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GENERAL ELECTRIC

WILMINGTON MANUFACTURING DEPARTMENT
GENERAL ELECTRIC COMPANY • P.O. BOX 780 • WILMINGTON, NORTH CAROLINA 28402

NRC REG.-II
Atlanta, Ga.
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February 15, 1985

Mr. J. Philip Stohr, Director
Division of Radiation Safety & Safeguards
U.S. Nuclear Regulatory Commission, RII
P.O. Box 2203
Atlanta, Georgia 30301

Dear Mr. Stohr:

Subject: Inspection Report No. 70-1113/84-14

Reference: (1) NRC License SNM-1097, Docket # 70-1113
(2) NRC Inspection Report 84-14, dated 11/06/84
(3) Letter, CM Vaughan to JP Stohr, 12/03/84
(4) Letter, JP Stohr to EA Lees, 2/01/85
(5) Letter, CM Vaughan to JP O'Reilly, 2/6/85

Thank you for your letter dated February 1, 1985 informing us of NRC evaluation of the subject inspection and requesting that specified additional information be provided within 30 days of the date of the letter.

Unfortunately, your letter was not received in Wilmington until 2/11/85 thereby absorbing ten of the thirty day response time due to an apparent transmittal problem. We are, therefore, requesting a time extension until 3/8/85 to allow us the opportunity to properly prepare the required information.

On 2/6/85 we transmitted to Region II additional information concerning the third violation. Since our letters appear to have crossed in the mail, we would appreciate your comments regarding this new information so that we may properly address it in our response.

Thank you for your consideration in this matter.

Sincerely,

GENERAL ELECTRIC COMPANY

Charles M. Vaughan
Charles M. Vaughan, Manager
Regulatory Compliance

/sbm

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PDR FOIA
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

June 10, 1983

General Electric Company

ATTN: Mr. J. A. Long, General Manager
Wilmington Manufacturing Department
P. O. Box 780
Wilmington, NC 28402

Gentlemen:

SUBJECT: REPORT NO. 70-1113/83-12

This refers to the special safety inspection conducted by Mr. C. M. Hosey of this office on April 18 - 20, 1983, of activities authorized by NRC License No. SNM-1097 for the Wilmington Manufacturing Department. Our preliminary findings were discussed with Mr. E. A. Lees, Quality Assurance Manager, at the conclusion of the inspection.

NRC concerns regarding the violation presented in Appendix A were discussed by the NRC Region II staff and Wilmington Manufacturing Department officials at an Enforcement Conference held at the licensee's facility on May 18, 1983.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

During the inspection, it was found that certain activities under your license appear to violate NRC requirements. This item and references to pertinent requirements are listed in the Notice of Violation enclosed herewith as Appendix A. Elements to be included in your response are delineated in Appendix A.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC's Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

The responses directed by this letter and the enclosures are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

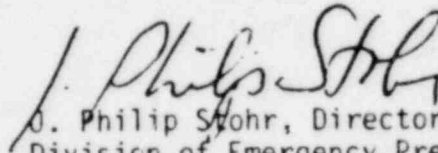
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June 10, 1983

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. Philip Stohr". The signature is fluid and cursive, with the first name "J." and last name "Stohr" being more prominent.

J. Philip Stohr, Director
Division of Emergency Preparedness
and Material Safety Programs

Enclosures:

1. Appendix A, Notice of Violation
2. Inspection Report No. 70-1113/83-12

cc w/encs:

C. M. Vaughan, Manager
Licensing and Nuclear Materials
Management Unit

APPENDIX A
NOTICE OF VIOLATION

General Electric Company
Wilmington Manufacturing Department

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

As a result of the inspection conducted on April 18 - 20, 1983, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violation was identified.

10 CFR 20.301 specifies authorized methods for disposal of licensed material and prohibits disposal by other means. One authorized method is by transfer to an authorized recipient.

Contrary to the above, on March 29, March 30 and April 22, 1983, the licensee transferred special nuclear material in liquid form to Chem-Nuclear Systems, Inc., a person not authorized to receive it under the specific terms of their license. NRC license 45-13536-01 prohibits Chem-Nuclear Systems from receiving liquid waste which has not been solidified.

This is a Severity Level IV Violation (Supplement V).

Pursuant to the provisions of 10 CFR 2.201, you are hereby required to submit to this office within thirty days of the date of this Notice, a written statement or explanation in reply, including: (1) admission or denial of the alleged violations; (2) the reasons for the violations if admitted; (3) the corrective steps which have been taken and the results achieved; (4) corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

Date: June 10, 1983

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

Report No: 70-1113/83-12

Licensee: General Electric Company
Wilmington, NC 28401

Docket No: 70-1113

License Nr: SNM-1097

Facility Name: Wilmington Manufacturing Department

Inspection at Wilmington Manufacturing Department site near Wilmington, NC

Inspector:

C. M. Hosey

Date Signed

Approved by:

K. P. Barr, Section Chief

Operational Programs Branch

Division of Engineering and Operational Programs

6/9/83

Date Signed

SUMMARY

Inspection on April 18 - 20, 1983

Areas Inspected

This routine, unannounced inspection involved 18 inspector-hours on site in the areas of review of the radiological aspects of the overpressurization of a calciner and waste shipment to a licensed burial facility.

Results

Of the two areas inspected, no violations or deviations were identified in one area; one apparent violation was found in one area (unauthorized transfer of special nuclear material). The violation was discussed by NRC Regional Staff and General Electric Officials at an Enforcement Conference held at the Licensee's Facility on May 18, 1983.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. J. Hendry, Manager, Regulatory Compliance
- *C. M. Vaughan, Manager, Licensing and Nuclear Material Management
- *R. C. Pace, Manager, Fuel Support Operation
- *R. L. Torres, Radiation Protection Supervisor
- *D. T. Barbour, Radiation Protection Shift Supervisor
- *E. L. Jeffords, Nuclear Safety Engineer
- *R. H. Foleck, Senior Licensing Engineer
- *S. P. Murray, Nuclear Safety Engineer
- *P. S. Stansbury, Nuclear Safety Engineer
- J. R. Owens, Control Room Foreman

Other licensee employees contacted included four technicians, two operators and two office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 20, 1983, with those persons indicated in paragraph 1 above. The inspector identified one apparent violation (unauthorized transfer of special nuclear material) involving the transfer of radioactively contaminated waste which contained water to the waste management facility at Barnwell, South Carolina. The Manager, Quality Assurance stated that the licensee did not believe the shipment violated NRC requirements. The inspector stated the licensee's position would be brought to the attention of regional management.

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Airborne Radioactivity Release

On April 11, 1983, pressurization of a calciner occurred when a vapor lock developed in the pump removing water from the off-gas scrubber. The water in the scrubber was converted to steam by the continuous input of hot off gases from the calciner. The increase in pressure ruptured a rubber boot connecting the calciner with a hood used to reintroduce processed out-of-

specification powder into the calciner. The hood is protected by an isolation valve located between the boot and the hood. Steam and feed material were released into the chemical area through the ruptured boot. The control room foreman on-duty when the event occurred observed the steam cloud and immediately evacuated all non-essential personnel. Personnel remaining in the area, put on air-purifying respirators. Approximately 20 minutes after initiation of the event, the control room foreman directed that a container of powder removed from the output of the calciner be emptied into the recycle system to plug the line below the boot. This action was successful in stopping the release. The air concentrations in the area reached a point where respirators were no longer required approximately $1\frac{1}{2}$ hours after initiation of the event.

The inspector reviewed area air sample results, bioassay results for personnel who were in the area or who entered during the event, stack sample results, a preliminary copy of the licensee's investigation report and discussed the event with licensee representatives. Analysis of filters removed from the stationary air samplers on the mezzanine level of the chemical area, in the immediate area of the release, indicated the instantaneous concentration of uranium in air may have been as high as 3×10^{-4} $\mu\text{Ci/ml}$. However, after the protection factor for the respirator and time in the immediate area of the release were considered, the potential exposures of the workers were well within NRC limits. Bioassay results for those involved in the event were below the licensee's action level. Bioassay results also indicates that no NRC limits were exceeded.

In discussions with the inspector, licensee representatives stated that the time required for the ventilation system to reduce the air concentrations to acceptable levels following this event was typical. It was noted that twenty minutes after the event, air activity was still 1.4×10^{-3} $\mu\text{Ci/ml}$. At the request of the inspector, the licensee set off a one minute smoke candle in the area where the boot ruptured. The smoke was generally dispersed throughout the chemical area, with little detectable movement of the smoke toward the intake of the three recirculation filter systems. The recirculation system accounts for approximately 60% of the air removed from the area, with the negative pressure systems in process hoods and components accounting for the remaining 40% removed from the area. Fifteen minutes after the smoke candle was ignited, haze was still in the chemical area. The inspector stated that the licensee should evaluate the effectiveness of the ventilation system to remove airborne radioactivity from the chemical area and to keep the concentration in the area as low as reasonably achievable (83-12-01).

While reviewing the bioassay data for personnel who were in the release area, the inspector noted that some workers had measurable quantities of uranium in their lungs, as determined by whole body counts, and the amount

present is highly variable from count to count. For example, the whole body count history for one individual showed the following results on a series of whole body counts:

DATE OF COUNT	RESULT (μ g U-235)
22 July 81	'MDA (minimum detectable activity
24 Nov 81	189 is approximately 75 micro-
19 Jan 82	177 grams)
4 Mar 82	91
24 May 82	188
15 June 82	81
16 Aug 82	177
14 Sept 82	'MDA
11 Oct 82	254
12 Oct 82	99
18 Feb 82	172
10 Mar 82	396
11 Mar 82	92

These results indicate that perhaps the workers are using poor work practices or the engineering controls in the work area are not always effective. The inspector stated that the licensee should establish a periodic review of bioassay data. The principal purpose of this evaluation would be to identify, for further evaluation, individuals who may be using poor work practices or, are working in areas where engineering controls may not be adequate (83-12-02).

6. Transportation Activities

10 CFR 20.301 specifies authorized methods for disposal of licensed material and prohibits disposal by other means. One authorized method is by transfer to an authorized recipient.

10 CFR 70.42 states that no licensee shall transfer special nuclear material except as authorized pursuant to this section. An authorized transfer is to a person authorized to receive such special nuclear material under the terms of a specific license. Licensee condition 8(a) to NRC License 46-13536-01, issued to Chem-Nuclear, Inc. for the receipt, possession and storage prior to disposal of special nuclear material, states that unless otherwise specified in the license, the licensee shall not receive any liquids which have not been solidified.

On March 29 and 30, 1983 shipments 0383-078-A and 0383-079-A, shipped by the licensee to Chem-Nuclear's waste management facilities at Barnwell, South Carolina, were inspected by an inspector for the State of South Carolina. Four out of 26 metal shipping boxes in shipment 078-A were found to contain water. The quantity of water ranged from 1.25 quarts to one gallon. One metal container out of 26 in shipment 079-A was found to contain approximately 1.5 pints of oil. Analysis of the water by the State of South

Carolina indicate the concentration of uranium in the water was 1.20 ± 0.048 E-06 $\mu\text{Ci/ml}$. Analyses of the oil by the State indicates that concentration of uranium in the oil was 1.56 ± 0.16 E-06 $\mu\text{Ci/ml}$.

The inspector reviewed the licensee's program for ensuring that waste shipped for burial meets the burial facilities' license.

The licensee provides periodic training for employees, which includes reemphasis of the prohibition of oil, water or other liquids in radioactive trash boxes. This training is conducted in accordance with plant procedure P/P 30-41. The requirement for packaging radioactive waste are contained in plant procedure PROD 70.85 and 80.38. The prohibition of liquids in waste boxes is contained in these procedures. Licensee procedure PROD 80-60 includes as one of the preshipment inspection items, a visual inspection of the container to determine if any liquids are evident.

The actions specified by IE Bulletin 79-19 appear to have been satisfactorily completed by the licensee.

In discussion with the inspector, licensee representatives stated that the boxes had been stored outside unprotected, and had been exposed to several very severe thunderstorms with driving rain. Consequently, the water in the boxes could have been rain water.

A licensee representative stated that the state inspector, upon inspection of the second shipment, had the burial facility operator continue to drill into the box after the side had been punctured, resulting in the penetration of a sealed converter unit for the plant's conveyor system. Estimates, by the licensee, indicate that these units contain approximately 1.5 pints of light machine oil as a lubricant. The licensee representative stated that all shipments are made in hard top vans or in a special closed box shipping trailer. Following notification by the burial facility operator of the discrepancies found in the waste shipments, the licensee took the following action:

- 1) ordered metal shipping boxes with drain plugs,
- 2) established the procedure that boxes to be shipped would be brought back inside the facility, opened, contents removed, inspected and repackaged in containers that are known to be dry, and
- 3) boxes are to be stored inside after repackaging.

The inspector stated that the presence of water and oil in metal containers of waste shipped to the Chem-Nuclear Waste Management Facility is a violation of the waste facility's NRC license, which prohibits the acceptance of liquids in waste. The transfer of special nuclear material to a person not authorized to receive it under the specific terms of their license is a violation of 10 CFR 20.301 (83-12-03).

In a letter dated April 6, 1983, the State of South Carolina, Department of Health and Environmental control, notified the licensee of the violations. The State assessed a penalty of \$2,000 against the shipper for the violations.

On April 25th, the licensee informed Region II that the State of South Carolina inspector at Chem-Nuclear facilities at Barnwell, South Carolina had found approximately one half pint of water in each of the first two metal boxes checked from shipment number 0483-080-L. In a telephone conversation with the licensee, the inspector was informed that the boxes had been packaged under the new controls established after the shipping discrepancies identified in March and April, 1983. The licensee requested that Chem-Nuclear return the boxes to the licensee. Since return of the shipment would not violate Department of Transportation regulations, Chem-Nuclear complied with the licensee request. The licensee has not yet completed an evaluation of the contents in the 080-L shipment.

7. Enforcement Conference

a. Attendees

NRC Attendees: J. P. Stohr, Director, Emergency Preparedness and Material Safety Programs
 K. P. Barr, Chief, Facility Radiation Protection Section
 E. J. McAlpine, Chief, Material Control and Accountability Section
 J. M. Puckett, Acting Director, Enforcement

Licensee Attendees: E. A. Lees, Manager, Quality Assurance
 J. E. Bergman, Manager, Fuel Manufacturing
 B. F. Bentley, Manager, Fuel Chemical Operation
 W. J. Hendry, Manager, Regulatory Compliance
 C. M. Vaughan, Manager, Licensing and Nuclear Materials Management

- b. NRC Region II representatives discussed the apparent violation concerning shipments of special nuclear material with licensee management representatives on May 18, 1983. Licensee management acknowledged the NRC's concerns and discussed their current corrective actions and future investigations. This area will again be reviewed during future routine inspections.



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

Reading
Lankford
(22)

September 26, 1983

General Electric Company

ATTN: Mr. J. A. Long, General Manager
Wilmington Manufacturing Department
P. O. Box 780
Wilmington, NC 28402

Gentlemen:

SUBJECT: REPORT NO. 70-1113/83-24

This refers to the routine safety inspection conducted by Mr. C. M. Hosey of this office on August 22-26, 1983, of activities authorized by NRC License No. SNM-1097 for the Wilmington Manufacturing Department and to the discussion of our findings held with Mr. J. E. Bergman, Manager, Fuel Manufacturing at the conclusion of the inspection.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspector.

Within the scope of this inspection, no violations or deviations were disclosed.

We have examined actions you have taken with regard to previously identified enforcement matters and unresolved items. The status of these items is discussed in the enclosed report.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC's Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withhold information contained therein within thirty days of the date of the letter. Such application must be consistent with the requirements of 2.790(b)(1).

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Sincerely,

J. Philip Stohr
J. Philip Stohr, Director
Division of Emergency Preparedness
and Materials Safety Programs

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Enclosure: (See Page 2)

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General Electric Company

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September 26, 1983

Enclosure:
Inspection Report No. 70-1113/83-24

cc w/encl:
C. M. Vaughan, Manager
Licensing and Nuclear Materials
Management Unit



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

Report No.: 70-1113/83-24

Licensee: General Electric Company
Wilmington, NC 28401

Docket No.: 70-1113

License No.: SNM-1097

Facility Name: Wilmington Manufacturing Department

Inspection at General Electric site near Wilmington, North Carolina

Inspector:

C. M. Hosey

Date Signed

Approved by:

K. P. Barr, Section Chief

Operational Program Branch

Division of Engineering and Operational Programs

9/14/83
Date Signed

SUMMARY

Inspection on August 22 - 26, 1983

Areas Inspected

This routine, unannounced inspection involved 33 inspector-hours on site in the areas of calibration and use of instruments, external exposure control, posting, labeling and control of radiological areas, surveys, notification and reports, packaging and disposal of solid radioactive waste, transportation of radioactive material, followup on previous enforcement and inspector followup items.

Results

In the areas inspected, no violations or deviations were identified.

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REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. J. Hendry, Manager, Regulatory Compliance
- *M. E. McLain, Manager, Nuclear Safety Engineering
- *R. C. Pace, Manager, Fuel Support Operation
- *B. F. Bentley, Manager, Fuel Chemical Operation
- *D. W. Brown, Manager, Powder Production Unit
- *C. M. Vaughan, Manager, Licensing and Nuclear Materials Management
- *R. L. Torres, Manager, Radiation Protection
- D. T. Barbour, Radiation Protection Shift Supervisor
- *B. J. Beane, Senior Engineer
- *S. P. Murray, Nuclear Safety Engineer
- *E. L. Jeffords, Nuclear Safety Engineer
- *R. Foleck, Senior Licensing Safety Engineer
- J. Mims, Manager, Traffic and Material Distribution
- *P. S. Stansbury, Nuclear Safety Engineer
- A. W. Cameron, Foreman, Traffic
- V. R. Yopp, Shipping Specialist

Other licensee employees contacted included three technicians and two operators.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on August 26, 1983, with those persons indicated in paragraph 1 above.

3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved (83-06-05) Review Cause for Elevated Stack Readings. This item concerns the efficiency of the CHMSO-546 stack filtering system during a UF_6 release on February 3, 1983. The licensee conducted an extensive investigation to determine if the high efficiency particulate air (HEPA) filter had been improperly installed, tested or inspected. This investigation analyzed radioactivity levels, fluoride levels and differential pressure readings before and after the filters were changed on September 3, 1982, and found no evidence which would indicate that the filters were improperly installed. A licensee representative stated that there appeared to be no significant change in radioactivity or fluoride readings before or after the filter change. The licensee's investigation also indicated that the drop in differential pressure across the filters

after the filter change was not significantly different from that seen following previous filter changes on this and other plant stacks. He also stated that the downward trend in differential pressure was not outside the range seen on other filter systems with no evidence of filter failures. The inspector reviewed photographs taken of the filters removed after incident and noted damage on the fold edges of the filters. A licensee representative stated that this damage is typical of acid attacks on the filter median. The investigation identified the source of the acid as hydrochloric acid fumes coming from the CHEMET lab. The licensee representative stated that he had noted a positive correlation between increased CHEMET lab workload and increased damage to filters. The inspector did not identify any evidence which would conclusively indicate the filter had been improperly installed, or a failure of the filter prior to the event went undetected by the licensee. The licensee has installed pH monitoring systems on the chemical area stack scrubber system to detect increases in acid in the air stream. A licensee representative stated that a separate scrubber for the air exhausted from the CHEMET lab will be installed to further remove acid fumes from the air stream before the final HEPA filters. The inspector stated this item is closed.

(Closed) Violation (83-06-06) Failure to Make Suitable Measurements of Concentrations of Radioactive Materials in Air During Removal of HEPA Filters. The inspector reviewed the corrective actions specified in the licensee's response dated May 9, 1983. The inspector reviewed the revised plant procedure NSIO-9.0, Radiation Work Permits, which requires special air sampling when changing HEPA filters when the stack concentrations exceed the established action guide. The inspector had no further questions.

(Closed) Violation (83-12-03) Unauthorized Transfer of SNM to Burial Facility. The inspector reviewed the corrective actions specified in the licensee's response dated June 30, 1983. A licensee representative stated that this investigation found that the probable source of the water in the waste boxes was from residual water on 5 gallon pails that had been washed and not thoroughly dried prior to compacting and packaging in waste boxes. The licensee is now using waste boxes which contain drain plugs that are used to check for liquid prior to shipment. The licensee is also adding absorbent to the waste boxes to absorb any unintentional liquid which might be in the boxes. The inspector reviewed the revised procedure for packaging waste and inspecting the boxes prior to shipment and discussed the program with licensee representatives and had no further questions.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Licensee Action in Previous Inspector Followup

(Closed) IFI (82-16-02) Determine If Stack Samples are Representative of Concentrations Being Released. This item concerned the performance of velocity traverses in the chemical area and FMOX building exhaust stacks to determine if the sample probe were located in the proper position to ensure

the samples collected were representative. Since the item was opened, the licensee has replaced the FMO and FMOX chemical area stacks, performed velocity traverses and located the sample probes so that a representative sample is withdrawn from the stack. The inspector reviewed the traverse data and observed the location of the sample probes and had no further questions.

(Closed) IFI (83-06-03) Establish System for Ensuring that Problems are Reported to Management and Corrected. In further discussions with licensee representatives, the inspector ascertained that the licensee in fact does have a system for operators to report problems to management. The inspector also learned that at the time the problems with the conductivity monitors in the hydrolysis unit scrubbers were occurring, the monitors were still undergoing testing and had not been turned over to the chemical group for routine use. The inspector stated that equipment undergoing testing and development should be so identified and appropriate operator actions specified. The inspector had no further questions.

(Closed) IFI (83-06-04) Timely Completion of Investigation. The inspector reviewed plant procedure NSI-0.22, Incident Investigation, which was revised on May 24, 1983. The revised procedure establishes deadlines for completion of incident investigations. The inspector had no further questions.

(Closed) IFI (83-06-07) Specific Actions to be Taken by Operators When the Conductivity Monitor Alarms. The inspector reviewed the revised plant procedure PROD 10.15, Hydrolysis, issued on June 30, 1983 which specified alarm set points for the conductivity monitors on the hydrolysis unit scrubbers and specified operator actions if the monitors alarmed. The inspector toured the control room and discussed the conductivity monitors with the operators. The monitors appeared to be functioning properly and the operators had knowledge of appropriate corrective actions. The inspector had no further questions.

(Closed) IFI (83-12-01) Evaluate Effectiveness of Chemical Area Ventilation system to Remove Airborne Radioactivity. A licensee representative stated that the installation of the new scrubber for the chemical area and the separation of the chemical lab and the chemical processing area would result in doubling of the air flow through the chemical area. Test performed by the licensee indicated that the clearance time for a release in the area should be reduced from approximately 182 minutes to 91 minutes. The licensee representative further stated that the installation of the new scrubber had been approved by plant management and would be installed towards the end of the year. The inspector had no further questions.

(Closed) IFI (83-12-02) Evaluate Whole Body Counts for Possible Indications of Poor Work Practices. In discussions with licensee representatives the inspector ascertained that the licensee has begun reviewing bioassay data for the purpose of identifying individuals who may be using poor work practices or working in areas where engineering controls may not be adequate. The inspector had no further questions.

6. Instruments and Equipment

The inspector observed a variety of radiological survey instruments in use, checked calibration stickers and performed battery and source checks for selected portable instruments available for use. The inspector selectively reviewed survey instrument calibration records for instruments in use.

The inspector reviewed procedures QIEP D-110.6, D-110.7 and D-110.8 for the repair and calibration of the RM-14, 15 and 19 change room monitors.

No violations or deviations were identified.

7. External Exposure Control

The inspector discussed the dose monitoring program with licensee representatives. The inspector reviewed the computer printouts for the first and second quarters 1983 for whole body and extremity exposures and verified that the radiation doses recorded for plant personnel were well within the NRC limits.

No violations or deviations were identified.

8. Posting, Labeling and Control

The inspector reviewed the licensee's posting and control of radiation areas, airborne radioactivity areas, contamination area, radioactive material areas and the labeling of radioactive material during tours of the plant.

No violations or deviations were identified.

9. Radiation Work Permits

The inspector reviewed active and closed radiation work permits (RWP) issued in 1983 for appropriateness of the radiation protection requirements based upon work scope, location and conditions. During a tour of the plant, the inspector observed the adherence of plant workers to the RWP requirements.

No violations or deviations were identified.

10. Radiological Surveys

The inspector selectively reviewed records of radiation and contamination surveys performed in 1983, discussed the survey results with licensee representatives and observed radiation protection technicians performing surveys. The inspector also reviewed the results of airborne radioactivity surveys performed in July and August 1983 using the fixed station air samplers installed throughout the controlled area. Air samples are removed and analyzed each shift. Results that exceeded administrative controls were investigated and appropriate corrective actions taken.

The inspector performed independent contamination surveys in the areas outside the contamination controlled area.

No violations or deviations were identified.

11. Notification and Reports

The inspector reviewed the licensee's records to determine if exposure data had been provided to terminated employees as required by 10 CFR 19.13(d). The inspector selected several names of recently terminated employees and verified that each employee had been sent a letter regarding his exposure history.

No violations or deviations were identified.

12. Procedure Review

The inspector reviewed changes made to the following procedures and verified that the changes were properly made and were consistent with regulations, license conditions, and good health physics practices:

- NSI 0-9.0, Radiation Work Permits
- NSI 0-22.0, Incident Investigations
- NSI 0-26.0, Laboratory Analysis of Air Sampling Filters
- NSI 0-24.0, Ventilation Measurement Verification and Air Balance Audits
- NSI 0-17.0, Shipment and Receipt of Radioactive Material
- P/P 90-1, Receiving and Shipping Radioactive Material
- P/P 30-41, Training for Low Level Rad Waste
- FS Traffic Instructions FS-7, Fuel Shipping
- PROD 80.38, Packing Waste Boxes and Drums

No violations or deviations were identified.

13. Solid Waste Disposal

The inspector discussed the disposal of solid radioactive waste with licensee representatives and reviewed plant procedures for packing solid waste for burial and the operation of the waste incinerator. During tours of the plant the inspector observed the operation of the waste incinerator and discussed the operation and the radiological controls associated with the operation with licensee representatives.

No violations or deviations were identified.

14. Transportation Activities

The inspector reviewed plant procedures for the shipment and receipt of radioactive material, and discussed the procedures with licensee representatives. 10 CFR 71.62 specifies the records the licensee is required to

maintain for each shipment of more than Type A quantity of radioactive material in a single package. The inspector selectively reviewed the records of radioactive waste shipments to burial facilities in August 1983. The licensee was maintaining the records required by 10 CFR 71.62.

The inspector reviewed the records of a shipment of reactor fuel to a reactor facility. The licensee maintains records of certificates of compliance for shipping casks they are authorized to use. The inspector verified that by letter dated July 22, 1983, the licensee is a registered user of the B&W Shipping Container UNC 2901 (Certificate of Compliance 6294, Rev. 7). This container will be used by the licensee to ship fuel pellets to the B&W commercial facility.

Records indicate that the licensee has properly selected appropriate packaging, adequately filled, loaded, marked, and labeled shipments, and monitored radiation and contamination levels of the packages and vehicles prepared for transport. The inspector verified that the licensee has established and maintains adequate management control of radwaste shipments including training of personnel.

The inspector discussed the audit and surveillance program related to radioactive waste management and transportation of radioactive material with licensee representatives. The inspector reviewed the following audits performed by Licensing and Nuclear Material Management personnel:

- 02-83, Waste Disposal Program, performed Feb. 22-26, 1983
- 06-83, Radioactive Material Shipping Containers, performed May 9-13,

The inspector evaluated the frequency, scope, and followup action for audits and had no further questions.

No violations or deviations were identified.

GENERAL ELECTRIC

U.S. POWER
WINSTON-SALEM MANUFACTURING DEPARTMENT
GENERAL ELECTRIC COMPANY • P.O. BOX 30 • WINSTON, NORTH CAROLINA 28408

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June 30, 1983

Mr. J. Philip Stohr, Director
Division of Emergency Preparedness &
Material Safety Programs
U. S. Nuclear Regulatory Commission, R11
101 Marietta Street, NW - Suite 2900
Atlanta, GA 30303

Dear Mr. Stohr:

References: (1) NRC License SNM-1097, Docket 70-1113
(2) NRC Inspection Report 70-1113/83-12
Dated 6/10/83, Received 6/15/83

General Electric has received your letter reporting the results of the special safety inspection conducted by Mr. C. M. Hosey on April 18-20, 1983, and the subsequent Enforcement Conference held at our facility on May 18, 1983.

The General Electric reply to the item of noncompliance with NRC requirements is given in Attachments A and B to this letter. As indicated in Attachment B, General Electric believes that the Severity Level of the violation has not been correctly reported under the rules of practice 10 CFR 2, Appendix C and hereby requests reconsideration of this decision.

The Notice of Violation cites an infraction of 10 CFR 20.301 relating to transfer of unauthorized material to a licensee. The Enforcement Conference of May 18, 1983, was exclusively addressed to the unauthorized presence of liquid in waste boxes shipped to Chem-Nuclear Systems, Inc. for burial at Barnwell, S. C. Based upon subsequent telephone conversations with Region II staff members, it is General Electric's understanding that the issue of NRC concern and the cause for the Enforcement Conference is specifically the presence of unauthorized liquid in waste box shipments to Chem-Nuclear Systems, Inc. There is no indication

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nor implication of a General Electric programmatic deficiency involving shipments of nuclear material. General Electric recognizes the NRC concern regarding unauthorized liquid in waste box shipments and, as indicated in Attachment A, is taking action to prevent recurrence of the problem.

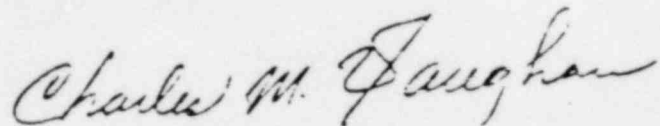
As you are aware, South Carolina Department of Health and Environmental Control, in their role as an Agreement State, issued General Electric civil penalties of \$1,000 for each of the three waste box shipments found by their inspectors to contain liquid. In addition they requested and received our plans for corrective action. These interactions preceded and were independent of our receipt of the NRC Notice of Violation.

We appreciate your inspector's, staff and management's comments and suggestions related to our employee safety and environmental protection programs. These comments and suggestions are helpful to us in our constant efforts to improve these programs, to ensure the continued health and safety of plant personnel, and to ensure our compliance with NRC regulations and license conditions. We also welcome further discussion with your staff on the items in your letter and in our related reply, if necessary, for further clarification of these items.

Your inspection report referred to above does not contain information which we believe to be proprietary.

Sincerely yours,

GENERAL ELECTRIC COMPANY



Charles M. Vaughan, Manager
Licensing & Nuclear Materials Management
M/C J26

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Attachments
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ATTACHMENT A

The NRC Notice of Violation in Inspection Report 70-1113/83-12, dated 6/10/83 states in part:

"10 CFR 20.301 specifies authorized methods for disposal of licensed material and prohibits disposal by other means. One authorized method is by transfer to an authorized recipient.

Contrary to the above, on March 29, March 30 and April 22, 1983 the licensee transferred special nuclear material in liquid form to Chem-Nuclear Systems, Inc., a person not authorized to receive it under the specific terms of their license. NRC license 45-13536-01 prohibits Chem-Nuclear Systems from receiving liquid waste which has not been solidified.

This is a Severity Level IV Violation (Supplement V)."

General Electric concurs that boxes of solid radioactive waste (UN2912: Radioactive Material, LSA) transferred to Chem-Nuclear Systems, Inc. (NRC License 45-13536-01) on March 29, March 30 and April 22, 1983, were found, upon inspection at the burial site, to contain varying amounts of liquid. The boxes transferred on March 29 and March 30 had been packaged in accordance with approved General Electric procedures. As a result of the discovery of liquid in the boxes shipped on March 29 and March 30, special procedures were implemented to assure that the next waste box shipment was dry. The boxes which were subsequently transferred on April 22 were also packaged in accordance with approved General Electric procedures. In addition, these boxes were emptied and the contents inspected for dryness. The material was repackaged in known dry boxes and stored in a protected area prior to shipment in a closed truck.

The reason for the violation is currently unexplainable. General Electric was not afforded an opportunity to inspect the first two groups of boxes and subsequent investigations by GE and the NRC of activities at Wilmington were unable to identify a positive cause. The preparation and handling of the third group of waste boxes was accomplished in a manner which should have provided an extreme measure of assurance that no free liquid would be in the boxes upon arrival at the burial site. It is also clear that GE is keenly aware of the fact that free liquid is not allowed in burial material as evidenced by our license verification files, training programs, procedures, entries on required shipping papers, and the extensive waste handling upgrades completed for the Wilmington facility.

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ATTACHMENT A (Continued)

Following the transfers of March 29 and 30 and the discovery of liquid in some of the boxes, General Electric committed to a corrective action program to South Carolina Department of Health and Environmental Control (SC DHEC). The short term corrective action commitment was to unpack, inspect, repack in known dry boxes, and store and ship protected from the elements. The short term corrective actions were used for the April 22 shipment but were apparently not effective. The longer term corrective action was to install drain plugs which would be used to verify the absence of water immediately prior to shipment. Currently, GE has in place a self-imposed "Stop Shipment Notice" for waste burial activities which was issued prior to SC DHEC's temporary suspension of our South Carolina Waste Transport Permit necessary for transport of waste in South Carolina.

Corrective action steps which GE is currently planning to take to avoid further violations include the installation of drain plugs in all waste boxes and the use of them for verification of the absence of liquid immediately prior to shipment, plus the use of an absorber within the box as permitted in 10 CFR 61.56(a)(2) and (b)(2) and as approved by SC DHEC per Chem-Nuclear bulletin ED-286-3, dated 5/20/83.

Full compliance will be achieved before additional waste boxes are transferred to Chem-Nuclear. The precise date for this compliance is indeterminate at this time, since GE must supply SC DHEC with corrective action information to secure a reinstatement of the South Carolina Waste Transport Permit and resolve the self-imposed "Stop Shipment Notice." We anticipate that GE will be resuming compliant operations in July 1983.

ATTACHMENT B

General Electric denies and requests a reevaluation of the NRC classification of the subject violation (83-12-03) as Severity Level IV (Supplement V). General Electric believes that in accordance with 10 CFR 2, Appendix C, the violation should have been classified as Severity Level V (Supplement IV).

The Notice of Violation cites 10 CFR 20.301, "STANDARDS FOR PROTECTION AGAINST RADIATION, Waste Disposal, General Requirement." Applicable references in 20.301 include Part 61 and 70; Part 61 is "LAND DISPOSAL OF RADIOACTIVE WASTE"; Part 70 is "LICENSING OF SPECIAL NUCLEAR MATERIAL," and it includes 70.3, "License Requirements" and 70.42, "Transfer of Special Nuclear Material," as applicable to the event.

A violation of 20.301, including the references to 10 CFR 61, 70.3 and 70.42, can be clearly characterized as a potential safety-related concern of health physics nature involving the transfer of unauthorized material to a licensee who does not have the authority to receive, possess, use or store it. In this event, the unauthorized material was free liquid in the waste boxes.

Transportation is clearly not an issue, based upon the specific regulatory reference (20.301) in the citation and the fact that no NRC references have been made to 10 CFR 71. The inspection report which stated that return of the boxes to GE did not constitute a violation of DOT requirements additionally supports this conclusion.

Section 20.301 specifies authorized transfer, 70.3 requires authorization and 70.42 requires license verification as a control prior to transfer; all of these activities are clearly involved in 10 CFR 2 Appendix C, Supplement IV, which is identified as a health physics activity area and clearly relates to 10 CFR 20.

In evaluating the safety/environmental significance of the transfers, one must consider the fact that the liquids, which were non-corrosive, were a very small portion of the box contents (i.e., ranging from 0.07% to 0.2% of the total box volume). The NRC requirement in 10 CFR 61.56(a)(3) and (b)(2) allows up to 1% by volume of non-corrosive liquid.

Further, the analysis of samples of the liquids indicated activity concentrations of $1.2 - 1.56 \times 10^{-6}$ $\mu\text{Ci/ml}$ uranium which is only 4-5% of the 10 CFR 20 MPC values for disposal to sanitary sewer systems. These considerations clearly demonstrate a very insignificant safety/environmental hazard.

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ATTACHMENT B (Continued)

10 CFR 2 provides additional insight~ relevant to the NRC enforcement action:

10 CFR 2, Appendix C, I, explains that the NRC enforcement program is accomplished by obtaining prompt corrective action and by deterring future non-compliance. With regard to the current violation there is clear evidence that General Electric took prompt action to correct the problem. Corrective actions, which were taken by GE prior to and independent of the NRC citation, and which should have afforded an extreme level of assurance that requirements would be met, were not effective.

10 CFR 2, Appendix C, IV.A, indicates that "licensees are not ordinarily cited for violations resulting from matters not within their control". There is no evidence that the violation was caused by deficient actions on the part of General Electric. No deficiencies have been identified by GE or by the NRC in the procedures or systems used in handling waste boxes at Wilmington. The cause of the problem is extremely subtle and prevention was apparently not possible within the SC DEEC regulations then in force. The recent SC DEEC action (on 5/20/83, after our discussions with them) to allow the use of absorbers in waste box shipments in a fashion similar to that permitted by the NRC in 10 CFR 61, clearly indicates that the liquid in the waste boxes may have been created by non-definable technical circumstances rather than by activities which were within our control.

Inasmuch as General Electric initiated corrective action prior to receiving the NRC citation and since a change in SC DEEC requirements was necessary to finally resolve the problem, it is not apparent that a NRC severity level IV violation (rather than the minimum severity level V) was necessary for enforcement.

Therefore, in view of the rule cited in the violation, the minor safety and environmental significance of the incident, the guidance of 10 CFR 2, 20, 61 and 70, the subtlety of the problem and the SC DEEC action to permit absorbers, General Electric requests that the NRC reclassify the violation as Severity Level V (Supplement IV).

This reclassification will not influence the degree of importance GE places on resolving the issue. As we have committed, modification to our current procedures will be negotiated with SC DEEC to provide a higher level of assurance that our waste transfers meet the conditions of the Chem-Nuclear license in the future.