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

OCT 31 1986

Report No.: 70-1113/86-19

Licensee: General Electric Company
Wilmington, NC 28401

Docket No.: 70-1113 License No.: SNM-1097

Facility Name: General Electric Company

Inspection Conducted: September 29 - October 3, 1986

Inspector: T. R. Collins 10/29/86
T. R. Collins Date Signed

Accompanying Personnel: B. K. Revsin

Approved by: C. M. Hosey, Section Chief 10/29/86
Division of Radiation Safety and Safeguards Date Signed

SUMMARY

Scope: This routine, unannounced inspection involved onsite inspection in the areas of radiation control, transportation of radioactive materials, classification and characterization of radioactive waste, solid radioactive waste, followup of previous enforcement issues and followup of allegations.

Results: Three violations were identified: (1) Failure to follow written, approved procedures; (2) failure to calibrate airline pressure gauges or flow measuring devices for supplied air hoods; and (3) failure to meet Department of Transportation (DOT) requirements for shipment of empty radioactive material packages.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*C. M. Vaughan, Manager, Regulatory Compliance
*G. M. Bowman, Acting Manager, Nuclear Safety Engineering
*S. P. Murray, Senior Nuclear Safety Engineer
*P. S. Stansberry, Senior Nuclear Safety Engineer
*T. P. Winslow, Manager, Licensing and Nuclear Material Management
*R. H. Foleck, Senior Specialist Licensing Engineering
*R. L. Torres, Manager, Radiation Protection
*R. C. Pace, Fuel Manufacturing
*R. J. Keenan, Nuclear Safety Engineering
*R. A. Petelinkar, Manager, SOMS
*B. S. Dunn, Specialist, Licensing Support

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 3, 1986, with those persons indicated in Paragraph 1 above. Three violations, (1) failure to adhere to written, approved procedures (Paragraph 8.e); (2) failure to calibrate airline pressure gauges or flow measuring devices for supplied air hoods (Paragraph 8.e.); and (3) failure to meet DOT requirements for shipment of empty radioactive material packages (Paragraph 5), were discussed in detail. The licensee acknowledged the inspection findings and took no exceptions. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection.

3. Licensee Action on Previous Enforcement Matters (92702)

(Closed) Violation (70-113/84-17-03) Inadequate air sampling in the Chemet Laboratory. The inspector reviewed the licensee's responses dated March 1, April 15, July 16, and December 2, 1985, and verified that the corrective actions specified in the responses had been implemented.

(Closed) Violation (70-1113/85-02-01) Failure to follow plant procedures. The inspector reviewed the licensee's response dated July 16, 1985, and verified that the corrective actions specified in the response had been implemented.

(Closed) Violation (70-1113/85-02-02) Failure to post documents required by 10 CFR 19.11. The inspector reviewed the licensee's response dated July 16, 1985, and verified that the corrective actions specified in the response had been implemented.

(Closed) Violation (70-1113/85-02-03) Failure to properly label drums of radioactive material with correct DOT label. The inspector reviewed the licensee's response dated July 16, 1985, and verified that the corrective actions specified in the response had been implemented.

(Closed) Violation (70-1113/85-02-04) Failure to instruct workers in subjects required by 10 CFR 19.12. The inspector reviewed the licensee's response dated July 16, 1985, and verified that the corrective actions specified in the response had been implemented.

(Closed) Violation (70-1113/85-04-02) Failure to include all available information in the data base used to generate termination reports required by 10 CFR 19.13 and 20.408(b). The inspector reviewed the licensee's response dated September 25, 1985, and verified that the corrective actions specified in the response had been implemented.

4. Followup on Inspector Identified Items (92701)

(Closed) IFI (70-1113/84-17-04) Notification of Radiation Safety when a spill occurs in the Chemet Laboratory. The inspector reviewed the licensee's Nuclear Safety Instruction 6.1.0, General Requirements - Chemet Lab, Revision 6, May 28, 1985, which had been revised to require large spills to be reported to Radiation Safety.

5. Transportation (86740)

10 CFR 71.5(a) requires that a licensee who transports licensed material outside the confines of its plant or other place of use, or who delivers licensed material to a carrier for transport, comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189.

49 CFR 173.427(c) specifies that any packaging which previously contained radioactive materials and had been emptied of contents as far as practical, was exempted from DOT marking and labeling requirements provided that internal contamination did not exceed 100 times the limits specified in 49 CFR 173.443(a) [22,000 disintegrations per minute per 100 square centimeters (22,000 dpm/100 cm^2)].

The licensee had received shipments of uranyl nitrate solutions from a scrap recovery operation by cargo tank (tank trailer). After emptying, the tank was shipped back to the originator. The last shipment was made on April 20, 1985, the classification of which was specified as "Empty" on the shipping papers.

The inspector reviewed the shipping survey records for the April 20, 1985, shipment and noted that although the surveys revealed conformance with external radiation and contamination limits, the survey records did not indicate that internal contamination levels had been measured. Licensee representatives stated that the tanker had been drained and visually checked for residual contamination, but due to the configuration of the package,

only limited access to the interior was possible. The licensee stated that internal smears had not been performed. The inspector informed the licensee that shipment of the tanker as "EMPTY" without verification of the internal contamination levels was an apparent violation of 10 CFR 71.5(a) (70-1113/86-19-01).

6. Radioactive Solid Waste (88035)

The inspector reviewed the procedures, shipping records, and license requirements for shipments of radioactive waste to the disposal site. Regulatory requirements in 10 CFR 20.301 and 10 CFR 20.401 for the disposal of waste were also reviewed.

No violations or deviations were identified.

7. Radioactive Waste Management (84850)

a. Waste Manifests

10 CFR 20.311(b) and (c) requires that a manifest system be used for all shipments of waste to a licensed burial facility. The inspector determined that the manifests had been completed and forwarded as required for selected waste shipments reviewed.

b. Tracking of Shipments

Radioactive material shipment procedures and checklists included provisions for determining the estimated date of arrival of the shipment, and written and telephone notification of the receiver. The inspector confirmed that the selected waste shipments had been verified as having been received at the disposal site. The licensee's procedures included a seven-day receipt requirement by the receiver and provisions for tracing the shipment if notification of receipt was not received.

c. Waste Classification and Characterization

10 CFR 20.311(d)(1) requires that all wastes be prepared so that it is classified in accordance with 10 CFR 61.55 and characterized according to 10 CFR 61.56.

10 CFR 61.55 requires that waste be classified and identified as Class A, B, or C. 10 CFR 61.56 specified the characterization requirements for all classes of waste.

The licensee stated that all wastes shipped from the facility for the past several years had been Class A, unstable waste and that all waste streams utilized material accountability for identification of radionuclides in each container to be shipped. The activity in each container was determined by scintillation counting. The inspector reviewed several waste shipments made

to a disposal site during 1986 and found the requirements of 10 CFR 20.311 had been met.

No violations or deviations were identified.

8. Radiation Control (83822)

a. Instruments and Equipment

Paragraph 3 of the licensee's application for License No. SNM-1097 and Nuclear Safety Instruction (NSI) No. 0-4.0, Nuclear Safety Instrumentation, identifies radiation protection instrumentation and calibration frequency. The inspector observed that the required type and quantity of instruments were available and found them operable and calibrated as required as evidenced by calibration labels and records.

No violations or deviations were identified.

b. External Exposure Control

10 CFR 20.101 specifies the applicable radiation dose standards. The inspector reviewed records of individual radiation exposures during the period January through August 1986, and verified that the radiation doses recorded for plant personnel were well within the quarterly limits of 10 CFR 20.101(a).

No violations or deviations were identified.

c. Posting of Notices

10 CFR 19.11 requires the licensee to post Form NRC-3, the license and other pertinent information. If posting of a document was not practicable, the licensee may post a notice which describes the document and states where it may be examined. During tours of the facility, the inspector verified that entrances to and from areas where licensed activities were conducted were posted with the required documents or a notice describing the document and where it may be examined.

No violations or deviations were identified.

d. Surveys

Part I, Paragraph 3.2.4.6 of the licensee's application for License No. SNM-1097 and NSI No. 0-6.0, Contamination Measurement and Control Procedure, specifies contamination survey requirements. The inspector reviewed selected records of contamination surveys performed during the period January through August 1986, and verified that the contamination survey requirements had been met, and that areas had been promptly decontaminated when required.

No violations or deviations were identified.

e. Respiratory Protection

10 CFR 20.103(c) - (f) specifies the requirements for use of respiratory protective equipment to limit the inhalation of airborne radioactive material.

10 CFR 20, Appendix A, Footnote h, states that a protective factor of no more than 1000 may be used for tested and certified supplied-air hoods when a minimum air flow of six cubic feet per minute (cfm) is maintained and calibrated airline pressure gauges or flow measuring devices are used.

During tours of the facility, the inspector observed the use of supplied-air hoods by workers in the New Decon room for trash sorting. The licensee stated that a protection factor of 500 was normally applied in estimating the individual's exposures to concentrations of radioactive material in air. The inspector reviewed MSHA/NIOSH Approval Number TC-19C-69 for the hoods to verify that the hoods had been tested and certified. Observation of the control panel of the breathing air system, which was located on the floor above the New Decon room, showed several gauges, one of which was a pressure gauge which read 50 pounds per square inch (PSI). No other gauges were visible for the system. The licensee stated that the air flow rate delivered at 50 psi was unknown and that the pressure gauge had not been calibrated since the system was put into operation in 1978.

Failure of the licensee to calibrate the pressure gauge(s) in the supplied-air system was identified as an apparent violation of 10 CFR 20, Appendix A, Footnote h (70-1113/86-19-02).

License Condition 9 of Special Nuclear Material License No. SNM-1097 requires that licensed material be used in accordance with statements, representations, and conditions of Part I of the License Application dated May 14, June 20, September 24, October 23, November 12, November 20, December 3, and December 19, 1984.

Part I, Section 2.2.1.4 of the licensee's application for License No. SNM-1097 requires that Radiation Protection Function activities be conducted in accordance with written procedures.

Process Requirement and Operator Document (PROD) 80.20, Breathing Air System, Revision 5, June 18, 1980, Note to Paragraph 3 requires that, prior to using the breathing air system, checks as specified in Attachment I be performed and logged in the logbook. Two of the checks required by Attachment I were a check of the CO monitor to insure that the power is on, and a check of the air supply pressure gauge to insure that the pressure is above 50 psig.

To verify that the performance checks for the breathing air system had been performed as required prior to use of the system on October 2, 1986, by workers utilizing supplied-air hoods in the New Decon Room (as described above), the inspector requested the breathing air system log book. Licensee representatives stated that a log of breathing air system use was not maintained. The licensee further stated that performance checks prior to system use, as required by Attachment I to PROD 80.20, had not been performed. The inspector verified that the CO monitor was operable and that the air supply pressure gauge read above 50 psig as required by PROD 80.20.

Failure to perform required checks of the breathing air system and document those checks as required by PROD 80-20 was identified as an apparent violation of Condition 9 of License No. SNM-1097 (70-1113/86-19-03).

f. Notification and Reports

10 CFR 20 requires certain reports and notifications as follows:

10 CFR 20.402 - Loss or theft of material
10 CFR 20.403 - Incidents
10 CFR 20.405 - Overexposure
10 CFR 20.408 - Termination Reports to the NRC
10 CFR 20.409 - Termination Reports to the Individual

Through review of selected records and discussions with licensee representatives, the inspector determined that the above requirements had been met.

No violations or deviations were identified.

g. Internal Exposure Control

(1) Air Sampling

The licensee is required by 10 CFR 20.103, 20.201(b), and 20.401 to control uptakes of radioactive material, assess such uptakes and to maintain records of such uptakes. During plant tours, the inspector observed the use of ventilation systems and containment structures. The inspector discussed the use of this equipment with radiation protection personnel.

10 CFR 20.103(a)(1) specifies the limits for exposure of individuals to concentrations of radioactive materials in air in restricted areas. 10 CFR 20.103(b)(2) further requires that suitable measurements of concentrations of radioactive material in air be performed to detect and evaluate the airborne radioactivity in restricted areas. The inspector reviewed the results of the fixed air samplers for the various areas of the plant during 1985 and noted that in general, Maximum Permissible Concentrations

(MPC), averaged over an eight-hour period, were well below limits specified in 10 CFR 20, Appendix B, Column 1.

No violations or deviations were identified.

(2) Bioassay

In addition to the above, 10 CFR 20.103(a) also requires that appropriate bioassays be performed to detect and assess individual intakes of radioactivity.

The inspector reviewed procedure, NSI No. O-2.0, Bioassay - Urinalysis Program, Revision 13, December 12, 1985, which specified sampling frequency and action levels. The formulae specified for calculating uptake were consistent with WASH-1251, Application of Bioassay for Uranium, June 1974.

The inspector reviewed selected results of urinalyses taken during 1986 and determined that among those reviewed, no worker had exceeded the NRC limit of 520 MPC-hours nor the 40 MPC-hour control measure.

No violations or deviations were identified.

h. Posting, Labeling, and Control

10 CFR 20.203 specifies the posting and labeling requirements for areas and containers. During tours of the facility, the inspector observed that areas and containers were posted as required.

No violations or deviations were identified.

9. Information Notices (92717)

The inspector determined that the following information notices had been received by the licensee, reviewed for applicability, distributed to appropriate personnel and that action, as appropriate, was taken or planned.

85-06 Contamination of Breathing Air Systems

85-07 Contaminated Radiography Source Shipments

85-12 Recent Fuel Handling Events

85-31 Build-up of Enriched U in Ventilation Ducts and Associated Effluent Treatment Systems

85-46 Clarification of Several Aspects of Removable Radioactive Surface Contamination Limits for Transport Packages

85-48 Respirator Users Notice: Defective SCBA Air Cylinders

85-52	Errors in Dose Assessment Computer Codes and Reporting Requirements under 10 CFR 21
85-57	Lost Iridium-192 Source Resulting in Death of Eight Persons in Morocco
85-60	Defective Negative Pressure, Air Purifying Full Facepiece Respirators
85-62	Backup Telephone Numbers to NRC Operations Center
85-78	Event Notification
85-81	Problems Resulting in Erroneously High Reading with Panasonic 800 Series TLDs
85-87	Hazards of Inerting Atmospheres
85-88	Licensee Control of Contractor Services Providing Training
85-92	Surveys of Wastes Before Disposal from Nuclear Power Facilities
85-97	Jail Term for Former Contractor Employee who Intentionally Falsified Welding Inspection Records
85-101	Applicability of 10 CFR 21 to Consulting Firms Providing Training
86-17	Failure of Automatic Sprinkler System Valves to Operate
86-20	Low Level Radioactive Waste Scaling Factors, 10 CFR 61
86-22	Underresponse of Radiation Survey Instrument to High Radiation Fields
86-23	Excessive Skin Exposures Due to Contamination with Hot Particles
86-24	Respirator Users Notice: Increased Inspection Frequency for Certain SCBA Air Cylinders
86-27	Access Control at Nuclear Facilities
86-28	Telephone Numbers to NRC Operations Center and Regional Offices
86-30	Design Limitations of Gaseous Effluent Monitoring Systems
86-32	Request for Collection of Licensee Radioactivity Measurements Attributed to Chernobyl

86-41 Evaluation of Questionable Exposure Readings of Licensee Personnel Dosimeters

86-46 Improper Cleaning and Decontamination of Respiratory Protection Equipment

86-54 Criminal Prosecution of a Former Radiation Safety Officer who Willfully Directed an Unqualified Individual to Perform Radiography

86-55 Delayed Access to Safety-Related Areas and Equipment During Plant Emergencies

86-58 Dropped Fuel Assembly

10. Allegation Followup (90014)

a. Allegation RII-A-0029

(1) Part I

Alleger stated that there was a concern about the building which houses the centrifuge for the uranium sludge collecting tank. The alleger stated that the roof of the building leaked and when it rains, water leaks into the building. The alleger stated that everything is wet and is concerned about the frisker located in the building getting wet. The alleger stated that the problem was reported to a supervisor with no followup.

Discussion

The inspector reviewed the licensee's investigation of this allegation and concluded through discussion, interviews of radiation protection personnel and review of RM-14 (frisker) weekly instrument check log book for the period of July 1985 to present, that the frisker located in the building, which houses the centrifuge for the uranium sludge collecting tank had been replaced on two occasions due to possible water damage. However, records indicate that the RM-14 was operable even though roof leaks had occurred in the past.

Finding

The allegation was partially substantiated in that roof leaks had occurred in the past. The frisker located in the building was replaced on two occasions due to possible water damage, however, the RM-14 was operable at all times as indicated by the RM-14 (frisker) weekly instrument log book.

(2) Part II

Alleger stated that prior to a few years ago, bioassay samples could have been taken up to five days after the employee worked in a contaminated area. The alleger stated that bioassay would not show anything that long after intake anyway and that the bioassay was not valid.

Discussion

The inspector reviewed the licensee's investigation of this allegation and concluded through discussion, and review of the licensee's bioassay program that personnel handling moderately soluble uranium could be required to submit urine samples on a five day frequency. The inspector reviewed the licensee's Bioassay Program Procedure, NSI 0-2.0, for compliance against the License Application, Part I, Section 3.2.4.2 which requires the licensee to implement their bioassay program in accordance with Regulatory Guide 8.11, June 1974, and WASH 1251. The inspector concluded after review of the licensee's bioassay program that urine samples were being submitted on a sample frequency as required and that the frequency of sampling is adequate to detect a significant uptake. The inspector also selectively reviewed bioassay results for the period of 1985 and 1986, which revealed that the bioassay program was being implemented accordingly.

Finding

The allegation was partially substantiated in that urine samples could be submitted on a five day frequency based on the workers job function. However, no regulatory requirements were violated.