U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-754/93-02

License No. 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: July 7-9 and 12, 1993

Inspector:

Approved by:

CA HOOKON C. A. Hooker, Fuel Fact ities Inspector Mues-James H. Reese, Chief

Date Signed Signed

Facilities Radiological Protection Branch

Summary:

Areas Inspected: This was a routine unannounced inspection of management and organization, criticality safety, operator training, operations review, maintenance, surveillance testing, and transportation. The inspection also included tours of the licensee's facilities. Inspection procedures 30703, 92701, 88005, 88010, 88015, 88020, 88025, and 86740 were addressed.

<u>Results</u>: In the areas inspected, the licensee's performance appeared adequate and their programs appeared capable of accomplishing their safety objectives. No violations or deviations were identified.

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DETAILS

1. Persons Contacted

Licensee:

- *G. L. Stimmell, Manager, Irradiation Processing
- *J. H. Cherb, Manager, Nuclear Safety
- *G. E. Cunningham, Senior Licensing Engineer
- J. I. Tenorio, Manager, Remote Handling Operations
- B. M. Murray, Nuclear Safety Engineer
- R. F. Begley, Supervisor, Remote Handling Operations
- J. L. Nixon, Safeguards Specialist

NRC, Region V

*James H. Reese, Chief, Facilities Radiological Protection Branch

*Denotes those attending the exit interview on July 12, 1993.

In addition to the individuals noted above, the inspector met and held discussions with other members of the licensee's staff.

Management/Organization and Controls (88005)

This area was reviewed to determine the licensee's compliance with the requirements of the License Conditions, licensee procedures and the adequacy of management controls.

The inspector noted that there were no changes to the onsite organizational structure since the last inspection of this area.

The inspector noted that there were no changes in the functions of the Vallecitos Technological Safety Council (VTSC). The VTSC's annual report, dated March 17, 1992, was reviewed. This report included a summary of the VTSC's review of 1992 activities involving training, safety 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.

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.

No violations or deviations were identified.

3. Criticality Safety (88015)

This area was reviewed to determine the licensee's compliance with the requirements of 10 CFR Part 70, License Conditions and licensee procedures to verify that operations were being conducted to ensure the safety of the general public and facility workers.

There are no special nuclear material (SNM) liquid or metal process systems at the licensee's facility. Activities involving the use of SNM continue to be very limited. Criticality controls for current activities are primarily based on handling materials in safe batches. The major activity involving the use of SNM is post-irradiation examination, testing and analysis of low-enriched General Electric manufactured BWR fuel elements. The licensee typically receives two to three shipments of segmented (about 48 inches sections) irradiated fuel rods per year. Of two shipments received in 1993 to date, the SNM guantity did not exceed 425 grams fissile per shipment.

The inspector noted that the licensee was in the process of modifying its facilities for handling and off-loading full-length irradiated fuel rods (14-foot rods). Although the licensee's hot cells are of sufficient length to accommodate full-length fuel rods, the licensee's facilities and associated equipment were not originally designed to handle or unload shipping casks containing full-length fuel rods. In the past, full-length fuel rods have been shipped from a power reactor site to a non-General Electric facility for segmenting, and then shipped to VNC for post-irradiation examinations. Regarding safety analyses, the Criticality Safety Specialist (CSS) concluded that the receipt and handling of the full-length fuel rods did not exceed the bounds of existing criticality safety analysis (CSA), CSA No. 102-0585-1, Criticality Safety Analysis for Cells 3 and 4 In the Radioactive Materials Laboratory, dated July 9, 1985. Based on a review of this CSA, the inspector did not identify any concerns with the CSS's conclusion.

The inspector noted that there had been no changes in operations that required a new criticality safety analysis since the last inspection of this area. In addition to the review of CSA No. 102-0585-1, several other existing CSAs were reviewed for their adequacy in defining limits, controls, and application of the double contingency policy. No concerns were identified by the inspector.

The inspector reviewed criticality safety inspections conducted by the CSS and audits conducted by the radiation safety staff during the past year. The inspections and audits were performed at the frequencies described in the licensee's procedures for each applicable facility. 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 appeared to be 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 six 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. The inspector also observed a monthly test being conducted during the inspection. No concerns were identified.

The licensee's performance appeared adequate and their program appeared capable of accomplishing its safety objectives. No violations or deviations were identified.

4. Operations Review (88020)

This area was reviewed to determine if operations were being conducted in accordance with the requirements of the License Conditions, licensee procedures and to verify that activities were being conducted to ensure the safety of the general public and facility workers.

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.

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 operational. The alarm set points for the area radiation monitors and the hot cell alarming photohelic gauges in Building 102 were consistent with those described in Appendix A of the License. The inspector noted that fire extinguisher and other fire safety equipment appeared operational and in good condition.

Housekeeping appeared good in most areas toured. The inspector noted that the Building 103 laboratories exhibited an improvement in housekeeping practices from that described in previous inspection reports.

As discussed in Section 3 above, the licensee had made modifications to its facilities to perform post-irradiation examinations on full-length fuel rods. The licensee's Change Authorization (CA) No. 93-17, Full-Length Irradiated BWR Fuel Rod Handling at VNC, initiated June 22, 1993, was reviewed and discussed with cognizant licensee representatives. The inspector noted that the CA adequately included evaluations and reviews of handling concepts, criticality safety, equipment to be used, training of personnel, personnel exposures, waste disposal, material accountability, environmental effects, unreviewed safety questions, changes to the license, and risk analysis. The licensee determined that the handling of the full-length fuel rods did not constitute a change to the existing license or problems that reduced the safety of existing operations. Due to the size and weight of the fuel cask (about 46,000 pounds with contents), an air pallet system will be used to move the cask horizontally within the Building 102 complex. One of the major modifications involved the fabrication of a temporary shielding wall that replicated the existing outer door of Hot Cell No. 3 where the fuel will be examined. The shielding wall was designed with a horizontal

pass-through port where the fuel shipping cask (Nuclear Assurance Corporation, Model NLI-1/2 cask) will be placed to off-load the fuel rods. During the inspection, the inspector observed portions of mockup training with new equipment and the licensee's handling (dry run) of the NLI-1/2 cask (empty) that will be used for transporting the irradiated fuel from a reactor site to VNC. The inspector also noted that a Nuclear Assurance Corporation representative was present to provide advice on handling of the cask. These operations were being performed to assure that operating personnel were properly trained on handling of the cask and to evaluate the adequacy of operating procedures prior to receiving the cask loaded with full-length fuel rods. The inspector Jid not identify any deficiencies that represented a criticality safety or radiological safety concern.

Other changes observed during the inspection were the fabrication of (1) a HEPA filtered exhausted building that enclosed the SNM storage bunker at the Hillside Storage Facility, (2) a new building for the Liquid Waste Evaporator Plant, and (3) a new hazardous materials storage facility (Building 107). These facilities were considered as enhancement to the licensee's radiological and/or industrial safety programs. The inspector discussed the licensee's need to update the general information section of their licensee to reflect these new facilities. The inspector's observation was acknowledged by the licensee.

The licensee's performance appeared adequate and their program appeared capable of accomplishing its safety objectives. No violations or deviations were identified.

5. Operator Training

The inspector noted that there were no changes in the licensee's training program since the last inspection of this area. The licensee's training program was consistent with the requirements of 10 CFR 19.12 and Appendix A of the License. In addition to the licensee's formal training programs, the Building 102 Remote Handling Operations (RHO) manager continues to schedule monthly safety/training meetings that covers various aspects of radiological and criticality safety, non-radioactive hazardous materials safety, radioactive waste and transportation requirements, and industrial safety. The monthly meetings were conducted by personnel knowledgeable of the subject being covered and were followed by examinations of the subject covered. The inspector also noted that due to the up-coming operations involving the handling of full-length fuel rods, the RHO manager had scheduled additional criticality safety training for July 1993.

During observations of work activity and from discussions with operating personnel, the inspector did not observe any activities being performed by ungualified personnel.

The licensee's performance appeared adequate and their programs appeared capable of accomplishing their safety objectives. No violations or deviations were identified.

Maintenance/Surveillance Testing (88025)

This area was reviewed to determine the licensee's compliance with the requirements of the License Conditions, licensee procedures and to verify that activities were being conducted to ensure the safety of the general public and facility workers.

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, and (4) daily Building 102 safety equipment checks. No concerns were identified.

The licensee's performance appeared adequate and their program appeared capable of accomplishing its safety objectives. No violations or deviations were identified.

7. Transportation (86740)

The review of this area was confined to activities related to the licensee's use of the Nuclear Assurance Corporation, Model NLI-1/2, fuel shipping cask.

Although the cask was shipped as an empty container, on July 16, 1993, the inspector observed that the licensee performed the receipt survey in accordance with the requirements of 10 CFR 20.205(b)(1). The inspector also noted that the licensee maintained a current copy of the applicable Certificate of Compliance (No. 9010) issued by the NRC, and a copy of the vendors operating and maintenance procedures for the respective package. Adequate instructions and training were provided to personnel handling the package.

Regarding the receipt survey, the inspector noted that the wipe tests on the cask indicated removable contamination levels that averaged about 3,000 disintegrations per 100 square centimeters (dpm/100 cm²) beta-gamma activity, which was less than the Department of Transportation limit of 22,000 dpm/100 cm². The licensee's analysis indicated that the removable contamination was Cs-137. The cause of the contamination was attributed to a known generic problem associated with leaching of fixed contamination from the metal jacket of such containers. The licensee's surveys did not detect any removable contamination on the transport trailer or personnel barrier that covers the cask during transport.

No violations or deviations were identified.

8. Exit Interview (30703)

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The inspector met with the licensee representatives, denoted in Section 1, at the conclusion of the inspection on July 12, 1993. The scope and findings of the inspection were summarized.

The licensee was informed that no violations or deviations were identified.