



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No. 70-1113/82-19

Licensee: General Electric Company
P. O. Box 780
Wilmington, NC 28402

Facility Name: GE-Wilmington-Nuclear Division

Docket No. 70-1113

License No. SNM-1097

Inspection at GE-Wilmington site near Wilmington, NC

Inspector: C. D. Evans 10/7/82
C. D. Evans Date Signed

Approved by: D. M. Montgomery 10-7-82
D. M. Montgomery, Chief, IM&EP Section Date Signed
EPOS Division

SUMMARY

Inspection on September 15-17, 1982

Areas Inspected

This routine, unannounced inspection involved 21 inspector-hours on site in the areas of quality control and confirmatory measurements including: review of the laboratory quality control program; review of radiochemistry procedures and records; liquid and gaseous effluent sampling and accountability; and the collection of effluent samples for alpha analyses by the NRC Laboratory.

Results

Of the three areas inspected, no violations or deviations were identified in three areas.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *C. M. Vaughan, Manager - Licensing and Materials Control
- *R. G. Lewis, Acting Supervisor - Radiation Protection
- *M. D. McLain, Manager - Nuclear Safety Engineering
- *W. B. Smalley, Manager - Environmental
- B. J. Beane, Senior Engineer
- R. E. Schaffer, Chemist
- G. E. Jefferies, Counting Room Specialist

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on September 17, 1982, with those persons indicated in paragraph 1 above. In addition, the stack sampling methodology referred to in paragraph six was discussed with the Licensing Manager by telephone on September 28, 1982. The Licensing Manager agreed to preform a review of the stack sampling methodology within 30 days from the receipt of the inspection report and inform NRC:RII of the result of the review.

3. Unresolved Items

Unresolved items were not identified during this inspection.

4. Laboratory Quality Control Program

The inspector reviewed the licensee's Quality Control Program for radio-analytical measurements in the following areas.

- a. Assignment of Responsibility and Authority to Manage and Conduct the QC Program.

The Environmental Manager is responsible for the quality control associated with radiological effluent measurements. The day to day implementation of quality control in the counting room and uranium laboratory is carried out by their respective supervisors.

- b. Provisions for Review and Audits

There are no specific provisions for review of quality control documentation and laboratory analytical results by management. Audits are conducted in accordance with NEBO Procedure 70-29, "Quality Assurance, Nuclear Safety, and Nuclear Materials Safeguards Audits". The scope of these audits generally do not address the adequacy of the quality control program.

The inspector discussed with licensee representatives the need for management review of quality control documentation and analytical results. The inspector was informed that the review and audit program was considered adequate. The inspector noted that there are no specific license requirements in this area and had no further questions regarding this item.

- c. Methods for Assuring Deficiencies and Deviations in the Program are Recognized, Identified and Corrected.

The status of deficiencies identified by audits are maintained through a bi-monthly NEP & QAO Audit Corrective Action Performance Report. Specific quality control checks with acceptance criteria are also provided in the analytical laboratory procedures. However, no formal mechanism exists for documenting and investigating deficiencies identified by these quality control activities. The inspector discussed this area with licensee representatives and was informed that they consider their program to be adequate. The inspector also noted that the licensee has no license requirements for quality control in the area of radioanalytical measurements.

5. Review of Procedures and Records

- a. The inspector reviewed the following records and procedures.

1. 0-2.0, "Environmental Sampling of Final Lagoon System", 6-21-82.
2. 0-6.0, "Stack Sampling Program", 6-21-82.
3. NS1 N0.26.0, "Laboratory Analysis of Air Sampling Filters", 6-18-81.
4. Low Background Counting System Performance Summary, 12-8-81 to 9-10-82.
5. 4.1.21.2, "Determination of Uranium in Water by X-ray Fluorescence".
6. 1.2.21.4R2, "Determination of Trace Amounts of Uranium by Fluorimetry".
7. Fluorimetry Calibration Curve, 7-18-81.
8. Fluorimetry QC data, 1982.
9. Gross alpha and beta results on weekly composite sample from lagoon outfall, 1-3-82 to 4-26-82.

The results of the procedure and record review are discussed in paragraphs 5b-5d.

- b. The inspector noted that the Harshaw alpha-beta scintillation counter's response checks had slowly drifted beyond the 3-sigma control limit. The inspector was informed by licensee representatives that the problem was probably related to improper instrumentation settings. Licensee representatives indicated that they would obtain the services of the manufacturer for correction of instrument problems as soon as possible. This will be carried as an inspector followup item (70-1113/82-19-01).
- c. Section 7.2.7 of the license application requires gross alpha and beta analysis on weekly composite samples of the lagoon outfall. The inspector noted that the weekly composite samples are sent to GE Vallecitos for gross alpha and beta, and that results for the period of April 26, 1982 to September 17, 1982 had not been received by GE Wilmington. The inspector informed licensee representatives that the period between sample collection and analysis was excessively long. Analyses required by license conditions should be completed and reviewed in a timely manner to ensure compliance with regulatory limits. Licensee representatives agreed to review this concern. This will be carried as an inspector follow-up item (70-1113/82-19-02).
- d. The inspector noted that the computational method for determination of total alpha activity released from the plant stacks may result in over-reporting of releases. The method presently makes allowance for activity loss by self absorption by assuming 40 percent losses. The inspector requested information as to how correction factors for self absorption were obtained and was informed that no documentation was available. The inspector requested that the licensee evaluate the degree of self absorption by analyzing inplant and stack particulate filters by gross alpha counting and by total uranium determination and comparing results. Licensee representatives agreed to perform these evaluations and make appropriate corrections if necessary. This area will be reviewed in a subsequent inspection (70-1113/82-19-03).

6. Review of Stack Sampling Assemblies

The inspector examined the particulate air samplers used for effluent accountability. The inspector noted that the designs of sampling trains for the plant stacks were not consistent. The location of the rotameter for flow measurements was on the suction side of the sampling pump for about half of the plant stacks and on the discharge side for the other stacks. The inspector informed licensee representatives that it is generally accepted industry practice to position the rotameter on the suction side of the the sampling pump and just after the particulate sampler to minimize the effects of inleakage and pressure differences between the rotameter and sampler. The inspector also noted that no pressure corrections were made for the rotameters installed on the suction side of the sampling pumps.

A lower pressure at the rotameters results in a determination of total volume greater than the actual volume. A licensee representative contacted the rotameter manufacturer and determined an appropriate equation for pressure corrections. Calculation of the total volume using the equation indicated that the licensee had under-reported effluent releases from plant stacks by 3 to 11 percent. The inspector reviewed effluent records for 1981 and 1982 and determined that no regulatory limits had been exceeded. The inspector also noted that the pressure gauges on some of the stack sampling assemblies were inoperable. Licensee representatives agreed to replace inoperable pressure gauges and to complete a review of their stack air sampling methodology within 30 days from the receipt of inspection report and inform NRC:RII of the results of the review (70-1113/82-19-04).

7. Confirmatory Measurements

The inspector collected selected stack particulate filters and liquid effluent samples during the inspection. These samples will be analyzed for isotopic uranium by the NRC contract laboratory and the results will be compared with the licensee reported values. The comparison of results will be documented in a subsequent inspection report (70-1113/82-19-05).