PSEG Nuclear LLC
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236

MAY 01 2006

LR-N06-0164

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United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

2005 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
SALEM AND HOPE CREEK GENERATING STATIONS
DOCKET NOS. 50-272, 50-311 AND 50-354

As required by Section 6.9.1.7 of Appendix A to Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station, Unit Nos. 1 and 2, and Section 6.9.1.6 of Appendix A to Facility Operating License NPF-57 for Hope Creek Generating Station, PSEG Nuclear hereby transmits one copy of the 2005 Annual Radiological Environmental Operating Report. This report summarizes the results of the radiological environmental surveillance program for 2005 in the vicinity of the Salem and Hope Creek Generating Stations. The result of this program for 2005 was specifically compared to the result of the pre-operational program.

If you have any questions or comments on this transmittal, please contact James Clancy at (856) 339-3144.

Sincerely,

Darin M Benyak

Darin M. Benyak
Director – Regulatory Assurance

Attachment

JE25

C Mr. S. Collins, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. S. Bailey, Project Manager – Salem/Hope Creek
U. S. Nuclear Regulatory Commission
Mail Stop 08B1
Washington, DC 20555

USNRC Senior Resident Inspector - Salem (X24)

USNRC Senior Resident Inspector – Hope Creek (X24)

Mr. K. Tosch, Manager IV
Bureau of Nuclear Engineering
P. O. Box 415
Trenton, NJ 08625

Mr. K. Kille
Delaware Emergency Management Agency
165 Brick Store Landing Road
Smyrna, DE 19977

PSEG

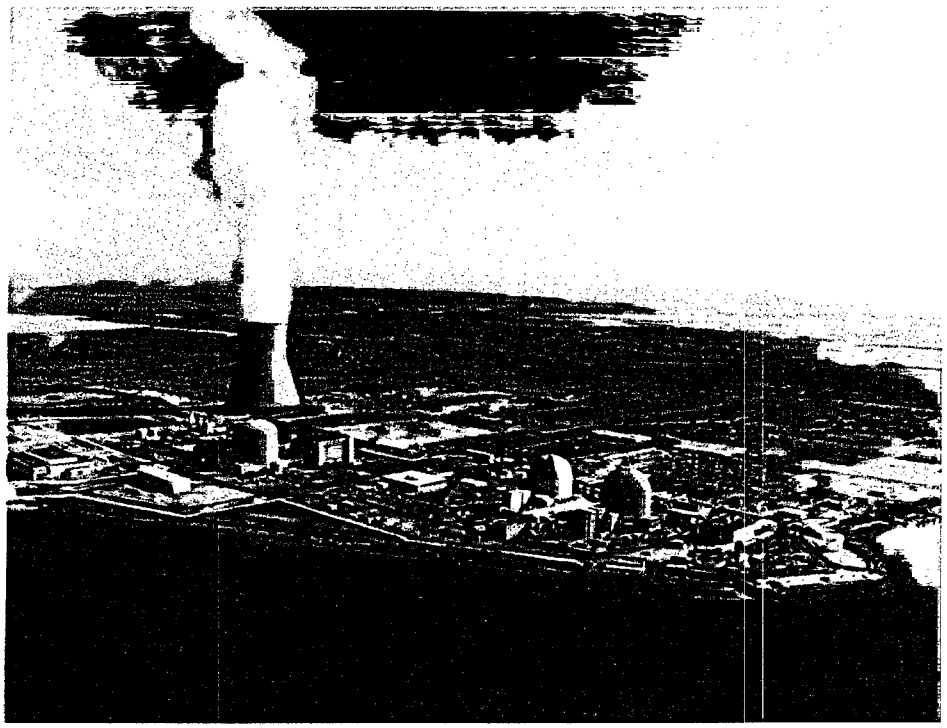
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
For

Salem Generating Station, Unit 1: Docket No. 50-272
Salem Generating Station, Unit 2: Docket No. 50-311
Hope Creek Generating Station : Docket No. 50-354

2005 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
JANUARY 1 TO DECEMBER 31, 2005

Prepared by
PSEG SERVICE CORPORATION
MAPLEWOOD TESTING SERVICES
APRIL 2006

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM



SALEM & HOPE CREEK
GENERATING STATIONS

2005 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

JANUARY 1 TO DECEMBER 31, 2005

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SUMMARY

During normal operations of a nuclear power generating station there are releases of small amounts of radioactive material to the environment. To monitor and determine the effects of these releases a Radiological Environmental Monitoring Program (REMP) has been established for the environment around Artificial Island where the Salem Generating Stations (SGS) and Hope Creek Generating Station (HCGS) are located. The results of the REMP are published annually, providing a summary and interpretation of the data collected.

PSEG's Maplewood Testing Services (MTS) has been responsible for the collection and analysis of environmental samples during the period of January 1, 2005, through December 31, 2005, and the results are discussed in this report. The REMP for SGS/HCGS was conducted in accordance with the SGS and HCGS Technical Specifications/Offsite Dose Calculation Manual. The Lower Limit of Detection (LLD) values required by the Technical Specifications/ODCM were achieved for this reporting period. The objectives of the program were also met during this period. The data collected assists in demonstrating that SGS and HCGS were operated in compliance with Technical Specifications/ODCM.

Most of the radioactive materials noted in this report are normally present in the environment, either naturally, such as potassium-40, or as a result of non-nuclear generating station activity, such as nuclear bomb testing. Measurements made in the vicinity of SGS/HCGS were compared to background or control measurements and the preoperational REMP study performed before Salem Unit 1 became operational. Samples of air particulates, air iodine, milk, surface, ground and drinking water, vegetables, game, fodder crops, fish, crabs, and sediment were collected and analyzed. External radiation dose measurements were also made in the vicinity of SGS/HCGS using thermoluminescent dosimeters.

From the results obtained, it can be concluded that the levels and fluctuations of radioactivity in environmental samples were as expected for an estuarine environment. No unusual radiological characteristics were observed in the environs of SGS/HCGS during this reporting period. Since these results were comparable to the results obtained during the preoperational phase of the program, and with historical results collected since commercial operation, we can conclude that the operation of SGS and HCGS had no significant impact on the radiological characteristics of the environs of these stations.

To demonstrate compliance with Technical Specifications/ODCM (Sections 3/4.12.1 & 6.8.4.h -1,2,3), samples were analyzed for one or more of the following: gamma emitting isotopes, tritium (H-3), iodine-131 (I-131), gross beta and gross alpha.

The results of these analyses were used to assess the environmental impact of SGS and HCGS operations, thereby demonstrating compliance with Technical Specifications/ODCM (Section 3/4.11) and applicable Federal and State regulations, and to verify the adequacy of radioactive effluent control systems.
The results provided in this report are summarized below:

- There were a total of 1452 analyses on 1124 environmental samples during 2005, including direct radiation dose measurements made using 195 thermoluminescent dosimeters (TLDs).

- In addition to the detection of naturally - occurring isotopes (i.e. Be-7, K-40, Radium and Th-232) trace levels of H-3 and Cs-137 were also detected. The concentrations of these nuclides were well below the Technical Specification reporting limit.

- Dose measurements made with quarterly TLDs at 31 offsite locations around the SGS/HCGS site averaged 50 millirems for the year 2005. The average of the dose measurements at the control locations (background) was 53 millirems for the year. This was comparable to the preoperational phase of the program which had an average of 55 millirems per year for 1973 to 1976.

During 2005, PSEG Nuclear continued remedial actions for tritium identified in shallow groundwater at Salem Station. These remedial actions have been conducted in accordance with a Remedial Action Work Plan that was approved by the New Jersey Department of Environmental Protection - Bureau of Nuclear Engineering (NJDEP-BNE) in November, 2004. A groundwater recovery/extraction system [GRS] has been installed, consisting of eight wells, associated pumps and continuous sampling equipment. The GRS is in operation, providing hydraulic control of plume and effectively removing tritium contaminated groundwater. The tritium contaminated groundwater is disposed of in accordance with Salem Station's liquid radioactive waste disposal program. There is no evidence or indication that tritium contaminated water above Ground Water Quality Criteria (GWQC) levels [GWQC is <20,000 pCi/L] has migrated to the station boundary or the Delaware River.

THE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Lower Alloways Creek Township, Salem County, New Jersey is the site of Salem (SGS)and Hope Creek (HCGS) Generating Stations. SGS consists of two operating pressurized water nuclear power reactors. Salem Unit One has a net rating of 1177 megawatt electric(MWe) and Salem Unit Two has a net rating of 1134 MWe. The licensed core power for both units is 3459 megawatt thermal (MWt). HCGS is a boiling water nuclear power reactor, which has a net rating of 1094 MWe (3339 MWt).

SGS/HCGS are located on a man-made peninsula on the east bank of the Delaware River. It was created by the deposition of hydraulic fill from dredging operations. The environment surrounding SGS/HCGS is characterized mainly by the Delaware River and Bay, extensive tidal marshlands, and low-lying meadowlands. These land types make up approximately 85% of the land area within five miles of the site. Most of the remaining land is used for agriculture [1,2]. More specific information on the demography, hydrology, meteorology, and land use of the area may be found in the Environmental Reports [1,2], Environmental Statements [3,4], and the Updated Final Safety Analysis Reports for SGS and HCGS [5,6].

Since 1968, a radiological environmental monitoring program (REMP) has been conducted at the SGS/HCGS Site. Starting in December, 1972, more extensive radiological monitoring programs were initiated. The operational REMP was initiated in December, 1976, when Salem Unit 1 achieved criticality. PSEG's Maplewood Testing Services (MTS) has been involved in the REMP since its inception. MTS is responsible for the collection of all radiological environmental samples and, from 1973 through June, 1983, conducted a quality assurance program in which duplicates of a portion of those samples analyzed by the primary laboratory were also analyzed by MTS.

From January, 1973, through June, 1983, Radiation Management Corporation (RMC) had primary responsibility for the analysis of all samples under the SGS/HCGS REMP and annual reporting of results. RMC reports for the preoperational and operational phase of the program are referenced in this report [7-9]. On July 1, 1983, MTS assumed primary responsibility for the analysis of all samples (except TLDs) and the reporting of results. Teledyne Brown Engineering Environmental Services (TBE), assumed responsibility for third-party QA analyses and TLDs. An additional vendor, Controls for Environmental Pollution Inc. (CEP), was retained to provide third-party QA analyses and certain non-routine analyses from May, 1988, until June 1, 1992. Currently, Framatome ANP, Inc. Environmental Laboratory (Framatome) is the third party QA vendor and the laboratory which performs the TLD analyses. MTS reports for the operational phase from 1983 to 2004 are referenced in this report [10].

An overview of the 2005 Program is provided in Table 1. Radioanalytical data from samples collected under this program were compared with results from the preoperational phase. Differences between these periods were examined statistically to determine the effects of station operations. This report presents the results from January 1 through December 31, 2005, for the SGS/HCGS REMP.

OBJECTIVES

The objectives of the Operational REMP are:

- To fulfill the requirements of the Radiological Surveillance sections of the Technical Specifications/ODCM for SGS/HCGS.
- To determine whether any significant increase occurred in the concentration of radionuclides in critical pathways.
- To determine if SGS or HCGS has caused an increase in the radioactive inventory of long-lived radionuclides.
- To detect any change in ambient gamma radiation levels.
- To verify that SGS and HCGS operations have no detrimental effects on the health and safety of the public or on the environment.

This report, as required by Section 6.9.1.7 of the Salem Technical Specifications/ODCM and Section 6.9.1.6 of the Hope Creek Technical Specifications/ODCM, summarizes the findings of the 2005 REMP. Results of the four-year preoperational program have been summarized for comparison with subsequent operational reports [8].

In order to meet the objectives, an operational REMP was developed. Samples of various media were selected for monitoring due to the radiological dose impact to human and other organisms. The selection of samples was based on: (1), established critical pathways for the transfer of radionuclides through the environment to man, and, (2), experience gained during the preoperational phase. Sampling locations were determined based on site meteorology, Delaware estuarine hydrology, local demography, and land uses.

Sampling locations were divided into two classes, indicator and control. Indicator stations are those, which are expected to manifest station effects. Control samples are collected at locations which are believed to be unaffected by station operations, usually at 15 to 30 kilometers distance. Fluctuations in the levels of radionuclides and direct radiation at indicator stations are evaluated with respect to analogous fluctuations at control stations. Indicator and control station data are also evaluated relative to preoperational data. Appendix A describes and summarizes, in accordance with Section 6.9.1.7 of the Salem TS and Section 6.9.1.6 of the Hope Creek TS, the operational program as performed in 2005.

Appendix B describes the coding system which identifies sample type and location. Table B-1 lists the sampling stations and the types of samples collected at each station. These sampling stations are indicated on Maps B-1 and B-2.

DATA INTERPRETATION

Results of analyses are grouped according to sample type and presented in Appendix C. All results above the Lower Limit of Detection (LLD) are at a confidence level of 2 sigma. This represents the range of values into which 95% of repeated analyses of the same sample should fall. As defined in Regulatory Guide 4.8, LLD is the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability, with only 5% probability of falsely concluding that a blank observation represents a "real signal". LLD is normally calculated as 4.66 times the standard deviation of the background counting rate, or of the blank sample count, as appropriate, divided by counting efficiency, sample size, 2.22 (dpm per picocurie), the radiochemical yield when applicable, the radioactive decay constant and the elapsed time between sample collection and time of counting. The Minimum Detectable Concentration (MDC) is defined as the smallest concentration of radioactive material that can be detected at a given confidence level. The MDC differs from the LLD in that the MDC takes into consideration the interference caused by the presence of other nuclides while the LLD does not.

The grouped data were averaged and standard deviations calculated in accordance with Appendix B of Reference 16. Thus, the 2 sigma deviations of the averaged data represent sample and not analytical variability. For reporting and calculation of averages, any result occurring at or below the LLD is considered to be at that level. When a group of data was composed of 50% or more LLD values, averages were not calculated.

Grab sampling is a useful and acceptable procedure for taking environmental samples of a medium in which the concentration of radionuclides is expected to vary slowly with time or where intermittent sampling is deemed sufficient to establish the radiological characteristics of the medium. This method, however, is only representative of the sampled medium for that specific location and instant of time. As a result, variation in the radionuclide concentrations of the samples will normally occur. Since these variations will tend to counterbalance one another, averages based upon repetitive grab samples is considered valid.

QUALITY ASSURANCE PROGRAM

MTS has a quality assurance program designed to ensure confidence in the analytical program. Approximately 20% of the total analytical effort is spent on quality control, including process quality

control, instrument quality control, interlaboratory cross-check analyses, and data review.

The quality of the results obtained by MTS is ensured by the implementation of the Quality Assurance Program as described in the Maplewood Testing Services Quality Assurance Plan [11] and the Environmental and Chemical Division Procedures Manual. The internal quality control activity of MTS includes the quality control of instrumentation, equipment and reagents; the use of reference standards in calibration, documentation of established procedures and computer programs, and analysis of duplicate samples. The external quality control activity is implemented through participation in both the Analytics and the Environmental Resource Associates Interlaboratory Comparison Programs. The results of these Interlaboratory Comparison Programs are listed in Tables D-1 through D-4 in Appendix D.

PROGRAM CHANGES

Since there are no milk farms or gardens within 5 km of the Site, MTS personnel planted, maintained and harvested a broad leaf vegetation sample. Ornamental cabbage was planted in the fall in floral greenhouses at three locations onsite (1S1, 15S1 and 16S1) and one location 3.9 miles SSW across the river (10D1). The samples were then collected in the last week of December.

RESULTS AND DISCUSSION

The analytical results of the 2005 REMP samples are divided into categories based on exposure pathways: atmospheric, direct, terrestrial, and aquatic. The analytical results for the 2005 REMP are summarized in Appendix A. The data for individual samples are presented in Appendix C. The data collected demonstrates that the SGS and HCGS REMP was conducted in compliance with the Technical Specifications/ODCM.

The REMP for the SGS/HCGS Site has historically included samples and analyses not specifically required by these Stations' Technical Specifications/ODCM. MTS continues to collect and analyze some of these samples in order to maintain personnel proficiency in performing these non-routine analyses. These analyses are referenced throughout the report as Management Audit samples. The summary tables in this report include these additional samples and analyses.

ATMOSPHERIC

Air particulates were collected on Schleicher-Schuell No. 25 glass fiber filters with low-volume air samplers.

Iodine was collected from the air by adsorption on triethylene-diamine (TEDA) impregnated charcoal cartridges connected in series after the air particulate filters. Air sample volumes were measured with calibrated dry-gas meters and were corrected to standard temperature and pressure.

Air Particulates (Tables C-1, C-2)

Air particulate samples were collected weekly, at 6 locations. Each of the 310 samples (see Program Deviations) collected for the year were analyzed for gross beta. Quarterly composites of the weekly samples from each station were analyzed for specific gamma emitters. Total data recovery for the 6 sampling stations in 2005 was greater than 99 percent.

- Gross beta activity was detected in all of the indicator station samples collected at concentrations ranging from 8 x 10^{-3} to 51 x 10^{-3} pCi/m^3 and in all of the control station samples from 9 x 10^{-3} to 46 x 10^{-3} pCi/m^3. The averages for the indicator and control station samples were 23 and 24 x 10^{-3} pCi/m^3, respectively. The maximum preoperational level detected was 920 x 10^{-3} pCi/m^3, with an average of 74 x 10^{-3} pCi/m^3. Results from 1985 to current year are plotted on Figure 1 as quarterly averages. Included along with this plot, for purposes of comparison, is an inset depicting a continuation of this plot from the current year all the way back to 1973.

- Gamma spectroscopy, performed on each of the 24 quarterly composite samples analyzed, indicated the presence of the naturally-occurring radionuclides Be-7 and K-40. All other gamma emitters searched for were below the LLD.

  - Beryllium-7, attributed to cosmic ray activity in the atmosphere, was detected in all 20 indicator station composites that were analyzed, at concentrations ranging from 63 x 10^{-3} to 77 x 10^{-3} pCi/m^3, with an average of 69 x 10^{-3} pCi/m^3. It was detected in the 4 control station composites ranging from 58 x 10^{-3} to 71 x 10^{-3} pCi/m^3, with an average of 63 x 10^{-3} pCi/m^3. The maximum preoperational level detected was 330 x 10^{-3} pCi/m^3, with an average of 109 x 10^{-3} pCi/m^3.

  - Potassium-40 activity was detected in 17 of the indicator station samples, with concentrations ranging from 8 x 10^{-3} to 30 x 10^{-3} pCi/m^3 , with an average of 12 x 10^{-3} pCi/m^3. K-40 was also detected in 3 control station samples, at concentrations from 9 x 10^{-3} to 17 x 10^{-3} pCi/m^3 with an average of 12 x 10^{-3} pCi/m^3. No preoperational data is available for comparison.

Air Iodine (Table C-3)

Iodine in filtered air samples was collected weekly, at 6 locations. Each of the 310 samples collected (see Program Deviations) for the year was analyzed for I-131.

Iodine-131 was not detected in any of the weekly samples analyzed. LLD sensitivities for all the stations, both indicator and control, ranged from $<1.2 \times 10^{-3}$ to $<15 \times 10^{-3}$ pCi/m^3. The maximum preoperational level detected was 42×10^{-3} pCi/m^3.

DIRECT RADIATION

Ambient radiation levels in the environs were measured with energy-compensated $CaSO_4$ (Tl) thermoluminescent dosimeters (TLDs) supplied and read by Framatome. Packets containing TLDs for quarterly exposure were placed in the owner-controlled area and around the Site at various distances and in each land based meteorological sector. Special emphasis was placed on special interest areas such as population centers, nearby residences, and schools.

Direct Radiation (Table C-4)

A total of 49 locations were monitored for direct radiation during 2005, including 12 on-site locations, 31 off-site locations within the 10 mile zone, and 6 control locations beyond 10 miles. Effort was made to locate TLDs at schools and population centers in the area.

Five readings for each TLD (ie; 5 elements) at each location were taken in order to obtain a more statistically valid result. For these measurements, the rad is considered equivalent to the rem, in accordance with 10CFR20.1004.

The average dose rate for the 31 quarterly off-site indicator TLDs was 4.2 millirads per standard month, while the on-site average was 4.4 millirads per standard month. The average control rate was 4.4 millirads per standard month. The preoperational average for the quarterly TLD readings was 4.4 millirads per standard month.

In Figure 2, the quarterly average radiation levels of the off-site indicator stations versus the control stations, are plotted for the period 1985 through 2005, with an inset graph depicting the current year back to 1973.

TERRESTRIAL

Milk samples were taken semi-monthly when cows were on pasture and monthly when cows were not grazing on open pasture. Animals are considered on pasture from April to November of each year. Samples were collected in polyethylene containers and transported in ice chests with no preservatives added to the milk.

A well water sample was collected monthly. Separate raw and treated potable water samples were composited daily at the City of Salem water treatment plant. All samples were collected in new polyethylene containers.
Locally grown vegetable and fodder crops were collected at the time of harvest with the exception of ornamental cabbage. MTS personnel planted, maintained and harvested this broad leaf crop in the fall from three locations on site and one across the river. All samples were weighed and packed in plastic bags.

Game (muskrat) has been collected annually (time of year dependent on weather conditions, which affect pelt thickness) from local farms after being trapped, stripped of their pelts and gutted. The carcasses were packed in plastic bags and kept chilled in ice chests during transport.

Milk (Table C-5)

Milk samples were collected at 4 local dairy farms (2 farms in NJ and 2 in Delaware). Each sample was analyzed for I-131 and gamma emitters.

- Iodine-131 was not detected in any of the 80 samples analyzed. LLD sensitivities for both the indicator and the control station samples ranged from <0.1 to 0.7 pCi/L. The maximum preoperational level detected was 65 pCi/L which occurred following a period of atmospheric nuclear weapons tests. Results from 1985 to 2005 are plotted on Figure 3, with an inset graph depicting the current year back to 1973.

- Gamma spectroscopy performed on each of the 80 samples indicated the presence of the naturally-occurring radionuclide K-40. All other gamma emitters searched for were below the LLD.

  - Potassium-40 was detected in all 80 samples. Concentrations for the 60 indicator station samples ranged from 1210 to 1440 pCi/L, with an average of 1340 pCi/L. The 20 control station sample concentrations ranged from 1230 to 1420 pCi/L, with an average of 1300 pCi/L. The maximum preoperational level detected was 2000 pCi/L, with an average of 1437 pCi/L.

Well Water (Ground Water) (Tables C-6, C-7)

Although wells in the vicinity of SGS/HCGS are not directly affected by plant operations, water samples were collected monthly from one farm's well during January through December of the year. Each sample was analyzed for gross alpha, gross beta, tritium, and gamma emitters.

- Gross alpha activity was detected in 1 of the well water samples at a concentration of 3.2 pCi/L.

The maximum preoperational level detected was 9.6 pCi/L. There was no preoperational average determined for this analysis.

- Gross beta activity was detected in all 12 well water samples.

  Concentrations for the samples ranged from 9.2 to 11 pCi/L, with an average of 10 pCi/L. The 2005 gross beta results are comparable with the preoperational results which ranged from <2.1 to 38 pCi/L, with an average value of 9 pCi/L.

- Tritium activity was not detected in any of the well water samples. The LLD sensitivities ranged from <145 to <155 pCi/L. The maximum preoperational level detected was 380 pCi/L. There was no preoperational average determined for this analysis.

- Gamma spectroscopy performed on each of the 12 well water samples indicated the presence of the naturally-occurring radionuclides K-40 and Radium. All other gamma emitters searched for were below the LLD.

  - Radium was detected in all 12 of the well water samples at concentrations ranging from 36 to 155 pCi/L with an average of 102 pCi/L. The maximum preoperational level detected was 2.0 pCi/L. There was no preoperational average determined for this analysis.

    These values are similar to those found in the past 16 years. However, as with the 1989 through 2005 results, they are higher than those found in the preoperational program. These results are due to a procedural change for sample preparation. The change results in less removal of radon (and its daughter products) from the sample. It is reasonable to conclude that values currently observed are typical for this region.

  - Potassium-40 was detected in 3 of the samples at concentrations ranging from 63 to 101 pCi/L and an average of 84 pCi/L. The maximum preoperational level detected was 30 pCi/L. There was no preoperational average determined for this analysis.

Potable Water (Drinking Water) (Tables C-8, C-9)

Both raw and treated potable water samples were collected and composited by Salem water treatment plant personnel. Each sample consisted of daily aliquots composited into a monthly sample. The raw water source for this plant is Laurel Lake and its adjacent wells. These are management audit samples as no liquid effluents discharged from SGS/HCGS will directly affect this pathway. Each of the 24 individual samples was analyzed for gross alpha, gross beta, tritium, iodine-131 and gamma emitters.

- Gross alpha activity was detected in 5 raw water samples at concentrations of 0.5 to 1.9 pCi/L and in 1 treated water samples at 0.5 pCi/L. The averages for both raw and treated water samples was 0.9 pCi/L. The maximum preoperational level detected was 2.7 pCi/L. There was no preoperational average determined for this analysis.

- Gross beta activity was detected in all 12 raw water samples at concentrations ranging from 2.6 to 3.9 pCi/L. Concentrations for the treated water ranged from 2.5 to 3.9 pCi/L. The average concentration for both raw and treated was 3.1 pCi/L. The maximum preoperational level detected was 9.0 pCi/L, with an average of 4.2 pCi/L.

- Tritium activity was not detected in any of the raw or treated potable water samples. LLD sensitivities for the raw and treated samples ranged from <139 to <156 pCi/L. The maximum preoperational level detected was 350 pCi/L, with an average of 179 pCi/L.

- Iodine-131 measurements were performed to a sensitivity of 1.0 pCi/L, even though the drinking water supplies are not affected by discharges from the Site since the receiving water body (Delaware River) is brackish and therefore the water is not used for human consumption. Iodine-131 measurements for all 24 samples were below the LLD sensitivities. These sensitivities ranged from <0.1 to <0.4 pCi/L. There was no preoperational data available for comparison.

- Gamma spectroscopy performed on each of the 24 monthly water samples indicated the presence of the naturally-occurring radionuclides K-40 and Radium. All other gamma emitters searched for were below the LLD.

  - The radionuclide K-40 was detected in 9 of the treated potable waters at concentrations ranging from 36 to 92 pCi/L. It was detected in 7 of the raw potable water samples at concentrations from 30 to 84 pCi/L. The average for both raw and treated results was 41 pCi/L. LLD sensitivities for the remaining 8 potable water samples were <14 to <17 pCi/L. There was no preoperational data available for comparison.

  - Radium was detected in 3 of the treated potable waters at concentrations ranging from 5.7 to 15 pCi/L. It was not detected in any of the raw potable water samples. The average for the treated positive results was 9.3 pCi/L. LLD sensitivities for the remaining 21 samples were <2 to <3 pCi/L. The maximum preoperational level detected was 1.4 pCi/L. There was no preoperational average determined for this analysis. The higher results in the three measurable samples are due to the procedural change for sample preparation, as discussed in the Well Water section.

Vegetables (Table C-10)

Although vegetables in the region are not irrigated with water into which liquid plant effluents have been discharged, a variety of food products grown in the area for human consumption were sampled at 5 indicator stations (15 samples) and 4 control stations (12 samples).

The vegetables collected as management audit samples were analyzed for gamma emitters and included asparagus, cabbage, sweet corn, peppers, and tomatoes.

Gamma spectroscopy performed on each of the 27 samples indicated the presence of the naturally-occurring radionuclide K-40 and in one sample radium. All other gamma emitters searched for were below the LLD.

Potassium-40 was detected in all 27 samples. Concentrations for the 15 indicator station samples ranged from 1240 to 2880 pCi/kg-wet and averaged 2030 pCi/kg-wet. Concentrations for the 12 control station samples ranged from 1180 to 2860 pCi/kg-wet, and averaged 1930 pCi/kg-wet. The average concentration detected for all samples, both indicator and control, was 1980 pCi/kg-wet. The maximum preoperational level detected was 4800 pCi/kg-wet, with an average of 2140 pCi/kg-wet.

Radium was detected in 1 of the control station tomato samples at a concentration of 18 pCi/l. It was not detected in any of the indicator station samples. LLD sensitivities for all the vegetable samples ranged from <4.7 to <12 pCi/L. There was no preoperational data available for comparison.

Game (Table C-11)

Although not required by the SGS or HCGS Technical Specifications/ODCM, samples of muskrats inhabiting the marshlands surrounding the Site, are collected. Local residents consume this game. The samples, when available, are collected once a year as management audit samples and analyzed for gamma emitters.

Gamma spectroscopy performed on the flesh indicated the presence of the naturally-occurring radionuclide K-40. All other gamma emitters searched for were below the LLD.

Potassium-40 was detected in the one sample at a concentration of 2970 pCi/kg-wet. The maximum preoperational level detected was 27000 pCi/kg-wet, with an average of 4400 pCi/kg-wet.

Fodder Crops (Table C-12)

Although not required by the SGS or HCGS Technical Specifications/ODCM, 3 samples of crops normally used as cattle feed (silage and soybeans) were collected from one indicator station

(1 sample) and one control station (2 samples). It was determined that these products may be a significant element in the food-chain pathway. These fodder crops are collected as management audit samples and analyzed for gamma emitters. The two locations from which samples were collected this year are milk sampling stations.

In addition to the silage and soybean, ornamental cabbage was planted, maintained, and harvested by MTS personnel at 3 locations on site and 1 in Delaware, at 3.9 miles. These broad leaf vegetation samples were deemed necessary since there are no longer any milk farms operating within the 5 km radius of SGS/HCGS. The closest milk farm we have is located in Odessa, DE at 4.9 miles.

Gamma spectroscopy performed on each of the 3 samples indicated the presence of the naturally-occurring radionuclides Be-7 and K-40. All other gamma emitters searched for were below the LLD.

Beryllium-7, attributed to cosmic ray activity in the atmosphere, was detected in the indicator silage sample at a concentration of 283 pCi/kg-wet. It was not detected in the control station silage sample. The maximum preoperational level detected for silage was 4700 pCi/kg-wet, with an average of 2000 pCi/kg-wet. Be-7 was detected in the control station soybean sample at a concentration of 75 pCi/kg-wet. The maximum preoperational level detected for soybean samples was 9300 pCi/kg-dry. Be-7 was detected in all 4 of the ornamental cabbage samples at concentrations of 105 to 236 pCi/kg-wet with a combined average of 170 pCi/kg-wet. There was no preoperational data available for comparison with these samples.

Potassium-40 was detected in all 7 of the station samples. The Concentration for the indicator station sample was 3180 pCi/kg-wet. Concentrations for the 2 control station samples were at 3890 and 14200 pCi/kg-wet. The average concentration detected for the silage samples (both indicator and control) was 3540 pCi/kg-wet. Preoperational results averaged 7000 pci/kg-wet. Results for the soybean sample (control) was 14200 pCi/kg-wet. Preoperational soybean results averaged 22000 pCi/kg-dry. Concentrations of K-40 for the 4 ornamental cabbage samples ranged from 3660 to 4020 pCi/kg-wet. There was no preoperational data available for comparison with these samples.

Radium was detected in 1 of the control station soybean samples at a concentration of 18 pCi/kg-wet. It was not detected in any of the silage or cabbage samples. LLD sensitivities for all the fodder crops ranged from <5.9 to <11 pCi/kg-wet. There was no preoperational data available for comparison.

AQUATIC

Environmental Consulting Services, Inc (ECS) collected all aquatic samples (with the exception of 6S2 shoreline sediment).

Surface water samples were collected in new polyethylene containers that were rinsed twice with the sample medium prior to collection.

Edible fish and crabs are taken by net and then processed. In processing, the flesh is separated from the bone and shell and placed in sealed polyethylene containers and frozen before being transported in ice chests.

Sediment samples collected by ECS were taken with a bottom grab sampler and frozen in sealed polyethylene containers before being transported in ice chests. MTS personnel collect location 6S2 shoreline sediment on the beach behind the observation building.

Surface Water (Tables C-13, C-14, C-15)

Surface water samples were collected monthly at 4 indicator stations and one control station in the Delaware estuary. One location is at the outfall area (which is the area where liquid radioactive effluents from the Salem Station are allowed to be discharged into the Delaware River), another is downstream from the outfall area, and another is directly west of the outfall area at the mouth of the Appoquinimink River. Two upstream locations are in the Delaware River and at the mouth of the Chesapeake and Delaware Canal, the latter being sampled when the flow is from the Canal into the river. Station 12C1, at the mouth of the Appoquinimink River, serves as the operational control. [Location 12C1 was chosen because the physical characteristics of this station more closely resemble those of the outfall area than do those at the farther upstream location (1F2). As discussed in the pre-operational summary report, due to the tidal nature of this Delaware-River-Bay estuary, there are flow rate variations. The further the distance from the boundary between the Delaware River and the Delaware Bay (Liston Point), the lower the background levels, the lower the salinity, lower K-40(AA) and lower concentrations of soluble gross beta emitters.] All surface water samples were analyzed monthly for gross beta, tritium and gamma emitters.

- Gross beta activity was detected in all of the indicator station samples ranging from 6.2 to 143 pCi/L, with an average of 62 pCi/L. Beta activity was detected in all 12 of the control station samples with concentrations ranging from 6.6 to 99 pCi/L, with an average of 60 pCi/L. The maximum preoperational level detected was 110 pCi/L, with an average of 32 pCi/L. Quarterly results for all locations are plotted on Figure 4, for the years 1985 to 2005, with an inset graph depicting the current year back to 1973.

- Tritium activity was not detected in any of the control station samples. It was detected in 2 of the indicator station samples, specifically 11A1, at concentrations of 190 and 820 pCi/L (according to discharge records, tritium was released during this time period) with an average of 506 pCi/L. LLD sensitivities for the remaining station samples, both indicator and control, ranged from <140 to <160 pCi/L.

The maximum preoperational level detected was 600 pCi/L, with an average of 210 pCi/L. Positive results from 1985 to 2005 are plotted on Figure 5, with an inset graph depicting the current year back to 1973. (The graph shows a spike this year for tritium but results obtained from location 11A1 are well below the reportable limit of $3x10^4$ pCi/L as listed in Table 3.12-2 of the SGS/HCGS ODCM).

- Gamma spectroscopy performed on each of the 48 indicator station and 12 control station surface water samples indicated the presence of the naturally-occurring radionuclides K-40, Th-232, and radium. All other gamma emitters searched for were below the LLD.

  - Potassium-40 was detected in 46 samples from the indicator stations at concentrations ranging from 34 to 217 pCi/L and in all 12 of the control station samples ranging from 40 to 131 pCi/L. The average for the indicator station locations was 88 pCi/L, while the average for the control station locations was 80 pCi/L. The maximum preoperational level detected was 200 pCi/L, with an average of 48 pCi/L.

  - Radium was detected in only 1 of the indicator station samples at a concentration of 5.9 pCi/L. It was not detected in any of the control station samples. LLD sensitivities for the rest of the station samples, both indicator and control, ranged from <1.2 to <6.4 pCi/L. The maximum pre-operational level detected was 4 pCi/L, with no average calculated.

  - Thorium-232 was detected in only 3 of the indicator station samples at concentrations of 9.5 to 16 pCi/L with an agerage of 12 pCi/L. It was not detected in any of the control station samples. LLD sensitivities for the rest of the station samples, both indicator and control, ranged from <2.8 to <14 pCi/L. There was no pre-operational data available for this nuclide.

Fish (Table C-16)

Edible species of fish were collected semi-annually at 3 locations, 2 indicator and 1 control, and analyzed for gamma emitters in flesh. Samples included channel catfish, bluefish, Atlantic croaker, weakfish and striped bass. (See explanation of controls in the surface water section).

- Gamma spectroscopy performed on each of the 4 indicator station samples and 2 control station samples indicated the presence of the naturally-occurring radionuclide K-40. All other gamma emitters searched for were below the LLD.

  - Potassium-40 was detected in all 4 samples from the indicator stations at concentrations ranging from 3380 to 3700 pCi/kg-wet for an average of 3535 pCi/kg-wet.

K-40 was detected in both samples from the control location at 3480 and 3660 pCi/kg-wet. The average for the control samples was 3570 pCi/kg-wet. The maximum preoperational level detected was 13000 pCi/kg-wet, with an average of 2900 pCi/kg-wet.

Blue Crab (Table C-17)

Blue crab samples were collected twice during the season at 2 locations, 1 indicator and 1 control, and the edible portions were analyzed for gamma emitters. (See explanation of controls in the surface water section).

Gamma spectroscopy performed on the flesh of the indicator station samples and the control station samples indicated the presence of the naturally-occurring radionuclide K-40. All other gamma emitters searched for were below the LLD.

Potassium-40 was detected in both indicator station samples at concentrations of 2570 and 3140 pCi/kg-wet. It was detected in both control station samples at 2840 and 3080 pCi/kg-wet. The average for both the indicator and control station samples was 2910 pCi/kg-wet. The maximum preoperational level detected was 12000 pCi/kg-wet, with an average of 2835 pCi/kg-wet.

Sediment (Table C-18)

Sediment samples were collected semi-annually from 7 locations, including 6 indicator stations and 1 control station. (Location 6S2 is the only shoreline sediment and it is directly affected by tidal fluctuations) Each of the 14 samples was analyzed for gamma emitters. Although trace levels of the man-made nuclide, Cs-137, were detected in 3 sediment locations, these levels were well within the acceptable levels specified in section 3/4.12.1 of the Technical Specifications/ODCM. (See explanation of controls in the surface water section)

Gamma spectroscopy was performed on each of the 12 indicator station samples and 2 control station samples. In addition to the detection of Cs-137, the naturally-occurring radionuclides Radium, K-40, Be-7 and Th-232 were also detected. All other gamma emitters searched for were below the LLD.

Cesium-137 was detected in 5 indicator station samples at concentrations ranging from 28 to 71 pCi/kg-dry. It was not detected in any of the control station samples. The maximum preoperational level detected was 400 pCi/kg-dry with an average of 150 pCi/kg-dry. Results from 1985 to 2005 are plotted on Figure 6, with an inset graph depicting the current year back to 1973.

Cobalt-60 was not detected in any of the sediment samples. LLD sensitivities for the 14 samples, indicator and control, ranged

from <1.7 to <28 pCi/kg-dry. Results of all the positive values from 1985 to 2005 are plotted on Figure 6, with an inset graph depicting the current year back to 1973. There was no preoperational data available for comparison.

Beryllium-7 was detected in only 1 of the indicator station samples at a concentration of 88 pCi/kg-dry. It was not detected in either control location. The maximum preoperational level detected was 2300 pCi/kg-dry. There was no preoperational average determined for this nuclide.

Potassium-40 was detected in all 12 indicator station samples at concentrations ranging from 1920 to 15800 pCi/kg-dry, with an average of 8370 pCi/kg-dry. Concentrations detected in both of the control station samples were at 15900 and 16600 pCi/kg-dry. The average for the control station samples was 16250 pCi/kg-dry. The maximum preoperational level detected was 21000 pCi/kg-dry, with an average of 15000 pCi/kg-dry.

Radium was detected in all 12 indicator station samples at concentrations ranging from 91 to 881 pCi/kg-dry, with an average of 500 pCi/kg-dry. Concentrations detected in both of the control station samples were at 457 and 572 pCi/kg-dry, with an average of 510 pCi/kg-dry. The grand average for both the indicator and control station samples was 500 pCi/kg-dry. The maximum preoperational level detected was 1200 pCi/kg-dry, with an average of 760 pCi/kg-dry.

Thorium-232 was detected in all 12 indicator station samples at concentrations ranging from 102 to 1130 pCi/kg-dry, with an average of 679 pCi/kg-dry. Concentrations detected in both of the control station samples were at 885 and 1170 pCi/kg-dry, with an average of 1028 pCi/kg-dry. The grand average for both the indicator and control station samples was 730 pCi/kg-dry. The maximum pre-operational level detected was 1300 pCi/kg-dry, with an average of 840 pCi/kg-dry.

PROGRAM DEVIATIONS

The following air sampler was unavailable due to power loss:

STATION	LOCATION	HOURS UNAVAILABLE
5S1	1.0 mi. E of vent	232.7 (2.7% for year)

Two air particulate samples and two air iodine samples were lost (See Tables C-2 and C-3 in Appendix C). This power outage was attributable to a trip of Island Ring Bus Infeed Breaker #8031 on September 9th. Repairs were completed by Salem Maintence Department on September 18th. Overall availability for this air sampling location was 97.3% for the year 2005.

The TLD package from location 16G1 (across from Greater Wilmington Airport) was lost during the 4th quarter, 2005. The utility pole that the TLD had been stapled to was removed and disposed of with the TLD not recovered. Inquiries were made to Delmarva and it was discovered that a severe windstorm in late November took out 7 poles in a row at our location along the highway. It took 72 hours to restore power to these poles with emergency Mutual Aid from several other utilities and contractors. In the confusion, our TLD plus the large laminated neon sign (requesting the finder to call MTS in case of removal) was overlooked and lost.

CONCLUSIONS

The Radiological Environmental Monitoring Program for Salem and Hope Creek Generating Stations was conducted during 2005 in accordance with the SGS and HCGS Technical Specifications/ODCM. The LLD values required by the Technical Specifications/ODCM were achieved for this reporting period. The objectives of the program were also met during this period. The data collected assists in demonstrating that SGS and HCGS were operated in compliance with Technical Specifications/ODCM.

From the results obtained, it can be concluded that the levels and fluctuations of radioactivity in environmental samples were as expected for an estuarine environment. No unusual radiological characteristics were observed in the environs of SGS/HCGS during this reporting period. Since these results were comparable to the results obtained during the preoperational phase of the program, which ran from 1973 to 1976, and with historical results collected since commercial operation, we can conclude that the operation of the Salem and Hope Creek Stations had no significant impact on the radiological characteristics of the environs of that area.

TABLE 1

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
(Program Overview)

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE/FREQUENCY* OF ANALYSIS
1. DIRECT RADIATION Thermoluminescent Dosimeters	Forty-nine routine monitoring stations with two or more dosimeters placed as follows: An inner ring of stations, one in each land based meteorological sector (not bounded by water) in the general area of the site boundary: 1S1, 2S2, 2S4, 3S1, 4S1, 5S1, 6S2, 7S1, 10S1, 11S1, 15S1, 16S1. An outer ring of stations, one in each land-based meteorological sector in the 5 - 11 km range (3.12 - 6.88 miles) from the site (not bounded by or over water): 4D2, 5D1, 10D1, 14D1, 15D1, 2E1, 3E1, 11E2, 12E1, 13E1, 16E1, 1F1, 3F2, 4F2, 5F1, 6F1, 9F1, 10F2, 11F1, 13F2, 14F2, 14F3, 15F3. The balance of the stations to be placed in special interest areas such as population centers, nearby residences, and schools: 2F2, 2F5, 2F6, 3F3, 7F2, 12F1, 13F3, 13F4, 14F4, 16F2, 1G3, 10G1, 16G1, 3H1. and in one or two areas to serve as control stations: 3G1, 14G1.	Quarterly	Gamma dose/ quarterly

TABLE 1 (cont'd)

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE/FREQUENCY* OF ANALYSIS
2. ATMOSPHERIC	Samples from 6 locations:		
a. Air Particulate	4 Samples - one sample from close to the Site Boundary : 5S1 3 Samples in different land based sectors: 1F1, 2F6, 5D1.	Continuous sampler operation with sample collection weekly or more frequently if required by dust loading	Gross Beta / weekly Gamma isotopic analysis / quarterly composite
b. Air Iodine	1 Sample from the vicinity of a community: 16E1. 1 Sample from a control location, as for example 15-30 km distant and in the least prevalent wind direction: 14G1.		Iodine-131 / weekly
3. TERRESTRIAL			
a. Milk	Samples from milking animals in 3 locations within 5 km distance. If there are none, then, 1 sample from milking animals in each of 3 areas between 5 - 8 km (3.12 - 5 miles) distant: 13E3, 14F4, 2G3. (1)	Semi-monthly (when animals are on pasture)	Gamma scan / semi-monthly Iodine-131 / semi-monthly
	1 Sample from milking animals at a control location 15 - 30 km distant (9.38 - 18.75 miles): 3G1.	Monthly (when animals are not on pasture)	Gamma scan / monthly Iodine-131 / monthly
b. Well Water (Ground)	Samples from one or two sources only if likely to be affected. (Although wells in the vicinity of SGS/HCGS are not directly affected by plant operations, we sample 3E1 farm's well, as management audit)	Monthly	Gamma Scan / monthly Gross alpha / monthly Gross beta / monthly Tritium / monthly

TABLE 1 (cont'd)

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE/FREQUENCY* OF ANALYSIS
c. Potable Water (Drinking Water)	One sample of the nearest water supply affected by its discharge (No groundwater samples are required as liquid effluents discharged from SGS/HCGS do not directly affect this pathway) However for management audit, one raw and one treated sample from nearest unaffected water supply is required: 2F3	Monthly (composited daily)	Gross alpha / monthly Gross beta / monthly Tritium / monthly Gamma scan / monthly Iodine-131 / monthly
d. Vegetables	One sample of each principal class of food products from area that is irrigated by water in which liquid plant wastes have been discharged (The Delaware River at the location of SGS/HCGS is a brackish water source and is not used for irrigation of food products) Management audit samples are collected from various locations during harvest: 2F4, 2F9, 3F7, 6F2, 14F3, 1G4, 2G2, 9G1, 3H5.	Annually (at harvest)	Gamma scan/on collection
e. Game (Muskrat)	Although not required by SGS/HCGS ODCM, samples of muskrats, inhabiting the marshland surrounding SGS/HCGS, are collected when available as management audit samples: 3E1	Annually	Gamma scan/on collection
f. Fodder Crops	Although not required by SGS/HCGS ODCM, samples of crops normally used as cattle feed (silage-soybeans) were collected as management audit samples: 14F4, 3G1. Broad leaf vegetation (ornamental cabbage) was planted & collected in lieu of having a milk farm within 5 km of the Site [1] : 10D1, 1S1, 15S1, 16S1	Annually (at harvest)	Gamma scan/on collection

TABLE 1 (cont'd)

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE/FREQUENCY* OF ANALYSIS
4. AQUATIC ENVIRONMENT			
a. Surface Water	One sample upstream: 1F2 One sample downstream: 7E1 One sample outfall: 11A1 One sample cross-stream (mouth of Appoquinimink River): 12C1 (2) And an additional location in the Chesapeake & Delaware Canal: 16F1	Monthly	Gross Beta/monthly Gamma scan/monthly Tritium/monthly**
b. Edible Fish	One sample of each commercially and recreationally important species in vicinity of plant discharge area: 11A1 One sample of same species in area not influenced by plant discharge: 12C1 (2) And an additional location downstream: 7E1	Semi-annually	Gamma scan (flesh)/ on collection
c. Blue Crabs	One sample of each commercially and recreationally important species in vicinity of plant discharge area: 11A1 One sample of same species in area not influenced by plant discharge: 12C1 (2)	Semi-annually	Gamma scan (flesh)/ on collection

TABLE 1 (cont'd)

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS	SAMPLING AND COLLECTION FREQUENCY	TYPE/FREQUENCY* OF ANALYSIS
d. Sediment	One sample from downstream area: 7E1 One sample from cross-stream area: 12C1 One sample from outfall area: 11A1 One sample from upstream area: 1F2 One sample from a control location: 12C1 (2) One sample from shoreline area: 6S2 One sample from Cooling Tower Blowdown: 15A1 And an additional location of south storm drain discharge line: 16A1	Semi-annually	Gamma scan/on collection

* Except for TLDs, the quarterly analysis is performed on a composite of individual samples collected during the quarter.

** Tech Specs/ODCM require quarterly analysis but due to the tritium leak at Salem, it was decided to analyze surface waters on a monthly basis for tritium.

(1) While these milk locations are not within the 5 km range, they are the closest farms in the Site vicinity. Since broad leaf vegetation is acceptable in lieu of milk collections, MTS personnel planted and harvested ornamental cabbage (Brassica oleracea) at three locations on Site (1S1, 15S1, 16S1) and one across the river in Delaware (10D1).

(2) Station 12C1 was made the operational control (1975) for aquatic samples since the physical characteristics of this station more closely resemble those of the outfall area than do those at the upstream location originally chosen. This is due to the distance from Liston Point, which is the boundary between the Delaware River and Delaware Bay. As discussed extensively in the SGS/HCGS Pre-operational reports, the sampling locations further upstream show significantly lower background levels due to estuarine tidal flow plus lower K40 and Beta Activity.

FIGURE 1
GROSS BETA ACTIVITY IN AIR PARTICULATE
1985 THROUGH 2005

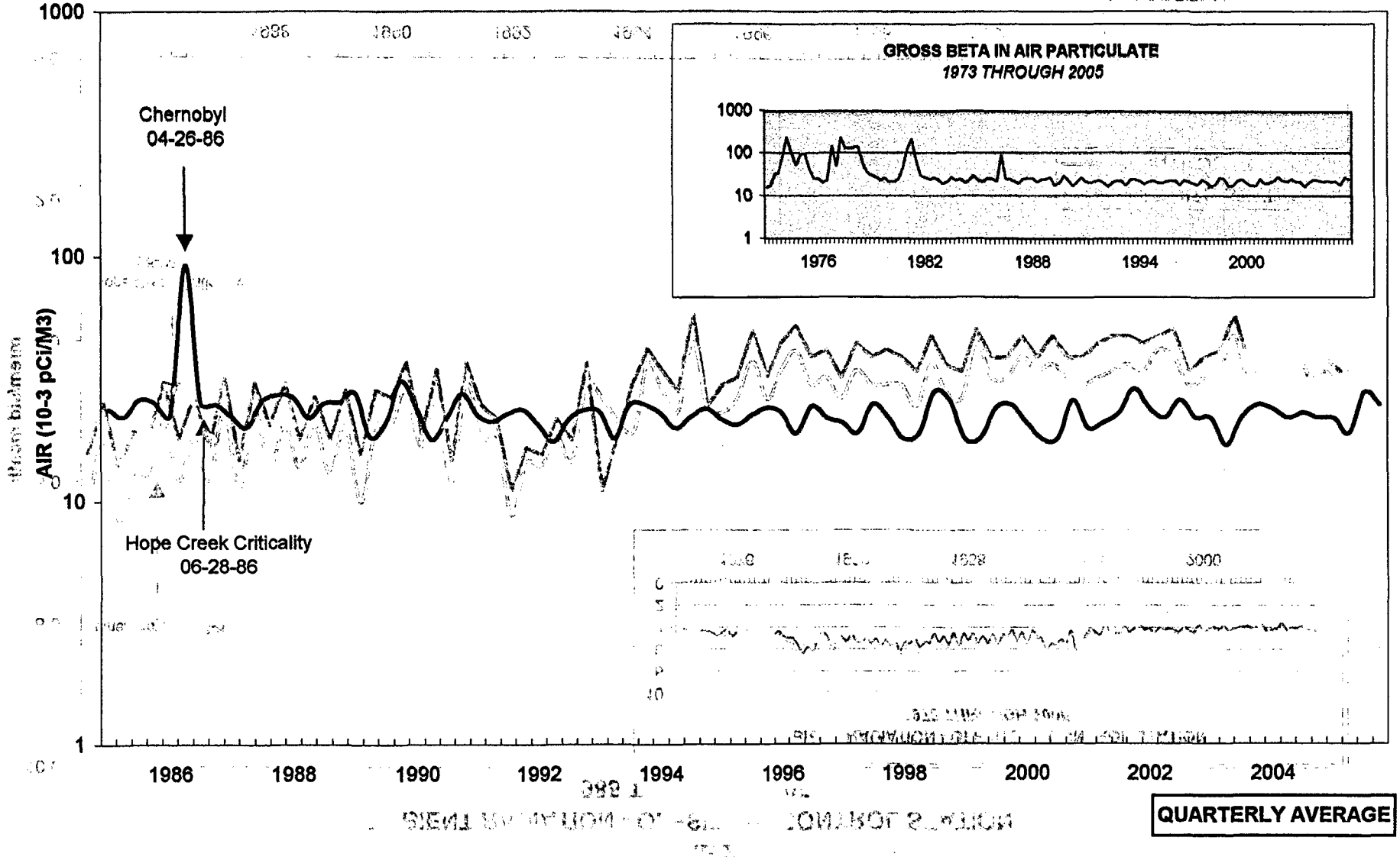
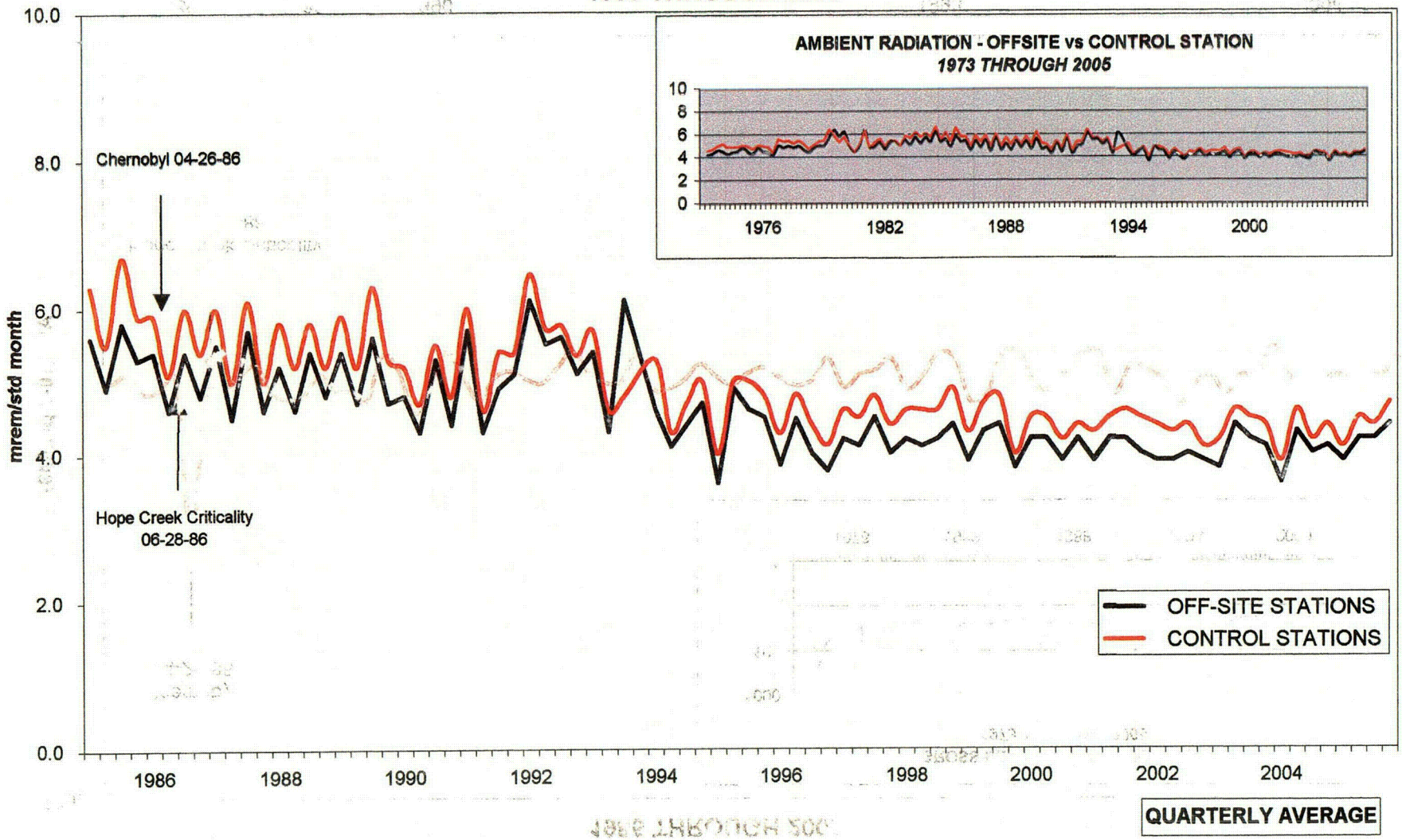
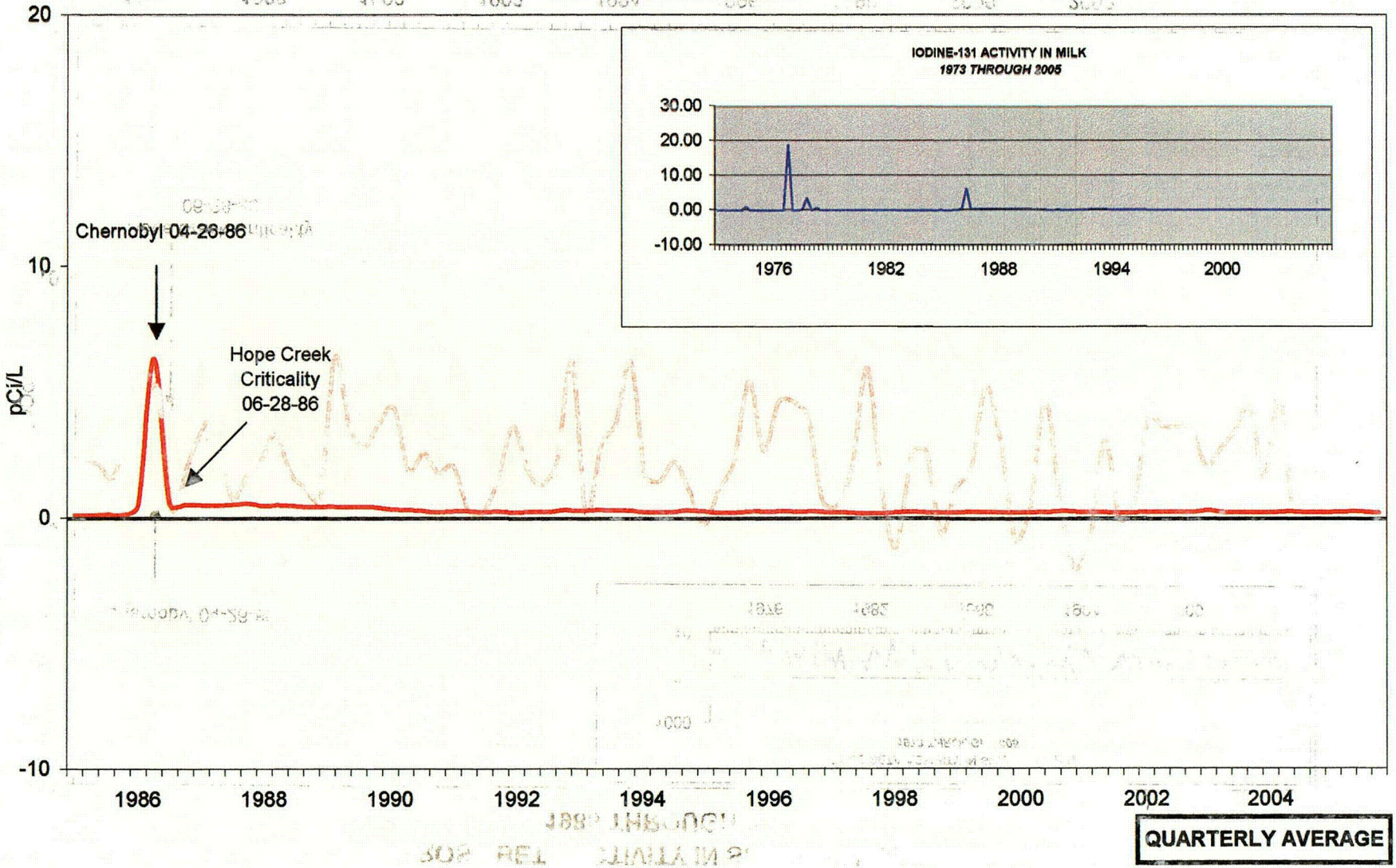


FIGURE 2
AMBIENT RADIATION - OFFSITE vs CONTROL STATION
1985 THROUGH 2005



C01

FIGURE 3
IODINE - 131 ACTIVITY IN MILK
1985 THROUGH 2005



C02

FIGURE 4
GROSS BETA ACTIVITY IN SURFACE WATER
1985 THROUGH 2005

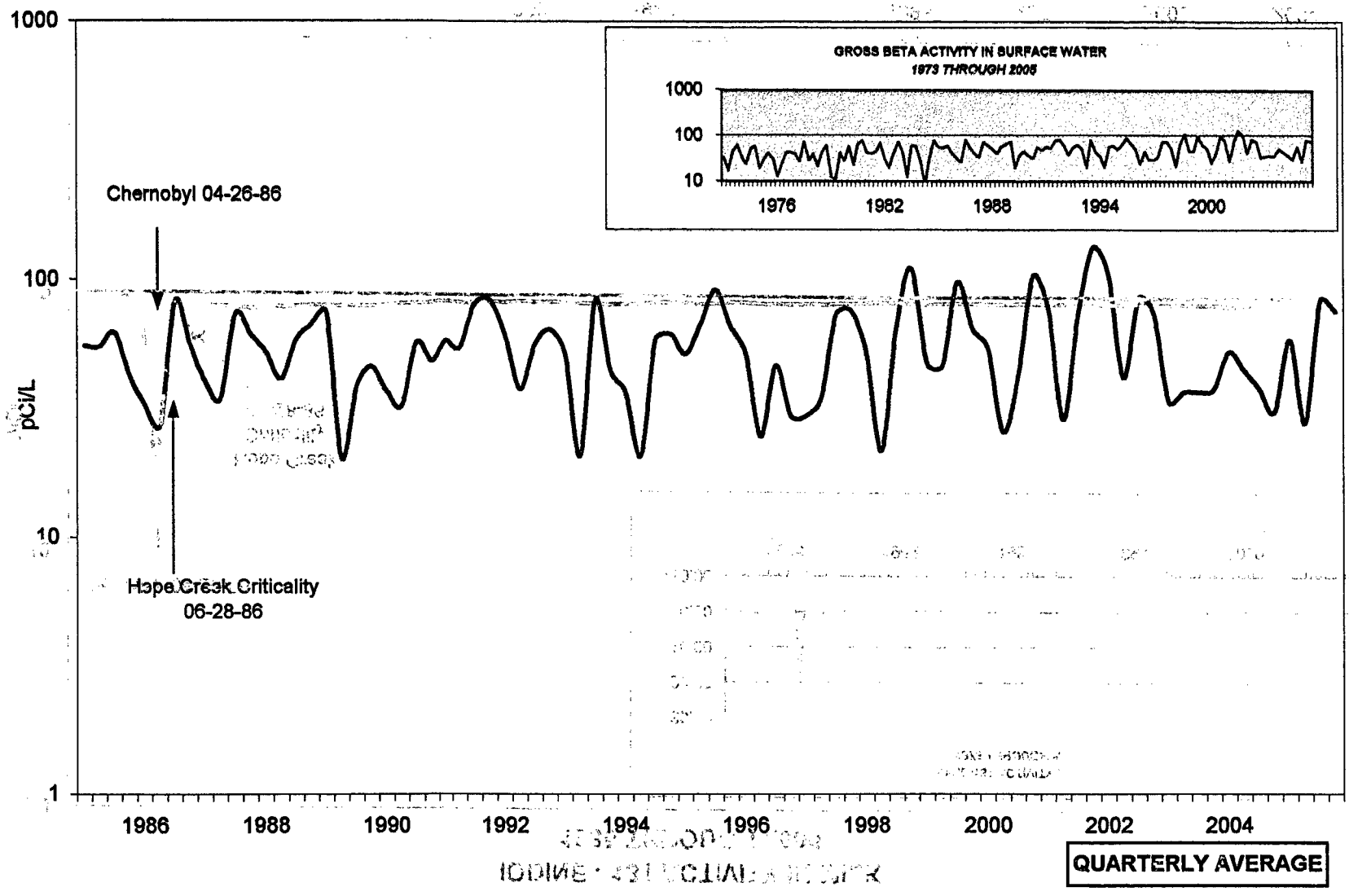


FIGURE 5
TRITIUM ACTIVITY IN SURFACE WATER
1985 THROUGH 2005

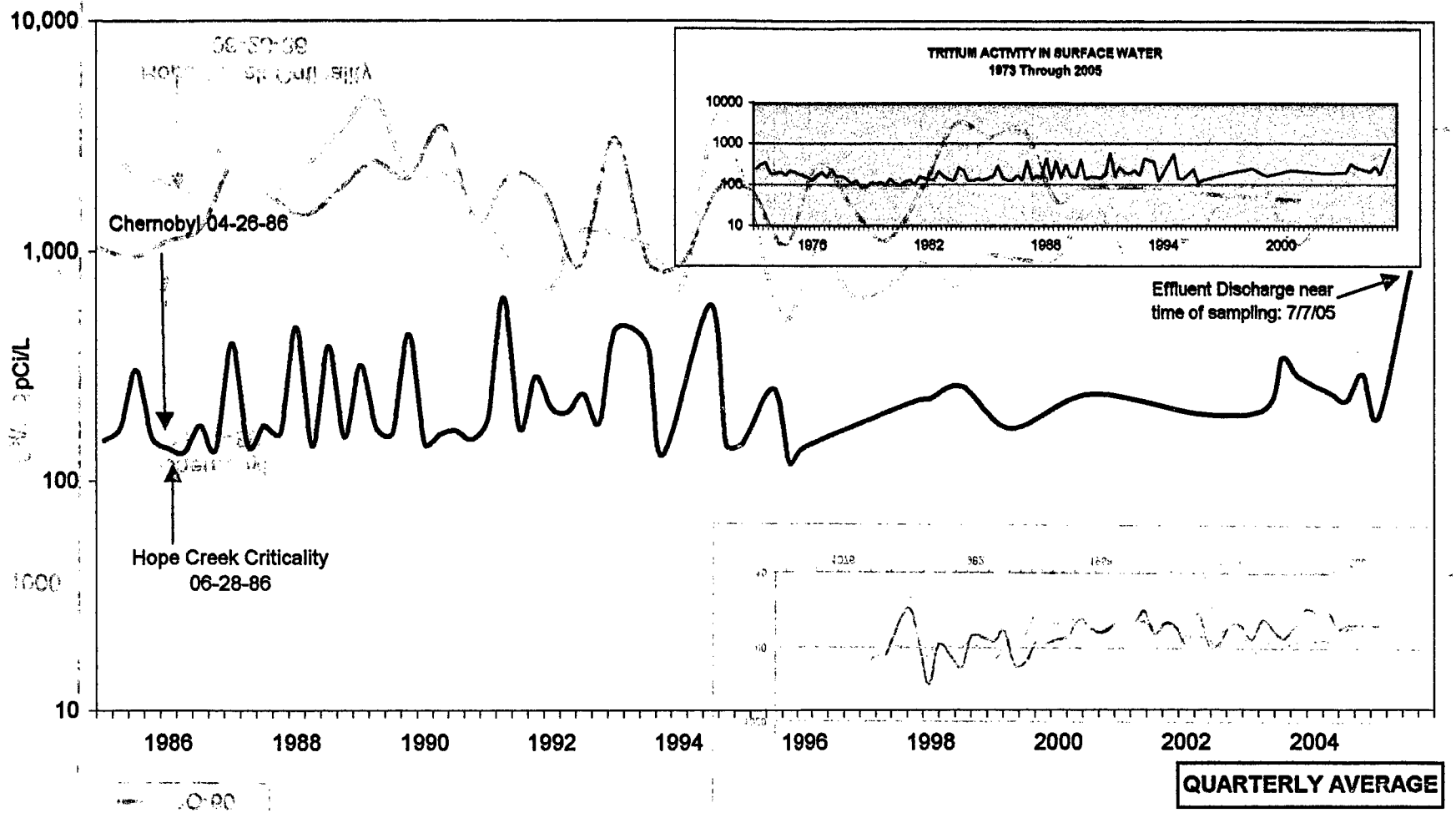
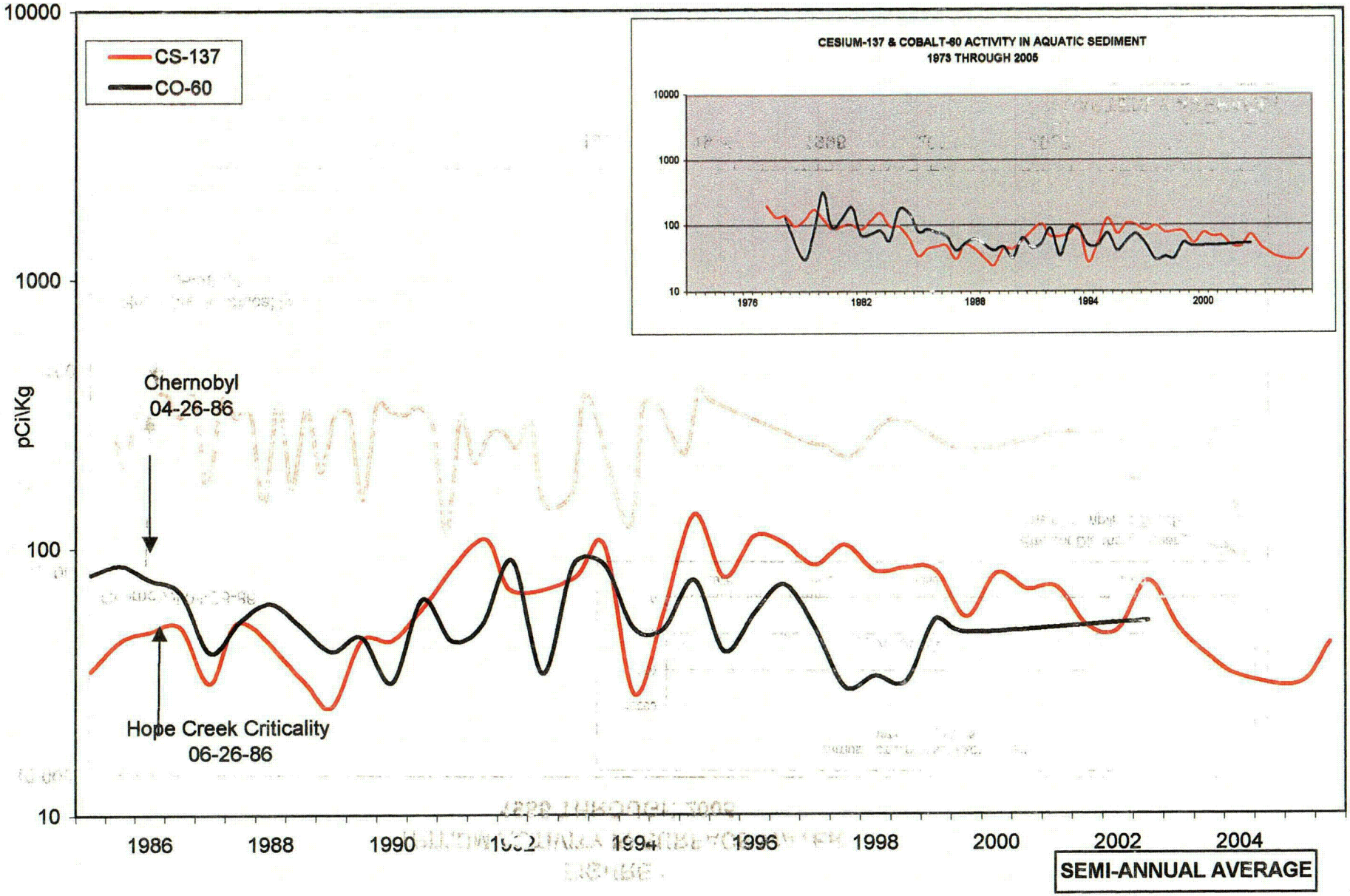


FIGURE 6
CESIUM-137 & COBALT-60 ACTIVITY IN AQUATIC SEDIMENT
1985 THROUGH 2005



C03

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[13] Public Service Enterprise Group . "Hope Creek Generating Station Technical Specifications", Appendix A to Facility Operating License No. NPF-57, 1986, Sections 6.8.4.h - 1,2,3 and 6.9.1.6.

[14] Public Service Enterprise Group . "Offsite Dose Calculation Manual" - Salem Generating Station.

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APPENDIX A

PROGRAM SUMMARY

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

SALEM GENERATING STATION — DOCKET 50-272/-311
HOPE CREEK GENERATING STATION — DOCKET NO. 50-354

SALEM COUNTY, NEW JERSEY — JANUARY 1, 2005 to DECEMBER 31, 2005

MEDIUM OR PATHWAY SAMPLE (UNIT OF MEASUREMENT)	Analysis And Total Number of Analyses Performed		Lower Limit of Detection (LLD)*	All Indicator Locations Mean (Range) **	Location with Highest Mean Name Distance and Direction	Location with Highest Mean Mean (Range)	Control Location Mean (Range)	Number of Nonroutine Reported Measurements
I. AIRBORNE								
Air Particulates (10^{-3} pCi/m^3)	Beta	310	6.0	23 (258 /258) (8-51)	5S1 1 mi E	24 (50 /50) (10-48)	24 (52 /52) (9-46)	0
	Gamma Be7	24	2.0	69 (20 /20) (63-77)	5S1 1 mi E	70 (4 /4) (64-77)	63 (4 /4) (58-71)	0
	K-40	24	4.8	12 (17 /20) (8-30)	5S1 1 mi E	16 (3 /4) (8-30)	12 (3 /4) (9-17)	0
Air Iodine (10^{-3} pCi/m^3)	I-131	310	21	<LLD	-	<LLD	<LLD	0
II DIRECT								
Direct Radiation (mrad/std. month)	Quarterly Badges	195	-	4.2 (172 /172) (2.6-8.3)	2S2 0.4 mi NNE	7.1 (4 /4) (5.8-8.3)	4.4 (23 /23) (3.3-5.5)	0
III TERRESTRIAL								
Milk (pCi/L)	I-131	80	0.7	<LLD	-	<LLD	<LLD	0
	Gamma K-40	80	32	1340 (60 /60) (1210-1440)	13E3 4.9 mi W	1350 (20 /20) (1260-1440)	1300 (20 /20) (1230-1420)	0
III TERRESTRIAL								
Well Water (pCi/L)	Alpha	12	2.6	3.2 (1 /12) (3.2-3.2)	3E1 4.1 mi NE	3.2 (1 /12) (3.2-3.2)	No Control Location	0
	Beta	12	1.0***	10 (12 /12) (9.2-11)	3E1 4.1 mi NE	10 (12 /12) (9.2-11)	No Control Location	0

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

SALEM GENERATING STATION — DOCKET 50-272/-311
HOPE CREEK GENERATING STATION — DOCKET NO. 50-354

SALEM COUNTY, NEW JERSEY — JANUARY 1, 2005 to DECEMBER 31, 2005

MEDIUM OR PATHWAY SAMPLE (UNIT OF MEASUREMENT)	Analysis And Total Number of Analyses Performed		Lower Limit of Detection (LLD)*	All Indicator Locations Mean (Range) **	Location with Highest Mean Name Distance and Direction	Location with Highest Mean Mean (Range)	Control Location Mean (Range)	Number of Nonroutine Reported Measurements
III TERRESTRIAL Well Water (pCi/L)	H-3	12	150	<LLD	-	<LLD	No Control Location	0
	Gamma							
	K-40	12	54	84 (3 /12) (63-101)	3E1 4.1mi NE	84 (3 /12) (63-101)	No Control Location	0
	RA-NAT	12	6.4	102 (12 /12) (36-155)	3E1 4.1mi NE	102 (12 /12) (36-155)	No Control Location	0
Potable Water (pCi/L)	Alpha	24	1.5	0.9 (6 /24) (0.5-1.9)	2F3 8.0 mi NNE	0.9 (6 /24) (0.5-1.9)	No Control Location	0
	Beta	24	1.0***	3.1 (24 /24) (2.5-3.9)	2F3 8.0 mi NNE	3.1 (24 /24) (2.5-3.9)	No Control Location	0
	H-3	24	150	<LLD	-	<LLD	No Control Location	0
	Gamma							
	K-40	24	54	53 (16 /24) (30-92)	2F3 8.0 mi NNE	53 (16 /24) (30-92)	No Control Location	0
	I-131	24	0.4	<LLD	-	<LLD	No Control Location	0
	RA-NAT	24	6.4	9.3 (3 /24) (5.7-15)	2F3 8.0 mi NNE	9.3 (3 /24) (5.7-15)	No Control Location	0
III TERRESTRIAL Fruit & Vegetables (pCi/Kg-wet)	Gamma							
	K-40	27	55	2030 (15 /15) (1240-2880)	2F4 6.3 mi NNE	2290 (3 /3) (1670-2880)	1930 (12 /12) (1180-2860)	0
	RA-NAT	27	10	<LLD	9G1 10.3 mi.S	18 (1 /2) (18-18)	18 (1 /12) (18-18)	0

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MEDIUM OR PATHWAY SAMPLE (UNIT OF MEASUREMENT)	Analysis And Total Number of Analyses Performed		Lower Limit of Detection (LLD)*	All Indicator Locations Mean (Range) **	Location with Highest Mean Name Distance and Direction	Mean (Range)	Control Location Mean (Range)	Number of Nonroutine Reported Measurements
III TERRESTRIAL								
Game (pCi/Kg-wet)	Gamma K-40	1	55	2970 (1/1) (2970)	3E1 4.1 mi. NE	2970 (1/1) (2970)	No Control Location	0
Fodder Crops (pCi/Kg-wet)	Gamma Be-7	7	23	192 (5/5) (105-283)	14F4 7.6 mi WNW	283 (1/1) (283)	75 (1/2) (75-75)	0
	K-40	7	32	3680 (5/5) (3180-4020)	3G1 17 mi NE	9050 (2/2) (3890-14200)	9050 (2/2) (3890-14200)	0
	RA-NAT	7	11	<LLD	3G1 17 mi NE	18 (1/2) (18-18)	18 (1/2) (18-18)	0
IV AQUATIC								
Surface Water (pCi/L)	Beta	60	7.0	62 (48/48) (6-143)	7E1 4.5 mi SE	89 (12/12) (6-143)	60 (12/12) (7-99)	0
	H-3	60	150	506 (2/48) (190-823)	11A1 0.2 mi SW	506 (2/12) (190-823)	<LLD	0
	Gamma K-40	60	54	88 (46/48) (34-217)	7E1 4.5 mi SE	112 (12/12) (44-217)	80 (12/12) (40-131)	0
	Th-232	60	14	12 (3/48) (9.5-16)	1F2 7.1 mi. N	13 (2/12) (9.5-16)	<LLD	0
	RA-NAT	60	6.4	5.9 (1/48) (5.9-5.9)	1F2 7.1 mi. N	5.9 (1/12) (5.9-5.9)	<LLD	0
Blue Crabs (pCi/kg-wet)	Gamma K-40	4	55	2855 (2/2) (2570-3140)	12C1 2.5 mi. WSW	2960 (2/2) (2840-3080)	2960 (2/2) (2840-3080)	0
Edible Fish (pCi/kg-wet)	Gamma K-40	6	55	3535 (4/4) (3380-3700)	7E1 4.5 mi SE	3575 (2/2) (3450-3700)	3570 (2/2) (3480-3660)	0

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SALEM GENERATING STATION — DOCKET 50-272/-311
HOPE CREEK GENERATING STATION — DOCKET NO. 50-354

SALEM COUNTY, NEW JERSEY — JANUARY 1, 2005 to DECEMBER 31, 2005

MEDIUM OR PATHWAY SAMPLE (UNIT OF MEASUREMENT)	Analysis And Total Number of Analyses Performed		Lower Limit of Detection (LLD)*	All Indicator Locations Mean (Range) **	Location with Highest Mean Name Distance and Direction	Mean (Range)	Control Location Mean (Range)	Number of Nonroutine Reported Measurements
IV AQUATIC								
Sediment (pCi/kg-dry)	Gamma							
	Be-7	14	229	88 (1 /12) (88-88)	6S2 0.2 mi. ESE	88 (1 /2) (88-88)	<LLD	0
	K-40	14	55	8370 (12 /12) (1920-15800)	12C1 2.5 mi. WSW	16250 (2 /2) (15900-16600)	16250 (2 /2) (15900-16600)	0
	Co-60	14	31	<LLD	-		<LLD	0
	Cs-137	14	22	38 (5 /12) (28-71)	16F1 6.9 mi. NNW	71 (1 /2) (71-71)	<LLD	0
	RA-NAT	14	5.0	500 (12 /12) (91-881)	16A1 0.7 mi. NNW	760 (2 /2) (638-881)	510 (2 /2) (457-572)	0
	Th-232	14	8.1	679 (12 /12) (102-1130)	12C1 2.5 mi. WSW	1028 (2 /2) (885-1170)	1028 (2 /2) (885-1170)	0

* LLD listed is the lower limit of detection which we endeavored to achieve during this reporting period. In some instances nuclides were detected at concentrations above/below the LLD values shown.

** Mean calculated using values above LLD only. Fraction of measurements above LLD are in parentheses.

*** Typical LLD values.

APPENDIX B

SAMPLE DESIGNATION
AND
LOCATIONS

APPENDIX B

SAMPLE DESIGNATION

The PSEG's Maplewood Testing Services identifies samples by a three part code. The first two letters are the program identification code. Because of the proximity of the Salem and Hope Creek Stations a common environmental surveillance program is being conducted. The identification code, "SA", has been applied to Salem and Hope Creek stations. The next three letters are for the media sampled.

AIO =	Air Iodine	IDM =	Immersion Dose (TLD)
APT =	Air Particulate	MLK =	Milk
ECH =	Hard Shell Blue Crab	PWR =	Potable Water (Raw)
ESF =	Edible Fish	PWT =	Potable Water (Treated)
ESS =	Sediment	SOL =	Soil
FPL =	Green Leafy Vegetables	SWA =	Surface Water
FPV =	Vegetables (Various)	VGT =	Fodder Crops (Various)
GAM =	Game (Muskrat)	WWA =	Well Water

The last four symbols are a location code based on direction and distance from a standard reference point. Of these, the first two represent each of the sixteen angular sectors of 22.5 degrees centered about the reactor site. Sector one is divided evenly by the north axis and other sectors are numbered in a clockwise direction; e.g., 2=NNE, 3=NE, 4=ENE, etc. The next digit is a letter which represents the radial distance from the reference point:

S =	On-site location	E =	4-5 miles off-site
A =	0-1 miles off-site	F =	5-10 miles off-site
B =	1-2 miles off-site	G =	10-20 miles off-site
C =	2-3 miles off-site	H =	>20 miles off-site
D =	3-4 miles off-site		

The last number is the station numerical designation within each sector and zone; e.g., 1,2,3,... For example, the designation SA-WWA-3E1 would indicate a sample in the Salem and Hope Creek program (SA), consisting of well water (WWA), which had been collected in sector number 3, centered at 45° (north east) with respect to the reactor site at a radial distance of 4 to 5 miles off-site, (therefore, radial distance E). The number 1 indicates that this is sampling station #1 in that particular sector.

TABLE B-1
SAMPLING LOCATIONS

Specific information about the individual sampling locations are given in Table B-1. Maps B-1 and B-2 show the locations of sampling stations with respect to the Site. A Portable Global Positioning System (GPS) was used to provide the coordinates of sampling locations. The Datem used was WGS 84.

STATION CODE	STATION LOCATION	LATITUDINAL DEG. MIN. SEC	LONGITUDINAL DEG. MIN. SEC	SAMPLE TYPE
1S1	0.55mi. N of vent	39 - 28 - 16	75 - 32 - 13	IDM,VGT
2S2	0.4 mi. NNE of vent; Lamp Pole 65 Near HC Switch Yard	39 - 28 - 07	75 - 32 - 00	IDM
2S4	0.59 mi. NNE of vent	39 - 28 - 16	75 - 31 - 55	IDM
3S1	0.58 mi. NE of vent	39 - 28 - 08	75 - 31 - 41	IDM
4S1	0.60 mi. ENE of vent	39 - 28 - 02	75 - 31 - 33	IDM
5S1	1.0 mi. E of vent; site access road	39 - 27 - 38	75 - 31 - 08	AIO,APT,IDM
6S2	0.2 mi. ESE of vent; observation building	39 - 27 - 43	75 - 31 - 55	IDM,SOL,ESS
7S1	0.12 mi. SE of vent; station personnel gate	39 - 27 - 44	75 - 32 - 03	IDM
10S1	0.14 mi. SSW of vent; inlet cooling water bldg.	39 - 27 - 41	75 - 32 - 10	IDM
11S1	0.09 mi. SW of vent; service water inlet bldg.	39 - 27 - 43	75 - 32 - 12	IDM
15S1	0.57 mi. NW of vent	39 - 28 - 10	75 - 32 - 32	IDM,VGT
16S1	0.54 mi. NNW of vent	39 - 28 - 13	75 - 32 - 26	IDM,VGT
11A1	0.2 mi. SW of vent; outfall area	39 - 27 - 59	75 - 32 - 25	ECH,ESF,ESS,SWA
15A1	0.3 mi. NW of vent; cooling tower blowdown discharge line outfall	39 - 27 - 67	75 - 32 - 19	ESS
16A1	0.7 mi. NNW of vent; south storm drain discharge line	39 - 28 - 24	75 - 32 - 58	ESS
12C1	2.5 mi. WSW of vent; west bank of Delaware River	39 - 27 - 22	75 - 34 - 08	ECH,ESF,ESS,SWA
4D2	3.7 mi. ENE of vent; Alloway Creek Neck Road	39 - 29 - 18	75 - 32 - 11	IDM
5D1	3.5 mi. E of vent; local farm	39 - 28 - 24	75 - 28 - 22	AIO,APT,IDM
10D1	3.9 mi. SSW of vent; Taylor's Bridge Spur	39 - 24 - 37	75 - 33 - 44	IDM,SOL,VGT
14D1	3.4 mi. WNW of vent; Bay View, Delaware	39 - 29 - 02	75 - 35 - 31	IDM
15D1	3.8 mi. NW of vent; Rt. 9, Augustine Beach	39 - 30 - 08	75 - 35 - 02	IDM
2E1	4.4 mi. NNE of vent; local farm	39 - 31 - 23	75 - 30 - 26	IDM
3E1	4.1 mi. NE of vent; local farm	39 - 30 - 07	75 - 28 - 41	GAM,IDM,VGT,WWA,FPV

TABLE B-1 (cont'd)

STATION CODE	STATION LOCATION	LATITUDINAL DEG. MIN. SEC	LONGITUDINAL DEG. MIN. SEC	SAMPLE TYPE
7E1	4.5 mi. SE of vent; 1 mi. W of Mad Horse Creek	39 - 25 - 08	75 - 28 - 64	ESF,ESS,SWA
11E2	5.0 mi. SW of vent; Rt. 9	39 - 24 - 20	75 - 35 - 33	IDM
12E1	4.4 mi. WSW of vent; Thomas Landing	39 - 26 - 52	75 - 36 - 59	IDM
13E1	4.2 mi. W of vent; Diehl House Lab	39 - 27 - 59	75 - 36 - 44	IDM
13E3	4.9 mi. W of vent; Joseph Vari, Odessa, DE	39 - 27 - 17	75 - 37 - 30	MLK,FPV,VGT,SOL
16E1	4.1 mi. NNW of vent; Port Penn	39 - 30 - 47	75 - 34 - 34	AIO,APT,IDM,SOL
1F1	5.8 mi. N of vent; Fort Elfsborg	39 - 32 - 43	75 - 31 - 05	AIO,APT,IDM
1F2	7.1 mi. N of vent; midpoint of Delaware River	39 - 33 - 08	75 - 32 - 54	SWA
2F2	8.7 mi. NNE of vent; Corner of 5th & Howell, Salem	39 - 34 - 38	75 - 28 - 04	IDM
2F3	8.0 mi. NNE of vent; Salem Water Company	39 - 33 - 40	75 - 27 - 18	PWR,PWT
2F4	6.3 mi. NNE of vent; local farm	39 - 33 - 21	75 - 30 - 33	FPV,FPL
2F5	7.4 mi. NNE of vent; Salem High School	39 - 33 - 27	75 - 28 - 31	IDM
2F6	7.3 mi. NNE of vent; Southern Training Center	39 - 33 - 43	75 - 28 - 48	AIO,APT,IDM
2F9	7.5 mi. NNE of vent; Tilbury Farms , 45 S. Tilbury Rd, Salem	39 - 33 - 55	75 - 29 - 30	FPV,FPL,SOL
3F2	5.1 mi. NE of vent;Hancocks Bridge Municipal Bld	39 - 30 - 25	75 - 27 - 36	IDM
3F3	8.6 mi. NE of vent; Quinton Township School	39 - 32 - 38	75 - 24 - 45	IDM
3F7	7.2 mi. NE of vent; Beasley Neck Road	39 - 32 - 07	75 - 25 - 46	FPV,FPL
4F2	6.0 mi. ENE of vent; Mays Lane, Harmersville	39 - 29 - 58	75 - 26 - 03	IDM
5F1	6.5 mi. E of vent; Canton	39 - 28 - 22	75 - 24 - 59	IDM,SOL
6F1	6.4 mi. ESE of vent; Stow Neck Road	39 - 26 - 24	75 - 25 - 09	IDM
6F2	8.2 mi. ESE of vent; Mr. Hymer RD#3 Box 160 Bridgeton, NJ	39 - 26 - 04	75 - 23 - 09	FPV,FPL
7F2	9.1 mi. SE of vent; Bayside, New Jersey	39 - 22 - 56	75 - 24 - 17	IDM
9F1	5.3 mi. S of vent; D.P.A.L. 48912-30217	39 - 23 - 03	75 - 32 - 32	IDM
10F2	5.8 mi. SSW of vent; Rt. 9	39 - 23 - 01	75 - 34 - 09	IDM
11F1	6.2 mi. SW of vent; Taylor's Bridge Delaware	39 - 24 - 44	75 - 37 - 37	IDM
12F1	9.4 mi. WSW of vent; Townsend Elementary School	39 - 23 - 47	75 - 41 - 18	IDM
13F2	6.5 mi. W of vent; Odessa, Delaware	39 - 27 - 18	75 - 39 - 21	IDM
13F3	9.3 mi. W of vent; Redding Middle School, Middletown, Delaware	39 - 27 - 14	75 - 42 - 32	IDM

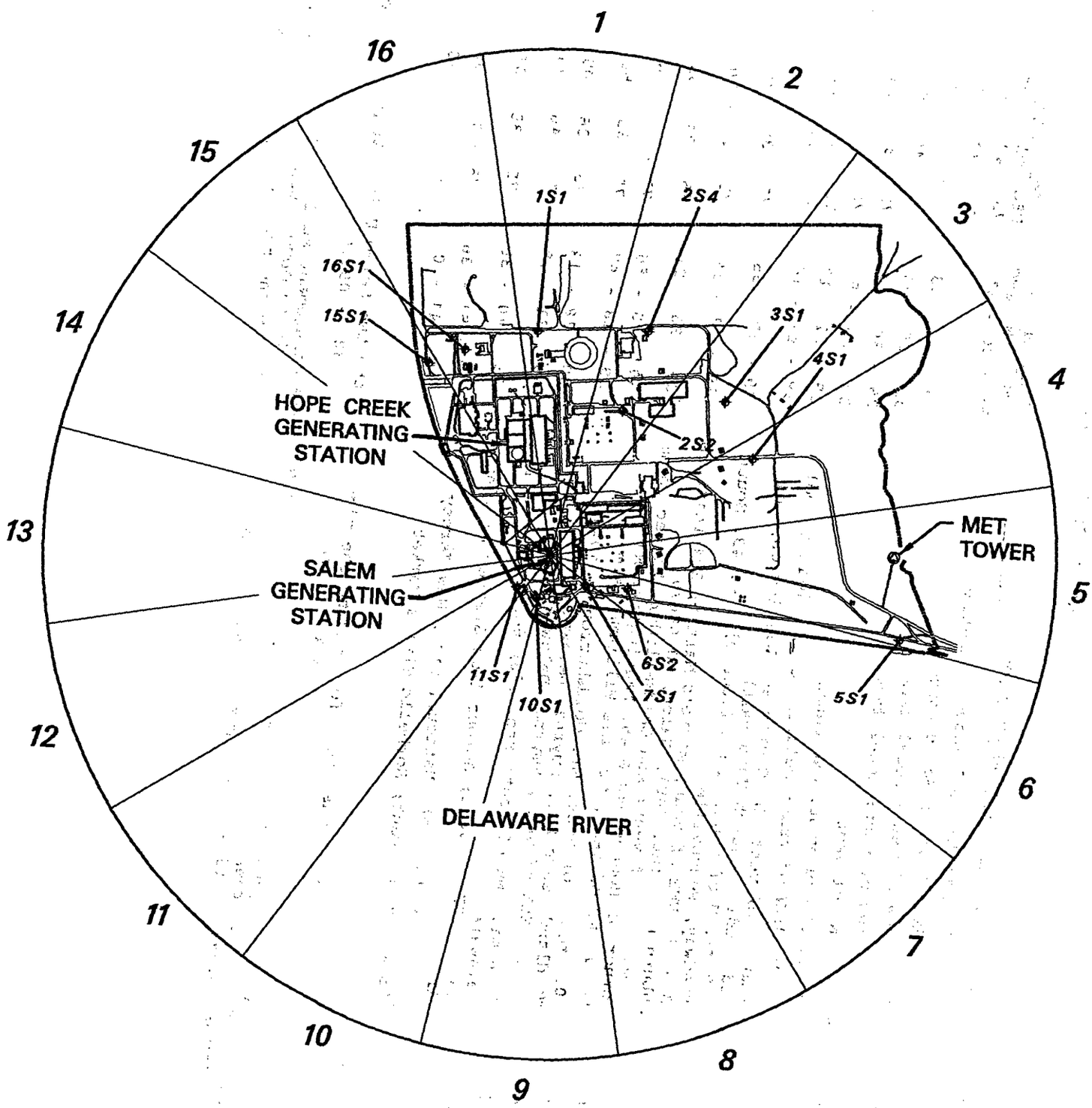
TABLE B-1 (cont'd)

STATION CODE	STATION LOCATION	LATITUDINAL DEG. MIN. SEC	LONGITUDINAL DEG. MIN. SEC	SAMPLE TYPE
13F4	9.8 mi. W of vent; Middletown, Delaware	39 - 26 - 51	75 - 43 - 07	IDM
14F2	6.6 mi. WNW of vent; Boyds Corner	39 - 30 - 00	75 - 38 - 59	IDM
14F3	5.4 mi. WNW of vent; local farm	39 - 29 - 33	75 - 37 - 55	FPV,FPL
14F4	7.6 mi. WNW of vent; local farm	39 - 30 - 44	75 - 40 - 52	MLK,VGT,SOL
15F3	5.4 mi. NW of vent	39 - 30 - 58	75 - 36 - 36	IDM
16F1	6.9 mi. NNW of vent; C&D Canal	39 - 33 - 55	75 - 34 - 25	ESS,SWA
16F2	8.1 mi. NNW of vent; Delaware City Public School	39 - 34 - 18	75 - 35 - 25	IDM
1G3	19 mi. N of vent; N. Church St. Wilmington, Del (Old Swedish Church Yard Park)	39 - 44 - 16	75 - 32 - 31	IDM
1G4	10.8 mi. N of vent; (Dads Produce) Rte. 49, South Broadway, Pennsville	39 - 37 - 55	75 - 30 - 44	FPV
2G2	13.5 mi. NNE of vent; Moore's Market; 324 Pointers Auburn Road (Rt. 540), Salem, NJ 08079	39 - 38 - 19	75 - 26 - 10	FPV
2G3	12 mi. NNE of vent; Asa Caldwallader, Waldac Farms, Corner of Routes 540 & 45, Mannington, NJ	39 - 36 - 21	75 - 24 - 53	MLK,FPV,VGT
3G1	17 mi. NE of vent; Mr. Lee Williams Farm	39 - 35 - 56	75 - 16 - 47	IDM,MLK,VGT,SOL
9G1	10.3 mi. S of Vent; Mr. Goldsburrough, 1784 Woodland Beach Rd., Smyrna, Delaware	39 - 18 - 47	75 - 33 - 50	FPV
10G1	12 mi. SSW of vent; Smyrna, Delaware	39 - 18 - 13	75 - 36 - 05	IDM
14G1	11.8 mi. WNW of vent; Rte. 286; Bethel Church Road; Delaware	39 - 31 - 18	75 - 46 - 30	AIO,APT,IDM
16G1	15 mi. NNW of vent; Across from Greater Wilmington Airport	39 - 40 - 38	75 - 35 - 35	IDM
3H1	32 mi. NE of vent; National Park, New Jersey	39 - 51 - 36	75 - 11 - 06	IDM
3H5	25 mi. NE of vent; Sorbello Girl's Market	39 - 41 - 02	75 - 12 - 23	FPL,FPV

NOTE: All station locations are referenced to the midpoint of the two Salem Units' Vents. The coordinates of this location are: Latitude N 39° - 27' - 45.3" and Longitude W 75° - 32' - 09.7".

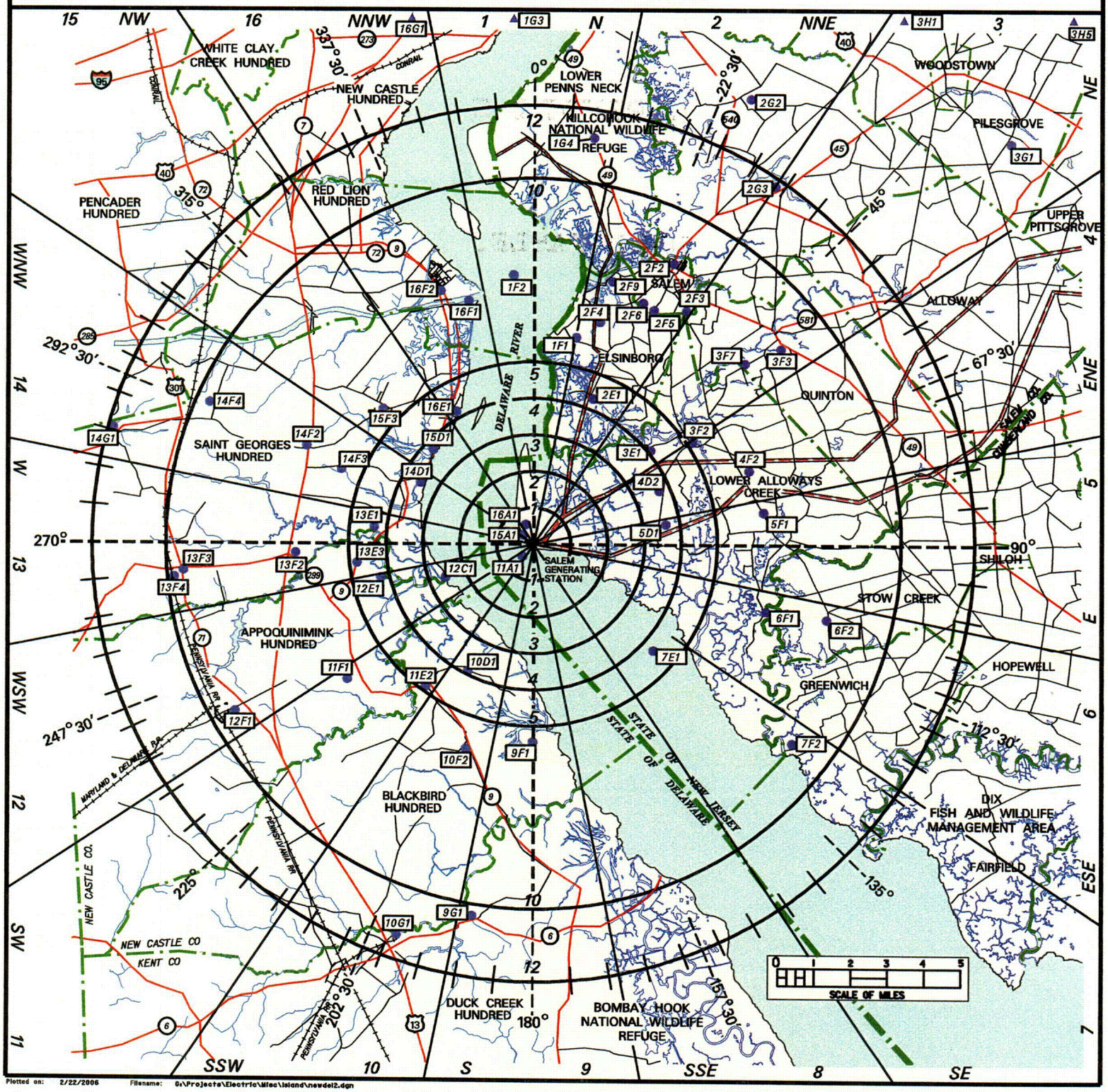
All Game (GAM), Vegetables(FPV & FPL) and Vegetation (VGT), are management audit samples. They are not required by the Salem & Hope Creek Stations' Tech Specs nor listed in the Station's ODCM. Vegetable samples are not always collected in consecutive years from the same farmer since they rotate the type of crop they grow.

MAP B–1
ON–SITE SAMPLING LOCATIONS



MAP B–2

SALEM AND HOPE CREEK GENERATING STATIONS
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM
OFF–SITE SAMPLING LOCATION



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APPENDIX C

DATA TABLES

APPENDIX C

DATA TABLES

Appendix C presents the analytical results of the 2005 Radiological Environmental Monitoring Program for the period of January 1 to December 31, 2005.

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Table C-1

2005 CONCENTRATIONS OF GAMMA EMITTERS*
IN QUARTERLY COMPOSITES OF AIR PARTICULATES

Results in Units of 10^{-3} pCi/m^3 +/- 2 sigma

STATION ID	Sampling Period Start		Stop	<- Gamma Emitters -> Be-7	K-40
SA-APT-5S1	12/27/2004	to	3/28/2005	73±4	9±2
SA-APT-1F1	12/27/2004	to	3/28/2005	68±4	11±3
SA-APT-2F6	12/27/2004	to	3/28/2005	67±4	10±3
SA-APT-5D1	12/27/2004	to	3/28/2005	63±4	9±2
SA-APT-16E1	12/27/2004	to	3/28/2005	65±4	9±2
SA-APT-14G1(C)	12/27/2004	to	3/28/2005	66±4	12±3
SA-APT-5S1	3/28/2005	to	6/27/2005	66±4	<4
SA-APT-1F1	3/28/2005	to	6/27/2005	68±4	<3
SA-APT-2F6	3/28/2005	to	6/27/2005	66±4	11±3
SA-APT-5D1	3/28/2005	to	6/27/2005	69±4	<4
SA-APT-16E1	3/28/2005	to	6/27/2005	70±4	16±3
SA-APT-14G1(C)	3/28/2005	to	6/27/2005	58±5	<5
SA-APT-5S1	6/27/2005	to	9/26/2005	77±5	30±5
SA-APT-1F1	6/27/2005	to	9/26/2005	75±4	17±3
SA-APT-2F6	6/27/2005	to	9/26/2005	73±4	10±3
SA-APT-5D1	6/27/2005	to	9/26/2005	74±4	9±3
SA-APT-16E1	6/27/2005	to	9/27/2005	73±4	13±2
SA-APT-14G1(C)	6/27/2005	to	9/27/2005	71±4	9±3
SA-APT-5S1	9/26/2005	to	12/27/2005	64±4	8±3
SA-APT-1F1	9/26/2005	to	12/27/2005	69±4	10±3
SA-APT-2F6	9/26/2005	to	12/27/2005	70±4	10±3
SA-APT-5D1	9/26/2005	to	12/27/2005	64±4	14±3
SA-APT-16E1	9/27/2005	to	12/27/2005	66±4	11±2
SA-APT-14G1(C)	9/27/2005	to	12/27/2005	58±4	17±3
AVERAGE				68±10	11±11

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19.
(C) Control Station

TABLE C-2

2005 CONCENTRATIONS OF GROSS BETA EMITTERS IN AIR PARTICULATES
Results in Units of 10^{-3} pCi/m^3 +/- 2 sigma

		<---------- STATION ID ---------->					
MONTH	Control SA-APT-14G1	SA-APT-16E1	SA-APT-1F1	SA-APT-2F6	SA-APT-5D1	SA-APT-5S1	AVERAGE
January	40±3	32±3	32±3	34±3	33±2	37±3	35±6
	13±2	15±2	14±2	14±2	14±2	13±2	14±2
	24±2	25±2	24±2	22±2	23±2	24±2	24±2
	25±2	26±2	28±2	28±2	27±2	31±3	27±4
	22±2	22±2	21±2	23±2	22±2	22±2	22±2
February	25±2	25±2	24±2	25±2	24±2	24±2	24±1
	23±2	21±2	21±2	24±3	22±2	24±3	22±2
	20±2	19±2	21±2	20±2	19±2	20±2	20±2
	21±2	22±3	22±3	19±2	20±3	21±3	21±2
March	18±2	19±2	18±2	20±2	15±2	19±2	18±3
	21±2	21±2	22±3	20±2	20±3	21±3	21±1
	19±2	20±2	19±2	21±2	19±2	19±2	20±1
	10±2	14±2	17±2	14±2	14±2	16±2	14±4
April	9±2	8±2	9±2	10±2	10±2	10±2	9±2
	22±3	23±2	21±3	22±3	23±3	20±3	22±2
	20±2	20±2	30±2	27±2	25±2	25±2	25±8
	22±2	23±2	19±3	20±3	16±2	19±3	20±5
May	20±2	21±2	20±2	21±2	24±2	23±2	22±3
	22±2	21±2	20±2	19±2	19±2	20±2	20±2
	22±2	19±2	19±2	19±2	19±2	18±2	19±3
	14±2	14±2	15±2	16±2	12±2	14±2	14±3
	16±2	17±2	17±2	17±2	15±2	15±2	16±2
June	18±2	16±2	15±2	15±2	11±2	15±2	15±4
	24±3	26±3	23±3	21±2	18±2	21±3	22±5
	18±2	14±2	17±2	15±2	17±2	17±2	16±3
	26±2	25±2	24±2	25±2	22±2	25±2	24±3

TABLE C-2

2005 CONCENTRATIONS OF GROSS BETA EMITTERS IN AIR PARTICULATES
Results in Units of 10^{-3} pCi/m^3 +/- 2 sigma

		<---------- STATION ID ---------->					
MONTH	Control SA-APT-14G1	SA-APT-16E1	SA-APT-1F1	SA-APT-2F6	SA-APT-5D1	SA-APT-5S1	AVERAGE
July	16±2	13±2	15±2	16±2	14±2	15±2	15±2
	22±3	18±3	22±3	21±3	18±3	21±3	20±4
	25±2	22±2	22±2	23±2	23±2	24±2	23±3
	28±3	30±3	27±3	28±3	30±3	28±3	28±2
	24±2	24±2	34±2	33±2	33±2	31±2	30±9
August	46±3	46±3	51±4	48±4	43±3	48±4	47±6
	36±3	34±3	32±2	32±2	32±2	33±2	33±3
	33±3	30±3	30±3	34±3	29±3	34±3	32±4
	24±2	20±2	22±2	22±2	19±2	20±2	21±4
September	21±2	18±2	20±2	20±2	20±2	20±2	20±2
	36±3	33±3	35±3	33±3	30±3	(1)	33±4
	30±2	27±2	31±2	26±2	25±2	(1)	28±5
	37±3	33±3	39±3	35±3	35±3	38±3	36±5
October	30±3	25±3	26±2	27±2	26±2	25±2	27±3
	16±2	13±2	18±3	15±2	16±2	16±2	16±3
	11±2	11±2	11±2	11±2	9±2	10±2	10±1
	24±3	21±2	20±2	22±2	21±3	23±3	22±3
	13±2	14±2	10±2	12±2	13±2	15±2	13±3
November	39±3	36±3	40±3	38±3	35±3	39±3	38±4
	33±3	31±3	31±3	30±3	31±3	32±3	31±2
	25±2	24±2	25±2	24±2	24±2	25±2	24±1
	22±2	20±2	20±2	20±2	22±2	21±2	21±2
December	20±2	20±2	19±2	21±2	23±2	22±2	21±2
	35±3	31±3	39±3	38±3	38±3	43±3	37±8
	22±2	24±2	22±2	24±2	21±2	22±2	22±3
	41±3	35±2	37±3	36±3	33±2	38±3	37±5
AVERAGE	24±16	23±15	24±17	24±16	22±15	24±17	37±5
					GRAND AVERAGE		23±16

(1) Ring Bus failure; results not included in averages. See program deviations.

TABLE C-3

2005 CONCENTRATIONS OF IODINE-131* IN FILTERED AIR

Results in Units of 10^{-3} pCi/m^3

	<---------- STATION ID ---------->					
MONTH	Control SA-AIO-14G1	SA-AIO-16E1	SA-AIO-1F1	SA-AIO-2F6	SA-AIO-5D1	SA-AIO-5S1
January	<3.5	<4.8	<3	<5.4	<6.4	<4.5
	<6.2	<3.3	<5.1	<4.9	<2.5	<6.3
	<2.5	<3.8	<3.8	<2.8	<2.7	<3.8
	<4.4	<4.4	<1.9	<2.3	<1.3	<5.5
	<1.7	<4.7	<3.2	<3.6	<2.2	<3.4
February	<1.5	<4.9	<2.4	<2	<2.2	<4.4
	<4.2	<3.3	<3.4	<6.3	<1.9	<2.6
	<2.4	<1.5	<1.3	<2.6	<4.3	<3.4
	<2.2	<4.9	<4.9	<2.6	<2.4	<5.6
March	<4.2	<4.1	<5.5	<5.8	<1.8	<2.1
	<7.6	<2.9	<4.4	<1.6	<3.2	<3.3
	<1.6	<5.1	<3.8	<2.7	<5.2	<3
	<4.1	<2.2	<4.6	<4.1	<7.9	<4.6
April	<5.3	<5.4	<4.1	<6.3	<2.6	<3
	<2.9	<2.4	<2.8	<5	<4.5	<3.2
	<2.1	<4	<5.8	<2.8	<3.1	<2.9
	<3.5	<2.2	<3.5	<5.5	<5.1	<4.7
May	<2.6	<1.7	<2	<3.2	<2.2	<4.1
	<2	<4.2	<3.8	<2.9	<3.8	<4.9
	<1.7	<3.6	<3.4	<4.7	<4	<2.9
	<5.3	<2.7	<2.7	<4.3	<5	<5.2
	<2.4	<2.9	<1.4	<1.6	<3.6	<1.7
June	<6	<3	<7.7	<4.6	<3.5	<3.5
	<4.7	<6.5	<2.9	<1.9	<4.6	<2.9
	<4	<5.7	<3.1	<3.8	<2.5	<2.4
	<2.5	<5.3	<2.4	<2.3	<7.1	<2.1

TABLE C-3

2005 CONCENTRATIONS OF IODINE-131* IN FILTERED AIR

Results in Units of 10^{-3} pCi/m^3

	<---------- STATION ID ---------->					
MONTH	Control SA-AIO-14G1	SA-AIO-16E1	SA-AIO-1F1	SA-AIO-2F6	SA-AIO-5D1	SA-AIO-5S1
July	<1.9	<3.6	<4	<1.5	<2.6	<2.6
	<4.7	<6.4	<4.2	<15	<6.5	<6.6
	<6.2	<1.5	<2.7	<2.5	<4.5	<6.7
	<2.1	<2	<2.9	<1.8	<6.1	<4.1
	<6.1	<2.9	<2.5	<1.2	<4.7	<3.1
August	<4.4	<5.7	<4.3	<4.6	<2.9	<4.9
	<5.5	<3.1	<3.1	<1.8	<7.6	<2.8
	<3.5	<2.9	<3.5	<4.9	<3.1	<4.7
	<2	<3.3	<5.1	<2	<2	<5.4
September	<3.7	<2.1	<1.8	<4.3	<2.2	<4.1
	<4.3	<9.8	<7	<3.9	<1.9	(1)
	<2.3	<3.3	<2.7	<2.6	<3.1	(1)
	<6	<3	<3.5	<5.2	<3.1	<3.5
October	<5	<3.1	<1.3	<3	<2.4	<2.3
	<4	<3.5	<3.2	<5.2	<3.6	<4.8
	<2.7	<4.9	<1.4	<1.7	<2.2	<3.7
	<3	<2.8	<3.9	<6	<2	<1.2
	<3.1	<8.4	<3.5	<2.8	<5.7	<2.8
November	<3.4	<7.4	<4.3	<3	<2.5	<4
	<6.9	<2.9	<4.2	<3.9	<6.4	<5.1
	<3.1	<2.1	<4.7	<1.9	<3.9	<2.2
	<4.5	<9.1	<3.5	<2.5	<3.7	<2.4
December	<2.1	<2.9	<3.5	<2.6	<2.8	<2
	<5.4	<3.8	<3.4	<5.6	<1.7	<2.2
	<2.4	<2.3	<2.5	<1.6	<4.4	<5
	<2.6	<2.1	<3.8	<3.2	<2.2	<2.3

* I-131 results are corrected for decay to sample stop date.
(1) Ring Bus Failure: See program deviations.

TABLE C-4

2005 DIRECT RADIATION MEASUREMENTS - QUARTERLY TLD RESULTS

Results in mrad/standard month* +/- 2 sigma

STATION ID	JAN to MAR	APR to JUN	JUL to SEP	OCT to DEC	QTR ELEMENTS AVG**
SA-IDM-2S2	5.8±0.5	7.2±0.7	7.0±0.8	8.3±1.2	7.1±2.0
SA-IDM-5S1	3.2±0.3	3.5±0.4	3.5±0.4	3.6±0.4	3.5±0.3
SA-IDM-6S2	4.3±0.4	5.1±0.6	5.3±0.5	5.5±0.6	5.0±1.0
SA-IDM-7S1	5.7±0.6	5.8±0.8	5.8±0.7	5.9±0.6	5.8±0.2
SA-IDM-10S1	3.9±0.3	3.9±0.4	3.8±0.5	4.2±0.5	3.9±0.3
SA-IDM-11S1	3.5±0.3	3.9±0.4	3.7±0.3	4.2±0.6	3.8±0.5
SA-IDM-4D2	3.9±0.4	4.5±0.6	4.4±0.4	4.6±0.6	4.4±0.6
SA-IDM-5D1	3.6±0.4	3.9±0.6	3.9±0.5	4.1±0.5	3.9±0.4
SA-IDM-10D1	4.4±0.4	4.6±0.5	4.6±0.4	4.9±0.6	4.6±0.5
SA-IDM-14D1	4.0±0.3	4 0±0.4	4.2±0.3	4.1±0.6	4.1±0.2
SA-IDM-15D1	4.4±0.4	4.5±0.4	4.5±0.4	4.7±0.5	4.5±0.3
SA-IDM-2E1	3.8±0.4	4.1±0.6	4.0±0.5	4.2±0.6	4.0±0.4
SA-IDM-3E1	3.3±0.3	3.5±0.6	3.5±0.7	3.7±0.5	3.5±0.3
SA-IDM-9F1	4.4±0.3	4.8±0.5	4.8±0.5	5.1±0.6	4.7±0.6
SA-IDM-11E2	4.2±0.3	4.5±0.6	4.6±0.8	4.7±0.6	4.5±0.4
SA-IDM-12E1	4.5±0.4	4.8±0.5	4.5±0.5	4.9±0.5	4.7±0.4
SA-IDM-13E1	3.5±0.3	3.7±0.4	3.7±0.4	3.9±0.4	3.7±0.3
SA-IDM-16E1	4.1±0.3	4.3±0.5	4.3±0.6	4.6±0.4	4.3±0.4
SA-IDM-1F1	5.2±0.4	6.0±0.6	5.7±0.7	5.8±0.8	5.7±0.7
SA-IDM-2F2	3.4±0.4	3.7±0.5	3.8±0.5	3.9±0.6	3.7±0.4
SA-IDM-2F5	3.9±0.4	4.3±0.5	4.3±0.5	4.5±0.6	4.3±0.5
SA-IDM-2F6	3.9±0.3	3.9±0.5	4.0±0.4	4.3±0.5	4.0±0.3
SA-IDM-3F2	3.5±0.4	3.7±0.5	3.7±0.5	4.0±0.6	3.7±0.4
SA-IDM-3F3	3.5±0.3	3.7±0.6	3.7±0.4	3.9±0.5	3.7±0.4
SA-IDM-4F2	3.3±0.3	3.6±0.4	3.6±0.4	3.9±0.4	3.6±0.5
SA-IDM-5F1	3.6±0.3	3.9±0.4	3.9±0.6	4.2±0.5	3.9±0.5
SA-IDM-6F1	3.0±0.3	3.3±0.5	3.1±0.3	3.3±0.6	3.2±0.3
SA-IDM-7F2	2.7±0.4	2.6±0.3	3.1±0.4	3.0±0.3	2.9±0.5
SA-IDM-10F2	4.2±0.3	4.4±0.5	4.2±0.4	4.7±0.7	4.4±0.4
SA-IDM-11F1	4.4±0.5	4.7±0.5	4.5±0.6	4.9±0.4	4.6±0.5
SA-IDM-12F1	4.1±0.3	4.3±0.8	4.2±0.7	4.5±0.4	4.3±0.4
SA-IDM-13F2	4.0±0.4	4.6±0.7	4.7±1.5	4.6±0.4	4.5±0.7
SA-IDM-13F3	3.9±0.3	4.3±0.6	4.2±0.6	4.5±0.7	4.2±0.5
SA-IDM-13F4	4.0±0.4	4.2±0.7	4.2±0.5	4.5±0.5	4.2±0.4
SA-IDM-14F2	4.2±0.3	4.6±0.5	4.6±0.4	4.9±0.5	4.6±0.5
SA-IDM-15F3	4.5±0.3	4.9±0.6	4.9±0.7	5.1±0.5	4.9±0.5
SA-IDM-16F2	3.7±0.3	4.0±0.6	3.9±0.4	4.3±0.4	4.0±0.5
SA-IDM-1G3 (C)	4.8±0.5	5.4±0.8	5.1±0.5	5.5±0.6	5.2±0.6
SA-IDM-3G1 (C)	4.0±0.4	4.6±0.5	4.4±0.5	4.8±0.5	4.5±0.7
SA-IDM-10G1(C)	4.1±0.3	4.5±0.5	4.4±0.6	4.8±0.5	4.4±0.6
SA-IDM-16G1(C)	3.9±0.3	4.1±0.4	4.2±0.7	(1)	4.1±0.3
SA-IDM-3H1 (C)	3.3±0.4	3.4±0.4	3.5±0.5	3.7±0.7	3.5±0.3
SA-IDM-1S1	4.0±0.4	4.4±0.5	4.6±0.4	5.0±0.6	4.5±0.8
SA-IDM-3S1	3.1±0.3	3.4±0.6	3.6±0.4	3.6±0.9	3.5±0.4
SA-IDM-2S4	3.2±0.4	3.7±0.4	3.6±0.6	3.8±0.3	3.6±0.5
SA-IDM-4S1	3.6±0.3	4.0±0.6	4.0±0.3	4.2±0.6	3.9±0.5
SA-IDM-15S1	3.4±0.3	3.5±0.5	3.6±0.4	3.9±0.6	3.6±0.4
SA-IDM-16S1	4.2±0.4	4.4±0.5	4.4±0.5	4.6±0.4	4.4±0.3
SA-IDM-14G1(C)	4.3±0.4	4.7±0.6	4.5±0.5	4.8±0.5	4.6±0.4
AVERAGE	3.9±1.2	4.3±1.5	4.3±1.4	4.5±1.6	
			GRAND AVG		4.2±1.5

* The standard month = 30.4 days.
** Quarterly Element TLD results by Framatome - ANP Environmental Laboratory.
(C) Control Station
(1) TLD Missing. See Program Deviations

TABLE C-5

2005 CONCENTRATIONS OF IODINE-131* AND GAMMA EMITTERS** IN MILK

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING PERIOD*** START	STOP	I-131	GAMMA EMITTERS K-40
SA-MLK-2G3	1/2/2005	1/3/2005	<0.2	1300 ±70
SA-MLK-13E3	1/2/2005	1/3/2005	<0.1	1380 ±70
SA-MLK-14F4	1/2/2005	1/3/2005	<0.3	1410 ±80
SA-MLK-3G1 (C)	1/2/2005	1/3/2005	<0.2	1280 ±70
SA-MLK-2G3	2/7/2005	2/8/2005	<0.2	1310 ±70
SA-MLK-13E3	2/6/2005	2/7/2005	<0.3	1300 ±70
SA-MLK-14F4	2/6/2005	2/7/2005	<0.3	1420 ±70
SA-MLK-3G1 (C)	2/7/2005	2/8/2005	<0.2	1340 ±70
SA-MLK-2G3	3/6/2005	3/7/2005	<0.2	1300 ±70
SA-MLK-13E3	3/6/2005	3/7/2005	<0.2	1330 ±80
SA-MLK-14F4	3/6/2005	3/7/2005	<0.2	1380 ±70
SA-MLK-3G1 (C)	3/6/2005	3/7/2005	<0.2	1310 ±70
SA-MLK-2G3	4/3/2005	4/4/2005	<0.2	1270 ±70
SA-MLK-13E3	4/4/2005	4/5/2005	<0.2	1260 ±70
SA-MLK-14F4	4/4/2005	4/5/2005	<0.2	1290 ±70
SA-MLK-3G1 (C)	4/3/2005	4/4/2005	<0.3	1290 ±70
SA-MLK-2G3	4/18/2005	4/19/2005	<0.3	1250 ±70
SA-MLK-13E3	4/17/2005	4/18/2005	<0.2	1370 ±70
SA-MLK-14F4	4/17/2005	4/18/2005	<0.3	1380 ±80
SA-MLK-3G1 (C)	4/17/2005	4/18/2005	<0.2	1250 ±70
SA-MLK-2G3	5/1/2005	5/2/2005	<0.3	1360 ±80
SA-MLK-13E3	5/1/2005	5/2/2005	<0.3	1280 ±70
SA-MLK-14F4	5/1/2005	5/2/2005	<0.1	1350 ±70
SA-MLK-3G1 (C)	5/1/2005	5/2/2005	<0.3	1270 ±70
SA-MLK-2G3	5/16/2005	5/17/2005	<0.2	1360 ±70
SA-MLK-13E3	5/15/2005	5/16/2005	<0.3	1370 ±70
SA-MLK-14F4	5/15/2005	5/16/2005	<0.3	1350 ±70
SA-MLK-3G1 (C)	5/15/2005	5/16/2005	<0.2	1330 ±70
SA-MLK-2G3	6/5/2005	6/6/2005	<0.2	1420 ±70
SA-MLK-13E3	6/5/2005	6/6/2005	<0.3	1290 ±70
SA-MLK-14F4	6/5/2005	6/6/2005	<0.3	1380 ±70
SA-MLK-3G1 (C)	6/5/2005	6/6/2005	<0.2	1300 ±70
SA-MLK-2G3	6/19/2005	6/20/2005	<0.2	1350 ±80
SA-MLK-13E3	6/19/2005	6/20/2005	<0.2	1440 ±70
SA-MLK-14F4	6/19/2005	6/20/2005	<0.3	1320 ±70
SA-MLK-3G1 (C)	6/19/2005	6/20/2005	<0.2	1310 ±70
SA-MLK-2G3	7/4/2005	7/5/2005	<0.1	1410 ±70
SA-MLK-13E3	7/4/2005	7/5/2005	<0.1	1420 ±80
SA-MLK-14F4	7/4/2005	7/5/2005	<0.2	1290 ±70
SA-MLK-3G1 (C)	7/4/2005	7/5/2005	<0.2	1420 ±70
SA-MLK-2G3	7/17/2005	7/18/2005	<0.2	1330 ±70
SA-MLK-13E3	7/17/2005	7/18/2005	<0.2	1400 ±70
SA-MLK-14F4	7/18/2005	7/19/2005	<0.2	1370 ±70
SA-MLK-3G1 (C)	7/17/2005	7/18/2005	<0.7	1300 ±70

TABLE C-5

2005 CONCENTRATIONS OF IODINE-131* AND GAMMA EMITTERS** IN MILK

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING PERIOD*** START	STOP	I-131	GAMMA EMITTERS K-40
SA-MLK-2G3	7/31/2005	8/1/2005	<0.2	1420 ±70
SA-MLK-13E3	7/31/2005	8/1/2005	<0.2	1400 ±80
SA-MLK-14F4	8/1/2005	8/2/2005	<0.2	1420 ±70
SA-MLK-3G1 (C)	7/31/2005	8/1/2005	<0.3	1360 ±70
SA-MLK-2G3	8/14/2005	8/15/2005	<0.3	1280 ±70
SA-MLK-13E3	8/14/2005	8/15/2005	<0.4	1320 ±70
SA-MLK-14F4	8/14/2005	8/15/2005	<0.3	1330 ±70
SA-MLK-3G1 (C)	8/14/2005	8/15/2005	<0.1	1300 ±70
SA-MLK-2G3	9/5/2005	9/6/2005	<0.3	1310 ±70
SA-MLK-13E3	9/5/2005	9/6/2005	<0.3	1270 ±80
SA-MLK-14F4	9/5/2005	9/6/2005	<0.2	1290 ±70
SA-MLK-3G1 (C)	9/5/2005	9/6/2005	<0.2	1230 ±70
SA-MLK-2G3	9/18/2005	9/19/2005	<0.3	1320 ±70
SA-MLK-13E3	9/18/2005	9/19/2005	<0.1	1380 ±70
SA-MLK-14F4	9/18/2005	9/19/2005	<0.3	1270 ±70
SA-MLK-3G1 (C)	9/18/2005	9/19/2005	<0.3	1230 ±70
SA-MLK-2G3	10/3/2005	10/4/2005	<0.2	1390 ±80
SA-MLK-13E3	10/2/2005	10/3/2005	<0.2	1330 ±80
SA-MLK-14F4	10/2/2005	10/3/2005	<0.3	1340 ±70
SA-MLK-3G1 (C)	10/3/2005	10/4/2005	<0.2	1280 ±70
SA-MLK-2G3	10/16/2005	10/17/2005	<0.1	1290 ±70
SA-MLK-13E3	10/16/2005	10/17/2005	<0.2	1320 ±70
SA-MLK-14F4	10/16/2005	10/17/2005	<0.3	1210 ±70
SA-MLK-3G1 (C)	10/16/2005	10/17/2005	<0.2	1320 ±70
SA-MLK-2G3	10/31/2005	11/1/2005	<0.2	1370 ±80
SA-MLK-13E3	10/31/2005	11/1/2005	<0.3	1380 ±70
SA-MLK-14F4	10/31/2005	11/1/2005	<0.2	1440 ±70
SA-MLK-3G1 (C)	11/1/2005	11/2/2005	<0.2	1270 ±70
SA-MLK-2G3	11/13/2005	11/14/2005	<0.3	1280 ±70
SA-MLK-13E3	11/14/2005	11/15/2005	<0.2	1400 ±80
SA-MLK-14F4	11/13/2005	11/14/2005	<0.2	1320 ±80
SA-MLK-3G1 (C)	11/14/2005	11/15/2005	<0.2	1280 ±70
SA-MLK-2G3	12/4/2005	12/5/2005	<0.2	1420 ±70
SA-MLK-13E3	12/4/2005	12/5/2005	<0.1	1310 ±70
SA-MLK-14F4	12/4/2005	12/5/2005	<0.2	1270 ±70
SA-MLK-3G1 (C)	12/5/2005	12/6/2005	<0.2	1280 ±70
AVERAGE			-	1330 ±110

* Iodine-131 results are corrected for decay to midpoint of collection period & analyzed to a sensitivity of 1.0 pCi/L.

** All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19

*** Monthly sample collected during Jan., Feb., March and Dec., when animals are not on pasture.

(C) Control Station

TABLE C-6

2005 CONCENTRATIONS OF GROSS ALPHA AND GROSS BETA EMITTERS, AND TRITIUM IN WELL WATER

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING DATE	GROSS ALPHA	GROSS BETA	TRITIUM
SA-WWA-3E1	1/31/2005	3.2±1.6	10±0.9	<149
SA-WWA-3E1	2/22/2005	<1.4	10±0.9	<155
SA-WWA-3E1	3/28/2005	<1.1	10±0.8	<147
SA-WWA-3E1	4/25/2005	<2.1	9.9±0.9	<146
SA-WWA-3E1	5/31/2005	<1.5	10±0.8	<149
SA-WWA-3E1	6/27/2005	<2.3	9.6±0.9	<145
SA-WWA-3E1	7/25/2005	<1.5	10±0.9	<155
SA-WWA-3E1	8/29/2005	<1.4	10±0.9	<148
SA-WWA-3E1	9/26/2005	<0.6	9.2±0.6	<155
SA-WWA-3E1	10/24/2005	<1.2	11±0.9	<145
SA-WWA-3E1	11/28/2005	<1.2	10±0.9	<150
SA-WWA-3E1	12/27/2005	<1.3	10±0.9	<152
AVERAGE		-	10±1	-

TABLE C-7

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN WELL WATER

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING DATE	<——GAMMA EMITTERS ——> K-40	RA-NAT
SA-WWA-3E1	1/31/2005	88±20	112±4
SA-WWA-3E1	2/22/2005	101±20	114±5
SA-WWA-3E1	3/28/2005	63±19	135±4
SA-WWA-3E1	4/25/2005	<18	112±5
SA-WWA-3E1	5/31/2005	<20	136±5
SA-WWA-3E1	6/27/2005	<17	115±5
SA-WWA-3E1	7/25/2005	<17	96±5
SA-WWA-3E1	8/29/2005	<6	37±3
SA-WWA-3E1	9/26/2005	<17	67±5
SA-WWA-3E1	10/24/2005	<20	105±5
SA-WWA-3E1	11/28/2005	<33	36±3
SA-WWA-3E1	12/27/2005	<18	155±6
AVERAGE		-	102±75

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19.

TABLE C-8

2005 CONCENTRATIONS OF GROSS ALPHA AND GROSS BETA EMITTERS AND TRITIUM IN RAW AND TREATED POTABLE WATER

Results in Units of pCi/L +/- 2 sigma

TYPE	SAMPLING PERIOD	GROSS ALPHA	GROSS BETA	TRITIUM
RAW	1/1-31/2005	1.9±0.8	3.9±0.6	<147
TREATED	1/1-31/2005	<1.1	2.9±0.6	<144
RAW	2/1-28/2005	<0.6	3±0.6	<152
TREATED	2/1-28/2005	<0.7	2.9±0.6	<151
RAW	3/1-31/2005	0.8±0.5	3.1±0.5	<145
TREATED	3/1-31/2005	<0.6	2.9±0.5	<144
RAW	4/1-30/2005	1.2±0.6	3.2±0.6	<150
TREATED	4/1-30/2005	<1	2.6±0.6	<150
RAW	5/1-31/2005	<0.6	2.6±0.5	<148
TREATED	5/1-31/2005	<0.7	2.7±0.5	<156
RAW	6/1-30/2005	<1	3.2±0.6	<139
TREATED	6/1-30/2005	<1	2.5±0.6	<141
RAW	7/1-31/2005	<0.6	3.3±0.6	<153
TREATED	7/1-31/2005	<0.7	3±0.6	<152
RAW	8/1-31/2005	<0.6	2.8±0.6	<144
TREATED	8/1-31/2005	<0.5	2.9±0.6	<145
RAW	9/1-30/2005	<0.7	3.3±0.4	<152
TREATED	9/1-30/2005	<1.1	3.2±0.4	<154
RAW	10/1-31/2005	0.5±0.4	3.6±0.6	<151
TREATED	10/1-31/2005	0.5±0.4	3.4±0.6	<151
RAW	11/1-30/2005	<0.4	3.3±0.6	<154
TREATED	11/1-30/2005	<0.5	3.3±0.6	<153
RAW	12/1-31/2005	0.6±0.4	3.8±0.6	<148
TREATED	12/1-31/2005	<0.7	3.9±0.6	<149
AVERAGE				
RAW		-	3.3±0.8	-
TREATED		-	3±0.8	-
GRAND AVERAGE		-	3.1±0.8	-

TABLE C-9

2005 CONCENTRATIONS OF IODINE-131* AND GAMMA EMITTERS**
IN RAW AND TREATED POTABLE WATER

Results in Units of pCi/L +/- 2 sigma

TYPE	SAMPLING PERIOD	I-131	<—GAMMA EMITTERS —> K-40	RA-NAT
RAW	1/1-31/2005	<0.2	30±14	<2
TREATED	1/1-31/2005	<0.1	47±16	<2
RAW	2/1-28/2005	<0.2	39±16	<2
TREATED	2/1-28/2005	<0.2	63±15	<2
RAW	3/1-31/2005	<0.3	<14	<2
TREATED	3/1-31/2005	<0.2	<15	<2
RAW	4/1-30/2005	<0.2	36±11	<2
TREATED	4/1-30/2005	<0.2	42±12	<3
RAW	5/1-31/2005	<0.3	<17	<2
TREATED	5/1-31/2005	<0.2	<16	7.1±1.4
RAW	6/1-30/2005	<0.4	84±13	<2
TREATED	6/1-30/2005	<0.3	92±18	<2
RAW	7/1-31/2005	<0.2	<15	<2
TREATED	7/1-31/2005	<0.3	<14	5.7±1.4
RAW	8/1-31/2005	<0.3	<17	<2
TREATED	8/1-31/2005	<0.2	36±10	<2
RAW	9/1-30/2005	<0.3	49±14	<2
TREATED	9/1-30/2005	<0.1	39±17	<2
RAW	10/1-31/2005	<0.2	44±15	<3
TREATED	10/1-31/2005	<0.4	89±16	<2
RAW	11/1-30/2005	<0.2	<14	<2
TREATED	11/1-30/2005	<0.1	42±16	<4
RAW	12/1-31/2005	<0.2	48±13	<2
TREATED	12/1-31/2005	<0.2	75±16	15±3
AVERAGES				
RAW		-	34±42	-
TREATED		-	48±54	-
GRAND AVERAGE		-	41±49	-

* Iodine-131 analyzed to a sensitivity of 1.0 pCi/L.
** All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19.

TABLE C-10

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN VEGETABLES
Results in Units of pCi/kg (Wet) +/- 2 sigma

STATION ID	SAMPLING DATE	SAMPLE TYPE	<— GAMMA EMITTERS —> K-40	RANAT
SA-FPV-2G2 (C)	5/23/2005	Asparagus	2000±118	<5.1
AVERAGE			2000±118	-
SA-FPL-2F9	7/21/2005	Cabbage	2270±123	<5.3
SA-FPL-3F7	7/6/2005	Cabbage	2310±146	<7.5
SA-FPL-6F2	7/20/2005	Cabbage	2070±118	<6.6
SA-FPL-3H5 (C)	7/20/2005	Cabbage	2440±116	<4.7
AVERAGE			2270±310	-
SA-FPV-2F4	7/21/2005	Corn	2330±173	<12
SA-FPV-14F3	7/22/2005	Corn	2130±178	<9.9
SA-FPV-1G4 (C)	7/21/2005	Corn	2210±175	<6.7
SA-FPV-2G2 (C)	7/20/2005	Corn	2480±97	<9.1
SA-FPV-9G1 (C)	8/1/2005	Corn	2180±161	<8.9
SA-FPV-3H5 (C)	7/20/2005	Corn	2860±205	<10
AVERAGE			2370±550	-
SA-FPV-2F4	8/1/2005	Peppers	1670±169	<8.6
SA-FPV-2F9	7/21/2005	Peppers	1280±145	<9.6
SA-FPV-3F7	8/1/2005	Peppers	1240±139	<7.8
SA-FPV-6F2	7/20/2005	Peppers	1930±165	<11
SA-FPV-14F3	7/22/2005	Peppers	1390±149	<9.6
SA-FPV-1G4 (C)	7/21/2005	Peppers	1220±143	<9.2
SA-FPV-2G2 (C)	7/20/2005	Peppers	1300±137	<8.2
SA-FPV-3H5 (C)	7/20/2005	Peppers	1280±139	<9.9
AVERAGE			1410±510	-
SA-FPV-2F4	8/1/2005	Tomatoes	2880±168	<8.5
SA-FPV-2F9	7/21/2005	Tomatoes	1820±136	<5.1
SA-FPV-3F7	8/1/2005	Tomatoes	2800±189	<10
SA-FPV-6F2	7/20/2005	Tomatoes	2220±152	<8.9
SA-FPV-14F3	7/22/2005	Tomatoes	2060±158	<8.2
SA-FPV-2G2 (C)	7/20/2005	Tomatoes	1180±170	<8.6
SA-FPV-9G1 (C)	8/1/2005	Tomatoes	1920±140	18±6
SA-FPV-3H5 (C)	7/20/2005	Tomatoes	2040±81	<9.2
AVERAGE			2120±1090	-
GRAND AVERAGE			1980±1030	-

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19
(C) Control Station

TABLE C-11

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN GAME

Results in Units of pCi/kg (wet) +/- 2 sigma

STATION ID	SAMPLING DATE	SAMPLE TYPE	GAMMA EMITTERS K-40
SA-GAM-3E1	2/25/2005	Muskrat	2970±180

*All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19

TABLE C-12

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN FODDER CROPS

Results in Units of pCi/kg (wet) +/- 2 sigma

STATION ID	SAMPLING DATE	SAMPLE TYPE	<-------- GAMMA EMITTERS --------> Be-7	K-40	RA-NAT
SA-VGT-10D1	12/27/2005	Ornamental Cabbage	199±54	3660±217	<8.5
SA-VGT-1S1	12/28/2005	Ornamental Cabbage	138±53	3870±208	<11
SA-VGT-15S1	12/28/2005	Ornamental Cabbage	236±81	3670±244	<11
SA-VGT-16S1	12/28/2005	Ornamental Cabbage	105±45	4020±216	<8.7
AVERAGE			170±120	3810±350	-
SA-VGT-3G1 (C)	11/13/2005	Silage	<23	3890±228	<5.9
SA-VGT-14F4	11/1/2005	Silage	283±48	3180±157	<6.1
AVERAGE			-	3540±1000	-
SA-VGT-3G1 (C)	11/13/2005	Soybeans	75±24	14200±255	18±7

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19.
(C) Location 3G1 is the Control Station.

TABLE C-13

2005 CONCENTRATIONS OF GROSS BETA EMITTERS IN SURFACE WATER

Results in Units of pCi/L +/- 2 sigma

SAMPLING DATE	STATION ID SA-SWA-11A1	SA-SWA-12C1 (Control)	SA-SWA-16F1	SA-SWA-1F2	SA-SWA-7E1	AVERAGE
January	56±6	30±5	16±4	12±4	64±6	36±47
February	101±7	80±7	52±5	38±5	117±8	78±65
March	93±7	63±6	50±6	36±5	79±7	64±45
April	10±2	7±2	8±2	8±2	6±2	8±3
May	26±3	20±2	13±2	13±2	48±4	24±29
June	58±6	48±6	42±6	36±5	83±7	53±36
July	103±11	76±10	54±9	49±9	93±11	75±47
August	90±11	77±10	59±10	46±9	109±12	76±49
September	124±13	94±11	76±11	68±10	143±13	101±64
October	121±12	99±11	83±11	73±10	137±13	103±53
November	81±10	72±10	55±9	34±8	101±11	69±51
December	84±10	53±9	27±8	28±8	91±11	57±60
AVERAGE	79±71	60±58	44±48	37±41	89±76	
				GRAND AVERAGE		62±71

TABLE C-14

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN SURFACE WATER

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING DATE	<--------GAMMA EMITTERS--------> K-40	RA-NAT	Th-232
SA-SWA-1F2	1/5/2005	49±11	<1.9	<4.2
SA-SWA-7E1	1/5/2005	135±21	<2.2	<6.1
SA-SWA-11A1	1/5/2005	72±16	<2	<4.3
SA-SWA-12C1(C)	1/5/2005	80±14	<2.2	<8.1
SA-SWA-16F1	1/5/2005	54±14	<1.7	<2.8
SA-SWA-1F2	2/7/2005	88±20	<2.3	<4.9
SA-SWA-7E1	2/7/2005	132±20	<1.7	<3.9
SA-SWA-11A1	2/7/2005	125±17	<1.8	<4.1
SA-SWA-12C1(C)	2/7/2005	108±20	<2	<5.6
SA-SWA-16F1	2/7/2005	119±17	<2.3	<4.3
SA-SWA-1F2	3/7/2005	63±14	<1.5	<4.6
SA-SWA-7E1	3/7/2005	122±21	<1.7	<3.1
SA-SWA-11A1	3/7/2005	131±23	<2.1	<4.4
SA-SWA-12C1(C)	3/7/2005	131±17	<2	<4.1
SA-SWA-16F1	3/7/2005	67±15	<2	<4.8
SA-SWA-1F2	4/7/2005	42±16	<2.1	<4.3
SA-SWA-7E1	4/7/2005	44±20	<1.8	<7.7
SA-SWA-11A1	4/7/2005	48±13	<2.1	<3.7
SA-SWA-12C1(C)	4/7/2005	50±16	<2.1	<4.8
SA-SWA-16F1	4/7/2005	45±21	<1.9	11±4
SA-SWA-1F2	5/3/2005	50±15	<1.7	<3.9
SA-SWA-7E1	5/3/2005	81±21	<2.1	<2.9
SA-SWA-11A1	5/3/2005	58±14	<1.6	<3.4
SA-SWA-12C1(C)	5/3/2005	69±17	<1.9	<4.3
SA-SWA-16F1	5/3/2005	59±13	<1.6	<4.4
SA-SWA-1F2	6/7/2005	132±22	<2	16±5
SA-SWA-7E1	6/7/2005	130±22	<2.6	<5
SA-SWA-11A1	6/7/2005	95±17	<2.1	<3.9
SA-SWA-12C1(C)	6/7/2005	61±17	<1.8	<4.6
SA-SWA-16F1	6/7/2005	79±15	<1.8	<4.9
SA-SWA-1F2	7/7/2005	77±18	<1.9	<4.4
SA-SWA-7E1	7/7/2005	89±17	<1.8	<4.3
SA-SWA-11A1	7/7/2005	93±20	<1.8	<4.1
SA-SWA-12C1(C)	7/7/2005	111±19	<2.5	<4.8
SA-SWA-16F1	7/7/2005	132±19	<2.1	<4

TABLE C-14

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN SURFACE WATER

Results in Units of pCi/L +/- 2 sigma

STATION ID	SAMPLING DATE	<--------GAMMA EMITTERS--------> K-40	RA-NAT	Th-232
SA-SWA-1F2	8/4/2005	86±19	<3.8	<3.9
SA-SWA-7E1	8/4/2005	217±26	<5.9	<14
SA-SWA-11A1	8/4/2005	150±21	<6.4	<3.7
SA-SWA-12C1(C)	8/4/2005	65±15	<3.4	<3.9
SA-SWA-16F1	8/4/2005	72±18	<1.2	<4.1
SA-SWA-1F2	9/6/2005	110±15	5.9±1.7	9.5±3.2
SA-SWA-7E1	9/6/2005	116±21	<1.9	<4.5
SA-SWA-11A1	9/6/2005	101±19	<1.9	<3.8
SA-SWA-12C1(C)	9/6/2005	107±17	<1.7	<4.1
SA-SWA-16F1	9/6/2005	67±18	<1.9	<3.8
SA-SWA-1F2	10/4/2005	59±21	<2.6	<5.5
SA-SWA-7E1	10/4/2005	116±24	<2.2	<4.4
SA-SWA-11A1	10/4/2005	123±21	<2	<4.4
SA-SWA-12C1(C)	10/4/2005	61±20	<2	<4.3
SA-SWA-16F1	10/4/2005	82±17	<1.8	<4.5
SA-SWA-1F2	11/3/2005	100±17	<2.1	<3.9
SA-SWA-7E1	11/3/2005	73±21	<2.6	<4.6
SA-SWA-11A1	11/3/2005	62±18	<1.7	<4.1
SA-SWA-12C1(C)	11/3/2005	77±22	<2	<2.8
SA-SWA-16F1	11/3/2005	78±21	<2.2	<3.8
SA-SWA-1F2	12/14/2005	<21	<1.7	<4.5
SA-SWA-7E1	12/14/2005	83±19	<1.8	<4
SA-SWA-11A1	12/14/2005	34±17	<2.2	<4.1
SA-SWA-12C1(C)	12/14/2005	40±17	<2.6	<4.2
SA-SWA-16F1	12/14/2005	<17	<2.2	<3.9
AVERAGE		86±73	-	-

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19
C) Control Station

TABLE C-15

2005 CONCENTRATIONS OF TRITIUM IN SURFACE WATER

Results in Units of pCi/L +/- 2 sigma

SAMPLING PERIOD	<---------- STATION ID ---------->					
	SA-SWA-11A1	SA-SWA-12C1 (Control)	SA-SWA-16F1	SA-SWA-1F2	SA-SWA-7E1	AVERAGE
January	<150	<150	<150	<140	<140	-
February	190±90	<140	<150	<150	<140	-
March	<150	<160	<150	<160	<160	-
April	<150	<150	<150	<140	<140	-
May	<150	<160	<150	<150	<150	-
June	<150	<160	<160	<150	<160	-
July	820±100	<140	<150	<150	<140	-
August	<150	<150	<140	<150	<150	-
September	<140	<150	<150	<150	<150	-
October	<150	<150	<150	<150	<160	-
November	<150	<150	<150	<150	<150	-
December	<150	<150	<150	<150	<150	-

TABLE C-16

2005 CONCENTRATIONS OF GAMMA EMITTERS** IN EDIBLE FISH

Results in Units of pCi/kg (wet) +/- 2 sigma

STATION ID	SAMPLING PERIOD	GAMMA EMITTERS (FLESH) K-40
SA-ESF-7E1	5/23-25/2005	3700±190
SA-ESF-11A1	5/23-25/2005	3610±190
SA-ESF-12C1 (C)	5/23-25/2005	3660±190
AVERAGE		3660±90
SA-ESF-7E1	9/13-15/2005	3450±200
SA-ESF-11A1	9/13-15/2005	3380±190
SA-ESF-12C1 (C)	9/13-15/2005	3480±180
AVERAGE		3440±100
GRAND AVERAGE		3550±260

** All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19
(C) Control Station

TABLE C-17

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN CRABS

Results in Units of pCi/kg (wet) +/- 2 sigma

STATION ID	SAMPLING PERIOD	GAMMA EMITTER (FLESH) K-40
SA-ECH-11A1	7/18-21/2005	2570±160
SA-ECH-12C1 (C)	7/18-21/2005	2840±170
AVERAGE		2710±380
SA-ECH-11A1	9/15-16/2005	3140±180
SA-ECH-12C1 (C)	9/15-16/2005	3080±190
AVERAGE		3110±80
GRAND AVERAGE		2910±520

* All other gamma emitters searched for were <LLD; Typical LLDs are given in Table C-19.
(C) Control Station

TABLE C-18

2005 CONCENTRATIONS OF GAMMA EMITTERS* IN SEDIMENT

Results in Units of pCi/kg (dry) +/- 2 sigma

STATION ID	SAMPLING DATE	Be-7	K-40	Co-60	Cs-137	RA NAT	Th-232
SA-ESS-6S2	6/21/2005	<26	1920±114	<4.9	<7.5	104±8	108±18
SA-ESS-11A1	6/15/2005	<32	3170±149	<3.9	<4.2	197±11	276±26
SA-ESS-15A1	6/15/2005	<80	8610±272	<15	33±10	477±16	661±40
SA-ESS-16A1	6/15/2005	<53	7280±239	<17	<5.2	638±19	720±48
SA-ESS-12C1(C)	6/15/2005	<86	16600±424	<11	<8.5	572±19	1170±85
SA-ESS-7E1	6/15/2005	<122	14300±366	<8.2	28±8.5	631±24	926±68
SA-ESS-16F1	6/15/2005	<147	11400±349	<31	<22	497±28	901±68
AVERAGE			9000±10900	-	-	450±420	680±750
SA-ESS-6S2	11/21/2005	88±36	2160±119	<1.7	<4.1	91±7.4	102±17
SA-ESS-11A1	11/9/2005	<61	6490±259	<6.3	<14	455±25	673±42
SA-ESS-15A1	11/9/2005	<84	9700±319	<28	31±11	519±17	696±46
SA-ESS-16A1	11/9/2005	<59	6920±242	<8.8	<9.9	881±21	1040±4.5
SA-ESS-12C1(C)	11/9/2005	<77	15900±414	<21	<8	457±23	885±56
SA-ESS-7E1	11/9/2005	<82	12700±387	<11	29±12	779±33	919±73
SA-ESS-16F1	11/9/2005	<229	15800±438	<26	71±14	686±31	1130±86
AVERAGE		-	10000±10300	-	-	550±520	780±680
GRAND AVERAGE		-	9500±10200	-	-	500±470	730±700

* All other gamma emitters searched for were <LLD; typical LLDs are given in Table C-19
(C) Control Station

TABLE C-19

2005 MAPLEWOOD TESTING SERVICES
LLDs FOR GAMMA SPECTROSCOPY

SAMPLE TYPE:	<----------AIR---------->		<----------WATER---------->		<----------MILK---------->	
	IODINE	PARTICULATES	GAMMA SCAN	IODINE	GAMMA SCAN	IODINE
ACTIVITY:	10-3 pCi/m3	10-3 pCi/m3	pCi/L	pCi/L	pCi/L	pCi/L
GEOMETRY:	47 ML	13 FILTERS	3.5 LITERS	100 ML	3.5 LITERS	100 ML
COUNT TIME:	120 MINS	500 MINS	1000 MINS	1000 MINS	500 MINS	1000 MINS
DELAY TO COUNT:	2 DAYS	5 DAYS	7 DAYS	3 DAYS	2 DAYS	2 DAYS
NUCLIDES						
BE-7	-	2.0	19	-	29	-
NA-22	-	0.61	4.0	-	4.9	-
K-40	-	4.8	54	-	32	-
CR-51	-	2.9	34	-	19	-
MN-54	-	0.23	1.8	-	3.0	-
CO-58	-	0.36	2.0	-	4.0	-
FE-59	-	0.52	4.8	-	12	-
CO-60	-	0.34	2.4	-	5.9	-
ZN-65	-	0.79	4.5	-	9.9	-
ZRNB-95	-	0.97	3.6	-	5.8	-
MO-99	-	12	77	-	42	-
RU-103	-	0.30	2.2	-	2.2	-
RU-106	-	1.9	12	-	30	-
AG-110M	-	0.38	3.9	-	4.6	-
SB-125	-	0.65	3.5	-	4.5	-
TE-129M	-	14	100	-	99	-
I-131	21	9.7	169	0.40	2.1	0.71
TE-132	-	0.9	6	-	2.5	-
BA-133	-	0.21	1.4	-	3.1	-
CS-134	-	0.18	1.1	-	2.0	-
CS-136	-	2.9	47	-	3.2	-
CS-137	-	0.26	1.5	-	3.6	-
BALA-140	-	9.8	113	-	11	-
CE-141	-	0.35	5.0	-	3.6	-
CE-144	-	1.1	10	-	12	-
RA-NAT	-	0.44	6.4	-	8.8	-
TH-232	-	2.2	14	-	21	-

TABLE C-19 (Cont'd)

2005 MAPLEWOOD TESTING SERVICES
LLDs FOR GAMMA SPECTROSCOPY

SAMPLE TYPE:	<---------FOOD PRODUCTS--------->		<-VEGETATION->	<-----GAME----->	<-FISH & CRAB->	<--SEDIMENT-->
ACTIVITY:	GAMMA SCAN pCi/kg WET	GAMMA SCAN pCi/kg WET	GAMMA SCAN pCi/kg WET	GAMMA SCAN pCi/kg WET	GAMMA SCAN pCi/kg WET	GAMMA SCAN pCi/kg DRY
GEOMETRY:	3.5 LITER	500 ml	3.5 LITER	500 ml	500 ml	500 ml
COUNT TIME:	500 MINS	500 MINS	500 MINS	500 MINS	500 MINS	500 MINS
DELAY TO COUNT:	3 DAYS	3 DAYS	7 DAYS	5 DAYS	5 DAYS	30 DAYS
NUCLIDES						
BE-7	111	65	23	39	34	229
NA-22	10	14	14	15	7.2	22
K-40	32	55	32	55	55	55
CR-51	50	40	41	28	46	111
MN-54	9.9	9.5	7.7	5.0	8.4	24
CO-58	10	6.8	5.1	5.0	6.2	11
FE-59	12	16	15	12	12	24
CO-60	14	7.9	12	6.3	17	31
ZN-65	16	14	11	12	16	24
ZRNB-95	25	10	8.1	7.0	13	42
MO-99	150	358	111	391	409	46200
RU-103	6.2	6.8	4.9	6.1	5.2	15
RU-106	59	72	47	38	59	127
AG-110M	12	8.5	9.3	8.7	14	16
SB-125	14	12	15	9.0	13	27
TE-129M	251	120	190	186	130	780
I-131	10	10	5.8	3.7	7.7	86
TE-132	11	38	6.4	34	28	1830
BA-133	6.2	4.6	6.6	2.2	4.6	9.5
CS-134	5.3	3.4	5.2	3.1	3.8	8.7
CS-136	9.2	6.5	7.1	7.6	7.9	54
CS-137	6.0	6.7	13	2.8	11	22
BALA-140	29	23	51	23	24	113
CE-141	6.5	5.8	6.7	5.0	5.0	17
CE-144	33	28	23	18	22	55
RA-NAT	12	10	11	7.3	19	5.0
TH-232	39	45	68	19	42	8.1

APPENDIX D

SUMMARY OF RESULTS FROM ANALYTICS AND ENVIRONMENTAL RESOURCE ASSOCIATES INTERLABORATORY COMPARISON PROGRAMS

APPENDIX D

SUMMARY OF RESULTS FOR ANALYTICS AND ENVIRONMENTAL RESOURCE ASSOCIATES INTERLABORATORY COMPARISON PROGRAM

Appendix D presents a summary of the analytical results for the 2005 Analytics and Environmental Resource Associates (ERA) Interlaboratory Comparison Program.

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TABLE D-1

RESULTS FOR ANALYTICS AND ERA INTERLABORATORY COMPARISON PROGRAM

Gross Alpha and Gross Beta Emitters In Water (pCi/L) and
Gross Beta in Air Particulate Filter (pCi/m^3)

DATE MM-YY	PSEG SAMPLE CODE	MEDIUM	ANALYSIS	* PSEG Mean ± s.d.	ANALYTICS ERA Known	ANALYTICS/ERA Acceptance Criteria Lower Limit	ANALYTICS/ERA Acceptance Criteria Upper Limit
06-2005	ANL-WAT-AB615	Water	Alpha	50±5	52	42	62
			Beta	228±4	214	171	257
08-2005	ERA-WAT-AB619	Water	Alpha	37±2	56	32	80
			Beta	59±2	61	44	79
09-2005	ANL-WAT-AB623	Water	Alpha	37±2	42	33	50
			Beta	146±3	123	99	147
12-2005	ANL-WAT-AB624	Water	Alpha	50±3	53	42	63
			Beta	331±12	285	228	342
12-2005	ANL-APT-B629	APT	Beta	158±2	150	120	180

* s.d. - one standard deviation of three individual analytical results

TABLE D-2

RESULTS FOR ANALYTICS AND ERA INTERLABORATORY COMPARISON PROGRAM

Gamma Emitters In Water (pCi/L)

DATE MM-YY	PSEG SAMPLE CODE	MEDIUM	ANALYSIS	* PSEG Mean ± s.d.	ANALYTICS ERA Known	ANALYTICS/ERA Acceptance Criteria Lower Limit	& Upper Limit
03-2005	ANL-WAT-G609	Water	Cr-51	319±24	322	258	386
			Mn-54	165±2	154	123	185
			Fe-59	121±15	107	85	129
			Co-60	142±4	139	111	167
			Zn-65	198±10	191	153	229
			I-131	64±6	66	53	79
			Cs-134	127±3	134	107	161
			Cs-137	127±3	125	100	150
			Ce-141	219±15	221	177	265
			Co-58	113±4	111	89	133
08-2005	ERA-WAT-G614	Water	Ba-133	100±1	106	88	124
			Co-60	15±0.3	14	5	22
			Cs-134	85±0.6	92	83	101
			Cs-137	76±1.4	73	64	81
			Zn-65	69±3.3	66	54	77
12-2005	ANL-WAT-G626	Water	Cr-51	146±5	142	113	171
			Mn-54	115±0	112	90	134
			Fe-59	64±1	61	48	73
			Co-60	81±1	81	65	98
			Zn-65	119±2	113	90	136
			I-131	54±2	53	42	64
			Cs-134	62±1	64	51	77
			Cs-137	139±2	139	111	167
			Ce-141	164±1	1651	132	198
			Co-58	57±2	57	46	69

* s.d. - one standard deviation of three individual analytical results

TABLE D-3

RESULTS OF ANALYTICS AND ERA INTERLABORATORY COMPARISON PROGRAM

Gamma Emitters In Soil (pCi/Kg-dry)
and Air Particulate Samples (pCi/m^3)

DATE MM-YY	PSEG SAMPLE CODE	MEDIUM	ANALYSIS	* PSEG Mean ± s.d.	ANALYTICS ERA Known	ANALYTICS/ERA Acceptance Criteria Lower Limit	& Upper Limit
03-2005	ANL-SOL-G610	Soil	Cr-51	353±14	375	300	450
			Mn-54	183±2	179	143	215
			Co-58	123±1	129	105	153
			Fe-59	137±10	125	100	150
			Co-60	157±4	161	129	193
			Zn-65	218±2	222	178	266
			Cs-137	261±10	249	199	299
			Ce-141	242±8	258	206	310
			Cs-134	130±7	156	125	187
06-2005	ANL-APT-G617	APT	Cr-51	342±8	319	255	383
			Mn-54	151±5	132	106	158
			Co-60	156±5	153	122	184
			Fe-59	81±0	67	54	80
			Zn-65	185±4	163	131	195
			Cs-134	87±2	100	80	120
			Cs-137	221±3	199	159	239
			Ce-141	111±3	97	78	116
09-2005	ANL-SOL-G621	Soil	Cr-51	461±3	455	364	546
			Mn-54	137±7	124	99	149
			Co-58	88±3	85	68	102
			Fe-59	89±10	82	66	98
			Co-60	214±24	225	180	270
			Zn-65	173±22	166	133	199
			Cs-137	373±54	364	291	437
			Ce-141	332±6	314	251	377
			Cs-134	147±9	164	131	197

* s.d. - one standard deviation of three individual analytical results

TABLE D-4

RESULTS OF ANALYTICS AND ERA INTERLABORATORY COMPARISON PROGRAM

Tritium Analysis In Water (pCi/L)
Iodine-131 Analysis In Water (pCi/L)
And Iodine In Air Samples (pCi/m^3)

DATE MM-YY	PSEG SAMPLE CODE	MEDIUM	ANALYSIS	* PSEG Mean ± s.d.	ANALYTICS ERA Known	ANALYTICS/ERA Acceptance Criteria Lower Limit	& Upper Limit
03-2005	ANL-WAT-H608	Water	H-3	5764±164	6040	3640	8440
03-2005	ANL-AIO-I611	AIO	I-131	66±2	62	49	74
05-2005	ERA-WAT-H613	Water	H-3	25451±296	24400	20174	28626
05-2005	ERA-WAT-I612	Water	I-131	16±3	16	10	21
06-2005	ANL-AIO-I616	AIO	I-131	95±2	93	74	111
06-2005	ANL-WAT-H618	Water	H-3	8435±76	9100	6700	11500
09-2005	ANL-AIO-I620	AIO	I-131	68±2	65	52	78
09-2005	ANL-WAT-H622	Water	H-3	4118±76	4190	1790	6590
12-2005	ANL-WAT-I625	AIO	I-131	71±2	72	57	86
12-2005	ANL-WAT-H627	Water	H-3	13060±142	13200	10560	15840

* s.d. - one standard deviation of three individual analytical results

APPENDIX E

SYNOPSIS OF LAND USE CENSUS

APPENDIX E

SYNOPSIS OF 2005 LAND USE CENSUS

A land use census was conducted to identify, within a distance of 8 km (5 miles), the location of the nearest milk animal, the nearest residence, and the nearest garden of greater than $50m^2$ ($500ft^2$) producing broad leaf vegetation, in each of the 16 meteorological sectors.

Tabulated below are the results of these surveys:

Meteorological Sector	Milk Animal July, 2005 km (miles)	Nearest Residence July, 2005 km (miles)	Vegetable Garden July, 2005 km (miles)
N	None	None	None
NNE	None	None	None
NE	None	6.4 (4.0)	None
ENE	None	5.8 (3.6)	None
E	None	8.7 (5.4)	None
ESE	None	None	None
SE	None	None	None
SSE	None	None	None
S	None	None	None
SSW	None	5.5 (3.4)	None
SW	None	6.9 (4.3)	None
WSW	None	7.1 (4.4)	None
W	7.8 (4.9)	6.5 (4.0)	None
WNW	None	5.5 (3.4)	None
NW	None	5.9 (3.7)	None
NNW	None	6.8 (4.2)	None