



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

September 1, 2010

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

SUBJECT: NRC INSPECTION REPORT 050-00018/10-001; 050-00070/10-001;
050-00183/10-001

Dear Mr. Turner:

This refers to the inspection conducted on August 16-19, 2010, of the three permanently defueled reactors at GE-Hitachi Nuclear Energy's Vallecitos Nuclear Center 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 licenses. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The inspection results were presented to you at the conclusion of the onsite inspection. The enclosed report presents the results of this inspection. No violations were identified, and no response to this letter is required. A separate report will be issued regarding the inspection of your special nuclear materials license which was conducted the same week.

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) 860-8191.

Sincerely,

/RA/

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

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

Enclosure:

NRC Inspection Report 050-00018/10-001; 050-00070/10-001; and 050-00183/10-001

cc w/enclosure:

Donald Krause, Manager
Regulatory Compliance and EHS
GE-Hitachi Nuclear Energy
Vallecitos Nuclear Center
6705 Vallecitos Road
Sunol, CA 94586

Scott P. Murray, Manager
Licensing & Liabilities COE, Nuclear
GE-Hitachi Nuclear Energy
P.O. Box 780
Wilmington, NC 28402

James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 34)
Sacramento, CA 95814

Gary Butner, Chief
California Dept. of Public Health
Radiologic Health Branch, Region 1
P.O. Box 997414, MS 7610
Sacramento, CA 95899-7414

Ron Rogus, Senior Health Physicist
California Dept. of Public Health
Radiologic Health Branch, MS 7610
1500 Capitol Avenue
Sacramento, CA 95814

Gonzalo Perez, Supervising Health Physicist
California Department of Public Health
Radiologic Health Branch, MS 7610
1500 Capitol Avenue
Sacramento, CA 95814

Kent M. Prendergast, Senior Health Physicist
California Dept. of Public Health
Radiologic Health Branch
850 Marina Bay Parkway
Building P, 1st Floor
Richmond, CA 98404-6403

Helen Hubbard
P.O. Box 563
Sunol, CA 94586

Marylina Kelley
Executive Director, Tri-Valley CARES
2582 Old First Street
Livermore, CA 94551

Pleasanton Public Library
Attn: Ms. Karol Sparks
400 Old Bernal Avenue
Pleasanton, CA 94566

bcc w/enclosure:

John Buckley, FSME/DWMEP/DURLD

Art Howell, D:DNMS

Chuck Cain, DD:DNMS

Blair Spitzberg, C:RSFS

Robert Evans, RSFS

Gerald Schlapper, RSFS

Fee Coordinator, DRMA

DRAFT: S:\DNMS\NMSB-B\RJE\GE-Hitachi RTR Report 2010-001.docx

FINAL: R:_DNMS\2009\GE-Hitachi RTR Report 2010-001.docx

ML0xxxxxxx

ADAMS	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> SUNSI Rev Complete	Reviewer Initials:	RJE
Publicly Avail.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive Value:		
RIV:DNMS:RSFS	RSFS	C:RSFS		
RJEvans	GA Schlapper	DB Spitzberg		
/RA/	/RA/	/RA/		
08/25/10	08/25/10	09/01/10		

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

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: 050-00018/10-001; 050-00070/10-001; and 050-00183/10-001

Licensee: GE-Hitachi Nuclear Energy

Facility: Vallecitos Nuclear Center

Location: Sunol, California

Dates: August 16-19, 2010

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

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 050-00018/10-001; 050-00070/10-001; and 050-00183/10-001

This inspection was a routine, announced inspection of licensed activities being conducted under the three licenses for the 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 had been completed at the Vallecitos Boiling Water Reactor (VBWR) during 2007-2008. Risk reduction work was in progress at the Empire State Atomic Development Associates Incorporated Vallecitos Experimental Superheat Reactor (EVESR). Finally, the licensee plans to conduct limited risk reduction work at the GE Test Reactor (GETR) during 2011.

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's contractor monitored workers who conducted risk reduction work in the EVESR for exposures to radiation. Occupational exposures were well below the regulatory limit (Section 1.2.b).
- The inspectors 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 continued to ship radioactive wastes for disposal in accordance with regulatory requirements. Workers were observed conducting risk reduction work in accordance with radiation work permit requirements and with an emphasis on contamination control (Section 1.2.d).
- The licensee conducted training for site workers during 2009 in accordance with regulatory requirements. Retraining was conducted during 2010 as a corrective action in response to an uptake event that occurred during February 2010 (Section 1.2.e).

REPORT DETAILS

Summary of Plant Status

At the time of the inspection, the three reactors continued to be permanently shut down and defueled. The licensee was conducting risk reduction work at one of three reactors. Risk reduction work consists of removal and disposal of contaminated equipment from within the containment buildings, as allowed by the licenses. The licensee completed risk reduction work at the second reactor during 2008, and the licensee plans to commence with risk reduction work at the third reactor during 2011.

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 offsite 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 risk reduction work at the EVESR was being conducted in phases. The first phase included removal of the loose material remaining from previous remediation efforts. This work was approved during late-March 2009 and was completed by July 2009. The second phase included 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 and was nearly complete at the time of this inspection. The remaining phase three tasks include removal of the in-core probe shield assembly and removal of miscellaneous cable trays and piping.

Phase four work at EVESR includes removal of miscellaneous tools located in the former spent fuel pool, the steam dump tank, and the control rod drive mechanisms. (Phase 4 work does not include removal of the control rods located within the reactor pressure vessel.) The licensee's contractor may start on phase four work in the near future, following approval of the work by the licensee.

Finally, the GE Test Reactor (GETR) was in standby awaiting commencement of risk reduction work. The licensee may commence with risk reduction work at the GETR during early 2011, after the risk reduction work has been completed in the EVESR.

There was one staff change since the last inspection. The licensee replaced the facilities manager, a position that had been temporarily filled by the Vallecitos Nuclear Center site manager. The facility manager is responsible for oversight of the three shutdown reactors.

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

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

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 Chapter 6, "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 procedure also describes the annual inspection and radiation survey requirements.

The annual inspections of the three reactors were most recently conducted during early January 2010. 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 to the NRC on March 30, 2010.

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 2009 were comparable to the results obtained during 2008. As documented in the three annual reports, no air sample result exceeded the action level.

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 protection program report for 2009 and discussed the contents of the report with licensee representatives. The report included all licensed activities, including activities conducted at the shut down reactors. The report provided detailed information to licensee management about the status of the radiation protection program for the previous year.

b. Occupational Exposures

The inspector reviewed the licensee's exposure records for 2010 to ensure that no individual had exceeded the regulatory limits specified in 10 CFR 20.1201. The licensee provided the inspectors with occupational doses to workers assigned to EVESR risk reduction work. The typical work crew consisted of five individuals, but the contractor

rotated the workers to different jobs onsite. Therefore, the inspectors reviewed the occupational doses of all contractor workers.

Based on the contractor's occupational exposure records, the collective dose for all work projects was 753 millirems, excluding doses assigned to two workers as a result of an uptake event that occurred during February 2010 under the licensee's special nuclear materials license. (The uptake event will be described in NRC Inspection Report 070-00754/10-001). Excluding the uptake event, the highest dose to an individual during 2010 was 139 millirems, a health physics technician. In summary, occupational doses for EVESR risk reduction work were well below the 5,000 millirem total effective dose equivalent exposure limit specified in 10 CFR 20.1201.

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, with the exception of the February 2010 uptake event. The inspector confirmed this finding through a records review and interviews with site personnel.

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

The EVESR was also toured by the inspectors. Equipment removal work was being conducted in the EVESR. One high radiation area existed in EVESR, and this area was positively controlled by the licensee. Fire protection equipment was available for the hot-work activities that were ongoing inside of the containment structure.

Finally, the inspectors 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 2011.

During site tours, the inspectors conducted independent gamma exposure rate measurements using an NRC-issued Ludlum Model 2401-EC2 survey meter (NRC number 35487G, calibration due date of 12/09/10). The inspectors' survey results during the site tour were consistent with the licensee's previous survey results.

In summary, no unsafe condition was identified, postings were 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 licensee maintained these three buildings in accordance with regulatory, license, and procedure requirements.

d. Transportation of Radioactive Material and Control of Radwaste

The inspectors reviewed the licensee's shipment records for 2008-2010 which included shipment of VBWR and EVESR waste material. During 2008, the licensee shipped

17,643 cubic feet of Class A wastes containing 1.344 curies of radioactivity in 23 shipments to a disposal site located in Utah. These shipments included wastes from the VBWR risk reduction work. During 2009, the licensee shipped 1,667 cubic feet of Class A wastes containing 0.22 curies of radioactivity in three shipments to the disposal site. These shipments included mixed wastes containing mercury from EVESR.

The inspectors reviewed representative shipping packages. The packages included all pertinent documents including waste manifests and radiological surveys. In summary, the documentation suggested that all shipments had been conducted in compliance with U.S. Department of Transportation requirements.

The inspectors observed the licensee loading wastes from the EVESR into a container for disposal. The workers conducted the work with an emphasis on contamination control. These controls included use of a controlled and designated pathway between the EVESR and the container, and use of wind breaks. The workers conducted the work in accordance with radiation work permit requirements.

e. 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 licensee offered 40 training classes during 2009. A computerized tracking system was used to track worker training. The training courses included radiation safety, radiation protection refresher, respirator fundamentals and fit testing, emergency response, and industrial safety. U.S. Department of Transportation function specific training was presented during September 2008. In addition, the licensee conducted five emergency preparedness drills during 2009.

The NRC Inspection Report 070-00754/10-001, to be issued under separate correspondence, will describe as a root cause for the February 2010 uptake of radioactive material by two contractors the inadequate indoctrination of contractor personnel into the licensee's radiological controls program. In response, the licensee retrained contractor personnel in applicable portions of the licensee's radiological controls program, including the actions to be taken in the event of a radiological incident. The inspectors reviewed overheads utilized in the presentations to the contract workers. Sign-in sheets to verify attendance were also provided to the inspectors. The inspectors interviewed selected workers to assess their knowledge of the information presented, and the interviews indicate worker understanding of the requirements of both the licensee and contractor organizations. The long-term effectiveness of this training will be reviewed during future inspections.

In summary, the licensee provided instructions to workers in accordance with regulatory requirements. Retraining was provided during 2010 in response to the licensee's discovery of an uptake event that occurred during February 2010.

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's contractor monitored workers who conducted risk reduction work in the EVESR for exposures to radiation. Occupational exposures were well below the regulatory limit. The inspectors conducted site tours of the three containment buildings. The licensee maintained the buildings in accordance with procedure, license, and regulatory requirements. The licensee continued to ship radioactive wastes for disposal in accordance with regulatory requirements. Workers were observed conducting risk reduction work in accordance with radiation work permit requirements and with an emphasis on contamination control. The licensee conducted training for site workers during 2009 in accordance with regulatory requirements. Retraining was conducted during 2010 as a corrective action in response to an uptake event that occurred during February 2010.

2 Exit Meeting Summary

The inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on August 19, 2010. 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

Licensee

D. Hall, Specialist, Radiation Control
D. Krause, Manager, Regulatory Compliance and EHS
S. Murray, Manager, Licensing & Liabilities COE, Nuclear
M. Schrag, Manager, Facilities
R. Schult, Project Manager, EnergySolutions
D. Turner, Manager, Vallecitos Nuclear Center

California Department of Public Health

K. Prendergast, Senior Health Physicist

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
VBWR	Vallecitos Boiling Water Reactor