

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-754/93-04

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: December 14-15 and 20, 1993

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

12/23/93
Date Signed

Approved by: James H. Reese
James H. Reese, Chief
Facilities Radiological Protection Branch

12/23/93
Date Signed

Summary:

Areas Inspected: This was a routine unannounced inspection of radiation protection, radioactive waste management, environmental protection, transportation, and waste generator requirements. The inspection also included tours of the licensee's facilities. Inspection procedures 30703, 83822, 88035, 88045, 86740, and 84850 were addressed.

Results: 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.

DETAILS

1. Persons Contacted

Licensee:

- G. L. Stimmel, Manager, Irradiation Processing Operation (IPO)
- J. H. Cherb, Manager, Nuclear Safety
- *T. Tillinghast, Sales Specialist (Acting Manager, IPO)
- J. I. Tenorio, Manager, Remote Handling Operations
- B. M. Murray, Nuclear Safety Engineer
- R. F. Begley, Supervisor, Remote Handling
- *A. F. Mindt, Specialist, Radiation Monitoring (Acting Manager, Nuclear Safety)

*Denotes those attending the exit interview on December 20, 1993.

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

2. Radiation Protection (83822)

The licensee's radiation protection program was reviewed for compliance with the requirements of 10 CFR Parts 19 and 20, License Conditions, licensee procedures, recommendations outlined in various industry standards and to verify that operations were being conducted to ensure the safety of the general public and facility workers.

There are no SNM liquid or metal process systems at the licensee's facility. 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, testing and analysis of low-enriched uranium (LEU) BWR fuel elements in the Building 102 hot cell facility. During the past year, the licensee had received three shipments of irradiated LEU fuel. Each shipment consisted of about 300 grams of SNM. About 90 percent of ongoing site activities involve the use of radioactive materials licensed by the State.

The inspector reviewed the licensee's readiness for implementing the new 10 CFR Part 20 requirements. Based on discussions with cognizant personnel and a review of selected licensee procedures, the inspector concluded that the licensee appeared to be adequately prepared to implement the new Part 20 requirements effective on January 1, 1994.

a. External Exposure Control

Vendor reports of exchanged monthly film badges and quarterly thermoluminescent dosimeters from January 1 through October 31, 1993 were reviewed. The inspector noted that personnel exposures continue to be primarily from activities associated with use of State licensed material. The inspector verified that form NRC-5 or equivalent for each individual were maintained in accordance with

NRC requirements. Letters documenting exposures pursuant to 10 CFR 19.13 had been prepared and sent to terminated individuals. Of the exposures reviewed, the inspector noted that no individual had exceeded the 10 CFR 20.101(a) quarterly limit of 1.25 rem. The highest quarterly exposures were of personnel associated with the licensee's hot cell activities.

b. Internal Exposure Control

Since site activities no longer involve the use of significant levels of loose uranium compounds, the licensee has discontinued its urine sampling program for uranium.

The inspector examined whole body counts (WBCs) of several selected individuals who were involved with irradiated fuel examination activities from January 1 through December 15, 1993. Dependent on each individual's work activities, WBCs were conducted either every four months or every two months. The WBC data indicated that no intakes of radionuclides associated with irradiated fuel.

Selected weekly air sampling data from Building 103 (Metallurgy and Chemistry), Building 102 (Remote handling Operations) and Building 349 (Waste Evaporator Plant) were reviewed. The air sample data indicated that airborne radioactivity was being maintained well below the limits of 10 CFR Part 20, Appendix B, Table I, Column 1 limits. Air samples were analyzed in the Building 103 analytical chemistry counting laboratory via an automatic alpha/beta counting system, which was calibrated monthly with National Institute of Standard and Technology (NIST) traceable standards. Daily source checks were recorded and reviewed to evaluate the performance of the counting system.

The inspector reviewed records of semiannual air sample flow calibrations performed during the past year. The calibrations were performed using a rotameter that had been calibrated with a standard traceable to the NIST. During facility tours, the inspector noted that the location and number of fixed air stations appeared adequate.

c. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

During facility tours, the inspector observed that personnel survey instruments were conveniently located at exits from contaminated areas. All survey instruments were noted to be operational and currently calibrated. The inspector reviewed selected routine and non-routine survey records for Buildings 102, 103 and 349. Contamination levels in the normally contaminated areas appeared to be maintained ALARA, and normally clean areas were being maintained free of contamination. The contamination level in the Building 102 hot cell interlocks and inner access corridor continue to be maintained at a level to where alpha contaminated was not routinely

detected. The licensee performs monthly beta/alpha ratio contamination evaluations in selected areas of Building 102 to monitor their control of loose SNM from irradiated fuel examination activities.

Selected radiation work permits (RWP) for routine and non-routine work activities were reviewed. The inspector noted that the RWPs provided adequate instructions to workers and each worker had signed his/her acknowledgement form, indicating an understanding of the requirements of the RWP. The inspector did not observe any task that was not being performed in accordance with the requirements and controls specified on the workers RWP.

Records of semiannual hood flow measurements for the past year were reviewed. The hood flow measurements indicated that the average flow rates at hood faces were being maintained equal to or greater than 125 lineal feet per minute. Exhaust filters were changed or other maintenance performed to correct the problem on hoods that failed the flow tests.

The inspector noted that radiation and high radiation areas, and radioactive materials areas were posted and controlled as required by 10 CFR Part 20. Special status signs were present to warn personnel of the radiation levels in areas where elevated radiation levels existed. Housekeeping appeared adequate in the areas toured.

The licensee's performance in this area appeared fully satisfactory and their program appeared fully capable of meeting their safety objectives. The control of airborne radioactivity and loose contamination in the controlled zones appeared good. No violations or deviations were identified.

3. Radioactive Waste Management (88035)

The inspector reviewed the licensee's program for compliance with 10 CFR Part 20, license requirements and recommendations outlined in various industry standards.

The inspector noted that there had been no changes in the licensee's processing of radioactive liquid waste generated on-site. Radioactive liquids are either solidified or processed at the Building 349 Waste Evaporator facility (WEP). Radioactive liquid waste processed at the WEP is held up in a monitor tank and eventually evaporated to the atmosphere through a fossil fuel fired boiler. The monitor tank was sampled prior to processing to ensure that radioactive releases via this pathway would not exceed the limits specified in 10 CFR Part 20, Appendix B, Table II. Potable grade pass cooling water used for the waste evaporator condenser is discharged to the retention basins.

The inspector noted that the licensee had not made any changes relative to liquid effluent discharges from the site retention basins. Water from the basins (Nos. 2-4) which collect non-contact (with radioactive

material systems) industrial waste water is either pumped to a small on-site lake (Lake Lee) which is a water source for local wildlife or discharged to an off-site creek (Vallecitos Creek) as authorized by a State permit (NPDES No. CA0006246).

The licensee continues to maintain one dedicated retention basin (No.1) for the collection of treated non-radioactive sanitary waste, which is sample analyzed prior to being sprinkled on the licensee's property to ensure no radioactive materials are present. A review of basin grab sample results from January 1 through December 15, 1993, indicated that no measurable radioactivity had been detected. Monthly composite samples of basin discharges indicated that there was essentially no difference between natural activity detected in the receiving water and the licensee's discharges.

Selected records of weekly stack gaseous effluent sampling data since the previous inspection were reviewed. The inspector noted that releases were well below the limits specified in 10 CFR Part 20, Appendix B, Table II. Records of licensee tests and controls for assuring the quality of counting equipment data were discussed in Section 2.b above.

The licensee had not made any SNM solid waste shipments since the last inspection of this area. Shipments of solid waste consisted of State licensed material.

The licensee's performance in this area appeared fully satisfactory and their program seemed fully capable of meeting their safety objectives. No violations or deviations were identified.

4. Environmental Protection (88045)

In addition to the observations made in Section 3 above, the licensee's Effluent Monitoring and Environmental Annual Summary Report for 1992 was reviewed. This report was issued in accordance with Condition No. 14 of the License and included a summary of the radioactive and non-radioactive releases from the site. The report also included measurements of radioactive and non-radioactive constituents from neighboring streams, wells, soils and vegetation. Sample analytical results were noted to be less than or slightly above detection limits. The data presented in the report indicated that there had been no negative impact on the environment. No errors or anomalies were noted in the measurement data provided in the report.

No violations or deviations were identified.

5. Waste Generator Requirements (84850)

Radioactive waste shipments primarily involve byproduct material under the jurisdiction of the State of California. The licensee had not shipped any SNM or high level waste from the hot cells since the last inspection of this area.

There had been no major changes in the licensee's program since the last inspection in this area. The Manager, Remote Handling Operations continues to be the primary person responsible for radioactive waste processing and transportation activities at the facility. All of the radioactive solid and liquid wastes generated on-site are transferred to RHO facilities for inspection and processing. Solid waste is processed in Building 102 and liquid waste, via a transport tank, at the WEP. The licensee had made five low-level compactable waste shipments to a contract vendor for super-compaction and subsequent burial at the Barnwell, South Carolina waste disposal facility. According to the licensee after June of 1993, the Barnwell site will no longer accept waste outside of its compact. Since there is no approved radioactive waste disposal facility for the Southwest Compact, the licensee will be developing contingency plans to store its waste onsite.

Based on the review of licensee procedures and discussions with the RHO manager, no concerns were identified in the licensee's ability (1) to classify waste pursuant to 10 CFR 61.55, (2) to ensure that waste met the characteristics of 10 CFR 61.56; and (3) that prepared waste manifest, marking of packages, and waste handling would not be in accordance with the requirements delineated in 10 CFR 20.311.

No violations or deviations were identified.

6. Transportation (86740)

The licensee had not made any shipments of SNM since the last inspection of this area, the licensee had received 3 shipments of full length irradiated BWR fuel that contained a nominal 300 grams of SNM per shipment. The inspector observed that the receipt surveys for these incoming shipments were performed 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. Since the internal residual contamination in the cask was byproduct material, the return of the empty fuel shipping cask was performed under the licensee's State license.

Inspection Report No. 70-754/93-02 describes activities related to the licensee's use of the Nuclear Assurance Corporation, Model NLI-1/2, fuel shipping cask. The report also described a surface contamination problem attributed to a known generic problem (weeping casks) with leaching of fixed contamination from the metal jacket of such containers. On two occasions when GE shipped the empty fuel cask, higher than expected contamination levels, but within the limits specified in 49 CFR 173.443, were detected at the receipt station. To reduce the weeping problem, the GE Morris, Illinois facility electro-polished the exterior surface of the NLI-1/2 shipping cask. Survey data from subsequent shipments of the cask have indicated that the electro-polishing had greatly reduced the weeping problem.

No violations or deviations were identified.

7. Exit Interview (30703)

The scope and results of the inspection were summarized with the licensee representatives denoted in Section I on December 20, 1993, at the conclusion of the onsite inspection.

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