



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

October 26, 2009

Mr. David W. Turner
Manager, Vallecitos Nuclear Center
GE-Hitachi Nuclear Energy
6705 Vallecitos Road
Sunol, California 94586

SUBJECT: NRC INSPECTION REPORT 050-00018/09-001; 050-00070/09-001;
050-00183/09-001

Dear Mr. Turner:

This refers to the inspection conducted on September 14-17, 2009, at GE-Hitachi Nuclear Energy's site located in Sunol, California. This inspection was an examination of activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The preliminary inspection results were presented to you at the conclusion of the onsite inspection. The final inspection results were telephonically presented to Donald Krause, Manager, Regulatory Compliance and EHS, on October 19, 2009. The enclosed report presents the results of this inspection. No violations were identified, and no response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Robert Evans, Senior Health Physicist, at (817) 860-8234 or the undersigned at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Chief
Nuclear Materials Safety Branch B

Docket Numbers: 050-00018/09-001; 050-00070/09-001; and 050-00183/09-001
License Numbers: DPR-1; TR-1; and DR-10

Enclosure:

NRC Inspection Report 050-00018/09-001; 050-00070/09-001; and 050-00183/09-001

cc w/enclosure:

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RIV:DNMS:NMSB-B	C:NMSB-B			
RJEvans	JEWhitten			
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket Numbers: 050-00018; 050-00070; and 050-00183
License Numbers: DPR-1; TR-1; and DR-10
Report Number: 050-00018/09-001; 050-00070/09-001; and 050-00183/09-001
Licensee: GE-Hitachi Nuclear Energy
Facility: Vallecitos Nuclear Center
Location: Sunol, California
Dates: September 14-17, 2009
Inspector: Robert Evans, PE, CHP, Senior Health Physicist
Nuclear Materials Safety Branch B
Approved By: Jack E. Whitten, Chief
Nuclear Materials Safety Branch B
Attachment: Supplemental Inspection Information

ENCLOSURE

EXECUTIVE SUMMARY

GE-Hitachi Nuclear Energy
NRC Inspection Report 050-00018/09-001; 050-00070/09-001; and 050-00183/09-001

This inspection was a routine, announced inspection of licensed activities being conducted at the Vallecitos Nuclear Center. In summary, the licensee was conducting site activities in accordance with procedure, license, and regulatory requirements.

Site Status

- During the inspection, the three reactors continued to remain permanently shut down with no decommissioning activities in progress. Limited decommissioning work had been completed at the Vallecitos Boiling Water Reactor. Decommissioning work had been started but was temporarily suspended at the Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor (EVESR). Finally, the licensee plans to conduct limited decommissioning work at the GE Test Reactor during early 2010.

Decommissioning Performance and Status Review

- The licensee conducted the routine and annual inspections in accordance with license and procedure requirements. The licensee continued to conduct radiological surveys inside the three buildings, and the sample results were comparable to the previous year's sample results (Section 1.2.a).
- The licensee monitored workers who conducted decommissioning work in the EVESR for exposures to radiation. Occupational exposures were well below the regulatory limit (Section 1.2.b).
- The inspector conducted site tours of the three containment buildings. The licensee maintained the buildings in accordance with procedure, license, and regulatory requirements (Section 1.2.c).
- The licensee previously notified the NRC about a potential violation that occurred, involving work in the EVESR. The licensee apparently commenced with decommissioning work in the EVESR in an area that was not allowed by the license. The licensee subsequently retracted the notification. The inspector, in consultation with the headquarters project manager, agreed that the incident was not a violation of the EVESR license (Section 1.2.d).
- The licensee experienced a polar crane failure in the EVESR. The event was not reportable because it did not involve nuclear safety (Section 1.2.e).

REPORT DETAILS

Summary of Plant Status

At the time of the inspection, the three reactors continued to be permanently shutdown with no decommissioning work in progress. The licensee recently completed limited decommissioning work at one of three reactors. Decommissioning work had been temporarily suspended on a second reactor. The licensee plans to commence limited decommissioning work on the third reactor during early 2010. Most of the onsite work involved State of California licensed activities and U.S. Department of Energy sponsored decommissioning work.

The Vallecitos Boiling Water Reactor (VBWR) achieved full power operations during 1957 but was permanently shut down during 1963. The licensee commenced with risk reduction work during late-October 2007 to remove all ancillary equipment from the VBWR containment. The licensee dismantled all systems and components with the exceptions of the reactor pressure vessel, polar crane, biological shield, and fuel pool. All radioactive wastes were packaged and shipped for disposal. This risk reduction work was completed by November 2008, although additional lead abatement work may still occur in the near future. Further work on the VBWR, such as removal of the reactor pressure vessel, will require prior NRC approval.

The Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor (EVESR) achieved full power operations during 1964 but was permanently shut down during 1967. Some cleanup work was conducted during 2008, but the work was suspended pending a license amendment to allow work to commence below the 549-foot elevation floor within containment. The NRC subsequently amended the license on December 1, 2008, which allowed work to commence within containment below the 549-foot elevation.

At the time of this inspection, the EVESR was being decommissioned in phases, although no work was in progress during the inspection period. The first phase included removal of the loose material remaining from previous remediation efforts. This work was approved during late-March 2009 and was complete by July 2009. The second phase consisted of the removal of 32 mercury switches and associated transmitters. This work was approved during late-April 2009 and was completed during July 2009. The mercury switches and associated transmitters were shipped in four drums as mixed waste to a licensed disposal facility in Utah.

The third phase of EVESR work included removal of auxiliary systems and equipment not connected to the reactor pressure vessel. This work was initiated during May 2009. At the time of this inspection, this work was roughly one-third complete. The radioactive wastes were being consolidated for shipment to a disposal site in Utah. The work was suspended during August 2009 because of an industrial event that occurred inside of containment (the event is described below) and to allow the licensee's decommissioning contractors to conduct other work onsite.

Finally, the GE Test Reactor (GETR) was in standby awaiting commencement of risk reduction work. The licensee may commence with limited decommissioning of the GETR during early 2010, after the risk reduction work has been completed in the EVESR.

There were two staff changes since the last inspection. The licensee replaced the manager, regulatory compliance and environmental health & safety (EHS). Also, the facility maintenance manager vacated this position. During the onsite inspection, the facilities maintenance manager position was being temporarily filled by Vallecitos Nuclear Center site manager.

1 **Decommissioning Performance and Status Review (36801, 37801, 40801, 62801, 71801, 83750, 84750, 86750)**

1.1 Inspection Scope

The inspector reviewed the licensee's control and oversight of decommissioning activities.

1.2 Observations and Findings

a. License Compliance Review

The licensee conducted routine inspections of the three shutdown reactors as required by the three licenses. The instructions for these inspections are provided in Facilities Maintenance Procedure 6.2, "EVESR/VBWR/GETR Surveillance Procedures." The procedure stipulates that weekly inspections be conducted to observe attributes such as groundwater sump levels, door locks, electrical circuit breaker positions, and fence conditions.

The annual inspections of the three reactors were conducted during December 2008. The inspections included measurements of ambient gamma exposure rates, airborne beta-gamma concentrations, and removable beta-gamma contamination levels. The licensee conducted an additional inspection of the VBWR during March 2009, after completion of equipment removal activities.

As required by the three licenses, the licensee submitted annual reports for each reactor to the NRC. The most recent annual reports were submitted to the NRC on March 31, 2009. The annual reports documented the radiological conditions identified in each of the three containment buildings. The sample results for 2008 were comparable to the results obtained during 2007.

The VBWR containment building consists of two main areas, the main floor and the basement floor. The highest exposure rate, 5 millirems per hour, was identified in the VBWR basement sump area by the licensee. Some removable contamination was identified by the licensee to exist on the basement floor, although this area was not easily accessible to site personnel. Access to this area requires the use of a radiation work permit which would specify personnel protection requirements. Air sample results taken by the licensee were consistently low in this building.

The general areas within the EVESR were measured at less than about 1.5 millirems per hour. The inspector conducted independent gamma exposure rate measurements during the inspection using an NRC-issued Ludlum Model 2401-P survey meter (NRC number 21189G, calibration due date December 18, 2009). The inspector's survey results during the site tour were consistent with the licensee's survey results. Some removable contamination was identified by the licensee to exist on the 519-foot elevation floor level. As noted earlier, risk reduction activities commenced in the EVESR during 2009; therefore, work controls were previously established to protect decommissioning workers from exposure to radioactive material. Air sample results, collected at the time of the licensee's annual inspection, were considered to be low.

The highest gamma radiation exposure rate in the GETR was 40 millirems, measured by the licensee on the second floor of the reactor enclosure. The inspector conducted independent surveys during the site tour, and the inspector's survey results were consistent with the licensee's survey results. Contamination was identified in selected areas, primarily in the building basement. Air sample results taken by the licensee were comparable to background levels.

b. Occupational Exposures

The inspector reviewed the licensee's exposure records for 2008-2009 to ensure that no individual had exceeded the regulatory limits specified in 10 CFR 20.1201. The licensee provided the inspector with occupational doses to workers assigned to EVESR risk reduction work. During the first eight months of 2009, five workers were assigned to the EVESR. The doses they received ranged from 9 to 27 millirems with a regulatory limit of 5,000 millirems. In summary, occupational exposures for 2009 were less than the regulatory limits for all workers assigned to the EVESR.

The licensee also conducted whole body counting and bioassay sampling to further monitor workers for intakes of radioactive material. The licensee's records indicate that no measurable internal dose was assigned to individuals based on whole body counting and bioassay sampling results. The inspector confirmed this finding through a records review and interviews with site personnel.

c. Site Tours

The inspector toured the three reactor containment buildings. The VBWR remained in safe storage. Maintenance Procedure 6.2 requires routine checks of the VBWR reactor vessel water level using a rotometer located outside of the containment building. The VBWR contains water, in part, for radiation shielding. The water level, as indicated on the rotometer, was observed during the inspector's tour of the VBWR. The VBWR water level continues to remain relatively constant.

The EVESR was also toured by the inspector. Equipment removal work was being conducted in the EVESR, although the work was suspended during the inspection period. Finally, the inspector toured the GETR. Little decommissioning work had been performed in this facility. As noted earlier, the licensee plans to commence with risk reduction activities in the GETR during early 2010.

In summary, no unsafe condition was identified, postings were adequate, and radiation levels measured by the inspector were comparable to the results documented in the licensee's annual reports. The licensee maintained these three buildings in accordance with procedure, license, and regulatory requirements.

d. Retraction of Notification of Potential Violation

By letter dated September 26, 2008, the licensee notified the NRC of a potential violation of EVESR Technical Specifications requirements. On September 15, 2008, the licensee commenced with work below the 549-foot elevation in the EVESR without prior NRC approval, a potential violation of the license. The licensee suspended work and notified the NRC of the potential violation. The licensee subsequently submitted a license

amendment request to remove this work limitation from Technical Specifications. The NRC approved the proposed change by license amendment dated December 1, 2008.

During this inspection, the inspector discussed this potential violation with licensee management. The licensee explained that the incident was the result of a miscommunication between the site staff and the NRC's project manager. By internal memorandum dated September 17, 2009, the licensee documented its reasons for retracting the September 26, 2008, notification of a potential violation. The licensee concluded that the work conducted on September 15, 2008, was authorized under the license. Since it was later determined that the work was, in fact, allowed under the license at that time, the event that was originally reported to NRC was determined by NRC not a violation of the license. Before the inspection, the inspector had discussed this issue with the NRC project manager, and both agreed that the event was not a violation of the NRC license.

e. Polar Crane Failure

The inspector conducted a follow-up review of an industrial incident that occurred at the EVESR. On August 5, 2009, the licensee's contractor was using the polar crane within the reactor building when the crane experienced a gearbox failure. A component failed in the gearbox which allowed the crane to drop its 1.5-ton load. The load fell from a midpoint in the building to the basement, a distance of approximately 50 feet. No one was injured as a result of the load drop.

The licensee conducted a root cause evaluation of the event. The cause of the crane failure was attributed to the failure of the interplanetary gears which are connected to the output shaft of the gearbox. Because the crane was not designed as a single-failure proof crane, the load was dropped when the gears failed. The crane was not required to have a secondary braking system. The failure was not attributed to the weight of the load (1.5 tons) because the crane had previously been certified to lift a 25-ton load.

The licensee determined that the incident was not reportable because it was not related to nuclear safety. The event was classified as an industrial incident. The NRC inspector, in consultation with Region IV enforcement staff, determined that the event was not reportable because it did not involve nuclear safety.

1.3 Conclusions

The licensee conducted the routine and annual inspections in accordance with license and procedure requirements. The licensee continued to conduct radiological surveys inside the three buildings, and the sample results were comparable to the previous year's sample results.

The licensee monitored workers who conducted decommissioning work in the EVESR for exposures to radiation. Occupational exposures were well below the regulatory limit.

The inspector conducted site tours of the three containment buildings. The licensee maintained the buildings in accordance with procedure, license, and regulatory requirements.

The licensee previously notified the NRC about a potential violation that occurred, involving work in the EVESR. The licensee apparently commenced with decommissioning work in the EVESR in an area that was not allowed by the license. The licensee subsequently retracted the notification. The inspector, in consultation with the headquarters project manager, agreed that the incident was not a violation of the EVESR license.

The licensee experienced a polar crane failure in the EVESR. The event was not reportable because it did not involve nuclear safety.

2 Exit Meeting Summary

The inspector presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 17, 2009. Representatives of the licensee acknowledged the findings as presented. The inspector telephonically presented the final inspection results to the Manager, Regulatory Compliance and EHS, on October 19, 2009. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

J. Ayala, Specialist, Radiation Monitoring
C. Hill, Supervisor, Materials Laboratory Operation
D. Krause, Manager, Regulatory Compliance and EHS
D. Turner, Manager, Vallecitos Nuclear Center

INSPECTION PROCEDURES USED

36801 Organization, Management, and Cost Controls at Permanently Shutdown Reactors
37801 Safety Reviews, Design Changes, and Modifications at Permanently Shutdown Reactors
40801 Self Assessment, Auditing, and Corrective Action at Permanently Shutdown Reactors
62801 Maintenance and Surveillance at Permanently Shutdown Reactors
71801 Decommissioning Performance and Status Review at Permanently Shutdown Reactors
83750 Occupational Radiation Exposure
84750 Radioactive Waste Treatment, and Effluent and Environmental Monitoring
86750 Solid Radioactive Waste Management and Transportation of Radioactive Materials

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

CFR	Code of Federal Regulations
EVESR	Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor
GETR	General Electric Test Reactor
NRC	Nuclear Regulatory Commission
VBWR	Vallecitos Boiling Water Reactor