



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30323

OCT 3 0 1989

Report No.: 70-1113/89-11

Licensee: General Electric Company  
 Wilmington, NC 28401

Docket No.: 70-1113

License No.: SNM-1097

Facility Name: General Electric Company

Inspection Conducted: September 18-21, 1989 and September 28, 1989

Inspector: *J R Decker for* 10/27/89  
 R. R. Marston Date Signed

Accompanying Personnel: D. A. Seymour

Approved by: *J R Decker* 10/27/89  
 T. R. Decker, Chief Date Signed  
 Radiological Effluents and Chemistry Section  
 Emergency Preparedness and Radiological  
 Protection Branch  
 Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of radioactive waste management; radioactive effluent sampling, monitoring, and analysis; radiological environmental monitoring; and lab quality control.

Results:

Review of logs and sampling data indicated adequate treatment and control of radioactive liquid and gaseous effluents. The licensee has stated that they will provide for review by the NRC additional information on their stack sampling system and the representativeness of the stack samples (Paragraph 6).

The computer-based heating, ventilation, and air conditioning (HVAC) system status monitoring and control system is now approximately 99 percent complete. The system was designed to improve building air balance conditions, provide for monitoring and control of hoods and process enclosures, and to monitor flow and pressure-drop in high efficiency particulate air (HEPA) filter installations (Paragraph 7).

The licensee appeared to have adequately planned and prepared for Hurricane Hugo (Paragraph 10).

In the areas inspected, violations or deviations were not identified.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- D. Barbour, Radiation Protection Shift Supervisor
- B. Beane, Manager of Chemical Maintenance
- \*T. Crawford, Senior Engineer, Environmental Protection
- D. Hasslen, Supervisor - Engineer, HVAC Systems
- B. Pierce, Lab Analyst
- P. Stansberry, Senior Nuclear Safety Engineer
- \*H. Strickler, Manager, Environmental Protection and Industrial Safety
- P. Winslow, Manager, Licensing and Nuclear Management

Other licensee employees contacted during this inspection included operators, security force members, technicians, and administrative personnel.

\*Attended exit interview

### 2. Action on Previous Inspection Findings (92701, 92702)

(Open) Non-Cited Violation (NCV) 89-04-01: Review corrective measures to assure that isotopic uranium analyses of air samples meet the sensitivity requirement of E-16 uCi/ml as required by the license. A previous inspection report identified the fact that the monthly isotopic uranium analyses were not meeting license sensitivity requirements, and that the reported values for June 1988 through December 1988 were highly erratic. The licensee has been working with the vendor who performed these tests to determine the reasons for the poor chemical dissolution yield; and for the high background counts which were the apparent cause of these discrepancies. The licensee had initiated procedural and quality assurance measures to prevent future recurrences. During this inspection the inspector reviewed this issue with the licensee. A licensee representative stated that the problem was being discussed with the vendor and an internal commitment was made by General Electric to formally document a position on this issue by the end of October 1989.

### 3. Review of Procedures (88035, 88045, 84844)

The inspector selectively reviewed the licensee's Environmental Protection Instructions. These instructions implemented the licensee's radiological effluent and environmental sampling programs. The instructions appeared to be effective for the tasks they were intended to implement.

No violations or deviations were identified.



4. Liquid Radioactive and Chemical Waste Management (88035)

Liquid process streams of radioactive and nonradioactive material were collected in several plant waste treatment systems. After chemical treatment and processing, the streams entered a series of process and discharge lagoons. Composite sampling was done on each of the discharges. The samples were collected daily and analyzed for total uranium content in parts per million (ppm). Aliquots from daily composites were composited to produce weekly composites which were analyzed for gross alpha and beta. Aliquots from these samples were again composited to prepare a six-month composite which was analyzed for Technetium-99 (Tc-99). The inspectors observed a licensee representative taking a river water sample at the River Dock. The inspector reviewed Monthly Monitoring Reports for March through July, 1989. These reports included analyses of NPDES parameters as well as total uranium values. The inspector also reviewed Groundwater Monitoring Reports for the last two quarters of Calendar Year 1988. These reports included results from onsite wells and some sludge samples from the process and treatment lagoons. The results included identification of various chemicals, metals, and gross alpha and beta values. The semiannual Tc-99 report for the first six months of 1989 was also reviewed. The results of the effluent monitoring program appeared to be within the limits specified in the license application.

No violations or deviations were identified.

5. Environmental Monitoring Program (88045)

The inspector accompanied a licensee representative to collect weekly ambient air filters at the four perimeter sampling stations and at the River Dock station. The licensee representative also collected two air filters from State samplers collocated with licensee samplers; and an environmental water sample at the River Dock. The inspector noted that these air sampling stations were operational and calibrated.

The inspector reviewed results of the environmental air sampling analyses for the period from December 29, 1988 through August 3, 1989, and the monthly isotopic analyses for December 29, 1988 through June 1, 1989. The inspector also reviewed the results of soil sample analyses for the first three quarters of 1989. These results appeared to be within the limits of acceptability stated in the license application. The analytical sensitivities of the monthly isotopic analyses will be reviewed during a subsequent inspection.

No violations or deviations were identified.

6. Gaseous Radioactive Waste Management (88035)

The inspector observed a licensee representative taking daily and weekly stack samples. The inspector noted that while the sampling assembly and technique were generally adequate, there were two near right angle bends in the sample line between the sample point and the filter on each stack,

and heat tracing was not used on the sample lines. (Two of the stacks did have insulation installed on the sample lines). The inspector discussed these observations with licensee representatives. Due to the approaching hurricane, there was insufficient time for the licensee to respond to this observation. During the exit interview, licensee representatives stated that information concerning stack sampling would be sent to the NRC. This information will be reviewed and the stack sampling system will be examined in further detail during a subsequent inspection.

The inspector reviewed results of daily stack sampling for September 15 through September 19, 1989, and of weekly stack sampling for May 12 through September 14, 1989. The results of the stack sampling appeared to be within the limits specified in the license application.

No violations or deviations were identified.

7. Heating, Ventilation, and Air Conditioning System (HVAC) (88035)

This system was discussed in detail in the previous Inspection Report No. 70-113/89-04. A licensee representative stated that the system was approximately 99 percent complete; with only a few of the lesser-used hoods to be included. Fine tuning of the system has yet to be done. The computer operated in real time, controlling damper positions, and indicating pressure differentials, hood flow rates, and duct flow rates. Air flows were controlled to flow from areas of low airborne radioactive contamination to areas of higher airborne radioactive contamination. Exhausts were filtered with HPEA filters, and wet processes were exhausted through scrubbers.

A licensee representative stated that in case of a leak, air movement would be stopped to preclude spread of contamination, and the particulate would be allowed to settle out, then would be cleaned up.

The inspector observed that the video terminal display of system parameters was functional and user-friendly. The licensee representative stated that the system readings were still taken from installed indicators for record purposes, and that approval of Nuclear Safety Engineering would be required before the computer readouts would be used for record.

The monitoring and control system was conceived, designed, and constructed by licensee personnel, using primarily off-the-shelf components or modules. Computer software programs were also conceived and developed by onsite licensee personnel. The demonstrated onsite capability of developing such a system in-house, coupled with the necessary management support and funding, was considered by the inspector to be a licensee strength.

No violations or deviations were identified.

8. Instrumentation and Quality Control (QC) (88035, 88045, 84844)

The inspector toured the Radiation Protection Laboratory and discussed the analysis of effluent samples with licensee representatives. A licensee representative stated that the stack samples were counted on the TN-3 system. This system consisted of a Tennelec LB 5100 gas proportional alpha-beta counter and supporting equipment. The system was calibrated annually using a Thorium-230 source and a Strontium-Yttrium-90 source. Lab records showed that alpha efficiency and a plateau were determined for the system in January 1989 and a beta efficiency was last determined in July 1989. Daily checks were done with a uranium source. The Environmental Laboratory was collocated with the Chemet Laboratory. The Environmental Lab primarily evaluated liquid samples, and occasionally, soil and vegetation samples. The Lab could analyze the liquid samples for pH, nitrates, ammonia, fluorides, chlorides, phosphates, sulfates, nitrites, uranium, and total solids.

Analysis for uranium was done by use of a Scintrex UA-3 Analyzer. This system used laser activated fluorometry to determine uranium concentrations in solution. The system was calibrated to full scale with a 2 parts per billion (ppb) standard solution, and checked with a 1 ppb standard solution and a blind unknown during each batch run.

The inspectors concluded that the supporting laboratories were technically adequate and that licensee personnel seemed familiar with their assigned functions.

No violations or deviations were identified.

9. Waste Boxes (88035)

The inspector discussed the disposal of boxes of radioactively contaminated waste with licensee representatives. The licensee representatives stated that metal and wood boxes were stored in the outside storage area. The contents of these boxes were generally high-density materials. Typically the boxes contained 5-gallon metal cans filled with metal scraps, plastic, and incinerator clinkers. Cardboard waste boxes had been stored inside. The licensee representatives stated that these boxes were expected to be shipped to a disposal site by the end of the year. The disposal of these waste boxes will be monitored during subsequent inspections.

No violations or deviations were identified.

10. Hurricane Preparations (88050)

During the inspection, the licensee was tracking the approach of Hurricane Hugo. Due to the uncertainty of the projected path, the licensee made preparations for the expected high winds.



The licensee environmental air samplers previously had been set up to withstand high winds, unlike the two collocated State air samplers. The licensee used heavy rope to tie down the State air samplers. The inspector noted that windows were being taped and materials stored outside were covered and tied down. As the facility made preparations to shut down Thursday afternoon, office machines in the Administration Building were being covered with plastic.

The inspector attended an Emergency Committee meeting Thursday afternoon (September 21) where final plans were discussed. Times were established for shutting down the various processes, schedules were discussed for those personnel remaining on site for the night, sandbag availability was announced, and means of receiving information about when to return to work were discussed.

As a result of the above and other observations, the inspector concluded that the licensee appeared to have adequately planned and prepared for the anticipated storm.

No violations or deviations were identified.

#### 11. Exit Interview

The inspection scope and results were summarized by telephone on September 28, 1989, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee.

The inspector commented on a rusty fire extinguisher and some unmarked 55-gallon drums stored at the sanitary sewage plant. The licensee stated that the fire extinguisher had been replaced and that the drums were empties being stored temporarily. The inspector also discussed the two nearly 90 degree bends in the stack sampler sample lines. A licensee representative stated that they considered the samples to be representative and would send information to the NRC to support this.