 NOV 87 | 4.7 | 25 JAN 88 | 3.1 |
| 92 | 25 FEB 87 | 4.1 | 19 MAY 87 | 5.0 | 11 AUG 87 | 4.8 | 02 NOV 87 | 4.5 | 25 JAN 88 | 5.0 |
| 95 | 24 FEB 87 | 3.4 | 21 MAY 87 | 4.0 | 14 AUG 87 | 3.8 | 03 NOV 87 | 5.1 | 26 JAN 88 | 4.2 |
| 96 | 27 FEB 87 | 3.8 | 21 MAY 87 | 4.5 | 13 AUG 87 | 4.1 | 04 NOV 87 | 5.2 | 27 JAN 88 | 4.5 |
| 97 | 27 FEB 87 | 4.3 | 21 MAY 87 | 4.2 | 13 AUG 87 | 4.4 | 04 NOV 87 | 5.4 | 27 JAN 88 | 3.2 |
| T1 | 26 FEB 87 | 3.6 | 20 MAY 87 | 4.4 | 12 AUG 87 | 4.9 | 02 NOV 87 | 4.2 | 25 JAN 88 | 3.7 |

Environmental Sample Analysis Results

Sample Collection

Sample types described previously at locations in Figures 1 (page 9) and 3 (page 23) are shipped to the radioanalytical laboratory upon collection. Samples are analyzed using procedures approved by GPU Nuclear and in keeping with guidelines established in USNRC Regulatory Guide 4.15. For a more detailed description of the media, sampling locations, collection frequencies, and analyses performed, refer to the section on Program Design described earlier (page 21).

Sample Analysis Results

Results of sample analyses are summarized for the reporting period in the format of NRC Regulatory Guide 4.8 in Table 10, page 44. A statistical analysis was performed on each analytical result according to sample type, station, and analysis to determine which results, if any, were outside the normal or expected range of environmental activities. These ranges were based upon historical data amassed from Oyster Creek's Radiological Environmental Monitoring Program surveys for past years. While these "higher-than-expected" results are somewhat elevated, they are in no way considered to be abnormal. Except where noted, elevated results were not attributed to plant effluents and were, in most cases, naturally occurring isotopes. A discussion of the elevated results follows.

Many naturally-occurring isotopes (e.g. Be-7, K-40, etc.) were detected in some environmental media, as evidenced in previous Semiannual Reports. Additionally, some site-specific nuclides from past facility discharges, as documented in previous Semiannual Reports, were detected (Mn-54 and Zn-65 in Aquatic Sediment). Fission products (Cs-137) from nuclear weapons testing and the 1986 Chernobyl accident were also detected in small concentrations in one clam and two aquatic sediment samples. Slightly elevated Tritium results were also detected in five precipitation samples and one well water sample.

Although these results were found to be higher-than-expected, they remain well within the ranges considered normal for this region of the United States.

In conclusion, with the exception of the historically found facility-specific nuclides, no concentrations of radioactivity in the environs of Oyster Creek were found to be abnormal during the reporting period.

TABLE 9
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987

THE FOLLOWING PAGES ARE A SUMMARY OF REMP DATA FOR THE SCHEDULED COLLECTION PERIOD JANUARY, 1987 THRU DECEMBER, 1987. DATA ARE SUMMARIZED ON AN ANNUAL BASIS, WHERE

- 1.) XXX=MEAN(N/TOTAL); MEAN AND RANGE BASED ON RANGE DETECTABLE ACTIVITIES OF ALL XXX STATIONS
- 2.) XXX=BACKGROUND OR INDICATOR STATIONS
- 3.) (N/TOTAL)=FRACTION OF DETECTABLE ACTIVITIES/TOTAL NUMBER OF ANALYSES PERFORMED
- 4.) STATION=STATION WITH HIGHEST ANNUAL MEAN
- 5.) BACKGROUND STATIONS USED ARE.

| | | | |
|-------------|-----------------|----------------|-------------|
| STATION | A,C,H,14 | 31,94 | 18/36 |
| SAMPLE TYPE | AIR PARTICULATE | SEDIMENT | WELL WATER/ |
| | AIR IODINE | CLAMS | VEGETABLES |
| | PRECIPITATION | SURFACE WATER | SOIL |
| | | FISH (**) | |
| | | BLUE CRAB (**) | |

6.) *=NO DATA SAMPLED ; **=STATION 94 ONLY

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|---------|-------------------------|----------------------|--------------------------|------------------------|----------------------------------|
| | | | OF ANALYSES PERFORMED | RANGE | RANGE | RANGE | |
| | | | | STATION | STATION-MEAN(N/TOTAL) | | |
| | | | | | RANGE | | |
| AIR PARTICULATE (PCI/M3) | GROSS BETA | 676 | 2.48E-03 | 1.56E-02 (466 /468) | (2.53E-03 - 3.50E-02) | 1.59E-02(208 /208) | 1 20 3 4 5 |
| | | | | | | (5.03E-03 - 3.37E-02) | 66 71 72 73 |
| | | | | | | 4 1.58E-02(52 /52) | |
| | | | | | | (6.03E-03 - 3.50E-02) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | CE-144 | 572 | 2.02E-02 | < LLD (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| | | | | | | 73 < LLD (0 /44) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | AG-110M | 39 | 4.76E-03 | < LLD (0 /27) | < LLD (0 /12) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| | | | | | | 73 < LLD (0 /3) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | TE-129M | 39 | 9.55E+01 | < LLD (0 /27) | < LLD (0 /12) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| | | | | | | 73 < LLD (0 /3) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | CS-134 | 572 | 3.84E-03 | < LLD (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| | | | | | | 73 < LLD (0 /44) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | CO-58 | 572 | 3.93E-03 | < LLD (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| | | | | | | 73 < LLD (0 /44) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|------------------------------|-------------------------|-----|----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|-------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| AIR PARTICULATE (PCI/M3) | GAMMA MN-54 | 572 | 3.59E-03 | < LLD | (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /44) | | 66 71 72 73 |
| AIR PARTICULATE (PCI/M3) | GAMMA FE-59 | 572 | 9.37E-03 | < LLD | (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /44) | | 66 71 72 73 |
| AIR PARTICULATE (PCI/M3) | GAMMA CS-136 | 26 | 8.03E-03 | < LLD | (0 /18) | < LLD (0 /8) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /2) | | 66 71 72 73 |
| AIR PARTICULATE (PCI/M3) | GAMMA TE-132 | 39 | 3.69E-02 | < LLD | (0 /27) | < LLD (0 /12) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /3) | | 66 71 72 73 |
| AIR PARTICULATE (PCI/M3) | GAMMA ZN-65 | 572 | 8.37E-03 | < LLD | (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /44) | | 66 71 72 73 |
| AIR PARTICULATE (PCI/M3) | GAMMA CO-60 | 572 | 4.07E-03 | < LLD | (0 /396) | < LLD (0 /176) | 1 20 3 4 5 |
| | | | | | 73 < LLD (0 /44) | | 66 71 72 73 |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------------|------------------|--------|-----|-------------------------|------------------------|--------------------------|------------------------|----------------------------------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | K-40 | 572 | 8.23E-02 | 2.75E-01 (4 /396) | 71 | 2.65E-01(2 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | (1.00E-01 - 4.40E-01) | | (1.30E-01 - 4.00E-01) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | BE-7 | 572 | 5.54E-02 | 1.53E-01 (370 /396) | 72 | 1.56E-01(169 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | (3.60E-02 - 3.50E-01) | | (6.59E-02 - 3.20E-01) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | ZR-95 | 572 | 8.24E-03 | < LLD (0 /396) | 73 | < LLD (0 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | < LLD (0 /44) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | NB-95 | 572 | 4.19E-03 | < LLD (0 /396) | 73 | < LLD (0 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | < LLD (0 /44) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | SB-125 | 39 | 1.19E-02 | < LLD (0 /27) | 73 | < LLD (0 /12) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | < LLD (0 /3) | |
| AIR PARTICULATE (PCI/M3) | GAMMA | CE-141 | 572 | 6.68E-03 | < LLD (0 /396) | 73 | < LLD (0 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | < LLD (0 /44) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD (OF ANALYSES PERFORMED) | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|--------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| AIR PARTICULATE (PCI/M3) | GAMMA RU-103 | 572 | 4.72E-03 | < LLD (0 /396) | < LLD (0 /176) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |
| AIR PARTICULATE (PCI/M3) | GAMMA CR-51 | 39 | 4.04E-02 | < LLD (0 /27) | < LLD (0 /12) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |
| AIR PARTICULATE (PCI/M3) | GAMMA BA-140 | 572 | 2.63E-02 | < LLD (0 /396) | < LLD (0 /176) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |
| AIR PARTICULATE (PCI/M3) | GAMMA LA-140 | 572 | 1.23E-02 | < LLD (0 /396) | < LLD (0 /176) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |
| AIR PARTICULATE (PCI/M3) | GAMMA I-135 | 13 | 2.61E+02 | < LLD (0 /9) | < LLD (0 /4) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |
| AIR PARTICULATE (PCI/M3) | GAMMA AC-228 | 39 | 2.02E-02 | < LLD (0 /27) | < LLD (0 /12) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------------|-------------------------|-----|-----------------------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| AIR PARTICULATE (PCI/M3) GAMMA | RA-224 | 26 | 1.00E+00 | < LLD | (0 /18) | < LLD | (0 /8) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /2) | | | |
| AIR PARTICULATE (PCI/M3) GAMMA | RA-226 | 572 | 6.20E-02 | < LLD | (0 /396) | < LLD | (0 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /44) | | | |
| AIR PARTICULATE (PCI/M3) GAMMA | TH-228 | 533 | 6.03E-03 | < LLD | (0 /369) | < LLD | (0 /164) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /41) | | | |
| AIR PARTICULATE (PCI/M3) GAMMA | I-131 | 572 | 2.12E-02 | < LLD | (0 /396) | < LLD | (0 /176) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /44) | | | |
| AIR PARTICULATE (PCI/M3) GAMMA | NA-22 | 26 | 4.45E-03 | < LLD | (0 /18) | < LLD | (0 /8) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /2) | | | |
| AIR PARTICULATE (PCI/M3) GAMMA | NP-239 | 13 | 8.04E-02 | < LLD | (0 /9) | < LLD | (0 /4) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /1) | | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|------------------------------------|----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| AIR PARTICULATE (PCI/M3) | GAMMA RU-106 | 572 3.23E-02 | < LLD (0 /396) | < LLD (0 /176) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /44) |
| AIR PARTICULATE (PCI/M3) | GAMMA CO-109 | 13 9.67E-02 | < LLD (0 /9) | < LLD (0 /4) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /1) |
| AIR PARTICULATE (PCI/M3) | GAMMA CO-57 | 39 2.44E-03 | < LLD (0 /27) | < LLD (0 /12) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /3) |
| AIR PARTICULATE (PCI/M3) | GAMMA I-133 | 39 2.19E+02 | < LLD (0 /27) | < LLD (0 /12) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /3) |
| AIR PARTICULATE (PCI/M3) | GAMMA CS-137 | 572 3.94E-03 | < LLD (0 /396) | < LLD (0 /176) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /44) |
| PRECIPITATION (PCI/L) | GAMMA CE-144 | 162 3.34E+01 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 66 71 72 73 | |
| | | | | | | 73 < LLD (0 /11) |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|----------|---|----------|----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| PRECIPITATION (PCI/L) | GAMMA | AG-110M 36 | 5.83E+00 | < LLD (0 /24) | < LLD (0 /12) | | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 < LLD (0 /3) | |
| PRECIPITATION (PCI/L) | GAMMA | TE-129M 36 | 1.45E+04 | < LLD (0 /24) | < LLD (0 /12) | | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 < LLD (0 /3) | |
| PRECIPITATION (PCI/L) | GAMMA | CS-134 162 | 4.88E+00 | < LLD (0 /110) | < LLD (0 /52) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |
| PRECIPITATION (PCI/L) | GAMMA | CO-58 162 | 4.59E+00 | < LLD (0 /110) | < LLD (0 /52) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |
| PRECIPITATION (PCI/L) | GAMMA | MN-54 162 | 4.39E+00 | < LLD (0 /110) | < LLD (0 /52) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |
| PRECIPITATION (PCI/L) | GAMMA | FE-59 162 | 9.67E+00 | < LLD (0 /110) | < LLD (0 /52) | | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL); RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|------------------------------------|-----------------------------------|--------------------------------|--|---|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| PRECIPITATION (PCI/L) | GAMMA | CS-136 | 26 | 8.60E+00 | < LLD (0 /17) | < LLD (0 /9) | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 < LLD (0 /3) | |
| PRECIPITATION (PCI/L) | GAMMA | TE-132 | 36 | 2.50E+01 | < LLD (0 /24) | < LLD (0 /12) | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 < LLD (0 /3) | |
| PRECIPITATION (PCI/L) | GAMMA | ZN-65 | 162 | 9.71E+00 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |
| PRECIPITATION (PCI/L) | GAMMA | CO-60 | 162 | 4.75E+00 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 < LLD (0 /11) | |
| PRECIPITATION (PCI/L) | GAMMA | K-40 | 162 | 7.31E+01 | < LLD (0 /110) | 1.50E+02(1 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | (1.50E+02 - 1.50E+02) | |
| PRECIPITATION (PCI/L) | GAMMA | BE-7 | 162 | 4.91E+01 | 7.26E+01 (30 /110) (4.50E+01 - 1.40E+02) | 8.12E+01(17 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | (4.70E+01 - 1.40E+02) | |
| | | | | | | 72 8.67E+01(4 /9) (6.30E+01 - 1.40E+02) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|--------|-----------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| PRECIPITATION (PCI/L) | GAMMA | ZR-95 | 162 | 9.29E+00 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| PRECIPITATION (PCI/L) | GAMMA | RB-95 | 162 | 4.91E+00 | < LLD (0 /110) | 73 < LLD (0 /11) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| PRECIPITATION (PCI/L) | GAMMA | SB-125 | 36 | 1.58E+01 | < LLD (0 /24) | < LLD (0 /12) | 1 20 3 4 5 |
| | | | | | | | 66 71 73 |
| PRECIPITATION (PCI/L) | GAMMA | CE-141 | 162 | 9.45E+00 | < LLD (0 /110) | 73 < LLD (0 /3) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| PRECIPITATION (PCI/L) | GAMMA | RU-103 | 162 | 5.56E+00 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 |
| | | | | | | | 66 71 72 73 |
| PRECIPITATION (PCI/L) | GAMMA | CR-51 | 36 | 5.26E+01 | < LLD (0 /24) | 73 < LLD (0 /11) | 1 20 3 4 5 |
| | | | | | | | 66 71 73 |
| | | | | | | 73 < LLD (0 /3) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSTS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | | |
|--------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|----------|---------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | | | |
| PRECIPITATION (PCI/L) | GAMMA | BA-140 | 162 | 2.36E+01 | < LLD | (0 /110) | < LLD | (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 | | | |
| PRECIPITATION (PCI/L) | GAMMA | LA-140 | 132 | 8.91E+00 | < LLD | (0 /110) | < LLD | (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | 73 | | | |
| PRECIPITATION (PCI/L) | GAMMA | I-135 | 11 | 1.73E+13 | < LLD | (0 /8) | < LLD | (0 /3) | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 | | | |
| PRECIPITATION (PCI/L) | GAMMA | AC-228 | 36 | 2.35E+01 | < LLD | (0 /24) | < LLD | (0 /12) | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 | | | |
| PRECIPITATION (PCI/L) | GAMMA | RA-224 | 26 | 4.99E+02 | < LLD | (0 /17) | < LLD | (0 /9) | 1 20 3 4 5 66 71 73 |
| | | | | | | 73 | | | |
| PRECIPITATION (PCI/L) | GAMMA | RA-226 | 152 | 1.04E+02 | 1.50E+02 | (1 /110) | < LLD | (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | | (1.50E+02 - 1.50E+02) | | | |

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 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| PRECIPITATION (PCI/L) | GAMMA | TH-228 126 8.63E+00 | < LLD | (0 /86) | < LLD | (0 /40) | 1 20 3 4 5 66 71 72 73 |
| | | | | 73 < LLD (0 /8) | | | |
| PRECIPITATION (PCI/L) | GAMMA | I-131 162 1.39E+01 | < LLD | (0 /110) | < LLD | (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | 73 < LLD (0 /11) | | | |
| PRECIPITATION (PCI/L) | GAMMA | NA-22 26 7.11E+00 | < LLD | (0 /17) | < LLD | (0 /9) | 1 20 3 4 5 66 71 73 |
| | | | | 73 < LLD (0 /3) | | | |
| PRECIPITATION (PCI/L) | GAMMA | NP-239 11 6.39E+02 | < LLD | (0 /8) | < LLD | (0 /3) | 1 20 3 4 5 66 71 73 |
| | | | | 73 < LLD (0 /1) | | | |
| PRECIPITATION (PCI/L) | GAMMA | RU-106 162 4.05E+01 | < LLD | (0 /110) | < LLD | (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | 73 < LLD (0 /11) | | | |
| PRECIPITATION (PCI/L) | GAMMA | CD-109 11 1.41E+02 | < LLD | (0 /8) | < LLD | (0 /3) | 1 20 3 4 5 66 71 73 |
| | | | | 73 < LLD (0 /1) | | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|-------------------------|---------------------------|-------------------------------|-----------------------------|--|---|----------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| PRECIPITATION (PCI/L) | GAMMA | CO-57 | 36 | 4.30E+00 | < LLD (0 /24) | < LLD (0 /12) | 1 20 3 4 5 66 71 73 |
| | | | | | 73 < LLD (0 /3) | | |
| PRECIPITATION (PCI/L) | GAMMA | I-133 | 36 | 1.02E+04 | < LLD (0 /24) | < LLD (0 /12) | 1 20 3 4 5 66 71 73 |
| | | | | | 73 < LLD (0 /3) | | |
| PRECIPITATION (PCI/L) | GAMMA | CS-137 | 162 | 4.71E+00 | < LLD (0 /110) | < LLD (0 /52) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /11) | | |
| PRECIPITATION (PCI/L) | TRITIUM | | 166 | 9.66E+01 | 1.18E+02 (34 /114) (5.44E+01 - 3.12E+02) | 1.19E+02(9 /52) (6.82E+01 - 2.88E+02) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 5 1.68E+02(3 /13) (7.17E+01 - 3.12E+02) | | |
| AIR IODINE (PCI/M3) | IODINE-131 | | 676 | 1.91E-02 | < LLD (0 /468) | < LLD (0 /208) | 1 20 3 4 5 66 71 72 73 |
| | | | | | 73 < LLD (0 /52) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CE-144 | 12 | 1.12E+02 | < LLD (0 /9) | < LLD (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|----------|---------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | AG-110M | 6 | 2.62E+01 | < LLD | (0 /4) | < LLD | (0 /2) | 35 66 |
| | | | | | | | 66 < LLD (0 /2) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | TE-129M | 6 | 8.05E+04 | < LLD | (0 /4) | < LLD | (0 /2) | 35 66 |
| | | | | | | | 66 < LLD (0 /2) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CS-134 | 12 | 2.09E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CO-58 | 12 | 2.01E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | MN-54 | 12 | 1.92E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | FE-59 | 12 | 4.67E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CS-136 4 2.90E+01 | < LLD | (0 /3) | < LLD | (0 /1) | 35 66 |
| | | | | | 66 < LLD (0 /1) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | TE-132 6 9.47E+01 | < LLD | (0 /4) | < LLD | (0 /2) | 35 66 |
| | | | | | 66 < LLD (0 /2) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | ZN-65 12 5.04E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CO-60 12 2.24E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | K-40 12 3.90E+02 | 4.27E+03 | (9 /9) | 3.83E+03 | (3 /3) | 35 66 |
| | | | (2.90E+03 - 6.60E+03) | | (3.46E+03 - 4.23E+03) | | |
| | | | | | 66 4.58E+03(5 /5) | | |
| | | | | | (2.90E+03 - 6.60E+03) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | BE-7 12 1.64E+02 | 2.65E+02 | (8 /9) | 5.60E+02 | (1 /3) | 35 66 |
| | | | (2.03E+02 - 3.40E+02) | | (5.60E+02 - 5.60E+02) | | |
| | | | | | 35 3.09E+02(3 /4) | | |
| | | | | | (2.70E+02 - 3.40E+02) | | |

TABLE .0
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | ZR-95 12 3.73E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | NB-95 12 2.01E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | SB-125 6 5.44E+01 | < LLD | (0 /4) | < LLD | (0 /2) | 35 66 |
| | | | | | 66 < LLD (0 /2) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CE-141 12 3.12E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | RU-103 12 2.15E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CR-51 6 1.81E+02 | < LLD | (0 /4) | < LLD | (0 /2) | 35 66 |
| | | | | | 66 < LLD (0 /2) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|------------------|--------|-----|-------------------------|---------------|--------------------------|--------------------------------|-------------------------------------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | BA-140 | 12 | 9.00E+01 | < LLD (0 /9) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | LA-140 | 12 | 3.02E+01 | < LLD (0 /9) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | I-135 | 3 | 1.58E+10 | < LLD (0 /2) | < LLD (0 /1) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | AC-228 | 6 | 8.56E+01 | < LLD (0 /4) | < LLD (0 /2) | 35 66 | |
| | | | | | | 66 < LLD (0 /2) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | RA-224 | 4 | 2.75E+03 | < LLD (0 /3) | < LLD (0 /1) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |
| CABBAGE (PCI/KG(WET)) | GAMMA | RA-226 | 12 | 3.65E+02 | < LLD (0 /9) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | TH-228 6 3.27E+01 | < LLD | (0 /5) | < LLD | (0 /1) | 35 66 |
| | | | | | | 66 < LLD (0 /3) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | I-131 12 4.39E+01 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | 66 < LLD (0 /5) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | NA-22 4 2.25E+01 | < LLD | (0 /3) | < LLD | (0 /1) | 35 66 |
| | | | | | | 66 < LLD (0 /1) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | NP-239 3 8.02E+02 | < LLD | (0 /2) | < LLD | (0 /1) | 35 66 |
| | | | | | | 66 < LLD (0 /1) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | RU-106 12 1.64E+02 | < LLD | (0 /9) | < LLD | (0 /3) | 35 66 |
| | | | | | | 66 < LLD (0 /5) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CO-60 3 5.00E+02 | < LLD | (0 /2) | < LLD | (0 /1) | 35 66 |
| | | | | | | 66 < LLD (0 /1) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|----------------------------------|---------------------------------|--|--|-------------------------------------|
| | | | STATION | STATION: MEAN(N/TOTAL) RANGE | STATION | STATION: MEAN(N/TOTAL) RANGE | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CO-57 | 6 | 1.43E+01 | < LLD (0 /4) | < LLD (0 /2) | 35 66 |
| | | | | | | 66 < LLD (0 /2) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | I-133 | 6 | 1.02E+05 | < LLD (0 /4) | < LLD (0 /2) | 35 66 |
| | | | | | | 66 < LLD (0 /2) | |
| CABBAGE (PCI/KG(WET)) | GAMMA | CS-137 | 12 | 2.06E+01 | 3.64E+01 (6 /9) (2.17E+01 - 5.20E+01) | < LLD (0 /3) | 35 66 |
| | | | | | | 66 3.72E+01(3 /5) (2.17E+01 - 5.20E+01) | |
| KALE (PCI/KG(WET)) | GAMMA | CE-144 | 4 | 1.14E+02 | < LLD (0 /4) | * (* /*) | 35 66 |
| | | | | | | (* - *) | |
| KALE (PCI/KG(WET)) | GAMMA | AG-110M | 2 | 3.71E+01 | < LLD (0 /2) | * (* /*) | 35 66 |
| | | | | | | (* - *) | |
| KALE (PCI/KG(WET)) | GAMMA | TE-129M | 2 | 3.00E+04 | < LLD (0 /2) | * (* /*) | 35 66 |
| | | | | | | (* - *) | |
| | | | | | | 66 < LLD (0 /1) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|-----------------------|-------------------------|--------|-----------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------------|-------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| KALE (PCI/KG(WET)) | GAMMA | CS-134 | 4 | 2.03E+01 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | CO-58 | 4 | 2.20E+01 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | MN-54 | 4 | 2.09E+01 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | FE-59 | 4 | 4.99E+01 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | CS-136 | 2 | 4.14E+01 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | TE-132 | 2 | 9.86E+01 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| | | | | | | | 66 < LLD (0 /1) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|----------|----------------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| KALE (PCI/KG(WET)) | GAMMA | ZN-65 | 4 | 5.34E+01 | < LLD | (0 /4) | " (* /") | 35 66 | |
| | | | | | | 66 < LLD (0 /2) | (" - ") | | |
| KALE (PCI/KG(WET)) | GAMMA | CO-60 | 4 | 2.28E+01 | < LLD | (0 /4) | " (* /") | 35 66 | |
| | | | | | | 66 < LLD (0 /2) | (" - ") | | |
| KALE (PCI/KG(WET)) | GAMMA | K-40 | 4 | 2.95E+02 | 4.05E+03 (4 /4) | " (* /") | 35 66 | | |
| | | | | | (2.86E+03 - 5.50E+03) | (" - ") | | | |
| KALE (PCI/KG(WET)) | GAMMA | BE-7 | 4 | 1.85E+02 | 6.23E+02 (3 /4) | " (* ;") | 35 66 | | |
| | | | | | (3.18E+02 - 8.20E+02) | (" - ") | | | |
| KALE (PCI/KG(WET)) | GAMMA | ZR-95 | 4 | 3.85E+01 | < LLD | (0 /4) | " (* /") | 35 66 | |
| | | | | | | 66 < LLD (0 /2) | (" - ") | | |
| KALE (PCI/KG(WET)) | GAMMA | NB-95 | 4 | 2.24E+01 | < LLD | (0 /4) | " (* /") | 35 66 | |
| | | | | | | 66 < LLD (0 /2) | (" - ") | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | RANGE | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED |
|-----------------------|------------------|--------|-----------|----------|-------------------------|---------|--------------------------|-----------------------|---------------|
| | | | | | | | RANGE | | |
| | | | ANALYSES | | | | STATION | STATION-MEAN(N/TOTAL) | |
| | | | PERFORMED | | | | | RANGE | |
| KALE (PCI/KG(WET)) | GAMMA | SB-125 | 2 | 7.36E+01 | < LLD | {0 /2 } | | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | CE-141 | 4 | 3.08E+01 | < LLD | {0 /4 } | 66 < LLD (0 /1) | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | RU-103 | 4 | 2.23E+01 | < LLD | {0 /4 } | 66 < LLD (0 /2) | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | CR-51 | 2 | 2.33E+02 | < LLD | {0 /2 } | 66 < LLD (0 /2) | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | BA-140 | 4 | 9.47E+01 | < LLD | {0 /4 } | 66 < LLD (0 /1) | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | LA-140 | 4 | 3.56E+01 | < LLD | {0 /4 } | 66 < LLD (0 /2) | * (* /*) | 35 66 |
| | | | | | | | (* - *) | | |
| | | | | | | | 66 < LLD (0 /2) | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|-----------------------|-------------------------|-----------------------|-----|-------------------------------|--------------------------------|-----------------------------|----------------------------------|-------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| KALE (PCI/KG(WET)) | GAMMA | AC-228 | 2 | 1.20E+02 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | RA-224 | 2 | 2.26E+03 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | RA-226 | 4 | 3.89E+02 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | TH-228 | 2 | 2.15E+01 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | I-131 | 4 | 4.86E+01 | < LLD | (0 /4) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| KALE (PCI/KG(WET)) | GAMMA | NA-22 | 2 | 3.43E+01 | < LLD | (0 /2) | " (* /") | 35 66 |
| | | | | | | | (" - ") | |
| | | | | | | | 66 < LLD (0 /1) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|------------------------------------|--|--|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| KALE (PCI/KG(WET)) | GAMMA | RU-106 4 1.76E+02 | < LLD | (0 /4) | * (* /*) | 35 66 | |
| | | | | 66 < LLD (0 /2) | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | CO-57 2 1.86E+01 | < LLD | (0 /2) | * (* /*) | 35 66 | |
| | | | | 66 < LLD (0 /1) | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | I-133 2 7.13E+03 | < LLD | (0 /2) | * (* /*) | 35 66 | |
| | | | | 66 < LLD (0 /1) | (* - *) | | |
| KALE (PCI/KG(WET)) | GAMMA | CS-137 4 1.85E+01 | 1.09E+02 (2 /4) (9.90E+01 - 1.20E+02) | * (* /*) | 35 66 | | |
| | | | | 35 1.09E+02(2 /2) (9.90E+01 - 1.20E+02) | (* - *) | | |
| SURFACE WATER (PCI/L) | GAMMA | CE-144 102 2.97E+01 | < LLD | (0 /78) | < LLD (0 /24) | 23 24 25 32 33 | |
| | | | | 93 < LLD (0 /13) | | 93 | |
| SURFACE WATER (PCI/L) | GAMMA | AG-110M 24 3.43E+00 | < LLD | (0 /18) | < LLD (0 /6) | 23 24 25 32 33 | |
| | | | | 93 < LLD (0 /3) | | 93 | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | | |
|---------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|----------|----------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | | | |
| SURFACE WATER (PCI/L) | GAMMA | TE-129M | 24 | 6.68E+03 | < LLD | (0 /18) | < LLD | (0 /6) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /3) | | |
| SURFACE WATER (PCI/L) | GAMMA | CS-134 | 102 | 3.89E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | CO-58 | 102 | 3.81E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | MN-54 | 102 | 3.59E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | FE-59 | 102 | 8.35E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | CS-136 | 16 | 5.30E+00 | < LLD | (0 /12) | < LLD | (0 /4) | 23 24 25 32 33 93 |
| | | | | | | | 93 < LLD (0 /2) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|----------|---------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SURFACE WATER (PCI/L) | GAMMA | TE-132 | 24 | 1.66E+01 | < LLD | (0 /18) | < LLD | (0 /6) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 /3) | 93 | |
| SURFACE WATER (PCI/L) | GAMMA | ZN-65 | 102 | 7.98E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 /13) | 93 | |
| SURFACE WATER (PCI/L) | GAMMA | CO-60 | 102 | 3.90E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 /13) | 93 | |
| SURFACE WATER (PCI/L) | GAMMA | K-40 | 102 | 7.45E+01 | 1.96E+02 (67 /78) | (9.10E+01 - 2.53E+02) | 2.46E+02(22 /24) | | 23 24 25 32 33 |
| | | | | | | | 25 2.23E+02(11 /13) | (1.70E+02 - 3.50E+02) | 93 |
| SURFACE WATER (PCI/L) | GAMMA | BE-7 | 102 | 3.78E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 /13) | 93 | |
| SURFACE WATER (PCI/L) | GAMMA | ZR-95 | 102 | 7.80E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 /13) | 93 | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | | | | | | |
|---------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|----------|----|----|----|----|----|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | 23 | 24 | 25 | 32 | 33 | | |
| SURFACE WATER (PCI/L) | GAMMA | NB-95 | 102 | 4.13E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | SB-125 | 24 | 9.61E+00 | < LLD | (0 /18) | < LLD | (0 /6) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | CE-141 | 102 | 8.71E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | RU-103 | 102 | 4.82E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | CR-51 | 24 | 3.33E+01 | < LLD | (0 /18) | < LLD | (0 /6) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | BA-140 | 102 | 2.16E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|---------------------------|-------------------------|------------------------------------|----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|----------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| SURFACE WATER (PCI/L) | GAMMA | LA-140 | 102 8.23E+00 | < LLD | (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | I-135 | 8 6.09E+08 | < LLD | (0 /6) | < LLD (0 /2) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /1) | | |
| SURFACE WATER (PCI/L) | GAMMA | AC-228 | 24 1.43E+01 | < LLD | (0 /18) | < LLD (0 /6) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /3) | | |
| SURFACE WATER (PCI/L) | GAMMA | RA-224 | 16 4.19E+02 | < LLD | (0 /12) | < LLD (0 /4) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /2) | | |
| SURFACE WATER (PCI/L) | GAMMA | RA-226 | 102 8.80E+01 | < LLD | (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /13) | | |
| SURFACE WATER (PCI/L) | GAMMA | TH-228 | 78 7.98E+00 | < LLD | (0 /50) | < LLD (0 /18) | 23 24 25 32 33 93 |
| | | | | | 93 < LLD (0 /10) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD (#) OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | | | | | | | |
|---------------------------|-------------------------|---|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|-------|----------|----|----|----|----|----|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | 23 | 24 | 25 | 32 | 33 | | | |
| SURFACE WATER (PCI/L) | GAMMA | I-131 | 102 | 3.84E+01 | < LLD | (0 /78) | | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /13) | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | NA-22 | 16 | 3.99E+00 | < LLD | (0 /12) | | < LLD | (0 /4) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /2) | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | NP-239 | 8 | 1.23E+02 | < LLD | (0 /6) | | < LLD | (0 /2) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /1) | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | RU-106 | 102 | 3.33E+01 | < LLD | (0 /78) | | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /13) | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | CD-109 | 8 | 1.04E+02 | < LLD | (0 /6) | | < LLD | (0 /2) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /1) | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | CO-57 | 24 | 3.13E+00 | < LLD | (0 /18) | | < LLD | (0 /6) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | 93 | < LLD | (0 /3) | | | | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD INDICATOR-MEAN(N/TOTAL) OF ANALYSES PERFORMED | RANGE | | | BACKGROUND-MEAN(N/TOTAL) RANGE | | | STATIONS USED FOR INDICATOR MEAN | | | | |
|------------------------------|-------------------------|--|----------|--------------------------------|-------------------------|-----------------------------------|-------|----------|-------------------------------------|----|----|----|----|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | | | | | | | | |
| SURFACE WATER (PCI/L) | GAMMA | I-133 | 24 | 3.42E+03 | < LLD | (0 /18) | < LLD | (0 /6) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | GAMMA | CS-137 | 102 | 3.87E+00 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 |
| | | | | | | | | | 93 | | | | |
| SURFACE WATER (PCI/L) | TRITIUM | 102 | 9.20E+01 | 1.10E+02 (15 /78) | (6.10E+01 - 2.59E+02) | (6.24E+01 - 2.73E+02) | 93 | 23 | 24 | 25 | 32 | 33 | |
| | | | | | | | | 23 | | | | | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CE-144 | 2 | 1.23E+02 | < LLD | (0 /2) | * | (* /*) | 66 | | | | |
| | | | | | | | | | 66 | | | | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | AG-110M | 1 | 2.47E+01 | < LLD | (0 /1) | * | (* /*) | 66 | | | | |
| | | | | | | | | | 66 | | | | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | TE-129M | 1 | 2.42E+04 | < LLD | (0 /1) | * | (* /*) | 66 | | | | |
| | | | | | | | | | 66 | | | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CS-134 | 2 | 2.17E+01 | < LLD | (0 /2) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CO-58 | 2 | 2.26E+01 | < LLD | (0 /2) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | MN-54 | 2 | 2.17E+01 | < LLD | (0 /2) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | FE-59 | 2 | 5.26E+01 | < LLD | (0 /2) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | TE-132 | 1 | 7.61E+01 | < LLD | (0 /1) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | ZN-65 | 2 | 5.43E+01 | < LLD | (0 /2) | * (* /*) | 66 |
| | | | | | | | (* - *) | |
| | | | | | | | 66 < LLD (0 /2) | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|----------|---------|------------------------------|----------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CO-60 | 2 | 2.85E+01 | < LLD | (0 / 2) | * | (* / *) | 66 |
| | | | | | | | (* - *) | 66 < LLD (0 / 2) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | K-40 | 2 | 4.70E+02 | 6.33E+03 | (2 / 2) | * | (* / *) | 66 |
| | | | | | | | (6.26E+03 - 6.40E+03) | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | BE-7 | 2 | 1.50E+02 | 2.62E+02 | (2 / 2) | * | (* / *) | 66 |
| | | | | | | | (2.20E+02 - 3.04E+02) | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | ZR-95 | 2 | 3.99E+01 | < LLD | (0 / 2) | * | (* / *) | 66 |
| | | | | | | | (* - *) | 66 < LLD (0 / 2) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | NB-95 | 2 | 2.25E+01 | < LLD | (0 / 2) | * | (* / *) | 66 |
| | | | | | | | (* - *) | 66 < LLD (0 / 2) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | SB-125 | 1 | 5.98E+01 | < LLD | (0 / 1) | * | (* / *) | 66 |
| | | | | | | | (* - *) | 66 < LLD (0 / 1) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED |
|------------------------------|------------------|--------|-----------|----------|-------------------------|--------------------------|-----------------------|---------------|
| | | | | | | RANGE | RANGE | |
| | | | ANALYSES | | | STATION | STATION-MEAN(N/TOTAL) | |
| | | | PERFORMED | | | | RANGE | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CE-141 | 2 | 3.40E+01 | < LLD | (0 /2) | " (* /*) | 66 |
| | | | | | | | (" - ") | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | RU-103 | 2 | 2.13E+01 | < LLD | (0 /2) | 66 < LLD (0 /2) | 66 |
| | | | | | | | (" - ") | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CR-51 | 1 | 1.91E+02 | < LLD | (0 /1) | 66 < LLD (0 /2) | 66 |
| | | | | | | | (" - ") | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | BA-140 | 2 | 9.40E+01 | < LLD | (0 /2) | 66 < LLD (0 /1) | 66 |
| | | | | | | | (" - ") | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | LA-140 | 2 | 3.10E+01 | < LLD | (0 /2) | 66 < LLD (0 /2) | 66 |
| | | | | | | | (" - ") | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | I-135 | 1 | 5.94E+09 | < LLD | (0 /1) | 66 < LLD (0 /2) | 66 |
| | | | | | | | (" - ") | |
| | | | | | | | 66 < LLD (0 /1) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | AC-228 | 1 | 1.01E+02 | < LLD | (0 /1) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | RA-226 | 2 | 3.83E+02 | < LLD | (0 /2) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | TH-228 | 1 | 3.30E+01 | < LLD | (0 /1) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | I-131 | 2 | 4.10E+01 | < LLD | (0 /2) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | NP-239 | 1 | 8.70E+02 | < LLD | (0 /1) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | RU-106 | 2 | 1.83E+02 | < LLD | (0 /2) | " (* /") | 66 |
| | | | | | | | (* - *) | |
| | | | | | | | 66 < LLD (0 /2) ; | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CO-109 | 1 | 5.41E+02 | < LLD | (0 / 1) | * (* / *) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CO-57 | 1 | 1.61E+01 | < LLD | (0 / 1) | * (* / *) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | I-133 | 1 | 5.63E+03 | < LLD | (0 / 1) | * (* / *) | 66 |
| | | | | | | | (* - *) | |
| SWISS CHARD (PCI/KG(WET)) | GAMMA | CS-137 | 2 | 2.58E+01 | 3.20E+01 (1 / 2) | (3.20E+01 - 3.20E+01) | * (* / *) | 66 |
| | | | | | | | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | CE-144 | 1 | 3.50E+01 | * (* / *) | (* - *) | < LLD (0 / 1) | 66 |
| | | | | | | | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | CS-134 | 1 | 5.70E+00 | * (* / *) | (* - *) | < LLD (0 / 1) | 66 |
| | | | | | | | (* - *) | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|----------|---|-----|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SPINACH (PCI/KG(WET)) | GAMMA | CO-58 | 1 | 5.40E+00 | * (* / *) | < LLD (0 / 1) | | |
| | | | | | (* - *) | (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | MH-54 | 1 | 5.10E+00 | * (* / *) | < LLD (0 / 1) | | |
| | | | | | (* - *) | (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | FE-59 | 1 | 1.40E+01 | * (* / *) | < LLD (0 / 1) | | |
| | | | | | (* - *) | (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | ZN-65 | 1 | 1.40E+01 | * (* / *) | < LLD (0 / 1) | | |
| | | | | | (* - *) | (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | CO-60 | 1 | 5.60E+00 | * (* / *) | < LLD (0 / 1) | | |
| | | | | | (* - *) | (* - *) | | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|----------|---|----------|----------------------------------|--------------------------------|--|--|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION-MEAN(N/TOTAL) RANGE | | |
| SPINACH (PCI/KG(WET)) | GAMMA | K-40 1 | 3.50E+02 | * (* - *) | (* / *) (* - *) | 5.50E+03(1 / 1) (5.50E+03 - 5.50E+03) * (* / *) (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | BE-7 1 | 5.50E+01 | * (* - *) | (* / *) (* - *) | 1.30E+02(1 / 1) (1.30E+02 - 1.30E+02) * (* / *) (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | ZR-95 1 | 1.00E+01 | * (* - *) | (* / *) (* - *) | < LLD (0 / 1) * (* / *) (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | NB-95 1 | 5.50E+00 | * (* - *) | (* / *) (* - *) | < LLD (0 / 1) * (* / *) (* - *) | | |
| SPINACH (PCI/KG(WET)) | GAMMA | CE-141 1 | 8.90E+00 | * (* - *) | (* / *) (* - *) | < LLD (0 / 1) * (* / *) (* - *) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|------------------|--------|-----------|----------|-------------------------|---------|--------------------------|-----------------------|-------------------------------------|
| | | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| | | | ANALYSES | | | | | | |
| | | | PERFORMED | | | | | | |
| SPINACH (PCI/KG(WET)) | GAMMA | RU-103 | 1 | 5.00E+00 | * | (* /*) | < LLD | (0 /1) | |
| | | | | | (* - *) | * | (* /*) | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | BA-140 | 1 | 1.90E+01 | * | (* /*) | < LLD | (0 /1) | |
| | | | | | (* - *) | * | (* /*) | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | LA-140 | 1 | 5.70E+00 | * | (* /*) | < LLD | (0 /1) | |
| | | | | | (* - *) | * | (* /*) | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | RA-226 | 1 | 1.10E+02 | * | (* /*) | < LLD | (0 /1) | |
| | | | | | (* - *) | * | (* /*) | (* - *) | |
| SPINACH (PCI/KG(WET)) | GAMMA | TH-228 | 1 | 9.30E+00 | * | (* /*) | < LLD | (0 /1) | |
| | | | | | (* - *) | * | (* /*) | (* - *) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAS |
|--------------------------|-------------------------|---------|-------------------------|---------------------|--------------------------|-----------------------|----------------------------------|
| | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| | | | | | | | |
| SPINACH (PCI/KG(WET)) | GAMMA | I-131 | 1 9.10E+00 | * (* - *) | * (* / *) | < LLD (0 / 1) | |
| SPINACH (PCI/KG(WET)) | GAMMA | RU-106 | 1 4.50E+01 | * (* - *) | * (* / *) | < LLD (0 / 1) | |
| SPINACH (PCI/KG(WET)) | GAMMA | CS-137 | 1 5.00E+00 | * (* - *) | * (* / *) | < LLD (0 / 1) | |
| COLLARD (PCI/KG(WET)) | GAMMA | CE-144 | 17 8.88E+01 | < LLD (0 / 11) | | < LLD (0 / 6) | 35 66 |
| COLLARD (PCI/KG(WET)) | GAMMA | AG-110K | 5 2.05E+01 | < LLD (0 / 3) | | < LLD (0 / 5) | 35 66 |
| COLLARD (PCI/KG(WET)) | GAMMA | TE-129M | 5 1.73E+05 | < LLD (0 / 3) | | < LLD (0 / 2) | 35 66 |
| | | | | | | < LLD (0 / 1) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|------------------|--------|-----|-------------------------|----------------|--------------------------|-------------------------------------|----------------------------------|
| | | | | OF ANALYSES PERFORMED | RANGE | RANGE | STATION STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | CS-134 | 17 | 1.45E+01 | < LLD (0 /11) | < LLD (0 /6) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | CO-58 | 17 | 1.45E+01 | < LLD (0 /11) | < LLD (0 /6) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | MN-54 | 17 | 1.37E+01 | < LLD (0 /11) | < LLD (0 /6) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | FE-59 | 17 | 3.46E+01 | < LLD (0 /11) | < LLD (0 /6) | 35 66 | |
| | | | | | | 66 < LLD (0 /5) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | CS-136 | 4 | 3.02E+01 | < LLD (0 /3) | < LLD (0 /1) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | TE-132 | 5 | .32E+02 | < LLD (0 /3) | < LLD (0 /2) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |

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|--------------------------|----------|----------------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | ZN-65 | 17 | 3.55E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 | < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | CO-60 | 17 | 1.54E+01 | < LLD | (0 /11) | 3.40E+01(1 /6) | (3.40E+01 - 3.40E+01) | 35 66 |
| | | | | | | | 66 | < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | K-40 | 17 | 3.97E+02 | 4.49E+03 (11 /11) | (2.30E+03 - 7.40E+03) | 4.39E+03(6 /6) | (2.90E+03 - 5.60E+03) | 35 66 |
| | | | | | | | 66 | 5.23E+03(5 /5) | |
| | | | | | | | | (3.75E+03 - 7.40E+03) | |
| COLLARD (PCI/KG(WET)) | GAMMA | BE-7 | 17 | 1.35E+02 | 2.77E+02 (6 /11) | (1.50E+02 - 3.90E+02) | 5.10E+02(1 /6) | (5.10E+02 - 5.10E+02) | 35 66 |
| | | | | | | | 35 | 2.79E+02(5 /6) | |
| | | | | | | | | (1.50E+02 - 3.90E+02) | |
| COLLARD (PCI/KG(WET)) | GAMMA | ZR-95 | 17 | 2.79E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 | < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | NB-95 | 17 | 1.49E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 | < LLD (0 /5) | |

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|--------------------------|------------------|------------------------------|-------------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | SB-125 | 5 4.53E+01 | < LLD | (0 /3) | < LLD | (0 /2) | 35 66 |
| | | | | | | | 66 < LLD (0 /1) | |
| COLLARD (PCI/KG(WET)) | GAMMA | CE-141 | 17 2.56E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | RU-103 | 17 1.61E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | CR-51 | 5 1.58E+02 | < LLD | (0 /3) | < LLD | (0 /2) | 35 66 |
| | | | | | | | 66 < LLD (0 /1) | |
| COLLARD (PCI/KG(WET)) | GAMMA | BA-140 | 17 7.43E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | |
| COLLARD (PCI/KG(WET)) | GAMMA | LA-140 | 17 2.54E+01 | < LLD | (0 /11) | < LLD | (0 /6) | 35 66 |
| | | | | | | | 66 < LLD (0 /5) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | I-135 | 2 2.21E+10 | < LLD (0 /1) | < LLD (0 /1) | | 35 |
| | | | | | 35 < LLD (0 /1) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | AC-228 | 5 7.78E+01 | < LLD (0 /3) | < LLD (0 /2) | | 35 66 |
| | | | | | 66 < LLD (0 /1) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | RA-224 | 4 3.42E+03 | < LLD (0 /3) | < LLD (0 /1) | | 35 66 |
| | | | | | 66 < LLD (0 /1) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | RA-226 | 17 2.75E+02 | < LLD (0 /11) | < LLD (0 /6) | | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | TH-228 | 12 2.38E+01 | < LLD (0 /8) | < LLD (0 /4) | | 35 66 |
| | | | | | 66 < LLD (0 /4) | | |
| COLLARD (PCI/KG(WET)) | GAMMA | I-131 | 17 4.16E+01 | < LLD (0 /11) | < LLD (0 /6) | | 35 66 |
| | | | | | 66 < LLD (0 /5) | | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|---------------------------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | NA-22 4 1.95E+01 | < LLD | (0 /3) | < LLD | (0 /1) | 35 66 |
| COLLARD (PCI/KG(WET)) | GAMMA | NP-239 2 8.42E+02 | < LLD | (0 /1) | 66 < LLD (0 /1) | < LLD (0 /1) | 35 |
| COLLARD (PCI/KG(WET)) | GAMMA | RU-106 17 1.21E+02 | < LLD | (0 /11) | 35 < LLD (0 /1) | < LLD (0 /6) | 35 66 |
| COLLARD (PCI/KG(WET)) | GAMMA | CD-109 2 4.18E+02 | < LLD | (0 /1) | 66 < LLD (0 /5) | < LLD (0 /1) | 35 |
| COLLARD (PCI/KG(WET)) | GAMMA | CO-57 5 1.20E+01 | < LLD | (0 /3) | 35 < LLD (0 /1) | < LLD (0 /2) | 35 66 |
| COLLARD (PCI/KG(WET)) | GAMMA | I-133 5 2.30E+05 | < LLD | (0 /3) | 66 < LLD (0 /1) | < LLD (0 /2) | 35 66 |
| | | | | | 66 < LLD (0 /1) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------------|-------------------------|------------------------------------|---|--------------------------------|--|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| COLLARD (PCI/KG(WET)) | GAMMA | CS-137 17 1.45E+01 | 3.74E+01 (5 /11) (2.00E+01 - 5.10E+01) | < LLD (0 /6) | | 35 66 | |
| | | | | | 35 3.74E+01(5 /6) (2.00E+01 - 5.10E+01) | | |
| WELL WATER (PCI/L) | GAMMA | CE-144 77 3.23E+01 | < LLD (0 /64) | < LLD (0 /13) | | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | AG-110M 18 4.58E+00 | < LLD (0 /15) | < LLD (0 /3) | 22 < LLD (0 /12) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | TE-129M 18 3.12E+03 | < LLD (0 /15) | < LLD (0 /3) | 22 < LLD (0 /3) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | CS-134 77 4.51E+00 | < LLD (0 /64) | < LLD (0 /13) | 22 < LLD (0 /3) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | CO-58 77 4.17E+00 | < LLD (0 /64) | < LLD (0 /13) | 22 < LLD (0 /12) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | |

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 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | STATIONS USED FOR INDICATOR MEAN | OF ANALYSES PERFORMED | |
|------------------------|-------------------------|--------|----------------------------------|-----------------------------------|-------------------------------------|-----------------------|--------------------------------|
| | | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE |
| WELL WATER (PCI/L) | GAMMA | MN-54 | 77 3.91E+00 < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /12) |
| WELL WATER (PCI/L) | GAMMA | FE-59 | 77 9.00E+00 < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /12) |
| WELL WATER (PCI/L) | GAMMA | CS-136 | 13 6.93E+00 < LLD (0 /11) | < LLD (0 /2) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /2) |
| WELL WATER (PCI/L) | GAMMA | TE-132 | 18 1.47E+01 < LLD (0 /15) | < LLD (0 /3) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /3) |
| WELL WATER (PCI/L) | GAMMA | ZN-65 | 77 8.96E+00 < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /12) |
| WELL WATER (PCI/L) | GAMMA | CO-60 | 77 4.30E+00 < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | | |
| | | | | | | | 22 < LLD (0 /12) |

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 OYSTER CREEK NUCLEAR GENERATING STATION
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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------|------------------|------------------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WELL WATER (PCI/L) | GAMMA | K-40 | 77 | 6.40E+01 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | BE-7 | 77 | 4.10E+01 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | ZR-95 | 77 | 8.58E+00 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | NB-95 | 77 | 4.53E+00 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | SB-125 | 18 | 1.32E+01 | < LLD (0 /15) | < LLD (0 /3) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /3) | | | |
| WELL WATER (PCI/L) | GAMMA | CE-141 | 77 | 9.27E+00 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| | | | | | 22 < LLD (0 /12) | | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|---------------------|-------------------------|--------|-----------------------|-------------------------------|--------------------------------|-----------------------------|----------------------------------|---------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| WELL WATER (PCI/L) | GAMMA | RU-103 | 77 | 5.18E+00 | < LLD | (0 /64) | < LLD (0 /13) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /12) | |
| WELL WATER (PCI/L) | GAMMA | CR-51 | 18 | 4.36E+01 | < LLD | (0 /15) | < LLD (0 /3) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /3) | |
| WELL WATER (PCI/L) | GAMMA | BA-140 | 77 | 2.21E+01 | < LLD | (0 /64) | < LLD (0 /13) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /12) | |
| WELL WATER (PCI/L) | GAMMA | LA-140 | 77 | 8.53E+00 | < LLD | (0 /64) | < LLD (0 /13) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /12) | |
| WELL WATER (PCI/L) | GAMMA | I-135 | 6 | 1.85E+09 | < LLD | (0 /5) | < LLD (0 /1) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /1) | |
| WELL WATER (PCI/L) | GAMMA | AC-228 | 18 | 1.82E+01 | < LLD | (0 /15) | < LLD (0 /3) | 1 19 20 21 22 |
| | | | | | | | 22 < LLD (0 /3) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN | | |
|--------------------|-------------------------|--------|-------------------------|----------|--------------------------|-------------------|----------------------------------|----------|---------------|
| | | | OF ANALYSES PERFORMED | RANGE | RANGE | RANGE | | | |
| | | | | STATION | STATION-MEAN(N/TOTAL) | | | | |
| | | | | | RANGE | | | | |
| WELL WATER (PCI/L) | GAMMA | RA-224 | 13 | 3.57E+02 | < LLD | (0 /11) | < LLD | (0 /2) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /2) | | | |
| WELL WATER (PCI/L) | GAMMA | RA-226 | 77 | 9.76E+01 | < LLD | (0 /64) | < LLD | (0 /13) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | TH-228 | 59 | 8.29E+00 | < LLD | (0 /49) | < LLD | (0 /10) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /9) | | | |
| WELL WATER (PCI/L) | GAMMA | I-131 | 77 | 3.70E+01 | < LLD | (0 /64) | < LLD | (0 /13) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /12) | | | |
| WELL WATER (PCI/L) | GAMMA | NA-22 | 13 | 5.88E+00 | < LLD | (0 /11) | < LLD | (0 /2) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /2) | | | |
| WELL WATER (PCI/L) | GAMMA | NP-239 | 6 | 1.74E+02 | < LLD | (0 /5) | < LLD | (0 /1) | 1 19 20 21 22 |
| | | | | | | 22 < LLD (0 /1) | | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--------------------|------------------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WELL WATER (PCI/L) | GAMMA | RU-106 | 77 | 3.69E+01 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | CO-109 | 6 | 9.58E+01 | < LLD (0 /5) | < LLD (0 /1) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | CO-57 | 18 | 4.31E+00 | < LLD (0 /15) | < LLD (0 /3) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | I-133 | 18 | 7.72E+02 | < LLD (0 /15) | < LLD (0 /3) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | GAMMA | CS-137 | 77 | 4.29E+00 | < LLD (0 /64) | < LLD (0 /13) | 1 19 20 21 22 | |
| WELL WATER (PCI/L) | TRITIUM | 77 | 9.04E+01 | 1.22E+02 (6 /64) | 1.43E+02 (2 /13) | 1 19 20 21 22 | | |
| | | | | (7.95E+01 - 1.83E+02) | (1.15E+02 - 1.72E+02) | | | |
| | | | | | 19 1.83E+02 (1 /13) | | | |
| | | | | | (1.83E+02 - 1.83E+02) | | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CE-144 19 9.79E+01 | < LLD | (0 /14) | < LLD | (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | AG-110M 6 2.83E+01 | < LLD | (0 /4) | 93 < LLD (0 /7) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | TE-129M 6 3.58E+05 | < LLD | (0 /4) | 93 < LLD (0 /2) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CS-134 19 1.78E+01 | < LLD | (0 /14) | 93 < LLD (0 /2) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CO-58 19 1.67E+01 | < LLD | (0 /14) | 93 < LLD (0 /7) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | MN-54 19 1.56E+01 | < LLD | (0 /14) | 93 < LLD (0 /7) | < LLD (0 /5) | 33 93 |
| | | | | | 93 < LLD (0 /7) | | |

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|----------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | FE-59 19 3.99E+01 | < LLD | (0 /14) | < LLD | (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CS-136 4 6.28E+01 | < LLD | (0 /3) | 93 < LLD (0 /7) | < LLD (0 /1) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | TE-132 6 2.71E+02 | < LLD | (0 /4) | 93 < LLD (0 /2) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | ZN-65 19 4.07E+01 | < LLD | (0 /14) | 93 < LLD (0 /2) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CO-60 19 1.70E+01 | < LLD | (0 /14) | 33 < LLD (0 /7) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | K-40 19 2.98E+02 | 2.61E+03 (14 /14) | (1.95E+03 - 3.30E+03) | 93 < LLD (0 /7) | 2.89E+03(5 /5) | 33 93 |
| | | | | | 93 2.73E+03(7 /7) | (2.60E+03 - 3.20E+03) | |
| | | | | | | (2.20E+03 - 3.30E+03) | |

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|----------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | BE-7 19 | 1.50E+02 | < LLD (0 /14) | < LLD (0 /5) | 33 93 | |
| | | | | | 93 < LLD (0 /7) | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | ZR-95 19 | 3.25E+01 | < LLD (0 /14) | < LLD (0 /5) | 33 93 | |
| | | | | | 93 < LLD (0 /7) | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | NB-95 19 | 1.80E+01 | < LLD (0 /14) | < LLD (0 /5) | 33 93 | |
| | | | | | 93 < LLD (0 /7) | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | SB-125 6 | 7.50E+01 | < LLD (0 /4) | < LLD (0 /2) | 33 93 | |
| | | | | | 93 < LLD (0 /2) | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CE-141 19 | 3.04E+01 | < LLD (0 /14) | < LLD (0 /5) | 33 93 | |
| | | | | | 93 < LLD (0 /7) | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | RU-103 19 | 1.95E+01 | < LLD (0 /14) | < LLD (0 /5) | 33 93 | |
| | | | | | 93 < LLD (0 /7) | | |

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|----------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CR-51 6 2.80E+02 | < LLD | (0 /4) | < LLD | (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | BA-140 19 1.05E+02 | < LLD | (0 /14) | 93 < LLD (0 /2) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | LA-140 19 3.81E+01 | < LLD | (0 /14) | 93 < LLD (0 /7) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | I-135 2 4.35E+15 | < LLD | (0 /1) | 93 < LLD (0 /7) | < LLD (0 /1) | 33 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | AC-228 6 1.20E+02 | < LLD | (0 /4) | 33 < LLD (0 /1) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | RA-224 4 6.84E+03 | < LLD | (0 /3) | 93 < LLD (0 /2) | < LLD (0 /1) | 33 93 |
| | | | | | 93 < LLD (0 /2) | | |

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|----------------------------|-------------------------|------------------------------------|----------------------------------|-----------------------------------|--------------------------------|-------------------------------------|-------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | RA-226 | 19 3.11E+02 | < LLD | (0 /14) | < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | TH-228 | 13 1.68E+01 | < LLD | (0 /10) | 93 < LLD (0 /7) < LLD (0 /3) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | I-131 | 19 6.82E+01 | < LLD | (0 /14) | 93 < LLD (0 /5) < LLD (0 /5) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | NA-22 | 4 4.13E+01 | < LLD | (0 /3) | 93 < LLD (0 /7) < LLD (0 /1) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | NP-239 | 2 2.71E+03 | < LLD | (0 /1) | 93 < LLD (0 /2) < LLD (0 /1) | 33 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | RU-106 | 19 1.39E+02 | < LLD | (0 /14) | 33 < LLD (0 /1) < LLD (0 /5) | 33 93 |
| | | | | | | 93 < LLD (0 /7) | |

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|----------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CD-109 2 4.75E+02 | < LLD | (0 /1) | < LLD | (0 /1) | 33 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CO-57 6 2.02E+01 | < LLD | (0 /4) | 33 < LLD (0 /1) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | I-133 6 5.14E+05 | < LLD | (0 /4) | 93 < LLD (0 /2) | < LLD (0 /2) | 33 93 |
| BLUE CRAB (PCI/KG(WET)) | GAMMA | CS-137 19 1.67E+01 | < LLD | (0 /14) | 93 < LLD (0 /2) | < LLD (0 /5) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CE-144 8 7.40E+01 | < LLD | (0 /5) | 93 < LLD (0 /7) | < LLD (0 /3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | AG-110M 1 1.93E+01 | < LLD | (0 /1) | 93 < LLD (0 /3) | * (* /*) | 93 |
| | | | | | (* - *) | | |
| | | | | | 93 < LLD (0 /1) | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | TE-129M | 1 | 5.01E+05 | < LLD (0 / 1) | | (* - *) | 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CS-134 | 8 | 1.25E+01 | < LLD (0 / 5) | 93 | < LLD (0 / 1) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CO-58 | 8 | 1.26E+01 | < LLD (0 / 5) | 93 | < LLD (0 / 3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | MN-54 | 8 | 1.16E+01 | < LLD (0 / 5) | 93 | < LLD (0 / 3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | FE-59 | 8 | 3.28E+01 | < LLD (0 / 5) | 93 | < LLD (0 / 3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | TE-132 | 1 | 2.36E+02 | < LLD (0 / 1) | 93 | (* - *) | 93 |
| | | | | | | 93 | < LLD (0 / 1) | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|----------|---|----------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | ZN-65 8 | 2.89E+01 | < LLD | (0 /5) | < LLD | (0 /3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CO-60 8 | 1.17E+01 | < LLD | (0 /5) | 93 < LLD (0 /3) | < LLD (0 /3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | K-40 8 | 4.41E+02 | 3.91E+03 (5 /5) | (3.60E+03 - 4.10E+03) | 93 < LLD (0 /3) | 3.60E+03(3 /3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | BE-7 8 | 1.22E+02 | < LLD | (0 /5) | 33 3.95E+03(2 /2) | (3.40E+03 - 3.90E+03) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | ZR-95 8 | 2.58E+01 | < LLD | (0 /5) | 93 < LLD (0 /3) | < LLD (0 /3) | 33 93 |
| BLUEFISH (PCI/KG(WET)) | GAMMA | NB-95 8 | 1.35E+01 | < LLD | (0 /5) | 93 < LLD (0 /3) | < LLD (0 /3) | 33 93 |
| | | | | | | 93 < LLD (0 /3) | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | SB-125 | 1 | 4.01E+01 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CE-141 | 8 | 2.33E+01 | < LLD | (0 /5) | < LLD (0 /1) | 33 93 |
| | | | | | | | < LLD (0 /3) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | RU-103 | 8 | 1.56E+01 | < LLD | (0 /5) | < LLD (0 /3) | 33 93 |
| | | | | | | | < LLD (0 /3) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CR-51 | 1 | 1.67E+02 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | BA-140 | 8 | 8.19E+01 | < LLD | (0 /5) | < LLD (0 /1) | 33 93 |
| | | | | | | | < LLD (0 /3) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | LA-140 | 8 | 2.81E+01 | < LLD | (0 /5) | < LLD (0 /3) | 33 93 |
| | | | | | | | < LLD (0 /3) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | I-135 | 1 | 8.80E+16 | < LLC | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | AC-228 | 1 | 6.95E+01 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | RA-226 | 8 | 2.09E+02 | < LLD | (0 /5) | < LLD (0 /3) | 33 93 |
| | | | | | | | 93 < LLD (0 /3) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | TH-228 | 7 | 1.97E+01 | < LLD | (0 /4) | < LLD (0 /3) | 33 93 |
| | | | | | | | 93 < LLD (0 /2) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | I-131 | 8 | 5.81E+01 | < LLD | (0 /5) | < LLD (0 /3) | 33 93 |
| | | | | | | | 93 < LLD (0 /3) | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | NP-239 | 1 | 4.91E+03 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| | | | | | | | < LLD (0 /1) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | RU-106 | 8 | 1.03E+02 | < LLD (0 /5) | < LLD (0 /3) | 33 93 | |
| | | | | | | 93 < LLD (0 /3) | | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CD-109 | 1 | 3.69E+02 | < LLD (0 /1) | * (* /*) (* - *) | 93 | |
| | | | | | | 93 < LLD (0 /1) | | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CO-57 | 1 | 1.17E+01 | < LLD (0 /1) | * (* /*) (* - *) | 93 | |
| | | | | | | 93 < LLD (0 /1) | | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | I-133 | 1 | 1.07E+06 | < LLD (0 /1) | * (* /*) (* - *) | 93 | |
| | | | | | | 93 < LLD (0 /1) | | |
| BLUEFISH (PCI/KG(WET)) | GAMMA | CS-137 | 8 | 1.38E+01 | < LLD (0 /5) | 1.65E+01(2 /3) (1.60E+01 - 1.70E+01) | 33 93 | |
| | | | | | | 93 < LLD (0 /3) | | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CE-144 | 7 | 8.19E+01 | < LLD (0 /5) | < LLD (0 /2) | 93 | |
| | | | | | | 93 < LLD (0 /5) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|----------|---|----------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | AG-110M 1 | 3.22E+01 | < LLD | (0 /1) | | * (* /*) | 93 |
| | | | | | | (* - *) | | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | TE-129M 1 | 8.16E+05 | < LLD | (0 /1) | 93 | < LLD (0 /1) | 93 |
| | | | | | | (* - *) | | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CS-134 7 | 1.27E+01 | < LLD | (0 /5) | 93 | < LLD (0 /2) | 93 |
| | | | | | | | | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CO-58 7 | 1.32E+01 | < LLD | (0 /5) | 93 | < LLD (0 /5) | 93 |
| | | | | | | | < LLD (0 /2) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | MN-54 7 | 1.20E+01 | < LLD | (0 /5) | 93 | < LLD (0 /5) | 93 |
| | | | | | | | < LLD (0 /2) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | FE-59 7 | 3.50E+01 | < LLD | (0 /5) | 93 | < LLD (0 /5) | 93 |
| | | | | | | | < LLD (0 /2) | |
| | | | | | | 93 | < LLD (0 /5) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|----------|---|-----|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | TE-132 | 1 | 3.80E+02 | < LLD | (0 / 1) | * (* / *) | 93 |
| | | | | | | | (* - *) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | ZW-65 | 7 | 3.27E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 1) | 93 |
| | | | | | | | < LLD (0 / 2) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CO-60 | 7 | 1.49E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 5) | 93 |
| | | | | | | | < LLD (0 / 2) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | K-40 | 7 | 3.71E+02 | 3.98E+03 (5 / 5) | (3.50E+03 - 4.30E+03) | 93 < LLD (0 / 5) | 93 |
| | | | | | | | 4.05E+03(2 / 2) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | BE-7 | 7 | 1.21E+02 | < LLD | (0 / 5) | 93 3.98E+03(5 / 5) | 93 |
| | | | | | | | (3.50E+03 - 4.30E+03) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | ZR-95 | 7 | 2.71E+01 | < LLD | (0 / 5) | < LLD (0 / 2) | 93 |
| | | | | | | | < LLD (0 / 5) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------------|------------------|--------|-----|-------------------------|---------------|--------------------------|-----------------------|----------------------------------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | NB-95 | 7 | 1.46E+01 | < LLD (0 /5) | < LLD (0 /2) | 93 | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | SB-125 | 1 | 7.45E+01 | < LLD (0 /1) | < LLD (0 /5) | 93 | (* - *) |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CE-141 | 7 | 2.55E+01 | < LLD (0 /5) | < LLD (0 /1) | 93 | (* - *) |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | RU-103 | 7 | 1.57E+01 | < LLD (0 /5) | < LLD (0 /2) | 93 | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | CR-51 | 1 | 3.03E+02 | < LLD (0 /1) | < LLD (0 /5) | 93 | (* - *) |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA | BA-140 | 7 | 8.63E+01 | < LLD (0 /5) | < LLD (0 /1) | 93 | (* - *) |
| | | | | | | < LLD (0 /2) | 93 | |
| | | | | | | < LLD (0 /5) | 93 | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | LA-140 | 7 | 3.19E+01 | < LLD (0 /5) | < LLD (0 /2) | | 93 |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | T-135 | 1 | 1.25E+17 | < LLD (0 /1) | < LLD (0 /5) | 93 (* - *) | 93 |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | AC-228 | 1 | 1.40E+02 | < LLD (0 /1) | < LLD (0 /1) | 93 (* - *) | 93 |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | RA-226 | 7 | 2.32E+02 | < LLD (0 /5) | < LLD (0 /2) | 93 | 93 |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | TH-228 | 6 | 1.64E+01 | < LLD (0 /4) | < LLD (0 /2) | 93 | 93 |
| SUMMER FLOUNDER GAMMA (PCI/KG(WET)) | I-131 | 7 | 5.67E+01 | < LLD (0 /5) | < LLD (0 /2) | 93 | 93 |
| | | | | | | 93 | 93 |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | BACKGROUND-MEAN(N/TOTAL); RANGE | STATIONS USED FOR INDICATOR MEAN | OF | STATION | STATION-MEAN(N/TOTAL) |
|----------------------------------|-------------------------|-----|-------------------------------------|--|-------------------------------------|-----------------------|--|-----------------------|
| | | | | | | ANALYSES PERFORMED | | RANGE |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA NP-239 | 1 | 8.33E+03 < LLD (0 /1) | * (* /*) (* - *) | 93 | 1 | < LLD (0 /1) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA RU-106 | 7 | 1.09E+02 < LLD (0 /5) | < LLD (0 /2) | 93 | 7 | < LLD (0 /5) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA CD-109 | 1 | 6.52E+02 < LLD (0 /1) | * (* /*) (* - *) | 93 | 1 | < LLD (0 /1) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA CO-57 | 1 | 2.14E+01 < LLD (0 /1) | * (* /*) (* - *) | 93 | 1 | < LLD (0 /1) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA I-133 | 1 | 1.69E+06 < LLD (0 /1) | * (* /*) (* - *) | 93 | 1 | < LLD (0 /1) | |
| SUMMER FLOUNDER (PCI/KG(WET)) | GAMMA CS-137 | 7 | 1.49E+01 (1.30E+01 - 1.60E+01) | 1.60E+01(1 /2) (1.60E+01 - 1.60E+01) | 93 | 7 | 1.45E+01(2 /5) (1.30E+01 - 1.60E+01) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CLAMS (PCI/KG(WET)) | GAMMA | CE-144 63 8.08E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | AG-110M 15 1.56E+01 | < LLD | (0 /9) | < LLD | (0 /6) | 23 24 25 |
| | | | | 25 < LLD (0 /3) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | TE-123M 15 4.84E+04 | < LLD | (0 /9) | < LLD | (0 /6) | 23 24 25 |
| | | | | 25 < LLD (0 /3) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CS-134 63 1.25E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CO-58 63 1.24E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | MN-54 63 1.13E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |

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|------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CLAMS (PCI/KG(WET)) | GAMMA | FE-59 63 2.92E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CS-136 10 2.55E+01 | < LLD | (0 /6) | < LLD | (0 /4) | 23 24 25 |
| | | | | 25 < LLD (0 /2) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | TE-132 15 7.86E+01 | < LLD | (0 /9) | < LLD | (0 /6) | 23 24 25 |
| | | | | 25 < LLD (0 /3) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | ZN-65 63 2.79E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CO-60 63 1.36E+01 | 1.60E+01 | (1 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | (1.60E+01 - 1.60E+01) | | | | |
| | | | | 24 1.60E+01(1 /13) | | | |
| | | | | (1.60E+01 - 1.60E+01) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | K-40 63 2.75E+02 | 1.16E+03 | (39 /39) | 1.29E+03 | (24 /24) | 23 24 25 |
| | | | (6.50E+02 - 1.80E+03) | | (5.33E+02 - 2.10E+03) | | |
| | | | | 25 1.19E+03(13 /13) | | | |
| | | | | (6.50E+02 - 1.80E+03) | | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN | |
|------------------------|------------------|-----------------------|-----|-------------------------|---------|--------------------------|-----------------------|----------------------------------|----------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | | |
| | | OF ANALYSES PERFORMED | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | BE-7 | 63 | 1.18E+02 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | ZR-95 | 63 | 2.46E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | NB-95 | 63 | 1.31E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | SB-125 | 15 | 3.95E+01 | < LLD | (0 /9) | < LLD | (0 /6) | 23 24 25 |
| | | | | | | 25 < LLD (0 /3) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CE-141 | 63 | 2.59E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | 25 < LLD (0 /13) | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | RU-103 | 63 | 1.50E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | 25 < LLD (0 /13) | | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| CLAMS (PCI/KG(WET)) | GAMMA | CR-51 15 1.35E+02 | < LLD | (0 /9) | < LLD | (0 /6) | 23 24 25 |
| CLAMS (PCI/KG(WET)) | GAMMA | BA-140 63 8.41E+01 | < LLD | (0 /39) | 25 < LLD (0 /3) | < LLD (0 /24) | 23 24 25 |
| CLAMS (PCI/KG(WET)) | GAMMA | LA-140 63 3.28E+01 | < LLD | (0 /39) | 25 < LLD (0 /13) | < LLD (0 /24) | 23 24 25 |
| CLAMS (PCI/KG(WET)) | GAMMA | I-135 5 2.84E+12 | < LLD | (0 /3) | 25 < LLD (0 /13) | < LLD (0 /2) | 23 24 25 |
| CLAMS (PCI/KG(WET)) | GAMMA | AC-228 15 6.39E+01 | < LLD | (0 /9) | 25 < LLD (0 /1) | < LLD (0 /6) | 23 24 25 |
| CLAMS (PCI/KG(WET)) | GAMMA | RA-224 10 1.65E+03 | < LLD | (0 /6) | 25 < LLD (0 /3) | < LLD (0 /4) | 23 24 25 |
| | | | | | 25 < LLD (0 /2) | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|------------------------|-------------------------|--------|-----------------------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|----------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| CLAMS (PCI/KG(WET)) | GAMMA | RA-226 | 63 | 2.36E+02 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | TH-228 | 48 | 1.95E+01 | < LLD | (0 /30) | < LLD | (0 /18) | 23 24 25 |
| | | | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | I-131 | 63 | 6.57E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | NA-22 | 10 | 2.01E+01 | < LLD | (0 /6) | < LLD | (0 /4) | 23 24 25 |
| | | | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | NP-239 | 5 | 1.22E+03 | < LLD | (0 /3) | < LLD | (0 /2) | 23 24 25 |
| | | | | | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | RU-106 | 63 | 9.91E+01 | < LLD | (0 /39) | < LLD | (0 /24) | 23 24 25 |
| | | | | | | | | | |
| | | | | | | | | | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------|------------------|---------|-----------------------|-------------------------|---|--------------------------|--|----------------------------------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| | | | OF ANALYSES PERFORMED | | | | | |
| CLAMS (PCI/KG(WET)) | GAMMA | CO-109 | 5 | 3.54E+02 | < LLD (0 / 3) | | < LLD (0 / 2) | 23 24 25 |
| | | | | | | 25 | < LLD (0 / 1) | |
| CLAMS (PCI/KG(WET)) | GAMMA | CO-57 | 15 | 1.08E+01 | < LLD (0 / 9) | | < LLD (0 / 6) | 23 24 25 |
| | | | | | | 25 | < LLD (0 / 3) | |
| CLAMS (PCI/KG(WET)) | GAMMA | I-133 | 15 | 3.24E+04 | < LLD (0 / 9) | | < LLD (0 / 6) | 23 24 25 |
| | | | | | | 25 | < LLD (0 / 3) | |
| CLAMS (PCI/KG(WET)) | GAMMA | CS-137 | 63 | 1.23E+01 | 1.60E+01 (1 / 39) (1.60E+01 - 1.60E+01) | | < LLD (0 / 24) | 23 24 25 |
| | | | | | | 23 | 1.60E+01(1 / 13) (1.60E+01 - 1.60E+01) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CE-144 | 8 | 1.08E+02 | < LLD (0 / 5) | | < LLD (0 / 3) | 93 |
| | | | | | | 93 | < LLD (0 / 5) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | AG-110M | 2 | 2.89E+01 | < LLD (0 / 1) | | < LLD (0 / 1) | 93 |
| | | | | | | 93 | < LLD (0 / 1) | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|-------------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| TAUTOG (PCI/KG(WET)) | GAMMA | TE-129M | 2 | 6.45E+05 | < LLD (0 / 1) | < LLD (0 / 1) | 93 | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CS-134 | 8 | 1.84E+01 | < LLD (0 / 5) | 93 < LLD (0 / 1) < LLD (0 / 3) | 93 | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CO-58 | 8 | 1.83E+01 | < LLD (0 / 5) | 93 < LLD (0 / 5) < LLD (0 / 3) | 93 | |
| TAUTOG (PCI/KG(WET)) | GAMMA | MN-54 | 8 | 1.73E+01 | < LLD (0 / 5) | 93 < LLD (0 / 5) < LLD (0 / 3) | 93 | |
| TAUTOG (PCI/KG(WET)) | GAMMA | FE-59 | 8 | 4.52E+01 | < LLD (0 / 5) | 93 < LLD (0 / 5) < LLD (0 / 3) | 93 | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CS-136 | 2 | 5.85E+01 | < LLD (0 / 1) | 93 < LLD (0 / 5) < LLD (0 / 1) | 93 | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------|----------|---|----------|--|--------------------------------|--|---|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| TAUTOG (PCI/KG(WET)) | GAMMA | TE-132 2 | 3.57E+02 | < LLD | (0 / 1) | < LLD | (0 / 1) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | ZN-65 8 | 4.41E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 1) | < LLD (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | CO-60 8 | 1.88E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 5) | < LLD (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | K-40 8 | 4.40E+02 | 4.18E+03 (4 / 5) (3.40E+03 - 4.60E+03) | | 93 < LLD (0 / 5) | 4.03E+03(3 / 3) (3.90E+03 - 4.20E+03) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | BE-7 8 | 1.71E+02 | < LLD | (0 / 5) | 93 4.18E+03(4 / 5) (3.40E+03 - 4.60E+03) | < LLD (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | ZR-95 8 | 3.73E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 5) | < LLD (0 / 3) | 93 |
| | | | | | | 93 < LLD (0 / 5) | | |

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 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------|------------------|--------|--------------------|----------|-------------------------|----------|--------------------------|----------------|----------------------------------|
| | | | | | RANGE | | RANGE | | |
| | | | ANALYSES PERFORMED | | | STATION | STATION-MEAN(N/TOTAL) | | |
| | | | | | | | RANGE | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | NB-95 | 8 | 1.99E+01 | < LLD | (0 / 5) | < LLD | (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | SB-125 | 2 | 7.77E+01 | < LLD | (0 / 1) | 93 < LLD (0 / 5) | < LLD (0 / 1) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | CE-141 | 8 | 3.58E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 1) | < LLD (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | RU-103 | 8 | 2.19E+01 | < LLD | (0 / 5) | 93 < LLD (0 / 5) | < LLD (0 / 3) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | CR-51 | 2 | 2.93E+02 | < LLD | (0 / 1) | 93 < LLD (0 / 5) | < LLD (0 / 1) | 93 |
| TAUTOG (PCI/KG(WET)) | GAMMA | BA-140 | 8 | 1.30E+02 | < LLD | (0 / 5) | 93 < LLD (0 / 1) | < LLD (0 / 3) | 93 |
| | | | | | | | 93 < LLD (0 / 5) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| TAUTOG (PCI/KG(WET)) | GAMMA | LA-140 | 8 | 4.75E+01 | < LLD (0 /5) | < LLD (0 /3) | 93 | |
| | | | | | | 93 < LLD (0 /5) | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | AC-228 | 2 | 1.22E+02 | < LLD (0 /1) | < LLD (0 /1) | 93 | |
| | | | | | | 93 < LLD (0 /1) | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | RA-224 | 2 | 7.47E+03 | < LLD (0 /1) | < LLD (0 /1) | 93 | |
| | | | | | | 93 < LLD (0 /1) | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | RA-226 | 8 | 3.64E+02 | < LLD (0 /5) | < LLD (0 /3) | 93 | |
| | | | | | | 93 < LLD (0 /5) | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | TH-228 | 6 | 2.45E+01 | < LLD (0 /4) | < LLD (0 /2) | 93 | |
| | | | | | | 93 < LLD (0 /4) | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | I-131 | 8 | 8.95E+01 | < LLD (0 /5) | < LLD (0 /3) | 93 | |
| | | | | | | 93 < LLD (0 /5) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | |
|------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|-------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | | |
| TAUTOG (PCI/KG(WET)) | GAMMA | NA-22 | 2 | 3.47E+01 | < LLD | (0 /1) | < LLD | (0 /1) | 93 |
| | | | | | | | 93 | < LLD (0 /1) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | RU-106 | 8 | 1.55E+02 | < LLD | (0 /5) | < LLD | (0 /3) | 93 |
| | | | | | | | 93 | < LLD (0 /5) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CO-57 | 2 | 1.78E+01 | < LLD | (0 /1) | < LLD | (0 /1) | 93 |
| | | | | | | | 93 | < LLD (0 /1) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | I-133 | 2 | 1.10E+06 | < LLD | (0 /1) | < LLD | (0 /1) | 93 |
| | | | | | | | 93 | < LLD (0 /1) | |
| TAUTOG (PCI/KG(WET)) | GAMMA | CS-137 | 8 | 2.00E+01 | < LLD | (0 /5) | < LLD | (0 /3) | 93 |
| | | | | | | | 93 | < LLD (0 /5) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CE-144 | 3 | 5.13E+02 | < LLD | (0 /3) | * | (* /*) | 33 93 |
| | | | | | | | (* - *) | | |
| | | | | | | | 93 | < LLD (0 /2) | |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|----------|----------------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CS-134 | 3 | 7.23E+01 | < LLD | (0 /3) | | * (* /*) | 33 93 |
| | | | | | | | | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CO-58 | 3 | 7.27E+01 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | MN-54 | 3 | 7.13E+01 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | FE-59 | 3 | 1.73E+02 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | ZN-65 | 3 | 1.49E+02 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CO-60 | 3 | 7.00E+01 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | | (* - *) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|------------------|--------|-----|-------------------------|------------------------|--------------------------|-----------|----------------------------------|
| | | | | OF ANALYSES PERFORMED | RANGE | RANGE | RANGE | |
| | | | | STATION | STATION-MEAN(N/TOTAL) | | | |
| | | | | | RANGE | | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | K-40 | 3 | 2.10E+03 | 6.60E+03 (3 /3) | * (* /*) | 33 93 | |
| | | | | | (4.50E+03 - 1.00E+04) | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | BE-7 | 3 | 7.17E+02 | < LLD (0 /3) | 7.25E+03(2 /2) | 33 93 | |
| | | | | | | (4.50E+03 - 1.00E+04) | (* - *) | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | ZR-95 | 3 | 1.61E+02 | . LLD (0 /3) | < LLD (0 /2) | 33 93 | |
| | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | NB-95 | 3 | 8.33E+01 | < LLD (0 /3) | < LLD (0 /2) | 33 93 | |
| | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CE-141 | 3 | 1.70E+02 | < LLD (0 /3) | < LLD (0 /2) | 33 93 | |
| | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | RU-103 | 3 | 9.37E+01 | < LLD (0 /3) | < LLD (0 /2) | 33 93 | |
| | | | | | | (* - *) | | |
| | | | | | 93 | < LLD (0 /2) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|------------------|--------|-----------------------|----------|-------------------------|---------|--------------------------|-----------------------|-------------------------------------|
| | | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| | | | ANALYSES PERFORMED | | | | | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | BA-140 | 3 | 5.23E+02 | < LLD | (0 /3) | | * (* /*) | 33 93 |
| | | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | LA-140 | 3 | 2.13E+02 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | RA-226 | 3 | 1.41E+03 | < LLD | (0 /3) | 93 | * (* /*) | 33 93 |
| | | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | TH-228 | 3 | 1.32E+02 | < LLD | (0 /3) | 93 | < LLD (0 /2) | 33 93 |
| | | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | I-131 | 3 | 4.60E+02 | < LLD | (0 /3) | 93 | * (* /*) | 33 93 |
| | | | | | | | (* - *) | | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | RU-106 | 3 | 5.97E+02 | < LLD | (0 /3) | 93 | * (* /*) | 33 93 |
| | | | | | | | (* - *) | | |
| | | | | | | | 93 | < LLD (0 /2) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|------------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WHITE PERCH (PCI/KG(WET)) | GAMMA | CS-137 | 3 | 7.73E+01 | < LLD (0 /3) | " (* /*) | 33 93 | |
| | | | | | | (" - ") | | |
| | | | | | | 93 < LLD (0 /2) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | CE-144 | 9 | 9.14E+01 | < LLD (0 /6) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /3) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | AG-110M | 3 | 2.81E+01 | < LLD (0 /2) | < LLD (0 /1) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | TE-129M | 3 | 1.35E+07 | < LLD (0 /2) | < LLD (0 /1) | 35 66 | |
| | | | | | | 66 < LLD (0 /1) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | CS-134 | 9 | 1.63E+01 | < LLD (0 /6) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /3) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | CO-58 | 9 | 1.28E+01 | < LLD (0 /6) | < LLD (0 /3) | 35 66 | |
| | | | | | | 66 < LLD (0 /3) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SOIL (PCI/KG(DRY)) | GAMMA | MN-54 | 9 | 1.21E+01 | < LLD | (0 /6) | 1.30E+01(1 /3) | 35 66 |
| | | | | | | | (1.30E+01 - 1.30E+01) | |
| SOIL (PCI/KG(DRY)) | GAMMA | FE-59 | 9 | 3.10E+01 | < LLD | (0 /6) | < LLD (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /3) | |
| SOIL (PCI/KG(DRY)) | GAMMA | CS-136 | 3 | 4.29E+01 | < LLD | (0 /2) | < LLD (0 /1) | 35 66 |
| | | | | | | | 66 < LLD (0 /1) | |
| SOIL (PCI/KG(DRY)) | GAMMA | TE-132 | 3 | 1.17E+03 | < LLD | (0 /2) | < LLD (0 /1) | 35 66 |
| | | | | | | | 66 < LLD (0 /1) | |
| SOIL (PCI/KG(DRY)) | GAMMA | ZN-65 | 9 | 3.22E+01 | < LLD | (0 /6) | < LLD (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /3) | |
| SOIL (PCI/KG(DRY)) | GAMMA | CO-60 | 9 | 1.23E+01 | < LLD | (0 /6) | < LLD (0 /3) | 35 66 |
| | | | | | | | 66 < LLD (0 /3) | |

TABLE 10
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 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|-------------------------|-----------------------|-----|-------------------------------|--|--------------------------------|--|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SOIL (PCI/KG(DRY)) | GAMMA | K-40 | 9 | 2.10E+02 | 1.33E+03 (6 /6) (7.00E+02 - 2.10E+03) | 66 | 6.77E+03(3 /3) 1.52E+03(3 /3) (4.71E+03 - 8.00E+03) (8.60E+02 - 2.10E+03) | 35 66 |
| SOIL (PCI/KG(DRY)) | GAMMA | BE-7 | 9 | 1.37E+02 | 5.08E+02 (5 /6) (1.50E+02 - 1.10E+03) | 66 | < LLD (0 /3) 6.13E+02(3 /3) (3.40E+02 - 1.10E+03) | 35 66 |
| SOIL (PCI/KG(DRY)) | GAMMA | ZR-95 | 9 | 2.80E+01 | < LLD (0 /6) | 66 | < LLD (0 /3) < LLD (0 /3) | 35 66 |
| SOIL (PCI/KG(DRY)) | GAMMA | NB-95 | 9 | 1.69E+01 | < LLD (0 /6) | 66 | < LLD (0 /3) < LLD (0 /3) | 35 66 |
| SOIL (PCI/KG(DRY)) | GAMMA | SB-125 | 3 | 4.48E+01 | < LLD (0 /2) | 66 | < LLD (0 /1) < LLD (0 /1) | 35 66 |
| SOIL (PCI/KG(DRY)) | GAMMA | CE-141 | 9 | 3.26E+01 | < LLD (0 /6) | 66 | < LLD (0 /3) < LLD (0 /3) | 35 66 |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|-----------------------|------------------|--------|-----------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SOIL (PCI/KG(DRY)) | GAMMA | RU-103 | 9 | 1.69E+01 | < LLD | (0 /6) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 | < LLD (0 /3) | |
| SOIL (PCI/KG(DRY)) | GAMMA | CR-51 | 3 | 2.07E+02 | < LLD | (0 /2) | < LLD | (0 /1) | 35 66 |
| | | | | | | | 66 | < LLD (0 /1) | |
| SOIL (PCI/KG(DRY)) | GAMMA | BA-140 | 9 | 1.24E+02 | < LLD | (0 /6) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 | < LLD (0 /3) | |
| SOIL (PCI/KG(DRY)) | GAMMA | LA-140 | 9 | 4.91E+01 | < LLD | (0 /6) | < LLD | (0 /3) | 35 66 |
| | | | | | | | 66 | < LLD (0 /3) | |
| SOIL (PCI/KG(DRY)) | GAMMA | AC-228 | 3 | 2.60E+01 | 2.72E+02 (2 /2) | | 7.33E+02(1 /1) | | 35 66 |
| | | | | | (2.46E+02 - 2.98E+02) | | (7.33E+02 - 7.33E+02) | | |
| | | | | | | | 35 2.98E+02(1 /1) | | |
| | | | | | | | (2.98E+02 - 2.98E+02) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | RA-224 | 3 | 2.19E+04 | 3.86E+04 (1 /2) | | < LLD | (0 /1) | 35 66 |
| | | | | | (3.86E+04 - 3.86E+04) | | | | |
| | | | | | | | 35 3.86E+04(1 /1) | | |
| | | | | | | | (3.86E+04 - 3.86E+04) | | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED |
|-----------------------|------------------|--------|-----------|----------|---|---------|--|--------------------|---------------|
| | | | | | RANGE | RANGE | RANGE | FOR INDICATOR MEAN | |
| | | | ANALYSES | | | | | | |
| | | | PERFORMED | | | STATION | STATION-MEAN(N/TOTAL) | | |
| | | | | | | | RANGE | | |
| SOIL (PCI/KG(DRY)) | GAMMA | RA-226 | 9 | 1.66E+02 | 7.65E+02 (6 /6) (5.10E+02 - 9.80E+02) | | 2.08E+03(3 /3) (1.90E+03 - 2.20E+03) | | 35 66 |
| | | | | | | 66 | 8.53E+02(3 /3) (7.80E+02 - 9.80E+02) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | TH-228 | 6 | 3.15E+01 | 2.82E+02 (4 /4) (2.40E+02 - 3.50E+02) | | 9.45E+02(2 /2) (9.10E+02 - 9.80E+02) | | 35 66 |
| | | | | | | 66 | 3.15E+02(2 /2) (2.80E+02 - 3.50E+02) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | I-131 | 9 | 9.70E+01 | < LLD (0 /6) | | < LLD (0 /3) | | 35 66 |
| | | | | | | 66 | < LLD (0 /3) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | NA-22 | 3 | 1.86E+01 | < LLD (0 /2) | | < LLD (0 /1) | | 35 66 |
| | | | | | | 66 | < LLD (0 /1) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | RU-106 | 9 | 1.06E+02 | < LLD (0 /6) | | < LLD (0 /3) | | 35 66 |
| | | | | | | 66 | < LLD (0 /3) | | |
| SOIL (PCI/KG(DRY)) | GAMMA | CO-57 | 3 | 1.50E+01 | < LLD (0 /2) | | < LLD (0 /1) | | 35 66 |
| | | | | | | 66 | < LLD (0 /1) | | |

TABLE 10
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|-------------------------------|--|--|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SOIL (PCI/KG(DRY)) | GAMMA | I-133 | 3 | 2.52E+08 | < LLD (0 / 2) | < LLD (0 / 1) | 35 66 | |
| SOIL (PCI/KG(DRY)) | GAMMA | CS-137 | 9 | 2.20E+01 | 1.89E+02 (6 / 6) (4.90E+01 - 4.00E+02) | 2.02E+02 (3 / 3) (1.17E+02 - 2.80E+02) | 35 66 | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CE-144 | 1 | 6.40E+01 | * (* / *) (* - *) | 2.21E+02 (3 / 3) (1.22E+02 - 4.00E+02) < LLD (0 / 1) | 66 | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CS-134 | 1 | 8.80E+00 | * (* / *) (* - *) | * (* / *) (* - *) < LLD (0 / 1) | 66 | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CO-58 | 1 | 9.00E+00 | * (* / *) (* - *) | * (* / *) (* - *) < LLD (0 / 1) | 66 | |
| SEA BASS (PCI/KG(WET)) | GAMMA | MN-54 | 1 | 7.00E+00 | * (* / *) (* - *) | * (* / *) (* - *) < LLD (0 / 1) | 66 | |

TABLE 10
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| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|----------|---|-----|----------------------------------|--------------------------------|--|--------------------------------|-------------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SEA BASS (PCI/KG(WET)) | GAMMA | FE-59 | 1 | 2.30E+01 | * (*/*) (* - *) | < LLD (0 /1) * (*/*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | ZN-65 | 1 | 2.20E+01 | * (*/*) (* - *) | < LLD (0 /1) * (*/*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CO-60 | 1 | 8.90E+00 | * (*/*) (* - *) | < LLD (0 /1) * (*/*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | K-40 | 1 | 4.00E+02 | * (*/*) (* - *) | 3.80E+03(1 /1) (3.80E+03 - 3.80E+03) * (*/*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | BE-7 | 1 | 8.80E+01 | * (*/*) (* - *) | < LLD (0 /1) * (*/*) (* - *) | | |

TABLE 10
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|------------------|--------|-----------|----------|-------------------------|-----------|--------------------------|-----------|-------------------------------------|
| | | | | | RANGE | | RANGE | | |
| | | | ANALYSES | | | | | | |
| | | | PERFORMED | | | STATION | STATION-MEAN(N/TOTAL) | | |
| | | | | | | | RANGE | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | ZR-95 | 1 | 1.90E+01 | * | (* / *) | < LLD | (0 / 1) | |
| | | | | | (* - *) | | | | |
| | | | | | | | * | (* / *) | |
| | | | | | | | (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | NB-95 | 1 | 9.30E+00 | * | (* / *) | < LLD | (0 / 1) | |
| | | | | | (* - *) | | | | |
| | | | | | | | * | (* / *) | |
| | | | | | | | (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CE-141 | 1 | 2.00E+01 | * | (* / *) | < LLD | (0 / 1) | |
| | | | | | (* - *) | | | | |
| | | | | | | | * | (* / *) | |
| | | | | | | | (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | RU-103 | 1 | 1.10E+01 | * | (* / *) | < LLD | (0 / 1) | |
| | | | | | (* - *) | | | | |
| | | | | | | | * | (* / *) | |
| | | | | | | | (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | BA-140 | 1 | 5.40E+01 | * | (* / *) | < LLD | (0 / 1) | |
| | | | | | (* - *) | | | | |
| | | | | | | | * | (* / *) | |
| | | | | | | | (* - *) | | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|----------------------------------|--------------------------------|---|--------------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SEA BASS (PCI/KG(WET)) | GAMMA | LA-140 | 1 | 1.90E+01 | * (* /*) (* - *) | < LLD (0 /1) * (* /*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | RA-226 | 1 | 1.70E+02 | * (* /*) (* - *) | < LLD (0 /1) * (* /*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | TH-228 | 1 | 1.50E+01 | * (* /*) (* - *) | < LLD (0 /1) * (* /*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | I-131 | 1 | 4.10E+01 | * (* /*) (* - *) | < LLD (0 /1) * (* /*) (* - *) | | |
| SEA BASS (PCI/KG(WET)) | GAMMA | RU-106 | 1 | 7.20E+01 | * (* /*) (* - *) | < LLD (0 /1) * (* /*) (* - *) | | |

TABLE 10
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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|-------------------------|-----------------------|-----|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| SEA BASS (PCI/KG(WET)) | GAMMA | CS-137 | 1 | 8.70E+00 | * (* / *) (* - *) | < LLD (0 / 1) | | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CE-144 | 2 | 1.21E+02 | < LLD (0 / 2) | * (* / *) (* - *) | | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CS-134 | 2 | 1.74E+01 | < LLD (0 / 2) | * (* / *) (* - *) | 93 < LLD (0 / 2) | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CO-58 | 2 | 1.65E+01 | < LLD (0 / 2) | * (* / *) (* - *) | 93 < LLD (0 / 2) | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | MN-54 | 2 | 1.63E+01 | < LLD (0 / 2) | * (* / *) (* - *) | 93 < LLD (0 / 2) | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | FE-59 | 2 | 4.20E+01 | < LLD (0 / 2) | * (* / *) (* - *) | 93 < LLD (0 / 2) | 93 |

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| SAMPLE TYPE | ANALYSIS | ISOTOPE | NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|---------------------------|----------|---------|------------------------------|----------|-------------------------------|-----------------------------|--------------------------------|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | ZN-65 | 2 | 3.65E+01 | < LLD | (0 /2) | * (* /*) | 93 | |
| | | | | | | | (* - *) | < LLD (0 /2) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CO-60 | 2 | 1.51E+01 | < LLD | (0 /2) | * (* /*) | 93 | |
| | | | | | | | (* - *) | < LLD (0 /2) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | K-40 | 2 | 5.85E+02 | 3.60E+03 (2 /2) | (3.00E+03 - 4.20E+03) | * (* /*) | 93 | |
| | | | | | | | (* - *) | 3.60E+03(2 /2) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | BE-7 | 2 | 1.49E+02 | < LLD | (0 /2) | * (* /*) | 93 | |
| | | | | | | | (* - *) | < LLD (0 /2) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | ZR-95 | 2 | 3.55E+01 | < LLD | (0 /2) | * (* /*) | 93 | |
| | | | | | | | (* - *) | < LLD (0 /2) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | NB-95 | 2 | 1.92E+01 | < LLD | (0 /2) | * (* /*) | 93 | |
| | | | | | | | (* - *) | < LLD (0 /2) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | OF | LLD | INDICATOR-MEAN(N/TOTAL) | RANGE | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED |
|---------------------------|------------------|--------|-----------|----------|-------------------------|---------|--------------------------|-----------------------|---------------|
| | | | | | | | RANGE | | |
| | | | ANALYSES | | | | STATION | STATION-MEAN(N/TOTAL) | |
| | | | PERFORMED | | | | | RANGE | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CE-141 | 2 | 3.70E+01 | < LLD | (0 /2) | | * (* /*) | 93 |
| | | | | | | | | (* - *) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | RU-103 | 2 | 1.92E+01 | < LLD | (0 /2) | 93 | < LLD (0 /2) | 93 |
| | | | | | | | | (* - *) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | BA-140 | 2 | 1.05E+02 | < LLD | (0 /2) | | * (* /*) | 93 |
| | | | | | | | | (* - *) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | LA-140 | 2 | 4.10E+01 | < LLD | (0 /2) | 93 | < LLD (0 /2) | 93 |
| | | | | | | | | (* - *) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | RA-226 | 2 | 3.00E+02 | < LLD | (0 /2) | | * (* /*) | 93 |
| | | | | | | | | (* - *) | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | TH-228 | 2 | 2.95E+01 | < LLD | (0 /2) | 93 | < LLD (0 /2) | 93 |
| | | | | | | | | (* - *) | |
| | | | | | | | 93 | < LLD (0 /2) | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | RANGE | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|------------------|-----------------------|-----|-------------------------|---------------|--------------------------|---|----------------------------------|
| | | | | | | RANGE | | |
| | | OF ANALYSES PERFORMED | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WEAKFISH (PCI/KG(WET)) | GAMMA | I-131 | 2 | 8.60E+01 | < LLD (0 /2) | | * (* / *) (* - *) 93 < LLD (0 /2) | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | PU-106 | 2 | 1.34E+02 | < LLD (0 /2) | | * (* / *) (* - *) 93 < LLD (0 /2) | 93 |
| WEAKFISH (PCI/KG(WET)) | GAMMA | CS-137 | 2 | 1.72E+01 | < LLD (0 /2) | | * (* / *) (* - *) 93 < LLD (0 /2) | 93 |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | CE-144 | 4 | 8.25E+01 | < LLD (0 /4) | | * (* / *) (* - *) 93 < LLD (0 /4) | 93 |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | AG-110M | 1 | 2.27E+01 | < LLD (0 /1) | | * (* / *) (* - *) 93 < LLD (0 /1) | 93 |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | TE-129M | 1 | 3.57E+04 | < LLD (0 /1) | | * (* / *) (* - *) 93 < LLD (0 /1) | 93 |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD OF ANALYSES PERFORMED | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|--|-------------------------|------------------------------------|----------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | CS-134 | 4 | 1.46E+01 | < LLD | (0 /4) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | CO-58 | 4 | 1.39E+01 | < LLD | (0 /4) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | MN-54 | 4 | 1.36E+01 | < LLD | (0 /4) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | FE-59 | 4 | 3.51E+01 | < LLD | (0 /4) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | CS-136 | 1 | 3.93E+01 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| WINTER FLOUNDER GAMMA (PCI/KG(WET)) | TE-132 | 1 | 8.41E+01 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | (* - *) | |
| | | | | | | < LLD (0 /1) | |

TABLE 1G
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS | ISOTOPE NUMBER OF ANALYSES PERFORMED | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|----------|---|-----|----------------------------------|--|-----------------------------------|--|-------------------------------------|
| | | | | STATION | STATION MEAN(N/TOTAL) RANGE | STATION | STATION MEAN(N/TOTAL) RANGE | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | ZN-65 | 4 | 3.53E+01 | < LLD (0 /4) | | | 93 |
| | | | | | | 93 | (* - *) < LLD (0 /4) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | CO-60 | 4 | 1.50E+01 | < LLD (0 /4) | | | 93 |
| | | | | | | 93 | (* - *) < LLD (0 /4) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | K-40 | 4 | 3.09E+02 | 4.34E+03 (4 /4) (4.00E+03 - 4.60E+03) | | | 93 |
| | | | | | | 93 | (* - *) 4.34E+03(4 /4) (4.00E+03 - 4.60E+03) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | BE-7 | 4 | 1.24E+02 | < LLD (0 /4) | | | 93 |
| | | | | | | 93 | (* - *) < LLD (0 /4) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | ZR-95 | 4 | 2.59E+01 | < LLD (0 /4) | | | 93 |
| | | | | | | 93 | (* - *) < LLD (0 /4) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | NB-95 | 4 | 1.54E+01 | < LLD (0 /4) | | | 93 |
| | | | | | | 93 | (* - *) < LLD (0 /4) | |

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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|-------------------------|-----|----------------------------------|---------|-----------------------------------|--------------------------------|-------------------------------------|
| | | | OF ANALYSES PERFORMED | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION-MEAN(N/TOTAL) RANGE | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA SB-125 | 1 | 6.28E+01 | < LLD | (0 /1) | " (* /") | 93 |
| | | | | | | (" - ") | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA CE-141 | 4 | 2.47E+01 | < LLD | (0 /4) | 93 < LLD (0 /1) | 93 |
| | | | | | | " (* /") | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA RU-103 | 4 | 1.54E+01 | < LLD | (0 /4) | 93 < LLD (0 /4) | 93 |
| | | | | | | " (* /") | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA CR-51 | 1 | 1.60E+02 | < LLD | (0 /1) | 93 < LLD (0 /4) | 93 |
| | | | | | | " (* /") | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA BA-140 | 4 | 7.95E+01 | < LLD | (0 /4) | 93 < LLD (0 /1) | 93 |
| | | | | | | " (* /") | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA LA-140 | 4 | 2.73E+01 | < LLD | (0 /4) | 93 < LLD (0 /4) | 93 |
| | | | | | | " (* /") | |
| | | | | | | 93 < LLD (0 /4) | |

TABLE 10
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN |
|----------------------------------|------------------|--------|-----------------------|-------------------------|---------|--------------------------|-----------------------|----------------------------------|
| | | | | RANGE | STATION | RANGE | STATION-MEAN(N/TOTAL) | |
| | | | OF ANALYSES PERFORMED | | | | | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | AC-228 | 1 | 1.05E+02 | < LLD | (0 /1) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | RA-224 | 1 | 1.95E+03 | < LLD | (0 /1) | < LLD (0 /1) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | RA-226 | 4 | 2.48E+02 | < LLD | (0 /4) | < LLD (0 /1) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | TH-228 | 3 | 1.87E+01 | < LLD | (0 /3) | < LLD (0 /4) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | I-131 | 4 | 5.26E+01 | < LLD | (0 /4) | < LLD (0 /3) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | NA-22 | 1 | 3.75E+01 | < LLD | (0 /1) | < LLD (0 /4) | 93 |
| | | | | | | | (* - *) | |
| | | | | | | | < LLD (0 /1) | |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
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 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE | NUMBER | LLD INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED FOR INDICATOR MEAN | |
|-----------------------------------|------------------|---------|-----------------------------|----------|--------------------------|-------------------------|----------------------------------|----------------|
| | | | OF ANALYSES PERFORMED | RANGE | RANGE | RANGE | | |
| | | | | | STATION | STATION-MEAN(N/TOTAL) | | |
| | | | | | | RANGE | | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | RU-106 | 4 | 1.15E+02 | < LLD | (0 /4) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | CO-57 | 1 | 1.41E+01 | < LLD | (0 /1) | < LLD (0 /4) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | I-133 | 1 | 9.81E+03 | < LLD | (0 /1) | < LLD (0 /1) | 93 |
| | | | | | | | (* - *) | |
| WINTER FLOUNDER (PCI/KG(WET)) | GAMMA | CS-137 | 4 | 1.38E+01 | 1.30E+01 (1 /4) | (1.30E+01 - 1.30E+01) | * (* /*) | 93 |
| | | | | | | | (* - *) | |
| AQUATIC SEDIMENT (PCI/KG(DRY)) | GAMMA | CE-144 | 102 | 1.01E+02 | < LLD | (0 /78) | 1.30E+01(1 /4) | 93 |
| | | | | | | | (1.30E+01 - 1.30E+01) | |
| AQUATIC SEDIMENT (PCI/KG(DRY)) | GAMMA | AG-110M | 24 | 2.10E+01 | < LLD | (0 /18) | < LLD (0 /24) | 93 |
| | | | | | | | < LLD (0 /13) | |
| | | | | | | | < LLD (0 /6) | 23 24 25 32 33 |
| | | | | | | | < LLD (0 /3) | 93 |

TABLE 10
 RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
 OYSTER CREEK NUCLEAR GENERATING STATION
 JANUARY, 1987 THROUGH DECEMBER, 1987
 ANNUAL SUMMARY

| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | OF | INDICATOR-MEAN(N/TOTAL) | RANGE | BACKGROUND-MEAN(N/TOTAL) | RANGE | STATIONS USED FOR INDICATOR MEAN | | | | | |
|---|-------------------------|-----|----------|-------------------------|-----------|--------------------------|-----------|----------------------------------|-------------------------|-----------|----|----|--------------------|
| | | | | | | | | | | | | | ANALYSES PERFORMED |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | TE-129M | 24 | 9.98E+06 | < LLD | (0 /18) | < LLD | (0 /6) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | | | | | 93 | < LLD | (0 /3) | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CS-134 | 102 | 1.72E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | | | | | 93 | < LLD | (0 /13) | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CO-58 | 102 | 1.55E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | | | | | 93 | < LLD | (0 /13) | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | MN-54 | 102 | 1.44E+01 | 9.70E+00 | (1 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | (9.70E+00 - 9.70E+00) | | | | 25 | 9.70E+00 | (1 /13) | | | |
| | | | | | | | | | (9.70E+00 - 9.70E+00) | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | FE-59 | 102 | 3.99E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | | | | | 93 | < LLD | (0 /13) | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CS-136 | 21 | 3.43E+01 | < LLD | (0 /16) | < LLD | (0 /5) | 23 | 24 | 25 | 32 | 33 | 93 |
| | | | | | | | | 93 | < LLD | (0 /3) | | | |

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|--------------------------------------|----------|----------------|-----------------------|----------|--|-----------------------------|---|-----------------------------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | TE-132 | 24 | 4.27E+02 | < LLD | (0 /18) | < LLD | (0 /6) | 23 24 25 32 33 93 |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | ZN-65 | 102 | 3.71E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | CO-60 | 102 | 1.68E+01 | 1.15E+02 (33 /78) (8.00E+00 - 3.20E+02) | | < LLD | (0 /24) | 23 24 25 32 33 93 |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | K-40 | 102 | 4.44E+02 | 6.44E+03 (77 /78) (3.30E+02 - 1.70E+04) | | 1.31E+04(24 /24) (5.17E+03 - 1.90E+04) | | 23 24 25 32 33 93 |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | BE-7 | 102 | 1.62E+02 | 4.46E+02 (37 /78) (7.20E+01 - 4.00E+03) | | 5.89E+02(14 /24) (1.02E+02 - 3.10E+03) | | 23 24 25 32 33 93 |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | ZR-95 | 102 | 3.57E+01 | < LLD | (0 /78) | < LLD | (0 /24) | 23 24 25 32 33 93 |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) OF RANGE | | BACKGROUND-MEAN(N/TOTAL) RANGE | | STATIONS USED FOR INDICATOR MEAN | | | | |
|---|-------------------------|-----|-------------------------------------|--------------------------------|-----------------------------------|--------------------------------|-------------------------------------|--|--|--|--|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | NB-95 | 102 | 1.93E+01 | 3.60E+01 (1 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | | | | | |
| | | | | (3.60E+01 - 3.60E+01) | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | SB-125 | 24 | 4.62E+01 | < LLD (0 /18) | < LLD (0 /6) | 23 24 25 32 33 93 | | | | | |
| | | | | 93 < LLD (0 /3) | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CE-141 | 102 | 3.75E+01 | < LLD (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | | | | | |
| | | | | 93 < LLD (0 /13) | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | RU-103 | 102 | 1.99E+01 | < LLD (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | | | | | |
| | | | | 93 < LLD (0 /13) | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CR-51 | 24 | 1.75E+02 | < LLD (0 /18) | < LLD (0 /6) | 23 24 25 32 33 93 | | | | | |
| | | | | 93 < LLD (0 /3) | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | BA-140 | 102 | 1.52E+02 | < LLD (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | | | | | |
| | | | | 93 < LLD (0 /13) | | | | | | | |

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|---|-------------------------|--|----------|---|--|--------------------------------|-------------------------------------|
| | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | LA-140 | 102 | 5.68E+01 | < LLD (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | I-135 | 3 | 3.57E+13 | < LLD (0 /2) | < LLD (0 /13) | 24 32 | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | AC-228 | 24 | 5.00E+01 | 4.01E+02 (18 /18) (1.03E+02 - 6.25E+02) | 5.76E+02(6 /6) (3.24E+02 - 9.39E+02) | 23 24 25 32 33 93 | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | RA-224 | 21 | 1.14E+04 | 2.39E+04 (3 /16) (7.34E+03 - 4.75E+04) | 6.03E+02(3 /3) (5.86E+02 - 6.25E+02) | 23 24 25 32 33 93 | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | RA-226 | 102 | 2.78E+02 | 1.01E+03 (77 /78) (1.90E+02 - 2.80E+03) | 4.75E+04(1 /3) (4.75E+04 - 4.75E+04) | 23 24 25 32 33 93 | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | TH-228 | 78 | 3.86E+01 | 5.38E+02 (60 /60) (1.20E+02 - 1.80E+03) | 1.22E+03(24 /24) (6.31E+02 - 2.01E+03) | 23 24 25 32 33 93 | |
| | | | | | 7.89E+02(18 /18) (1.10E+03 - 2.10E+03) | | |
| | | | | | 7.44E+02(10 /10) (4.30E+02 - 1.10E+03) | | |

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|---|-------------------------|--|--------------------------------|----------------|------------------------------------|----------------------|--|-------------------------------------|
| | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | I-131 | 102 | 1.52E+02 | < LLD (0 /78) | < LLD (0 /24) | 23 24 25 32 33 93 | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | NA-22 | 21 | 2.20E+01 | < LLD (0 /16) | 93 < LLD (0 /13) < LLD (0 /5) | 23 24 25 32 33 93 | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | NP-239 | 3 | 2.12E+03 | < LLD (0 /2) | 93 < LLD (0 /3) < LLD (0 /1) | 24 32 | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | RU-106 | 102 | 1.21E+02 | < LLD (0 /78) | 32 < LLD (0 /1) < LLD (0 /24) | 23 24 25 32 33 93 | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CO-109 | 3 | 5.61E+02 | < LLD (0 /2) | 93 < LLD (0 /13) < LLD (0 /1) | 24 32 | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CO-57 | 24 | 1.52E+01 | < LLD (0 /18) | 32 < LLD (0 /1) < LLD (0 /6) | 23 24 25 32 33 93 | | |
| | | | | | 93 < LLD (0 /3) | | | |

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|---|----------|----------------|------------------------------|----------|----------------------------------|--------------------------------|-----------------------------------|----------|----------------------------------|
| | | | | | STATION | STATION-MEAN(N/TOTAL) RANGE | STATION-MEAN(N/TOTAL) RANGE | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | | I-133 | 24 | 6.51E+08 | < LLD | (0 / 18) | < LLD | (0 / 6) | 23 24 25 32 33 |
| | | | | | | 93 | < LLD (0 / 3) | 93 | |

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| SAMPLE TYPE | ANALYSIS ISOTOPE NUMBER | LLD | INDICATOR-MEAN(N/TOTAL) | | BACKGROUND-MEAN(N/TOTAL) | | STATIONS USED | | | | | | |
|---|-------------------------|-----------------------|-------------------------|--|--------------------------|--|--------------------|----|----|----|----|----|----|
| | | | RANGE | STATION | STATION-MEAN(N/TOTAL) | RANGE | FOR INDICATOR MEAN | | | | | | |
| | | OF ANALYSES PERFORMED | | | | | | | | | | | |
| AQUATIC SEDIMENT GAMMA (PCI/KG(DRY)) | CS-137 | 102 | 1.78E+01 | 9.92E+01 (69 /78) (9.20E+00 - 4.10E+02) | | 9.10E+01(19 /24) (1.10E+01 - 1.90E+02) | | 23 | 24 | 25 | 32 | 33 | |
| | | | | | | 33 2.60E+02(12 /13) (1.10E+02 - 4.10E+02) | | | | | | | 93 |

RADIOLOGICAL IMPACT OF OYSTER CREEK OPERATIONS

Two principle exposure pathways, inhalation and ingestion, are available to gaseous and liquid effluent isotopes, respectively, in the vicinity of Oyster Creek. Intakes via the inhalation pathway are from gaseous effluents, while the ingestion pathway is via consumption of shellfish from Oyster Creek's discharge canal and Barnegat Bay as well as the consumption of garden vegetables. Additionally, a third means of exposure is from direct radiation from Oyster Creek effluents. For purpose of this report the maximum hypothetical annual dose due to radioactive effluents for liquids and gases is determined as per OCNCS Technical Specification 4.6.N. Maximum exposure due to gaseous pathways (inhalation, ingestion, and direct radiation) would depend on the predominant wind direction and the location of persons living in a particular sector near the plant. The hypothetical maximum exposure location due to gaseous effluent is 966 meters to the southeast. The maximum liquid exposure receptor is located approximately 400 meters to the southeast (discharge canal bridge).

Table 11, page 149, represents the offsite dose summary for the annual period from January through December of 1987. The information provided was calculated using the models and methodology outlined in NRC Regulatory Guide 1.109 and proposed NRC Regulatory Guide 1.111. The analysis herein represents the maximum hypothetical annual whole body, thyroid and organ doses for both liquid and gaseous pathways combined. Also included are the dose limits as given in the Oyster Creek Technical Specifications (4.6.N) and the percent of these technical specification limits. The maximum hypothetical annual population dose (in person-Rem) was calculated for the annual period.

According to the results in Table 11, page 149, Oyster Creek was well within 40 CFR Part 190.10a limits for whole body, thyroid and any other organ for any member of the public as the result of exposures to planned discharges of radioactive materials to the general environment. The maximum hypothetical annual population dose for the aforementioned period was 15.2 person-Rem. This result was based on population data for the year 1985.*

* Reference: 1985 Population Estimates, OCNCS Plume Exposure Pathway EPZ, Prepared by Dresdner Associates, Jersey City, NJ, October 1986.

TABLE 11

Maximum Hypothetical Annual Dose Equivalent for the
Period from January 1, 1987 through December 31, 1987

| APPLICABLE ORGAN | MAXIMUM HYPOTHETICAL ANNUAL DOSE (mRem) | TECH SPEC LIMIT (mRem) | PERCENT TECH. SPEC |
|---------------------|--|------------------------------|-----------------------|
| WHOLE BODY | .17 | 25 | .68 |
| THYROID | .17 | 75 | .23 |
| SKIN | .17 | 25 | .68 |

APPENDIX A
Sampling and Analysis Exceptions - 1987

TABLE A-1
Sampling and Analysis Exceptions - 1987

| <u>Scheduled Collection Date</u> | <u>Station</u> | <u>Media</u> | <u>Reason</u> | <u>Tech. Spec. Required</u> |
|--------------------------------------|----------------|-----------------------|---|---------------------------------|
| January 13, 1987 | 33 | FISH | No Catch | YES* |
| January 14, 1987 | 1 | WWA | Sampled at Incorrect Location | NO |
| January 15, 1987 | 94 | FISH | No Catch | YES* |
| February 11, 1987 | 1 | WWA | Sampled at Incorrect Location | NO |
| February 11, 1987 | 33 | FISH | No Catch | YES* |
| February 13, 1987 | 94 | SWA, AQS AQL, FISH | No Collection - Bay Frozen | YES |
| February 24, 1987 | 71 | APT, AIO | Sampler Not Running Power Outage | YES |
| February 27, 1987 | 82 | Monthly TLD | LOST | NO |
| February 27, 1987 | 83 | Monthly TLD | LOST | NO |
| March 6-15, 1987 | 93 | CRAB | No catch | NO |
| March 10-13, 1987 | 31, 94 | SWA, AQS AQL, FISH | No Collection - Inclement Weather | YES |
| March 11, 1987 | 1 | WWA | Sampled At Incorrect Location | NO |
| March 11-13, 1987 | 22 | WWA | No Sample Collected Homeowner Not Home | YES |
| March 14, 1987 | 31, 94 | SWA, AQS AQL, FISH | Boat Was Out of Service | YES |
| March 24, 1987 | 78 | Monthly TLD | LOST | NO |
| March 27, 1987 | 80 | Monthly TLD | LOST | NO |
| April 6, 1987 | 33 | FISH | No Catch | YES* |
| April 8, 1987 | 33 | FISH | No Catch | YES* |
| April 8, 1987 | 1 | WWA | Sampled at Incorrect Location | NO |
| April 9, 1987 | 94 | FISH | No Catch | YES* |

TABLE A-1 - Continued
Sampling and Analysis Exceptions - 1987

| <u>Scheduled Collection Date</u> | <u>Station</u> | <u>Media</u> | <u>Reason</u> | <u>Tech. Spec. Required</u> |
|--------------------------------------|----------------|---------------|---|---------------------------------|
| April 22, 1987 | 7 | Monthly TLD | LOST | NO |
| April 22, 1987 | 73 | Monthly TLD | LOST | NO |
| April 22, 1987 | 79 | Monthly TLD | LOST - Found on 4/30/88 | NO |
| May 7, 1987 | 1 | WWA | Sampled at Incorrect Location | NO |
| May 8, 1987 | 33 | FISH | No Catch | YES* |
| May 20, 1987 | 7 | Quarterly TLD | LOST | NO |
| May 20, 1987 | 73 | Quarterly TLD | LOST | NO |
| May 21, 1987 | 52 | Quarterly TLD | LOST | YES |
| May 26, 1987 | 20 | APT, AIO | Sampler Inoperative - Repaired May 27, 1987 | NO |
| June 1, 1987 | 4 | RWA | Dead Squirrel Found In Funnel | NO |
| June 1, 1987 | 71 | RWA | Hole in Collection Container | NO |
| June 4, 1987 | 1 | WWA | Sampled at Incorrect Location | NO |
| June 6, 1987 | 33 | FISH | No Catch | YES* |
| June 7, 1987 | 94 | CRAB | Not Enough Caught - None Saved | NO |
| June 10, 1987 | A | APT, AIO | Sampler Inoperative - Repaired June 11, 1987 | NO |
| June 17, 1987 | 81 | Monthly TLD | LOST | NO |
| July 5, 1987 | 33 | FISH | No Catch | YES* |
| July 14, 1987 | 78 | Monthly TLD | LOST | NO |
| July 28, 1987 | 4 | APT, AIO | Sampler Inoperative - Repaired July 29, 1987 | NO |
| July 30, 1987 | 94 | CRAB | No Catch | NO |
| July 31, 1987 | 33 | FISH | No Catch | YES* |

TABLE A-1 - Continued
Sampling and Analysis Exceptions - 1987

| <u>Scheduled Collection Date</u> | <u>Station</u> | <u>Media</u> | <u>Reason</u> | <u>Tech. Spec. Required</u> |
|--------------------------------------|----------------|---------------|---|---------------------------------|
| August 13, 1987 | 78 | Monthly TLD | LOST | NO |
| August 13, 1987 | 78 | Quarterly TLD | LOST | YES |
| August 13, 1987 | 82 | Monthly TLD | LOST | NO |
| August 20, 1987 | A | APT, AIO | Sampler Inoperative - Repaired August 20, 1987 | NO |
| August 26, 1987 | 73 | RWA | Hole in Collection Container | NO |
| October 19, 1987 | 72 | RWA | Station Vandalized Sample Lost | NO |
| October 24, 1987 | 33 | FISH | No Catch | YES* |
| November 5, 1987 | 82 | Monthly TLD | LOST | NO |
| November 5, 1987 | 82 | Quarterly TLD | LOST | YES |
| November 6, 1987 | 60 | Quarterly TLD | LOST | YES |
| November 16, 1987 | 72 | RWA | Station Vandalized No Sample Collected | NO |
| December 7, 1987 | 3 | APT, AIO | Sampler Vacuum Gage Repaired | NO |
| December 17, 1987 | 33 | FISH | No Catch | YES* |
| December 18, 1987 | 94 | FISH | No Catch | YES* |
| December 30, 1987 | 81 | Monthly TLD | LOST | NO |

*Required Semiannually (when available)

APT = Air Particulate
AIO = Air Iodine
RWA = Precipitation
WWA = Well Water
SWA = Surface Water
AQS = Aquatic Sediment
CLAM = Clams
VGTN = Vegetation
SOIL = Soil
FISH = Fish
CRAB = Crab

APPENDIX B

Lower Limit of Detection (LLD) Exceptions - 1987

Lower Limit of Detection Exceptions - 1987

There was one lower limit of detection exception during the reporting period, January 1, 1987 through December 31, 1987.

| MEDIA | DATE COLLECTED | NUCLIDE | TECH SPEC LLD | ACTUAL LLD |
|------------------------|----------------|---------|-----------------|-----------------|
| FOOD PRODUCTS-COLLARDS | 26 AUG 87 | I-131 | 60 pCi/kg (wet) | 73 pCi/kg (wet) |

The I-131 LLD could not be met because only 0.283 kg of sample could be input into a 1-liter Marinelli beaker due to the low density of the sample.

No other lower limit of detection exceptions occurred during the reporting period.

APPENDIX C
Reporting Level Violations - 1987

Reporting Level Violations - 1987

There were no reporting level violations for the entire reporting period,
January 1, 1987 through December 31, 1987.

APPENDIX D
US EPA CROSS-CHECK PROGRAM 1987

TABLE D-1

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (JAN - OCT)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

| SAMPLE TYPE | DATE COLLECTED | ANALYSIS | TELEDYNE MIDWEST (A) | EPA (B) | TELEDYNE WESTWOOD (C) |
|------------------------|----------------|-------------|----------------------|--------------|-----------------------|
| WATER | Jan. 1, 1987 | Sr-89 | 19.7 ± 5.0 | 25.0 ± 5.0 | 22.7 ± 0.6 |
| | | Sr-90 | 21.0 ± 2.0(D) | 25.0 ± 1.5 | 26.0 ± 0.0 |
| WATER | Jan. 16, 1986 | Pu-239 | 17.0 ± 2.3 | 16.7 ± 1.7 | 14.9 ± 0.4 |
| WATER | Jan. 23, 1987 | Gross Alpha | 10.3 ± 4.2 | 11.0 ± 5.0 | 18.3 ± 1.2(E) |
| | | Gross Beta | 13.0 ± 0.0 | 10.0 ± 5.0 | 11.7 ± 0.6 |
| FOOD | Jan. 30, 1987 | Sr-90 | 36.0 ± 4.0 | 49.0 ± 10.0 | 50.0 ± 2.8 |
| | | I-131 | 78.0 ± 3.4 | 78.0 ± 8.0 | 74.0 ± 1.4 |
| | | Cs-137 | 89.7 ± 3.0 | 84.0 ± 5.0 | 91.0 ± 5.7 |
| | | K-40 | 942.0 ± 56.0 | 980.0 ± 49.0 | 984.0 ± 67.1 |
| WATER | Feb. 6, 1987 | Co-60 | 49.0 ± 0.0 | 50.0 ± 5.0 | 50.3 ± 1.5 |
| | | Zn-65 | 96.0 ± 7.2 | 91.0 ± 5.0 | 108.3 ± 2.5(F) |
| | | Ru-106 | 92.0 ± 20.2 | 100.0 ± 5.0 | 100.3 ± 11.2 |
| | | Cs-134 | 53.0 ± 3.4 | 59.0 ± 5.0 | 62.0 ± 5.6 |
| | | Cs-137 | 89.3 ± 4.6 | 87.0 ± 5.0 | 92.0 ± 3.6 |
| WATER | Feb. 13, 1987 | H-3 | 4130.0±140.0 | 4209.0±421.0 | 4100.0±200.0 |
| MILK | Feb. 27, 1987 | I-131 | 10.0 ± 0.0(T) | 9.0 ± 0.9 | 8.7 ± 0.6 |
| WATER | Mar. 13, 1987 | Ra-226 | 7.0 ± 0.1 | 7.3 ± 1.1 | 7.5 ± 0.10 |
| | | Ra-228 | 7.1 ± 2.3(T) | 7.5 ± 1.1 | 5.9 ± 0.60(G) |
| WATER | Mar. 20, 1987 | Gross alpha | 3.7 ± 1.2 | 3.0 ± 5.0 | 3.3 ± 0.6 |
| | | Gross beta | 11.3 ± 1.2 | 13.0 ± 5.0 | 14.3 ± 0.6 |
| WATER | Apr. 3, 1987 | I-131 | 8.0 ± 0(T) | 7.0 ± 0.7 | 6.7 ± 0.6 |
| AIR FILTER | Apr. 10, 1987 | Gross alpha | 15.0 ± 0.0 | 14.0 ± 5.0 | 18.3 ± 1.2 |
| | | Gross beta | 41.0 ± 2.0 | 43.0 ± 5.0 | 42.0 ± 2.6 |
| | | Sr-90 | 16.3 ± 1.2 | 17.0 ± 1.5 | 15.7 ± 0.6 |
| | | Cs-137 | 7.0 ± 0.0 | 8.0 ± 5.0 | 8.0 ± 1.0 |
| LAB. PERFORMANCE WATER | Apr. 27, 1987 | Gross alpha | 30.7 ± 1.2 | 30.0 ± 8.0 | 36.3 ± 1.5 |
| | | Ra-226 | 3.9 ± 0.2 | 3.9 ± 0.6 | 3.8 ± 0.1 |
| | | Ra-228 | 4.9 ± 0.9 | 4.0 ± 0.6 | 3.9 ± 0.3 |
| | | U | 5.0 ± 0.0 | 5.0 ± 6.0 | 5.0 ± 0.0 |
| | | Gross beta | 69.3 ± 9.4 | 66.0 ± 5.0 | 56.0 ± 1.7(H) |
| | | Sr-89 | 16.3 ± 3.0 | 19.0 ± 5.0 | 16.3 ± 0.6 |
| | | Sr-90 | 10.0 ± 0.0 | 10.0 ± 1.5 | 9.3 ± 0.6 |
| | | Co-60 | 8.3 ± 3.0 | 8.0 ± 5.0 | 8.0 ± 1.0 |
| | | Cs-134 | 19.0 ± 2.0 | 20.0 ± 5.0 | 15.3 ± 1.5 |
| | | Cs-137 | 14.7 ± 1.2 | 15.0 ± 5.0 | 12.3 ± 1.2 |

TABLE D-1 (Continued)

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (JAN - OCT)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

| SAMPLE TYPE | DATE COLLECTED | ANALYSIS | TELEDYNE MIDWEST (A) | EPA (B) | TELEDYNE WESTWOOD (C) |
|-------------|----------------|-------------|----------------------|----------------|-----------------------|
| WATER | May 8, 1987 | Sr-89 | 38.0 ± 6.0 | 41.0 ± 5.0 | 40.3 ± 2.3 |
| | | Sr-90 | 21.0 ± 2.0 | 20.0 ± 1.5 | 21.3 ± 0.6 |
| WATER | May 22, 1987 | Gross alpha | 9.0 ± 3.4 | 11.0 ± 5.0 | 9.7 ± 0.6 |
| | | Gross beta | 10.3 ± 1.0 | 7.0 ± 5.0 | 8.3 ± 0.6 |
| WATER | Jun. 5, 1987 | Cr-51 | 40.0 ± 8.0 | 41.0 ± 5.0 | less than 53.3 |
| | | Co-60 | 60.3 ± 3.0 | 64.0 ± 5.0 | 63.0 ± 4.4 |
| | | Zn-65 | 11.3 ± 5.0 | 10.0 ± 5.0 | less than 9.7 |
| | | Ru-106 | 78.3 ± 6.4 | 75.0 ± 5.0 | 72.0 ± 11.8 |
| | | Cs-134 | 36.7 ± 3.0 | 40.0 ± 5.0 | 34.7 ± 1.5 |
| | | Cs-137 | 80.3 ± 4.2 | 80.0 ± 5.0 | 79.0 ± 4.4 |
| WATER | Jun. 12, 1987 | H-3 | 2906.0 ± 86.0 | 2895.0 ± 357.0 | 2800.0 ± 100.0 |
| WATER | Jun. 19, 1987 | Ra-226 | 6.9 ± 0.1 | 7.3 ± 1.1 | 7.3 ± 0.2 |
| | | Ra-228 | 13.3 ± 1.0 | 15.2 ± 2.3 | 17.23 ± 0.7 |
| MILK | Jun. 26, 1987 | Sr-89 | 57.0 ± 4.3(K) | 69.0 ± 5.0 | 63.7 ± 2.5 |
| | | Sr-90 | 32.0 ± 1.0(K) | 35.0 ± 1.5 | 39.7 ± 1.2(I) |
| | | I-131 | 64.0 ± 2.0 | 59.0 ± 6.0 | 49.3 ± 3.2(J) |
| | | Cs-137 | 77.7 ± 0.6 | 74.0 ± 5.0 | 77.0 ± 5.2 |
| | | K | 1383.0 ± 17.0(K) | 1525.0 ± 76.0 | 1533.3 ± 98.2 |
| WATER | Jul. 24, 1987 | Gross alpha | 2.3 ± 0.7 | 5.0 ± 5.0 | 6.3 ± 0.6 |
| | | Gross beta | 4.0 ± 1.0 | 5.0 ± 5.0 | 6.3 ± 0.6 |
| FOOD | Jul. 31, 1987 | Sr-89 | (N) | 20.0 ± 5.0 | 18.7 ± 1.2 |
| | | Sr-90 | (N) | 30.0 ± 1.5 | 31.0 ± 1.0 |
| | | I-131 | 82.7 ± 4.6 | 80.0 ± 8.0 | 88.0 ± 10.6 |
| | | Cs-137 | 53.7 ± 3.0 | 50.0 ± 5.0 | 57.3 ± 5.5(L) |
| | | K | 1548.0 ± 57.0 | 1680.0 ± 84.0 | 1603.3 ± 201.1 |
| WATER | Aug. 7, 1987 | I-131 | 45.7 ± 4.2 | 48.0 ± 6.0 | 58.7 ± 0.6(M) |
| AIR FILTER | Aug. 28, 1987 | Gross alpha | 9.7 ± 0.4 | 10.0 ± 5.0 | 11.0 ± 1.0 |
| | | Gross beta | 28.3 ± 0.6 | 30.0 ± 5.0 | 26.3 ± 2.9 |
| | | Sr-90 | 10.0 ± 0.9 | 10.0 ± 1.5 | 9.3 ± 0.6 |
| | | Cs-137 | 10.0 ± 1.0 | 10.0 ± 5.0 | 9.0 ± 1.0 |
| WATER | Sep. 11, 1987 | Ra-226 | 9.9 ± 0.1 | 9.7 ± 1.5 | 9.7 ± 0.2 |
| | | Ra-228 | 8.1 ± 1.4(O) | 6.3 ± 1.0 | 8.0 ± 0.3(P) |
| WATER | Sep. 18, 1987 | Gross alpha | 2.0 ± 0.6 | 4.0 ± 5.0 | 2.7 ± 0.6 |
| | | Gross beta | 11.3 ± 1.3 | 12.0 ± 5.0 | 13.0 ± 1.0 |

TABLE D-1 (Continued)

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (JAN - OCT)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

| SAMPLE TYPE | DATE COLLECTED | ANALYSIS | TELEDYNE MIDWEST (A) | EPA (B) | TELEDYNE WESTWOOD (C) |
|------------------------|----------------|-------------|----------------------|--------------|-----------------------|
| WATER | Oct. 9, 1987 | Cr-51 | 80.3±17.5(Q) | 70.0 ± 5.0 | 90.7 ± 11.6(R) |
| | | Co-60 | 16.0 ± 2.3 | 15.0 ± 5.0 | 16.3 ± 0.6 |
| | | Zn-65 | 46.3 ± 5.6 | 46.0 ± 5.0 | 50.7 ± 0.6 |
| | | Ru-106 | 57.3 ± 15.4 | 61.0 ± 5.0 | 55.7 ± 4.0 |
| | | Cs-134 | 23.7 ± 2.5 | 25.0 ± 5.0 | 25.7 ± 0.6 |
| | | Cs-137 | 51.7 ± 3.2 | 51.0 ± 5.0 | 54.7 ± 2.1 |
| WATER | Oct. 16, 1987 | H-3 | 4473.0±100.0 | 4492.0±449.2 | 4300.0±100.0 |
| LAB. PERFORMANCE WATER | Oct. 21, 1987 | Gross alpha | 29.3 ± 2.6 | 28.0 ± 7.0 | 40.7 ± 2.1(S) |
| | | Ra-226 | 4.9 ± 0.1 | 4.8 ± 0.7 | 4.8 ± 0.2 |
| | | Ra-228 | 4.2 ± 1.0 | 3.6 ± 0.5 | 3.3 ± 0.3 |
| | | U | 3.0 ± 0.1 | 3.0 ± 6.0 | 3.0 ± 0.0 |
| | | Gross beta | 72.3 ± 2.7 | 72.0 ± 5.0 | 72.7 ± 1.5 |
| | | Sr-89 | 14.3 ± 1.3 | 16.0 ± 5.0 | 14.7 ± 0.6 |
| | | Sr-90 | 9.7 ± 0.4 | 10.0 ± 1.5 | 9.7 ± 0.6 |
| | | Co-60 | 16.7 ± 3.0 | 16.0 ± 5.0 | 19.3 ± 2.5 |
| | | Cs-134 | 16.7 ± 2.3 | 16.0 ± 5.0 | 14.3 ± 2.5 |
| | | Cs-137 | 24.3 ± 3.3 | 24.0 ± 5.0 | 25.0 ± 3.6 |

- A. Teledyne Midwest Results - Mean ± two sigma for three determinations. All results are in pCi/l except for air filter samples, which are in pCi/filter; and food, which is in pCi/kg. K-40 is in mg/kg.
- B. EPA Results - Expected laboratory precision (1 sigma). Units are pCi/l for water, and milk except K is in mg/l. Units are total pCi for air particulate filters. Units for food are pCi/kg except K-40 which is mg/kg.
- C. Teledyne Results - Average ± one sigma. Units are pCi/l for water and milk except K is in mg/l. Units are total pCi for air particulate filters. Units for food are pCi/kg except K-40 which is mg/kg.
- D. Teledyne Midwest has no explanation for a low SR-90 result in this sample. All other results for Sr-90 in water samples analyzed in 1986 and 1987 were within acceptable limits. No other action is planned.
- E. No aerosol solution was added to the planchets in the final stages of preparation in order to create a more efficient counting geometry. The technicians in the alpha beta laboratory have been instructed to add the aerosol in accordance with Procedure PRO-031-1.
- F. No reason could be ascertained for the high result for Zn-65. Previous results had a normalized deviation from the known of -0.34 (10/10/86) and 0.58 (06/06/86). Therefore this does not appear to be a trend. Further cross-checks will be studied for any problems.

TABLE D-1 (Continued)

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (JAN - OCT)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

- G. A new radiochemical method is being developed for this analysis which should give more accurate results.
- H. The previous two EPA beta results are 6 percent low, and our in-house beta spikes are low by about the same percentage. Dr. H. Jeter will re-train the analysts in transferring all sample residue into the planchets.
- I. The reported high result was due to the small aliquot available for the Sr-90 analysis. Inadvertently a larger aliquot was used for another analysis leaving 40% of the normal volume for Sr-90. Additionally, the narrow acceptance limits defined by EPA are particularly difficult to meet. For this analysis 63% of the participants were beyond the ± 3 sigma limit.
- J. The low result is attributed to the application of the resin method rather than the hydroxide method to this analysis. The resin method is inefficient at absorbing protein-bound iodine thus leading to low results. The results obtained by GeLi were higher.
- K. Teledyne Midwest Laboratory had difficulty with this milk sample for an unknown reason. Previous analyses of milk samples have indicated no difficulties. No other action is planned at this time.
- L. The Cs-137 results in EPA Foods have typically been biased high. We are in the process of performing our annual calibrations. We are using a new Amersham mixed gamma standard rather than the most recently prepared NBS standard which is now several years old. Based on preliminary results the three Cs-137 values would be 52.1, 50.3, and 50.9, which average 51.1.
- M. Erroneously high electrode reading of stable iodide in sample (possibly because of interfering species such as divalent sulfur ion) leading to erroneously low chemical yields. After repeating the electrode reading, the calculated average I-131 is 49.6 pCi/l. Technicians have been made aware to be suspicious of high electrode readings. When unusually high readings occur samples will be diluted and/or oxidized and remeasured.
- N. Results were not reported because samples were lost in processing.
- O. Teledyne Midwest Laboratory attempted a new procedure which had yielded acceptable results with spiked samples. Further experimentation is needed with the new procedure.
- P. A new Ra-228 analytical procedure is being evaluated as a corrective action to the variability of results with current method. TI No. 12115 and TI No. 12116 (there was not sufficient sample for a third analysis) were also analyzed by the new procedure with results of 5.9 to 7.0 pCi/l. The new method will be used for the next Radium in Water Cross-check samples.

TABLE D-1 (Continued)

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (JAN - OCT)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

- Q. Teledyne Midwest Laboratory had unexplained difficulties with this isotope as did 41 other labs of the 100 participating in the study. EPA no longer spikes water with this isotope.
- R. The data for the Cr-51 results were reviewed. The detector efficiencies appear to be correct. The other five isotopes measured in this sample were within two standard deviations indicating there is no systematic error. Chromium-51 is difficult to measure at this activity level because of the low branching intensity of the gamma ray and being in the high background region of the spectrum since Cr-51 has a low energy ray.
- S. An investigation into the causes of this elevated result was ongoing at the time of this writing.
- T. Results within specified EPA expected precision of ± 3 sigma, N=3 control limit.

TABLE D-2

OYSTER CREEK NUCLEAR GENERATING STATION
US EPA CROSS-CHECK PROGRAM 1987 (OCT - DEC)
COMPARISON OF EPA AND CONTRACTOR LABORATORY RESULTS

| SAMPLE TYPE | DATE COLLECTED | ANALYSIS | GPU NUCLEAR ERL (A) | EPA (B) | TELEDYNE WESTWOOD (C) |
|------------------------|----------------|-------------|---------------------|----------------|-----------------------|
| WATER | Oct. 9, 1987 | Cr-51 | 67.0 ± 6.2 | 70.0 ± 5.0 | 90.7 ± 11.6(D) |
| | | Co-60 | 17.0 ± 2.0 | 15.0 ± 5.0 | 16.3 ± 0.6 |
| | | Zn-65 | 46.3 ± 1.2 | 46.0 ± 5.0 | 50.7 ± 0.6 |
| | | Ru-106 | 66.7 ± 6.5 | 61.0 ± 5.0 | 55.7 ± 4.0 |
| | | Cs-134 | 26.3 ± 1.5 | 25.0 ± 5.0 | 25.7 ± 0.6 |
| | | Cs-137 | 54.0 ± 1.7 | 51.0 ± 5.0 | 54.7 ± 2.1 |
| WATER | Oct. 16, 1987 | H-3 | 4366.0 ± 115.0 | 4492.0 ± 449.2 | 4300.0 ± 100.0 |
| LAB. PERFORMANCE WATER | Oct. 21, 1987 | Gross alpha | | 28.0 ± 7.0 | 40.7 ± 2.1(E) |
| | | Ra-226 | NO | 4.8 ± 0.7 | 4.8 ± 0.2 |
| | | Ra-228 | D | 3.6 ± 0.5 | 3.3 ± 0.3 |
| | | U | A | 3.0 ± 6.0 | 3.0 ± 0.0 |
| | | Gross beta | T | 72.0 ± 5.0 | 72.7 ± 1.5 |
| | | Sr-89 | A | 16.0 ± 5.0 | 14.7 ± 0.6 |
| | | Sr-90 | | 10.0 ± 1.5 | 9.7 ± 0.6 |
| | | Co-60 | | 16.0 ± 5.0 | 19.3 ± 2.5 |
| | | Cs-134 | | 16.0 ± 5.0 | 14.3 ± 2.5 |
| | | Cs-137 | | 24.0 ± 5.0 | 25.0 ± 3.6 |
| WATER | Nov. 20, 1987 | Gross alpha | 6.7 ± 1.5 | 7.0 ± 5.0 | less than 1.0 |
| | | Gross beta | 23.0 ± 1.0 | 19.0 ± 5.0 | less than 1.0 |

- A. GPU Nuclear ERL result is an average of three measurements ± one sigma. Units were pCi/l.
- B. EPA Results-Expected laboratory precision (1 sigma). Units are pCi/l for water, and milk except K is in mg/l. Units are total pCi for air particulate filters. Units for food are pCi/kg except K-40 which is mg/kg.
- C. Teledyne Results - Average ± one sigma. Units are pCi/l for water and milk except K is in mg/l. Units are total pCi for air particulate filters. Units for food are pCi/kg except K-40 which is mg/kg.
- D. The data for the Cr-51 results were reviewed. The detector efficiencies appear to be correct. The other five isotopes measured in this sample were within two standard deviations indicating there is no systematic error. Chromium-51 is difficult to measure at this activity level because of the low branching intensity of the gamma ray and being in the high background region of the spectrum since Cr-51 has a low energy ray.
- E. An investigation into the causes of this elevated result was ongoing at the time of this writing.

APPENDIX E
Annual Dairy Census - 1987

Annual Dairy Census - 1987

The 1987 dairy census concluded that there are no commercial dairy operations or other dairy animals within a 5 mile radius of the plant.

APPENDIX F
Annual Garden Census - 1987

Annual Garden Census - 1987

The 1987 garden census concluded that there are no commercial farms producing broadleaf vegetation within a 5 mile radius of the plant. Two gardens producing broadleaf vegetation were established near the site boundary in the two sectors with the highest D/Q. The results of vegetable analysis are listed in Table 10, page 44.