

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report/License Nos.: 50-272/95-15/DPR-70, 50-311/95-15/DPR-75, and
50-354/95-14/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 at Maplewood, New Jersey

Inspection Conducted: July 31-August 4, 1995

Inspector:

Laurie Peluso
Laurie Peluso, Radiation Specialist
Effluents Radiation Protection Section (ERPS)

Approved by:

Robert Bores
Robert Bores, Chief, ERPS
Facilities Radiological Safety and Safeguards Branch

Areas Inspected: Announced safety inspection of the Radiological Environmental Monitoring Program and Meteorological Monitoring Program including: management controls, quality assurance audits, program implementing procedures, quality assurance/quality control of analytical measurement laboratory, and the implementation of the above programs and the Offsite Dose Calculation Manual (ODCM).

Results: Within the areas inspected, members of the Emergency Preparedness & Radiological Support maintained excellent Radiological Environmental Monitoring and Meteorological Monitoring Programs. No safety concerns or violations of NRC regulatory requirements were observed.

DETAILS

1.0 INDIVIDUALS CONTACTED

1.1 PRINCIPAL LICENSEE EMPLOYEES

- * D. Branham, Senior Staff Engineer, Chemistry Services, Emergency Preparedness and Radiological Support (EP&RS)
- * T. DiGuseppi, Manager, EP&RS
- J. Healy, Meteorological Equipment Maintenance Contractor
- M. Healy, Meteorological Equipment Maintenance Contractor
- * E. Lawrence, Senior Staff Engineer, Quality Assurance Department
- * E. Villar, Station Licensing
- * R. Yewdall, Senior Staff Engineer, Radiological Support, EP&RS

1.2 RESEARCH AND TESTING LABORATORY

N. Allman, Senior Supervising Test Engineer, Radiological and Asbestos Testing
R. Farrington, Senior Test Engineer, Radiological and Asbestos Testing
T. Randall, Senior Test Engineer, Radiological and Asbestos Testing

1.3 NRC EMPLOYEES

- * T. Fish, NRC Resident Inspector
- * Denotes those present at the exit meeting on August 4, 1995.

The inspector also interviewed other licensee personnel.

2.0 PURPOSE OF INSPECTION

The purpose of this inspection was to review the licensee's implementation of the Radiological Environmental Monitoring Program (REMP) and Meteorological Monitoring Program (MMP) and the operations of the analytical laboratory, PSE&G Research and Testing Laboratory (RTL), during normal and emergency operations.

3.0 MANAGEMENT CONTROLS

3.1 ORGANIZATION AND RESPONSIBILITIES

The inspector reviewed the licensee's organization regarding the REMP and the MMP, and discussed with the licensee responsibilities and any organization changes since the last inspection conducted April 1994. During the last inspection, the Manager, Radiation Protection/Chemistry Services (RP/CS) reported to the General Manager, Nuclear Services who reported to the Vice President, Nuclear Operations. RP/CS maintained responsibility for the REMP and MMP. During this inspection, the inspector noted that RP/CS reorganized twice in 1995. In February, RP/CS separated; Radiation Protection (Radiological Support) moved to Emergency Preparedness, and Chemistry Services moved to Engineering. Then in July 1995, Chemistry Services moved to Emergency Preparedness & Radiological Support (EP&RS). At the time of this inspection, the

Principal Engineers of Radiological Support and of Chemistry Services each reported to the Manager, EP&RS who reported to the Vice President, Engineering and Support who in turn, reported to the President and Chief Nuclear Operator (CNO), Nuclear Business Unit (NBU). The inspector was informed during the inspection that, commencing August 7, 1995, the Manager, EP&RS will report to the Vice President, Operations who reports to the President and CNO, NBU.

During this inspection, the inspector noted that as of April 1995, the RTL had reorganized. The Radiological and Asbestos Testing (RAT) Section moved from the Transmission Unit to Fossil Generation. The Senior Supervising Test Engineer, RAT reports to the Manager, Environmental and Chemical Services Division who reports through the Manager, Technology Transfer and Testing to the Senior Vice President, Fossil Generation.

The inspector determined through discussions with licensee personnel and inspection observations that no program changes were made to either REMP or the MMP. Implementation of the programs continues to be conducted by the same individuals who have conducted the programs for the past several years. No adverse impacts were noted as a result of the organizational changes discussed above.

3.2 QUALITY ASSURANCE AUDIT REPORTS

The inspector reviewed the following Quality Assurance Audit Report as part of the evaluation of the implementation of the Technical Specification (TS) requirements.

Audit No. 94-151, Radiological Effluent Controls

This audit was conducted by members of the Nuclear Department Quality Assurance and a technical specialist. The audit was performed during the period November 1-22, 1994. No items of safety significance were identified in this audit. The inspector noted that seven items were identified, six of which were closed. The lead auditor stated that the last item was closed after the 94-151 audit report was issued, and the item will be documented as closed in the 95-151 audit report. This will be reviewed during a subsequent inspection. Responses to the above audit findings were appropriate and timely.

Based on the above report review and discussions with the lead auditor and responsible individuals for the REMP and MMP, the inspector determined that the audit was of sufficient technical depth to assess the implementation of the REMP and the MMP.

3.3 ANNUAL REPORT

The inspector reviewed the Annual Radiological Environmental Operating Report for 1994, as well as the selected analytical data for 1995. The report provided a comprehensive summary of the results of the REMP around the Salem and Hope Creek Generating Stations and met the TS

reporting requirements. The reviewed results indicated that all samples were collected and analyzed as required by the TS. The report was completed and no obvious omissions or anomalous data were identified.

4.0 IMPLEMENTATION OF THE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

4.1 DIRECT OBSERVATIONS

The inspector examined selected sampling stations to determine whether samples were being obtained from the locations designated in the ODCM and whether air samplers were operable and calibrated. The sampling stations included air samplers for iodines and particulates, milk, and thermoluminescent dosimeter (TLD) stations for measurements of direct ambient radiation. The inspector witnessed the weekly exchange of charcoal cartridges and air particulate filters at selected sampling stations and the monthly TLD exchange. The inspector noted that the exchanges were performed according to the appropriate procedure. The inspector also noted that the licensee collected and analyzed more samples than required by TS. All air sampling equipment at the selected locations was operational at the time of the inspection. The above environmental sampling media were available at the locations designated in the ODCM and TLDs were placed at locations designated in the ODCM.

Based on the above program review and discussions with the responsible individuals, the inspector determined that the licensee continued to effectively implement a very good REMP.

4.2 REVIEW OF PROCEDURES

The inspector reviewed selected environmental monitoring procedures from the licensee's procedure manual. The inspector noted that there were no significant changes to the procedures since the previous inspection. The reviewed procedures provided the required direction and guidance for implementing an effective REMP.

The inspector also reviewed the licensee's air sampler calibration procedures and records. Calibration of gas meters was performed according to the specified frequencies stated in the appropriate procedure. Results of these calibrations were within the licensee's specified acceptance criteria.

Based on this review, the inspector determined that the procedures reflected the environmental program and that the licensee had good procedures for implementation of the REMP.

4.3 RADIOLOGICAL ASSESSMENT OF THE HOPE CREEK RELEASE

On April 5, 1995, radioactive materials were released from the south plant vent of the Hope Creek Station to the outside atmosphere. (See Inspection Report No. 50-354/95-05 for more detail). As a result of the event a portion of the release was deposited on the onsite building roofs and grounds. The licensee identified the total quantity of

radioactive materials that deposited on the ground including on the shoreline within the site boundary, using actual radiological measurement results, the estimation of the total volume of radioactive material released, and meteorological conditions at the time of the release. Based on these data, the licensee calculated the potential offsite projected dose to members of the public from the direct exposure pathway. During this inspection, the inspector reviewed the licensee's assessment results for technical adequacy.

Initially, the licensee sampled shoreline sediment and grass samples where deposition was expected based on meteorological conditions. Then an extensive daily sampling program, including air, soil, and water was implemented to determine if the release extended beyond the site boundary. The sediment and grass samples were collected approximately 300 feet apart along 2000 feet of shoreline at the perimeter of the licensee's property. Each sampling area was within a 2-foot diameter circle. The special sampling period was April 6 - July 28, 1995. The samples had been collected and analyzed according to the appropriate procedures. The inspector reviewed the sample analysis results and noted that all detectable activity was within the site boundary, no radioactivity as a result of this release had been detected above background outside the site boundary. From the activity identified within the site boundary, the licensee calculated the projected total body dose to the maximally exposed individual as defined in NRC Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I" (October 1977). The total body dose to the theoretical, maximally exposed individual (teen) was calculated to be $5.4E-3$ mrem.

Based on the above review, the inspector determined that the assessment was reasonable and was conservative (i.e., assumptions made would overestimate any dose implications). The inspector noted that these conservative dose projections to the members of the general public as well as to the environment were very small when compared to the annual whole body dose commitment from natural background radiation sources of approximately 100 mrem. These data verify that the April 1995 event had no measurable impact on the environment or members of the public.

4.4 QUALITY CONTROL PROGRAM FOR REMP

The inspector reviewed the licensee's programs for quality assurance (QA) and quality control (QC) of analytical measurements for radiological environmental samples to determine whether the licensee had adequate control with respect to sampling, analyzing, and evaluating data for the implementation of the REMP. The RTL participated in an intercomparison cross-check (EPA cross-check) program required by TS. The inspector reviewed the results and noted that the results were within acceptance criteria. The QC program consisted of measurements of duplicate and split samples. The inspector reviewed the analytical results and noted that the results were generally within the licensee's

acceptance criteria. The Senior Supervisor Test Engineer of the laboratory reviewed the data. When discrepancies were found, reasons for the discrepancies were investigated and resolved.

Based on the above review and discussions with the licensee, the inspector determined that the licensee continued to conduct very good QA and QC programs.

5.0 METEOROLOGICAL MONITORING PROGRAM

The inspector examined the licensee's meteorological monitoring equipment calibration procedures and most recent calibration results to determine whether the instrumentation and equipment were operable, calibrated, and maintained. A meteorological contractor calibrated and maintained all sensors at the main and backup towers for the Salem and Hope Creek site. Calibrations were performed quarterly, more frequently than required by TS. The Senior Radiological Engineer, Radiological Support was responsible for the MMP.

The inspector reviewed the calibration records for the primary and backup towers (including inland tower), with emphasis on wind speed, wind direction, and temperature sensors. All reviewed calibration results were within the licensee's defined acceptance criteria. The inspector compared the wind speed, wind direction, and delta temperature outputs of the towers to the control room outputs (strip chart recorders and computer terminals). The results were in agreement.

The inspector noted that the licensee had requested that the requirements of the MMP be transferred from the TS to the Final Safety Analysis Report (FSAR). Salem received approval from NRC and Hope Creek is waiting for approval from the NRC. The meteorological procedures have been updated as appropriate.

The inspector reviewed the licensee's implementing calibration procedures. The procedures contained the required information necessary to effectively implement the MMP and have been updated with respect to the above TS and FSAR changes.

Based on the above review, direct observations, discussions with personnel, and examination of procedures and records for calibration of equipment, the inspector determined that (1) excellent communication exists between the contractor and Radiological Support and (2) the licensee continued to effectively implement a very good MMP.

6.0 EXIT INTERVIEW

The inspector met with the licensee representatives denoted in Section 1.1 and 1.2 of this report at the conclusion of the inspection on August 4, 1995. The inspector summarized the purpose, scope and findings of the inspection. The licensee acknowledged the inspection findings.