U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	70-1113
License No.:	SNM-1097
Report No.:	70-1113/96-07
Licensee:	General Electric Company Wilmington, NC 28402
Facility Name:	Nuclear Energy Production
Dates:	August 5-9, 1996
Inspectors:	W. Gloersen, Project Inspector A. Gooden, Radiation Specialist
Approved by:	E. J. McAlpine, Chief Fuel Facilities Branch Division of Nuclear Materials Safety

Enclosure

Executive Summary

Radiation Protection

The inspection of the licensee's radiation protection program involved a review of the following health physics program elements: independent radiation safety audit, external and internal exposure controls, organizational change, respiratory protection program, NRC Form 5 reporting, instrument calibrations, and alpha sources leak testing program. Within the areas reviewed, radiation protection management controls and procedures were in place and appeared to be adequate to protect the health and safety of plant workers. Personnel exposures (internal and external) were less than 10 CFR Part 20 requirements and/or GE administrative limits.

Radioactive Solid Waste Management

The licensee's controls, procedures, and waste management program appeared acceptable and capable of accomplishing its safety objectives. The CaF_2 relocation project had progressed ahead of schedule, however, implementation of the Final Status Survey and Release Plan, Revision 2, dated February 28, 1996 had not begun. The present arrangement for the storage of LLRW was less than adequate due to the large volume of waste being stored and due to the fact that the cardboard and wooden waste storage containers were not shielded from the natural elements. Within the Low Level Radioactive Waste management program, the licensee had implemented a waste minimization/prevention program to reduce the amount of solid waste generated onsite. In addition, the licensee was in the process of constructing a waste treatment facility for the decontamination and volume reduction of the waste generated. The radioactive waste management program was managed effectively.

Transportation

The transportation activities were managed effectively and the associated directives and procedures which incorporated and implemented the applicable provisions of both NRC and DOT regulations were technically adequate.

Attachment:

Persons Contacted and Exit Interview
List of Items Opened, Closed, and Discussed
List of Acronyms

1. RADIATION PROTECTION (83822)

1.1 Discussion

10 CFR 20.1101(a) requires each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of §§20.1001-20.2402.

1.1.1 Radiation Protection Organization and Staffing

The inspector discussed with a licensee representative organizational changes specific to the radiation protection program since the last NRC assessment of this area (January 1996 documented in IR No. 70-1113/96-01). The inspector noted that the structure and reporting chain for the RP function had not changed since the previous inspection. However, the previous Manager of Nuclear Safety was reassigned during June 1996. As a result of the vacancy, a Criticality Safety Program Manager was acting as Nuclear Safety Manager until the vacancy was filled. The inspector discussed with the licensee contact the overall impact of this change on the Nuclear Safety organization. No significant adverse effect had been identified by the organization as a result of the temporary change.

1.1.2 Audits and Appraisals

SNM License-1097 requires audits to be performed in accordance with procedures to determine if actual operations conform to criticality and radiation safety requirements. An independent audit of the radiation safety program was performed during the period November 28 to December 1, 1995. The inspector reviewed documentation to show that the Audit Team qualifications were approved by GE management in accordance with license conditions. The audit was detailed and compliance oriented. No potential noncompliances were identified. Items identified during the audit as findings were assigned to the regulatory tracking system for tracking corrective actions. All items opened during the audit had been appropriately addressed and were considered closed. The independent audit was effective in the identification of findings, recommendations, observations, and best practices.

1.1.3 Exposure Controls

10 CFR 20.1201 requires each licensee to control the occupational dose to individual adults to established dose limits. 10 CFR 20.1502(a) and (b) require each licensee to monitor occupational exposure to radiation and to supply and require the use of individual monitoring devices for adults likely to receive an annual dose in excess of 10 percent of the limits in 10 CFR 20.1201. For the period January 1, 1995 to December 31, 1995, the maximum TEDE was 2.47 rem (compared to the NRC limit of 5 rem) and was assigned to an employee working in the powder preparation area. The maximum assigned SDE was 1.11 rem and was assigned to a ceramic worker. The GE Action Limit for SDE was 40 rem/year while the NRC limit is 50 rem/year. The average

SDE exposure for 1995 was 30 mrem/year. During the previous reporting period (1994), the average was 43 mrem/year. The external deep dose maximum exposure was 480 mrem/year, and the 1995 average was 18 mrem/year. The maximum DDE exposure was assigned to a worker in the bundle assembly area. The GE action limit was 4 rem/year while the NRC limit was 5 rem/year. According to an exposure graph and a discussion with a licensee contact, the annual DDE average had continually decreased. During 1992, the average was 44 mrem, 1993 was 29 mrem, 1994 was 27 mrem, and 1995 was 18 mrem. The inspector noted that the maximum internal exposure (CEDE) during 1995 was 2.413 rem. The GE action limit was 4 rem while the NRC limit was 5 rem. The maximum assigned CEDE was to a worker in the powder preparation area. The average internal dose for 1995 was 0.27 rem/year. In addition to exposures for 1995, the inspector reviewed assigned doses current as of August 5, 1996 and noted that the maximum assigned SDE was 0.28 rem, the maximum CEDE assigned was 1.247 rem, and the maximum TEDE was 1.247 rem. The maximum DDE (based on TLD results for the first five months of data in 1996) was 0.28 rem.

The inspector reviewed the licensee's bioassay program which was detailed in two documents: P/P 40-19 "Bioassay Program" and NSI O-2.0 "Bioassay (Excreta)-Program". The inspector reviewed selected personnel exposure records for individuals assigned work in areas where soluble uranium materials were processed. A review of the urinalysis tracking system printout disclosed that selected workers were providing urine samples for analysis as required by procedures. Further, a review of graphs and summary documentation disclosed a significant reduction from CY 95 to the corresponding months in 1996 in the number of workers failing to submit urine samples at the end of the work week. For example, during March 1995, total missed were 25 compared to March 1996 total of ten. The overall trend during CY 96 thus far was a reduction in the number of missed samples. The inspector further noted that intakes were calculated as required when urinalysis results exceeded established action limits and that no worker had exceeded the licensee's administrative intake limit of 7.5 mg/wk. The inspector reviewed the licensee's cross-check program for sample analysis quality assurance. On a monthly basis, urine samples with known amounts of uranium were submitted to the onsite lab and an offsite vendor for analysis. The inspector reviewed documentation for the period February to June 1996 and noted good agreement in the results that were obtained.

As part of the exposure monitoring program, the inspector verified that the licensee had provided NRC Form-5's for 1995, summarizing the occupational radiation exposure to those workers who required exposure monitoring for the year. Documentation was provided the inspector to show that the Form-5's were provided prior to April 30, 1996. The inspector determined that the licensee had adequately monitored personnel exposures and all of the assigned exposures were within regulatory limits.

1.1.4 Facility Tours

During the inspection, the inspector toured the chemical product line, pellet production and rod load areas, the URU, the CheMet laboratory, the laundry

area, the URU Pump Control Room, and the Conversion Control Room. During the tours, the inspector did not identify any significant weaknesses in the licensee's program to maintain and control radioactive materials, nor with area postings. The inspector did note the presence of candy or gum wrappers in the chemical product line area and the URU. The inspector discussed during the tour and exit interview the presence of such material may indicate employee disregard for area postings and exposure controls. In response to the inspector's comments, a licensee contact informed the inspector that evidence of this sort in a controlled area is considered a serious matter and GE would continue to monitor this incident for taking actions as appropriate. The inspector accompanied and observed a Radiation Control Technician perform smear surveys of the powder transfer area. In addition, the inspector observed personnel performing one minute counts on smear samples for the presence of contamination. No elevated samples or equipment problems were noted. Both the survey technique and method of analysis performance was adequate for detecting the presence of contamination. Based on a random review, where required, personnel were properly wearing respiratory protection and dosimetry.

1.1.5 Instruments and Equipment

Several survey instruments were checked and verified at various locations as operational and within calibration dates. In addition, maintenance and/or calibration records were reviewed for an assortment of instruments to ascertain if calibrations were done in accordance with NSI 0-4.0 "Nuclear Safety Instrumentation." No problems were noted. Administrative controls were in place and appeared to be effective for ensuring that instruments were calibrated at the required frequency.

The inspector discussed with a licensee representative the license requirements for conducting periodic leak testing of radioactive sources. The licensee's performance in this area was verified via a review of the leak testing program for selected alpha sources. No problems were noted. The documentation disclosed that selected sources were calibrated at the frequency as specified in the license.

1.1.6 Respiratory Protection

The inspector reviewed procedures governing the respiratory protection training and maintenance program. In addition, the inspector viewed the respiratory protection portion of the video used for initial and refresher training purposes. Topics included types of mask, donning equipment, proper fit test, rules for use, and checking operability of equipment. No written test specific to respiratory protection was required following training. According to the training contact, for initial respiratory training, a practical demonstration (mask use) is administered at the end of training session. Respiratory protection training records was reviewed for several individuals assigned to the controlled area. No problems were noted.

The inspector reviewed and discussed the respiratory protection maintenance program with the licensee contact assigned responsibility in this program area. The inspector reviewed documentation for monthly surveillance of SCBA equipment for the period January to July 1996. In addition, SCBA equipment was examined by the inspector at the URU Pump Control Room and the Conversion Control Room. No problems were noted. Tanks indicated full, masks appeared to have been cleaned and no visual damage was observed to rubber hosing, valves, or face-piece. The inspector also observed face masks cleaning and laundering by laundry personnel. Although no issues were identified in this program area, the inspector discussed in detail the housekeeping improvements necessary to alleviate unnecessary delays in obtaining SCBA equipment from storage areas. During the tour, the licensee experienced a delay in excess of five minutes attempting to locate equipment as a result of modifications in the area; and in another instance, equipment was improperly stored and impeded access to the SCBA equipment.

1.2 Conclusion

The inspector determined that within the areas selected for review, the licensee's performance in radiation protection complied with regulatory requirements and license conditions, and appeared to be adequate for protecting the health and safety of employees and the public.

2. RADIOACTIVE SOLID WASTE MANAGEMENT (84850)

2.1 Discussion

During the inspection, licensee programs associated with the management of low-level radioactive waste (LLRW) and the Calcium Fluoride (CaF_2) Relocation Project were reviewed and discussed with cognizant licensee representatives.

2.1.1 Decommissioning Activities (CaF_2 Relocation Project)

The inspector reviewed the licensee's progress in removing the CaF_2 from the northwest CaF_2 storage area and relocating the material to an above ground storage facility in the Controlled Access Area (CAA). The licensee planned on storing the material until economic recovery of the uranium in the CaF_2 could be achieved. The northwest storage area consisted of seven shallow trenches located on the high ground in the northwest quadrant of the facility. CaF_2 sludges were placed in the in-ground storage trenches from the time of conversion operation commencement in 1968 to the time of Waste Treatment Facility (WTF) operation in 1972. The seven pits contained approximately 70,000 cubic feet of CaF_2 material. From February 1996 to May 1996, the licensee excavated the northwest storage area and moved approximately 120,000 cubic feet of soil and CaF_2 containing 3255 kilograms of uranium to the storage warehouse. From May to July 1996, the licensee screened approximately 69,000 cubic feet of soil between 30 pCi/gram and 200 Pci/gram so that this material could be shipped to the GSX-Laidlaw Facility (a Resource Conservation Recovery Act (RCRA) hazardous waste burial facility) in Pinewood, South Carolina. The licensee was authorized in the special authorization section of

the license application, Section 1.8.5, Disposal of Industrial Waste Treatment Products) to dispose of waste containing small quantities of LEU in accordance with Option 2 of the 1981 Branch Technical Position (BTP), "Disposal or Onsite Storage of Thorium or Uranium Waste from Past Operations," which basically limited the uranium concentration in the waste material to 250 pCi/gm (insoluble) and 100 pCi/gm (soluble). As of the end of July 1996, the licensee had essentially completed the excavation.

By letter dated April 16, 1996, the NRC had approved the licensee's Final Status Survey and Release Plan for the Northwest CaF_2 Area (FSS Plan), Revision 2, dated February 28, 1996. The purpose of the FSS Plan was to demonstrate that residual radioactivity concentrations at the Northwest CaF_2 Storage Area satisfy the NRC criteria for future use without licensing restrictions and radiological controls. The licensee was in the process of evaluating the residual radioactivity remaining in the burial trenches. The licensee had identified contaminated soils below the groundwater level. As of June 24, 1996, soil concentration remaining in the soil, which included soils below the water table ranged from approximately 0.5 pCi/gram to 129 pCi/gram.

The inspector also reviewed groundwater monitoring data collected from 15 wells (identified as CAF-Series wells) located around the Northwest CaF_2 Storage Area during the period February 1 to June 25, 1996. The licensee analyzed the well samples for gross alpha, gross beta, total uranium and fluoride. During the excavation, a maximum concentration of 3181 pCi/liter total uranium was noted at well location 6A. Well 6A was downgradient from the excavation site. On June 25, 1996, the total uranium concentration at well 6A was 706 Pci/liter. Total uranium concentrations at Well 12A, which was located at the site boundary ranged from 10 pCi/liter to 1613 pCi/liter. The maximum occurred during the excavation activities. On June 25, 1996, the total uranium concentration at Well 12A decreased to 37 pCi/liter. The licensee indicated to the inspector that the groundwater data collected since June 1996 would continue to be reviewed so that any trends could be identified.

2.1.2 Waste Management

As of July 1, 1995, the State of South Carolina was no longer accepting LLRW generated from licensee located in the State of North Carolina for burial at the Barnwell Facility. Thus, at present, the licensee's General Electric Company Nuclear Energy Production facility in Wilmington, NC had no options for the disposal of LLRW.

Various solid wastes were generated from the fuel manufacturing operations (FMO) and field examination technology (FET) operations. FMO solid LLRW ranged in form and type, such as, packaging and construction materials, worn-out tools and equipment, spent process oils and chemicals, uranium sludge, and by-product generated hydrofluoric acid. FET solid LLRW consisted primarily of compactible and non-compactible dry active wastes (DAW) and cuno filters. FET wastes were volume reduced offsite and then stored onsite in 55 gallon drums at the FET radwaste storage warehouse.

At present, the licensee temporarily stored radioactive solid wastes pending authorization to resume shipments to an authorized LLRW disposal facility. The inspector toured the licensee's temporary waste storage locations, which consisted of several outside storage areas or "pads" located in the controlled area. These pads were secured to prevent the unauthorized removal of the LLRW. The licensee had designated Pad Nos. 6 and 8 for waste box storage. As of August 5, 1996, approximately 444 metal (50 cubic feet each) waste boxes containing noncombustible wastes were on the storage pads. The licensee was in the process of consolidating the wastes to reduce the number of boxes on the storage pads. In addition, the licensee was negotiating with a waste disposal facility in Utah to accept the noncombustible waste debris. Contaminated, combustible, solid process wastes were stored on Pad No. 7A. Combustible wastes were stored either in wooden or cardboard boxes. The combustible wastes, such as rags, mops, shop paper, plastic, and worn-out protective clothing, were designated for burning in an onsite incinerator designed for processing uranium contaminated wastes. Incinerator ash containing sufficient uranium to make recovery economical was processed onsite for the recovery of the uranium.

As of August 5, 1996, there were approximately 730 cardboard and/or wooden boxes on storage pad 7A. The licensee's goal was to have an inventory of approximately 600 boxes on storage pad 7A by the end of 1996. The backlog was due to the shutdown of the incinerator on March 27, 1996 due to a waste box in the incinerator load chamber that burned due to a failure of the loader ram limit switch. Extinguishing the waste box resulted in damage to another box queued for incineration on the scissors lift. The incident was a reportable event due to the damage caused by the fire. The licensee resumed incinerator operations in June 1996 after a thorough review of this event and another event which occurred on April 2, 1996 at the Nuclear Fuel Services, Inc. facility which involved a fire in the incinerator ducting. A review of this entire incident was documented in Inspection Report No. 70-1113/96-203 and a review of the licensee's corrective actions was documented in Inspection Report No. 70-1113/96-09.

The inspector observed that the licensee had implemented common sense approaches to waste minimization and prevention. This program consisted of (1) minimizing the introduction of non-contaminated items into the restricted area; (2) segregation of highly contaminated waste items from low contaminated waste for the recovery and recycle of uranium as well as the decontamination of material for reuse where feasible; and (3) localized separation of wastes into combustible and noncombustible categories. The inspector noted throughout the restricted area the placement of combustible and non-combustible waste receptacles. A written list of examples of both types of wastes were placed on each of the receptacles.

2.1.3 Facility Tours

The inspector toured the facility where the Decontamination and Volume Reduction Facility (DVRF) was being constructed. The licensee had allocated funds to refurbish the old GECO (dry conversion) facility to be used for the construction of the DVRF. The licensee estimated that the DVRF would be operational by October 1996. The DVRF was designed to make increased use of available technologies for the decontamination equipment (ultrasonic cleaning, ultra high pressure washing) so that contaminated items could be decontaminated to the unrestricted use limits as specified in Section 1.8.2 of the license application and the use of super compaction equipment for waste volume reduction.

Throughout the rest of the facility, the inspector noted proper use of the combustible and non-combustible waste receptacles. The inspector toured the licensee's temporary waste storage locations, as noted above, which consisted of several outside storage pads located in the controlled area. The present arrangement for the storage of LLRW was less than adequate due to the large volume of waste being stored and due to the fact that the cardboard and wooden waste storage containers were not shielded from the natural elements. However, the restart of the incinerator should reduce the volume of combustible waste stored onsite and a successful negotiation with a waste disposal facility in Utah to accept the noncombustible waste debris should reduce the amount of noncombustible waste presently being stored onsite.

2.2 Conclusion

The inspector concluded that the licensee's controls, procedures, and waste management program appeared acceptable and capable of accomplishing its safety objectives. The CaF_2 relocation project had progressed ahead of schedule, however, implementation of the FSS Plan, Revision 2, dated February 28, 1996 had not begun. In addition, the present arrangement for the storage of LLRW was less than adequate.

3. TRANSPORTATION ACTIVITIES (86740)

3.1 Discussion

10 CFR 71.5(a) requires each 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, to comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 170-189.

3.1.1 Shipping Activities

During the onsite inspection, licensee transportation activities regarding shipments of unirradiated fuel, UF_6 heels, and of other radioactive materials were reviewed. Selected records for the following consignments were reviewed in detail.

- RQ, Radioactive Material Fissile, NOS, 7, UN2918, for selected separate shipments of fissile material containing fuel elements shipped to selected power reactor facilities from January 1996 to July 1996.

- RQ, Radioactive Material Fissile, NOS, 7, UN2977, for selected shipments of fissile material containing heels of enriched uranium hexafluoride in 30A/30B cylinders from January 1996 to June 1996.

- Radioactive Material, NOS, 7, UN2918, for a shipment of 4907 kilograms of uranium dioxide to a fuel facility on March 18, 1996.

The inspector reviewed and discussed in detail the documentation used, and subsequently maintained in the licensee's records for each radioactive material shipment, including, the Bill of Lading, Radioactive Material Shipment Record, Vehicle Inspection Report, Receipt and Loading Verification Checklist, Packing List (Fuel Assemblies/Component Assemblies), Fuel Shipment Information Form, Container Log Sheet, and Health Physics Survey Forms.

In general, the shipping records referenced above were complete and the information supplied on the shipping papers was appropriate. The inspector noted isolated examples of shipping paper inconsistencies, however, these problems were not considered significant issues and were corrected immediately. Another shipping paper inconsistency was noted in which the licensee had incorrectly referenced a shipping container as a IAEA Certificate of Compliance (CoC) USA/9019/AF package when, technically, the container should have been referenced as a NRC CoC package for a shipment of 4907 kilograms of uranium dioxide to a fuel facility in Lynchburg, VA. The licensee acknowledged the inspector's observation and corrected the inconsistency.

3.1.2 Authorized Packages

10 CFR 71.12 (Subpart C) requires, in part, that (a) a general license is issued to any licensee of the Commission to deliver to a carrier for transport, licensed material in a package for which a license, certificate of compliance (CoC), or other approval has been issued by the NRC and; and applies only to a licensee who (c)(1) has a copy of the specific CoC, and other approval of the package and has the drawings and other documents referenced in the approval relating to the use and maintenance of the packaging and to the actions to be taken prior to shipment and (c)(2) complies with the terms and conditions of the license, CoC, or other approval as applicable, and the applicable requirements of Subparts A, G, and H of this Part.

49 CFR 173.471 details additional requirements for the shipment of NRC-approved packages.

During the onsite inspection, licensee activities associated with packaging and shipping of radioactive materials were reviewed in detail. The inspector reviewed and discussed with cognizant licensee representatives selected

aspects of current quality control (QC) program activities associated with packaging and transportation operations for fissile material shipments made between January and July 1996.

The inspector noted that the fuel rod and assembly shipments were shipped using NRC CoC No. 4986, USA/4986/AF, Model Numbers RA-2 and RA-3 packaging. The inspector verified that the licensee maintained the most recent revision of CoC No. 4986 (Revision 33) and referenced documents in accordance with 10 CFR 71.12(c)(1) requirements. In addition, the inspector verified that the licensee was a registered user of the package in accordance with 71.12(c)(3).

The inspector also verified that the licensee was a registered user of the NRC CoC 9196, USA/9196/AF, Model UX-30, which was an UF_6 cylinder overpack. The inspector verified that the licensee maintained the most recent revision of CoC No. 9196 (Revision 9) and referenced documents in accordance with 10 CFR 71.12(c)(1) requirements. The inspector noted that the licensee had purchased 15 Model UX-30 overpacks in 1995 and ten additional UX-30 overpacks in 1996. The inspector verified, with regard to reporting defects and noncompliances, that the procurement documents included the statement that the provisions of 10 CFR 21 apply as required by 10 CFR 21.31. In addition, the inspector verified by record review that the licensee performed inspections of each overpack before the first use as required by 10 CFR 71.85. The inspections ascertained that there were no cracks, pinholes, uncontrolled voids, or other defects that would significantly reduce the effectiveness of the packaging and that the gaskets were in place when the upper half of the package was removed. The licensee also conspicuously and durably marked the packaging with its model number, serial number, gross weight, and a package identification number assigned by the NRC in accordance with 10 CFR 71.85. Before applying the model number, the licensee, through its QA program, verified that the packing had been fabricated in accordance with the designed approved by the NRC.

In addition, the inspector verified that the licensee maintained the most recent revision of NRC CoC No. 9019 (Revision 23) for package Model No. BU-7, which was used once for shipping uranium dioxide powder not to exceed five percent enrichment in the U-235 isotope to a fuel facility in Lynchburg, VA in March 1996. The inspector also verified that the licensee was a registered user of the Model BU-7 package.

The inspector also reviewed the records of three shipments of either powder or pellet samples to various laboratories from April 2 to July 30, 1996. In all cases, the shipping papers indicated that the material was shipped in a strong tight container (DOT 12B30). 49 CFR 173.411 requires the use of industrial packagings. Industrial Packages must meet the requirements of 49 CFR 173.410 and 173.411 and are categorized as follows: (1) Industrial package Type 1 (IP-1); (2) Industrial package Type 2 (IP-2); and (3) Industrial package Type 3 (IP-3). At the time of this inspection, the licensee was unable to determine if the DOT 12B30 met the requirements for an IP-1 package. During the exit meeting, the inspector identified this issue as an unresolved item (URI) (70-1113/96-07-01 (URI): Determine whether or not the strong tight

container identified as DOT 12B30 satisfied the packaging requirements specified in 49 CFR 173.410 and 173.411 for an industrial package Type 1).

3.1.3 Procedural Guidance

During the onsite inspection the procedural guidance specified for the shipment of radioactive materials was reviewed against the selected criteria specified in 49 CFR Parts 171-178. Specifically, the inspector verified that the necessary procedure revisions were made to implement the changes in the DOT regulations which became effective on April 1, 1996. In addition to the shipping paper requirements specified in 49 CFR Subpart C, procedural details were reviewed against requirements established for packaging (49 CFR Part 173), marking and labeling (49 CFR Part 172, subpart D, §§172.400-407 and §§172.436-440), monitoring (49 CFR Part 171, subpart I), and emergency response information (49 CFR, subpart G).

- TI-14, Exclusive Use Shipment, Revision 5, March 29, 1995 and modification dated March 29, 1996
- TI-15, RA Inner Refurbishing, Revision 10, March 23, 1996
- TI-16, Radioactive Material Packaging and Shipment Record, Revision 2, March 13, 1995 and modification dated March 29, 1996
- TI-18, Empty Radioactive Material Shipping, Revision 4, September 14, 1995 and modification dated March 29, 1996
- TI-19, Radioactive Name and Shipping Papers, Revision 5, September 14, 1995 and modification dated March 29, 1996
- TI-20, Radiation Radioactive Packages, Revision 2, June 8, 1995 and modification dated March 29, 1996
- TI-33, Shipment of UF-6 Material and Containers, Revision 0, March 13, 1995

The inspector reviewed the procedures noted above and observed that the procedures incorporated and implemented the applicable provisions of both NRC and DOT regulations.

In addition, the inspector verified that the appropriate personnel in the traffic department had current copies of the applicable DOT regulations. The licensee used a vendor service that provided periodic updates to 40 CFR 106-180. This service provided a well organized version of the DOT regulations with an indexing system that allowed quick access to the appropriate regulation.

3.2 Conclusion

The licensee's performance in this program was acceptable. Transportation activities were managed effectively and the associated directives and procedures which incorporated and implemented the applicable provisions of both NRC and DOT regulations were technically adequate. One unresolved item was identified.

ATTACHMENT

1. PERSONS CONTACTED

1.1 Licensee Personnel

D. Barbour, Coordinator, Radiation Protection
*J. Bradberry, Senior Program Manager, Regulatory Team
D. Brown, Team Leader, Environmental Project
W. Croom, Area Coordinator (Bundle Assembly)
*N. Dookeran, Team Leader, CheMet Lab
D. Dowker, Team Leader, Environmental Process Team
*R. Foleck, Senior Licensing Specialist
*G. Fornasiero, Engineer, Packing and Transportation
*P. Godwin, Coordinator, Fire Safety and Emergency Response
*M. Lamb, Team Leader, Powder Preparation and Packaging
*A. Mabry, Principal Nuclear Safety Engineer
*D. McCaughey, Manager, Fuel and CheMet Lab Quality
G. Mobley, Coordinator, Maintenance
*S. Murray, Team Leader, Chemical Conversion
*L. Paulson, Acting Manager, Nuclear Safety
R. Raynor, Instructor, Training
*R. Reda, Manager, Fuels and Facility Licensing
*B. Robinson, Principal Nuclear Safety Engineer
C. Rochelle, Lab Analyst, CheMet Lab
*E. Rouse, Monitor, Radiation Protection
G. Sbraco, Packaging/Transportation Engineer
K. Toussaint, Specialist, Process Control Engineering
*F. Walker, Manager, Shipping and Traffic
*T. Winslow, Manager, Material Control and Accountability

Other licensee employees contacted included engineers, technicians, production staff, security, and office personnel.

*Denotes those present at the exit meeting on August 9, 1996.

2. Exit Interview

On August 9, 1996, the inspection scope and results were summarized with licensee representatives. The inspectors discussed in detail the routine program areas inspected, and the findings, including the Violation listed below. There were no dissenting comments expressed by the licensee. Licensee management was also informed that an IFI from a previous inspection was reviewed and considered closed.

Item Number	Status	Description and Discussion
70-1113/96-01-01	Closed	IFI - Verify the effectiveness of corrective actions in preventing leaks and contamination to laboratory hoods and/or sink drains.
70-1113/96-07-01	Open	URI - Determine whether or not the strong tight container identified as DOT 12B30 satisfied the packaging requirements specified in 49 CFR 173.410 and 173.411 for an industrial package Type 1

3. List of Acronyms

CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulation
CY	Calendar Year
DDE	Deep Dose Equivalent
GE	General Electric
IFI	Inspector Followup Item
IR	Inspection Report
MG/WK	Milligrams per week
MREM	Millirem
NSI	Nuclear Safety Instruction
P/P	Practices and Procedures
RP	Radiation Protection
R/YR	Rem Per Year
SCBA	Self-Contained Breathing Apparatus
SDE	Shallow Dose Equivalent
SNM	Special Nuclear Material
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescent Dosimeter
UF6	Uranium Hexafluoride
URI	Unresolved Item
URU	Uranium Recovery Unit
VIO	Violation

Attachment

4. Previously Identified Inspector Followup Item

(Closed) IFI 70-1113/96-01-01: Verify the effectiveness of corrective actions in preventing leaks and contamination to laboratory hoods and/or sink drains.

The licensee had completed corrective actions in accordance with the commitments detailed in Paragraph 5 of IR 70-1113/96-01. The inspector reviewed licensee survey data sheets which documented the drain inspection results for the period January to June 1996. In addition to the records review, the inspector conducted an independent survey and examination of several drain pipe surfaces and directly underneath the drain pipe in each hood located in the CheMet Lab. No problems were noted. According to discussions with a licensee representative assigned responsibility in this area, all sink drain piping was replaced (at a cost of approximately $50,000) with a type of piping known as "kynar". One other aspect of the licensee's corrective actions reviewed by the inspector involved a self assessment of the adequacy of corrective actions taken by the laboratory during the past five years. The referenced audit was very detailed and critical of the laboratory corrective action program; and for those items identified as inadequate, according to documentation the proper corrective actions were being taken. The licensee's actions were considered appropriate for closure of the IFI.

Attachment