

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos. 50-272/93-04  
50-311/93-04  
50-354/93-04

Docket Nos. 50-272, 50-311, 50-354

License Nos. DPR-70, DPR-75, NPF-57

Licensee: Public Service Electric and Gas Company (PSE&G)  
P.O. Box 236  
Hancocks Bridge, New Jersey 08038

Facility Name: Salem Generating Station, Units 1 & 2  
and Hope Creek Generating Station

Inspection At: Hancocks Bridge, New Jersey, and the PSE&G Research and Testing  
Laboratory, Maplewood, New Jersey

Inspection Conducted: January 11-15, 1993

Inspector: Laurie Peluso  
Laurie A. Peluso, Radiation Specialist  
Effluents Radiation Protection Section (ERPS)  
Facilities Radiological Safety and Safeguards  
Branch (FRSSB)

01/21/93  
Date

Approved by: for Jason C. Jang  
Marie T. Miller, Chief, ERPS, FRSSB,  
Division of Radiation Safety and  
Safeguards (DRSS)

1-21-93  
Date

Areas Inspected: Announced inspection of the Radiological Environmental Monitoring Program (REMP) including: management controls, quality assurance audits, quality assurance/quality control of measurement laboratory, surveillance procedures, meteorological monitoring program, and implementation of the Offsite Dose Calculation Manual (ODCM).

Results: Within the areas inspected, implementation of the above programs by members of the Radiation Protection/Chemistry Services was very good. No safety concerns or violations of regulatory requirements were identified.

## DETAILS

### 1.0 Individuals Contacted

#### 1.1 Licensee Personnel

- \*\*\* D. Branham, Senior Staff Engineer, Radiation Protection/Chemistry Services
- \* R. Dolan, Principal Engineer, Radiation Protection/Chemistry Services
- J. Healy, Maintenance and Calibration Consultant, Meteorological
- M. Healy, Maintenance and Calibration Consultant
- \* E. Lawrence, Lead Engineer, Quality Assurance Programs and Audits
- \* L. Miller, General Manager - Nuclear Operations Support
- J. Trejo, Manager, Radiation Protection/Chemistry Services
- \* E. Villar, Site Licensing Engineer
- \* R. Yewdall, Senior Engineer, Radiation Protection/Chemistry Services

#### 1.2 Research and Testing Laboratory, Maplewood, New Jersey

- \*\* N. Allman, Supervisor, Environmental Section
- \*\* R. Farrington, Senior Test Engineer, Gamma Systems/Lab Operations
- C. Hall, Test Engineer
- \*\* D. Karpiej, Senior Test Engineer, Radiochemistry
- \*\* T. Randall, Senior Test Engineer, Quality Assurance

#### 1.3 Nuclear Regulatory Commission

- \* T. Johnson, Senior Resident Inspector
  
- \* Denotes those present at the exit interview at the Salem/Hope Creek Site on January 15, 1993.
  
- \*\* Denotes those present at the exit interview at the Research and Testing Laboratory on January 13, 1993.
  
- \*\*\* Denotes those present at both exit interviews.

Other licensee employees were contacted and interviewed during this inspection.

### 2.0 Purpose

The purpose of this inspection was to verify the licensee's capability to implement the Radiological Environmental Monitoring Program (REMP) as described in the Offsite Dose Calculation Manual (ODCM), the Meteorological Monitoring Program (MMP), and the operations of the analytical vendor laboratory (PSE&G Research and Testing Laboratory, in Maplewood, New Jersey), during normal and emergency operations.

### 3.0 Management Controls

#### 3.1 Organization

The inspector reviewed the licensee's organization of the REMP and the MMP and discussed with the members of the Radiation Protection/Chemistry Services Department any changes made since the last inspection conducted in August 1991. There had been a change in the organization as of November 1992. The Radiation Protection/Chemistry Services (RP/CS) Department, continues to maintain responsibility for the REMP and MMP, however, the RP/CS has been moved from Nuclear Services to Nuclear Operations Support. The Manager of RP/CS now reports to the General Manager - Nuclear Operations Support. As of this inspection, this transition has been smooth and has had no adverse effect on either the REMP or the MMP.

#### 3.2 Quality Assurance Audits

The inspector reviewed the Quality Assurance Audit Reports, 91-151 and 92-151 conducted by members of the Nuclear Quality Assurance (NQA) Department during October 7 - November 5, 1991 and September 7 - 30, 1992. The areas audited included Radioactive Effluent Control Programs, REMP, Research and Testing Laboratory, and MMP for the Salem and Hope Creek Site. The audits covered the stated objectives, utilized technical specialists, and were of sufficient technical depth to assess the above programs. Both audits identified several observations, recommendations and a few deficiencies in the MMP and REMP, including the vendor laboratory. These recommendations and deficiencies were of no safety significance. At the conclusion of each audit, a statement that the above programs were effectively implemented had been documented in each audit report. The inspector also noted that the QA Audits Department used a tracking system for follow-up items, corrective actions, and responses. The inspector reviewed the procedure, "Quality Assurance Audits", and verified that the procedure required that the audit include review for programmatic weaknesses and assess the quality of the program(s) being audited. The audit reports reviewed by the inspector contained the elements of the procedure.

#### 3.3 Review of the Annual Radiological Environmental Operating Report

The inspector reviewed the Annual Radiological Environmental Operating Report for 1991, as well as the available 1992 analytical data. The report provided a comprehensive summary of the analytical results of the REMP around the Salem and Hope Creek Site and met Technical Specification reporting requirements. Records of the analytical results for 1992 indicated that all samples were collected as required and the lower limits of detection

specified in the licensee's Technical Specifications were met. No obvious omissions, trends, or anomalous measurements were identified.

#### 4.0 Implementation of the Radiological Environmental Monitoring Program

Members of the Radiation Protection/Chemistry Services Department have the responsibility of implementing the REMP at the Salem and Hope Creek Site. Environmental samples were collected and analyzed by members of the PSE&G Research and Testing Laboratory, which is the primary vendor laboratory.

##### 4.1 Direct Observations

The inspector examined several environmental sampling stations to determine whether samples were being collected from the locations designated in the Technical Specifications and the Offsite Dose Calculation Manual (ODCM), and whether the air samplers were operable, calibrated, and maintained. These stations included air samplers for particulates and airborne iodines, milk, vegetation, soil, and water samples, and a number of thermoluminescent dosimetry (TLD) stations for direct ambient radiation measurements. All air sampling equipment was operational and the sample volume meters (gas meters) for the air samplers were in calibration at the time of the inspection. TLDs were placed at their designated locations, and the milk and vegetation samples were available at the locations specified in the ODCM. The inspector witnessed the weekly exchange of charcoal cartridges and air particulate filters. Sample collection was performed according to the appropriate procedure.

##### 4.2 Implementation of the REMP Procedures

The inspector reviewed the Environmental Division Procedures Manual as part of the examination of the implementation of the REMP as described in the Technical Specifications. The procedures in the manual included requirements for sampling techniques for various environmental sample media and sampling frequencies, preparation of the environmental samples for analysis, sample analysis and reporting, and instrument calibration. The procedures were concise, reflected current sampling practices, and provided the required direction and guidance for implementing an effective program.

In addition to the above procedure review, the inspector reviewed the calibration records of the gas meters for the air samplers. The calibrations were performed as scheduled and the results were within the licensee's acceptance criteria.

Based on the above procedure review and discussions with the licensee representatives, the inspector determined that the licensee excellently implemented the REMP.

#### 5.0 Quality Assurance/Quality Control of Analytical Measurements

The inspector reviewed the licensee's program for quality assurance (QA) and quality control (QC) of analytical measurements to determine whether the licensee had adequate controls with respect to sampling, analyzing samples, and evaluating data for implementing the REMP.

The inspector visited the PSE&G Research and Testing Laboratory (RTL), located in Maplewood, New Jersey, along with a Radiation Protection/Chemistry Services representative. The inspector toured the facility and reviewed laboratory activities including processing, preparation and analysis of environmental sample media. The inspector reviewed the RTL Quality Assurance Plan that included organizational structure, training and qualifications, operating procedures and instructions, records, calibrations, performance checks, and quality control. The laboratory's quality control program included duplicates, spiked samples, and interlaboratory cross checks, such as the EPA cross-check program as required by the Technical Specifications. The inspector reviewed the QC control charts for detector efficiency and counting resolutions, and background. The control charts for the counting equipment were within the laboratory's set criteria and the calibrations were performed as scheduled. The EPA's cross-check results were within the acceptance criteria.

The inspector reviewed the results of the quarterly TLDs (Technical Specification requirement) and reviewed the monthly TLDs (QA/QC). The TLDs are exchanged by RTL personnel and processed at the vendor laboratory (Teledyne Isotopes, Inc.). The results are listed in the Annual REMP Report. As of June 1992, the licensee replaced the secondary vendor laboratory, Controls for Environmental Pollution, with Teledyne Isotopes, Inc. in an attempt to improve the quality control program. The inspector reviewed these results and determined that the quality control program has improved.

Based on the above reviews, the inspector determined that the licensee had effectively implemented the quality assurance and quality control programs for the REMP.

## 6.0 Meteorological Monitoring Program

The inspector reviewed the licensee's meteorological monitoring program (MMP) to determine whether the instrumentation and equipment were operable, calibrated, and maintained. Members of the Radiation Protection/Chemistry Services Department have the responsibility of implementing the MMP at the Salem and Hope Creek Site. The licensee's contractor performs monthly preventive maintenance (PM) calibrations, semi-weekly surveillance checks, and quarterly calibrations on all the sensors and equipment for the main and backup towers.

The inspector reviewed the licensee's Meteorological Program Manual that included detailed calibration and maintenance procedures. The inspector witnessed the contractor perform the monthly PM calibration and determined that the calibrations were performed according to the appropriate procedures and the completed results were within the licensee's acceptance criteria. The inspector reviewed the most recent monthly PM and quarterly calibration results and determined that the results were within the licensee's acceptance criteria. The inspector compared the wind speed, wind direction, and delta temperature outputs of the main tower and backup towers to the outputs in the Technical Support Center and Control Room. The results were in very good agreement.

Based on the above review, the inspector determined that the licensee excellently implemented the meteorological monitoring program.

## 7.0 Exit Interview

The inspector met with the licensee representatives denoted in Section 1.0 at the conclusion of the inspection on January 13, 1993 at the RTL and on January 15, 1993 at the Salem/Hope Creek Site. The inspector summarized the purpose, scope, and findings, of the inspection.