UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

October 09, 2012

Mr. Anthony McFadden
Manager, Vallecitos Nuclear Center
GE-Hitachi Nuclear Energy
6705 Vallecitos Road
Sunol, CA 94586

SUBJECT: NRC INSPECTION REPORT 050-00018/12-008; 050-00070/12-001; 050-00183/12-001

Dear Mr. McFadden:

This letter refers to the inspection conducted on September 24-27, 2012, at your Vallecitos Nuclear Center in Sunol, California. During this inspection, the NRC staff examined activities conducted under your licenses as they relate to public health and safety to confirm 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 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 Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, 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 817-200-1234 or the undersigned at 817-200-1191.

Sincerely,

/RA/

D. Blair Spitzberg, PhD, Chief
Repository and Spent Fuel Safety Branch

Dockets: 050-00018/12-008;
050-00070/12-001; and 050-00183/12-001

Licenses: DPR-1; TR-1; and DR-10

Enclosure:
NRC Inspection Report 050-00018/12-008;
050-00070/12-001; and 050-00183/12-001

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Final - R:_DNMS\!2012\GE-Hitachi RTR IR 12-001 ADAMS ML

ADAMS	☐ No	■ Yes	☐ SUNSI Review Complete	Reviewer Initials: RJE
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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	050-00018; 050-00070; and 050-00183
Licenses:	DPR-1; TR-1; and DR-10
Report:	050-00018/12-008; 050-00070/12-001; and 050-00183/12-001
Licensee:	GE-Hitachi Nuclear Energy
Facility:	Vallecitos Nuclear Center
Location:	Sunol, California
Dates:	September 24-27, 2012
Inspectors:	Robert Evans, PE, CHP, Senior Health Physicist Repository and Spent Fuel Safety Branch
	Gerald Schlapper, PhD, CHP, Health Physicist Repository and Spent Fuel Safety Branch
Accompanied By:	D. Blair Spitzberg, PhD, Chief Repository and Spent Fuel Safety Branch
Approved By:	D. Blair Spitzberg, PhD, Chief Repository and Spent Fuel Safety Branch
Attachment:	Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

GE-Hitachi Nuclear Energy
NRC Inspection Report 050-00018/12-008; 050-00070/12-001; and 050-00183/12-001

This inspection was a routine, announced inspection of licensed activities being conducted at the three permanently defueled reactors at the Vallecitos Nuclear Center. Within the scope of this inspection, the licensee was conducting activities in accordance with regulatory, license, and procedure requirements.

Site Status

- During the inspection, the three reactors continued to remain permanently shut down and defueled. Risk reduction work was completed at the Vallecitos Boiling Water Reactor from 2007-2008. Risk reduction work was completed at the Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor from 2008-2011. The licensee plans to conduct risk reduction work at the GE Test Reactor in 2013.

Decommissioning Performance and Status Review

- The licensee conducted the annual inspections of the three reactors in accordance with license and procedure requirements. The licensee continued to conduct annual radiological surveys inside of the three containment structures, and the sample results were comparable to the previous year's sample results (Section 1.2.a).

- The licensee monitored workers who conducted risk reduction work for their exposures to radiation. These occupational exposures were well below the regulatory limit during the period reviewed (Section 1.2.b).

- The licensee monitored radioactive effluents as required, and public doses from these effluents were well below the regulatory limits (Section 1.2.c).

- The inspectors conducted tours of the three containment buildings and concluded that the licensee was maintaining the shutdown reactors in accordance with procedure requirements (Section 1.2.d).

- Since the previous inspection, the licensee had not shipped any radioactive material; therefore, the transportation program area was not inspected (Section 1.2.e).

- The licensee conducted training for site workers in accordance with license and regulatory requirements (Section 1.2.f).

- The licensee established and implemented an emergency response program in accordance with procedure requirements (Section 1.2.g).

REPORT DETAILS

Summary of Plant Status

At the time of the inspection, the three reactors continued to be permanently shut down and defueled. In recent years, the licensee conducted risk reduction work at two of three reactors. Risk reduction work consists of removal and disposal of contaminated equipment from around and within the containment buildings, as allowed by the three licenses. The licensee plans to commence with risk reduction work at the third reactor in 2013.

The Vallecitos Boiling Water Reactor (VBWR) achieved full power operations in 1957 but was permanently shut down in 1963. The licensee commenced with risk reduction work in 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. The licensee packaged and shipped all radioactive wastes for disposal at an out-of-state disposal facility. This risk reduction work was completed in November 2008. At the time of this inspection, the licensee was considering its options for conducting additional risk reduction work at the VBWR. This additional work may include removal and disposal of non-structural lead bricks and high-density concrete blocks from containment.

The Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor (EVESR) achieved full power operations in 1964 but was permanently shut down in 1967. Some cleanup activities were conducted in 2008, but the work was suspended pending NRC approval of a license amendment to allow risk reduction work to be conducted below the 549-foot elevation level within containment. The NRC subsequently amended the license on December 1, 2008.

Risk reduction work within EVESR recommenced in March 2009. In August 2009, a gear in the polar crane gear box failed, resulting in the loss of the main hoist. The licensee was unable to repair the gear box. Risk reduction work within the EVESR was completed in early 2011. However, the removal of the heavier components, including the dump tank, was deferred until a later date.

Finally, the GE Test Reactor (GETR) was in standby during the inspection. The licensee may commence with risk reduction work at the GETR in early 2013. This work is expected to take about 9 months to complete. Before this work can commence, certain activities must be completed, including development of the various work plans, assignment of the project management team, recertification of the elevator, recertification of the overhead crane, refurbishment of the building ventilation system, and coordination for removal of the building electrical distribution systems.

The licensee implemented two staff changes since the last inspection. The first change involved the site manager. The former Vallecitos Nuclear Center site manager left the facility in June 2011. The licensee refilled the position in September 2011. The licensee notified the NRC of this management reassignment by letter dated October 19, 2011.

The second change included reassignment of a new individual to the position of Manager, Regulatory Compliance & Environmental Health and Safety. The former staff member in this position assumed the position of Project Manager. (The project managers report to the Manager, Regulatory Compliance & Environmental Health and Safety.) At the time of this

inspection, the organizational structure listed three project manager positions. The licensee was in the process of hiring a third project manager and was trying to decide which work assignments would be assigned to each of the three project managers.

1 Decommissioning Performance and Status Review

1.1 Inspection Scope

The inspectors reviewed the licensee's control and oversight of the three shutdown reactors.

1.2 Observations and Findings

a. Routine Inspections and Audits

Each of the three licenses requires the licensee to conduct routine inspections of the respective facilities. The licenses also require radiological surveys to be conducted. The instructions for these inspections are provided in facilities maintenance procedures. Procedure 6.2, Revision 5, EVESR/VBWR/GETR Surveillance Procedures, stipulates that weekly inspections be conducted to observe attributes such as groundwater sump levels, door locks, electrical circuit breaker positions, and fence conditions. The procedure also describes the annual inspection and radiological survey requirements. In addition, Procedure 6.1, Revision 8, Access Control, provides the step-by-step instructions for conducting the entries into the three facilities.

The licensee's staff conducted the most recent annual inspections in December 2011. The inspections included measurements of ambient gamma exposure rates, airborne beta-gamma concentrations, and removable beta-gamma contamination levels. As required by the three licenses, the licensee submitted annual reports for each reactor to the NRC. The most recent annual reports were submitted in March 2012.

The annual reports documented the radiological conditions identified in each of the three containment buildings. The exposure rate and contamination level sample results for calendar year 2011 were comparable to the results obtained in 2010. No air sample result exceeded the licensee's action level. Slightly elevated removable contamination levels were identified in the EVESR, but these increases were attributed to recent risk reduction work activities within the EVESR. The inspectors identified several typographical errors in the licensee's reported radiological data, and the licensee indicated its intent to review and correct the errors as necessary.

Regulation 10 CFR 20.1101(c) requires that licensees review radiation program content and implementation at least annually. The inspectors reviewed the licensee's annual radiation program audit report, conducted during mid-2011, and discussed the contents of the audit with licensee representatives. The report covered all licensed activities, including activities conducted at the shutdown reactors. Subject areas discussed in the report included site-wide occupational exposures for 2011 and As Low As Reasonably Achievable (ALARA) goals for 2012. The licensee is required to complete the next routine annual audit by the end of 2012.

b. Occupational Exposures

The inspectors reviewed the licensee's exposure records for 2011 to ensure that no individual exceeded the regulatory limits specified in 10 CFR 20.1201. The licensee provided the inspectors with records of occupational doses to workers assigned to conduct EVESR risk reduction work. Contractors conducted the work on behalf of the licensee; therefore, the inspectors reviewed the occupational doses of all contract workers for calendar year 2011.

Based on the licensee's occupational exposure records, 24 contract workers were monitored in 2011. The highest total effective dose equivalent for any worker was 529 millirem, with a regulatory limit of 5000 millirem. This dose was assigned to a field supervisor. The total exposure for all contract workers was 2.9 man-rem, with an ALARA goal of 3.0 man-rem. All dose assignments consisted of external exposures, and no individual was assigned an internal exposure. The absence of internal doses was based on the results of in-vivo bioassay samples. In summary, occupational doses for EVESR risk reduction work were well below the 5000 millirem total effective dose equivalent exposure limit specified in 10 CFR 20.1201.

c. Public Dose Assessment

The licensee is required to monitor offsite releases and the resultant public doses. The licensee conducted environmental and effluent monitoring and documented the results of this monitoring in an annual report. The sampling results for 2011 were submitted to the NRC by letter dated February 29, 2012. The inspectors reviewed this report and compared the results to the regulatory limits.

Regulation 10 CFR 20.1101(d) provides a constraint on air emissions for individual members of the public of 10 millirem per year from these emissions. Using the COMPLY computer code, the licensee calculated an annual dose at the property line. For 2011, this calculated dose was 1.1 millirem from all emissions. This calculated value was in compliance with the 10 millirem constraint rule.

Regulation 10 CFR 20.1301 provides the dose limits for individual members of the public. This regulation specifies that the total effective dose equivalent to individual members of the public from licensed operations shall not exceed 100 millirem in a year. The licensee monitors ambient gamma radiation at 31 monitoring stations located away from the buildings that housed radioactive materials. The results for 2011 ranged from 39.4-50.7 millirem per year. (Background was not subtracted from these reported values.) The licensee's background station was located in the onsite security building, adjacent to the restricted areas, and this location measured 93.9 millirem for 2011. All monitoring station results were less than the 100 millirem annual limit, even with background included. In summary, licensed operations did not result in public doses greater than regulatory limits in 2011.

Finally, the licensee conducted ambient air sampling at four environmental sampling stations. The licensee analyzed the samples for gross alpha and gross beta-gamma radioactivity. The sample results for calendar year 2011 were below the action levels established by the licensee.

d. Site Tours

The inspectors 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 continues to contain water, in part, for radiation shielding.) The licensee's records indicate that the VBWR water level continues to remain relatively constant.

The inspectors also toured the EVESR. Equipment removal work was complete in the EVESR. One high radiation area existed in EVESR, and this area was positively controlled by the licensee. The inspectors observed the components that could not be removed from the building, including the dump tank, because of the August 2009 polar crane failure.

Finally, the inspectors toured the GETR. Little decommissioning work has been performed in this facility. As noted earlier, the licensee plans to commence with risk reduction activities in the GETR in 2013.

During site tours, the inspectors conducted independent gamma exposure rate measurements using an NRC-issued Ludlum Model 2401-EC2 survey meter (NRC number 159827, calibration due date of 01/09/13). The inspectors' survey results during the site tour were consistent with the licensee's December 2011 annual survey results.

In summary, no unsafe condition was identified, radiological postings were found to be adequate, and radiation levels measured by the inspectors were comparable to the results documented in the licensee's annual reports. Housekeeping was appropriate for the work in progress. The inspectors concluded that the licensee had maintained these three buildings in accordance with regulatory, license, and procedure requirements.

e. Transportation of Radioactive Material and Control of Radwaste

Since the previous inspection, the licensee had not shipped any radioactive material for disposal from any of the three reactors. The last shipment, consisting of waste material removed from the EVESR, was shipped offsite on August 31, 2011. This program area will be reviewed during a future inspection.

f. Site Worker Training

Instructions to workers are required by 10 CFR 19.12. The site-wide training requirements are provided in Sections 5.8 and 7.3 of Appendix A to the licensee's special nuclear material license. The licensee maintained an extensive training program for site workers. The training courses included radiation safety, radiation protection refresher, respirator fundamentals and fit testing, emergency response, criticality safety and industrial safety. In summary, the licensee provided instructions to workers in accordance with regulatory requirements.

g. Emergency Response Program Review

The inspectors reviewed the licensee's program for responding to emergencies. The licensee established site emergency procedures. These procedures included instructions for radiological incidents, criticality accidents, bomb threats, fires, natural

events, major power outages, and security breaches. The licensee had emergency response agreements in place with the local sheriff's department and the local hospital.

The inspectors reviewed the licensee's scheduling of emergency response exercises. The exercises and associated training were being tracked with a computerized tracking system. The exercises included criticality, fire, radiation, building evacuation, and first aid. The licensee also routinely verified the accuracy of the telephone list. In summary, the licensee was implementing its emergency response readiness program in accordance with procedure requirements.

1.3 Conclusions

The licensee conducted the annual inspections of the three reactors in accordance with license and procedure requirements. The licensee continued to conduct annual radiological surveys inside of the three containment structures, and the sample results were comparable to the previous year's sample results. The licensee monitored workers who conducted risk reduction work for their exposures to radiation. These occupational exposures were well below the regulatory limit during the period reviewed. The licensee monitored radioactive effluents as required, and public doses from these effluents were well below the regulatory limits. The inspectors conducted tours of the three containment buildings and concluded that the licensee was maintaining the shutdown reactors in accordance with procedure requirements. Since the previous inspection, the licensee had not shipped any radioactive material; therefore, the transportation program area was not inspected. The licensee conducted training for site workers in accordance with license and regulatory requirements. Finally, the licensee established and implemented an emergency response program in accordance with procedure requirements.

2 Exit Meeting Summary

The inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 27, 2012. Representatives of the licensee acknowledged the findings as presented. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

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T. Kirkham, Consultant
D. Krause, Program Manager, Regulatory Compliance
A. McFadden, Manager, Vallecitos Nuclear Center
M. Schrag, Manager, Facilities
M. Varno, Vice President, Advanced Programs

INSPECTION PROCEDURES USED

36801 Organization, Management, and Cost Controls
37801 Safety Reviews, Design Changes, and Modifications
40801 Self-Assessment, Auditing, and Corrective Action
62801 Maintenance and Surveillance
71801 Decommissioning Performance and Status Review
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

ALARA	As Low As Reasonably Achievable
CFR	*Code of Federal Regulations*
EVESR	Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor
GETR	General Electric Test Reactor
VBWR	Vallecitos Boiling Water Reactor