

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report: 70-754/94-01

License: SNM-960

Licensee: General Electric Company
Vallecitos Nuclear Center
P. O. Box 460
Pleasanton, California 94566

Facility Name: Vallecitos Nuclear Center (VNC)

Inspection at: Pleasanton, California

Inspection Conducted: May 23-26, 1994

Inspector: C. A. Hooker, Senior Fuel Facilities Inspector

Approved by:

Frank A. Wenslawski

Frank A. Wenslawski, Chief
Materials Branch

6/13/94
Date Signed

Inspection Summary:

Areas Inspected: This was a routine unannounced inspection of the following areas: management and organization, criticality safety, operations review, operator training and retraining, and maintenance and surveillance testing.

Results:

- The licensee has, with the exception of the criticality safety refresher training program (Section 4), established and implemented criticality safety, operator training and qualification, maintenance, and surveillance testing programs that have resulted in safe operations since the last inspection. The licensee recognized the need to establish the criticality safety refresher training and is aware that it must be implemented by the end of the year.

Summary of Inspection Findings:

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

Attachment:

- Persons Contacted and Exit Briefing

DETAILS**1 MANAGEMENT/ORGANIZATION AND CONTROLS (88005)**

The licensee's application dated December 1, 1992, and subsequent changes dated December 3, 1993, describe the licensee's organization. The General Electric VNC's license was renewed February 7, 1994. The inspector noted that there were no changes to the onsite organizational structure since the last inspection of this area in July 1993. The Manager, Vallecitos and Morris Operations (V&MO) reports to the Vice President and General Manager, General Electric Nuclear Energy. The Manager, V&MO has been delegated, in writing, to act as the Chief Safety Officer for all state and NRC licensed activities. Although the V&MO is also responsible for the General Electric Morris, Illinois facility, he resides at the VNC facility. The Regulatory Compliance Department includes: licensing, safeguards, criticality safety, radiation monitoring, environmental monitoring, facilities protection, and quality assurance. The Manager, Regulatory Compliance reports to the Manager, V&MO. The licensee continues to maintain 24-hour site safety coverage. Five facilities protection specialists are assigned certain radiological safety duties and make tours of the licensee's facilities during off-shift hours.

The inspector noted that there had been no changes in the functions of the Vallecitos Technological Safety Council (VTSC) since the last inspection of this area. The VTSC functions as an independent review body for all state and NRC licensed activities at VNC. The VTSC's annual review of the site safety and compliance program, dated March 21, 1994, was reviewed. This report included a summary of the VTSC's review of 1993 activities involving training, criticality safety, emergency preparedness and response, radiation protection, licensing activities, safeguards, and environmental programs. No safety concerns were identified by the VTSC. Quarterly VTSC meeting minutes for the past year were also reviewed. No safety concerns were identified of the activities reviewed by VTSC during these meetings.

Selected licensee safety standards and nuclear safety procedures were reviewed. The inspector noted that changes and periodic reviews of these procedures were performed in accordance with the requirements delineated in Appendix A of the license and licensee procedures. Selected operating procedures for Building 103 (chemistry and metallurgy laboratories) and Building 102 (hot cell facilities) were also reviewed. The procedures adequately exhibited the safety requirements of the licensee's safety standards and industrial safety practices and were periodically updated in accordance with established schedules. The procedures had been reviewed and approved by appropriate representatives of nuclear safety, industrial safety, and management.

The inspector reviewed the licensee's regulatory compliance audits of the following:

- Site Emergency Plan and Implementing Procedures, dated February 23, 1994.

- Calibration and Maintenance of Radiation Safety Instruments, dated December 2, 1993.
- Radiological Surveys, dated November 19, 1993.
- Radiation Work Permits, dated October 27, 1993.

The licensee's audits did not identify any safety concerns. The licensee was in the process of completing administrative changes and updates to its emergency plan and implementing procedures. Changes, as appropriate, will be forwarded to the NRC Region IV office.

The inspector determined that the licensee maintained adequate management oversight of its licensed programs.

2 CRITICALITY SAFETY (88015)

There are no special nuclear material (SNM) liquid or metal process systems at the licensee's facilities. Occasionally small laboratory quantities of SNM are dissolved for analytical purposes. Activities involving the use of SNM continue to be very limited. The major activity involving the use of SNM is post-irradiation examination of low-enriched (LEU) BWR fuel in the Building 102 hot cell facility. The licensee typically receives two to three shipments of irradiated LEU fuel per year. These shipments normally consist of SNM in quantities of less than 300 grams U-235. The licensee had not received any irradiated fuel since January 1994. Small quantities of dissolved irradiated fuel samples are transferred from the hot cells to the Building 102 Radiochemistry Lab for further treatment and dilution. Dilute samples of microgram quantities of SNM are transferred from the Building 102 Radiochemistry Lab to Building 103 as mass spectrography samples. Occasionally small programs involving studies and tests utilizing small quantities of non-irradiated LEU fuel pellets are also conducted at Building 103. However, no such activity has occurred during the past year. About 90 percent of ongoing site activities involve the use of radioactive materials licensed by the state.

The inspector noted that there had been no changes in operations that required a new criticality safety analysis (CSA) since the last inspection of this area. However, the licensee had initiated a Change Authorization (CA), CA 94-05, dated March 9, 1994, for the refurbishment of Hot Cell 2 which included the reinstatement of two deactivated CSAs. Hot Cell 2 is currently used to conduct Scanning Electron Microscopy (SEM) analysis on small fuel samples. The modifications will involve transferring the SEM equipment from Cell 2 to Cell 11 (a smaller cell) and converting Cell 2 back to its original status of destructive and non-destructive examinations of irradiated fuel rods. Cell 11 will be used to receive and process waste generated by the Cell 2 fuel examination activity. The modifications will also include the removal and reversal of the Cell 2 lead glass shielding windows to allow future repairs from the operating side of the hot cell. The window reversal will be performed by an outside contractor who has previously performed the same task for Cell 11. The CA adequately described the modifications to be

performed and the radiological safety analysis and the industrial safety analysis for the project. Based on the review of the CA and discussions with cognizant licensee personnel, the inspector did not identify any safety concerns. Although no new criticality safety analysis was required for the project, the inspector reviewed the two CSAs being reinstated: (1) "Criticality Analysis for Cell 11 in the Radioactive Materials Laboratory," No. 102-0985-1, dated October 1, 1985, and (2) "Criticality Analysis for Cells 1 and 2 in the Radioactive Materials Laboratory," No. 102-0285-1, dated February 12, 1985. The CSAs were reviewed for their adequacy in defining the criticality limits and criticality controls, and incorporation of the double contingency policy. No concerns were identified by the inspector.

The inspector reviewed criticality safety inspections conducted by the Criticality Safety Component and audits conducted by the radiation safety staff during the past year. The inspections and audits were consistent with the requirements of Section 5.7, "Criticality Safety Inspections," Appendix A of the license and licensee procedures. No safety problems were identified by the licensee's inspections and audits. The inspector identified no concerns relative to the licensee's criticality safety inspection and audit program.

During facility tours, the inspector noted that criticality control limits were appropriately posted where SNM was maintained. The inspector noted that the licensee's criticality monitoring system (CMS) appeared to be functional in all areas required and that the alarm set points were appropriately set in accordance with the licensee's procedures. Records of CMS function tests for the past 6 months were reviewed. These monthly tests included verification of each detector's response, the effectiveness of the audible alarm system, and verification that the Building 102B main alarm indicating panel was operational. No concerns were identified by the inspector.

The licensee's performance appeared adequate, and their program appeared capable of accomplishing its safety objectives.

3 OPERATIONS REVIEW (88020)

The inspector toured the licensee's facilities to observe activities where SNM was being handled and/or stored. During a tour of the Building 103 fuel storage vault, the inspector noted that (1) the SNM storage cubicles contained the quantities of SNM as indicated on the inventory log, (2) SNM containers were properly labeled, and (3) the door to each storage cubicle was latched to reduce the potential for unsafe movement of SNM in the event of an earthquake. In Building 102, the licensee's inventory records indicated there was less than a critical mass of SNM (U-235) in the hot cells where irradiated fuel is handled.

During facility tours, the inspector also noted that air sampling devices, ventilation system magnahelic and hot cell photohelic gauges, and area radiation monitoring equipment appeared fully operational. The inspector noted that fire extinguisher and other fire safety equipment appeared operational and in good condition. Housekeeping was adequate in the areas toured.

The licensee's performance appeared adequate, and their program appeared capable of accomplishing its safety objectives.

4 OPERATOR TRAINING (88010)

The inspector noted from the review of licensee training records that new employees received training that included the fundamentals of radiation protection, criticality safety, hazardous chemical safety, fire protection, emergency requirements, and security. Personnel assigned to work with radioactive materials received additional general employee training (GET) in each of these topic areas prior to working without an escort. Upon completion of the formal classroom training, each individual was tested as to their knowledge of the material presented. The inspector noted that the GET appeared to be consistent with NRC Regulatory Guide, "Instructions Concerning Risks From Occupational Exposure." Operating and laboratory personnel who routinely handle radioactive materials are provided a more enhanced radiological safety training course, titled "Radiological Safety at Vallecitos Nuclear Center (RSVNC)." Upon completion of the enhanced course and demonstration of their skills on the use of radiation survey instruments, these individuals are authorized by the licensee to perform radiation and contamination surveys associated with their normal work activities. Refresher training on the fundamentals of radiation safety is provided annually. In addition to the licensee's formal GET training programs, the Building 102 Remote Handling Operations (RHO) manager also schedules formal monthly safety/training meetings that cover various aspects of radiological safety, criticality safety, non-radioactive hazardous materials safety, radioactive waste and transportation requirements, and industrial safety. The inspector noted that the monthly meetings were conducted by personnel knowledgeable of the subject being covered. Each meeting was followed by a written examination of the subject covered. On May 25, 1994, the inspector observed a monthly safety/training meeting. The first segment of the training consisted of a commercial video tape and a licensee made video tape that provided instructions on the proper methods for moving 55-gallon drums. The last segment of the meeting consisted of classroom instructions on the use and cleaning of respirators. The attendance consisted of the entire RHO staff including operators, maintenance personnel, supervisors, and engineers. Following the meeting, a written test was administered to the licensee personnel. The inspector observed that the training material was presented well, and personnel were attentive to the instructions provided.

As described in Section 1 above, on February 7, 1994, the license was renewed. Section 5.8, "Training Program," of Appendix A of the license application was revised to incorporate a requirement for annual criticality safety refresher training. Section 5.8 of Appendix A also requires, in part, that the criticality control training program be approved by the Criticality Safety Component and be maintained to emphasize the need for following criticality control procedures and to aid personnel in understanding the various parameters which are essential to maintenance of subcritical conditions. Although there was no previous requirement for the licensee to conduct annual criticality safety refresher training, the training was conducted during scheduled safety meetings. The inspector noted that the licensee maintained a documented initial criticality safety training course comparable to that

described in ANSI/ANS-8.20, "Nuclear Criticality Safety Training"; however, no course had been approved by Criticality Safety Component for annual criticality safety refresher training. This inspector mentioned this matter to the licensee. The licensee informed the inspector that the criticality safety refresher training program would be established and implemented before the end of the year. The inspector informed the licensee that their development of a criticality safety refresher training program would be reviewed during a future routine inspection.

Building 102 operators (remote handling technicians) must complete a qualification program maintained by the RHO manager that includes a general orientation of administrative requirements, the policy concerning adherence to regulatory requirements and licensee procedures, emergency procedures, radiological safety, and industrial safety. After completing the initial orientation training, a new worker is allowed to work in the radiologically controlled areas under the direct supervision of a qualified person. Qualification is based on-the-job (OJT) training and an individual's knowledge of operating procedures, safety requirements, and equipment associated with their assigned work activity. The Building 102 training and qualification records documented dates of training, person trained by, date qualified, and the qualifying person. The RHO manager also maintained a computerized data base of all training provided to his staff. In addition, the RHO manager maintains an "RHO Training Manual" that consisted of emergency response, radiation safety, industrial safety, and shipping and receiving specific to Building 102 operations. Individuals from other organizations such as the reactor service groups who utilize certain areas within Building 102, are required to read the manual and must pass a test prior to allowing them access to the radiologically controlled areas.

Based on observations of work activities in progress and discussions with operating personnel, the inspector did not observe any activities being performed by unqualified personnel. Personnel assigned to irradiated fuel examination activities were cognizant of the criticality control limits and controls and radiological safety procedures.

The inspector concluded that the licensee's training program was consistent with the requirements of 10 CFR 19.12, Section 7.3, "Radiation Safety Training," Appendix A of the license. Although the licensee's new employee criticality safety training program was consistent with Section 5.8, Appendix A of the license, the lack of an annual refresher training program was considered as a weakness in the licensee's program. Fortunately, a year has not lapsed since the annual refresher training became a new license requirement. The licensee's overall performance appeared adequate, and their training programs appeared capable of accomplishing its safety objectives.

5 MAINTENANCE/SURVEILLANCE TESTING (88025)

The inspector reviewed the records of (1) monthly fire protection system and alarm tests and inspections, (2) weekly run tests and monthly load tests of the Building 102A emergency diesel generator, (3) annual calibration of the Building 102 hot cell photohelic gauges, (4) daily Building 102 safety checks, (5) monthly HEPA filter differential pressure readings, (6) annual HEPA

exhaust filter efficiency tests, and (7) semiannual electrical interlock tests on the Building 2 hot cell doors performed since the last inspection. The inspector found that calibrations and tests on equipment were performed in accordance with the requirements delineated in Appendix A of the license and licensee procedures. No safety concerns were identified as a result of the review.

During facility tours, the inspector did not observe any safety equipment that was out of service or the appearance that maintenance was needed.

ATTACHMENT

1. PERSONS CONTACTED

- R. Adamson, Manager, Materials Technology
- F. Arlt, Manager, Facilities Maintenance
- *C. Basset, Senior Engineer
- J. Cherb, Manager, Nuclear Safety
- C. Hill, Supervisor, Remote Handling Operations
- A. Mindt, Specialist, Radiation Monitoring
- B. Murray, Nuclear Safety Engineer
- *G. Stimmel, Manager, Irradiation Processing Operation (IPO)
- J. Tenorio, Manager, Remote Handling Operations

In addition to the individuals noted above, the inspector contacted other licensee personnel during this inspection.

*Denotes those attending the exit interview on May 26, 1994.

2 EXIT INTERVIEW (30703)

On May 26, 1994, the inspector met with the licensee representatives to discuss the scope and findings of the inspection. The licensee was informed of the observations described in the report and that no violations or deviations were identified. The licensee acknowledged the need to establish and implement a criticality safety refresher training consistent with the license commitment.

The licensee did not identify proprietary information during the course of the inspection.