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

August 30, 2018

Mr. Matt Feyrer, Site Manager
Vallecitos Nuclear Center
GE Hitachi Nuclear Energy Americas, LLC
6705 Vallecitos Road
Sunol, CA 94586

SUBJECT: NRC INSPECTION REPORT 070-00754/2018-001, GE HITACHI NUCLEAR ENERGY AMERICAS, LLC.

Dear Mr. Feyrer:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted from July 30-August 2, 2018, at the Vallecitos Nuclear Facility in Sunol, California. The purpose of the inspection was to determine whether licensed activities were being conducted safely and in conformance with the NRC requirements. The final inspection results were discussed with you and members of your staff at the conclusion of the onsite inspection on August 2, 2018. No violations were identified and no response to this letter is required.

During this inspection, NRC staff examined activities conducted under the NRC Materials License SNM-960 as they relate to public health and safety, and 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.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, and Attachment 1 of the enclosed inspection report will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. However, Attachment 2 of the enclosed inspection report contains Security-Related information in accordance with 10 CFR 2.390(d)(1) and its disclosure to unauthorized individuals could present a security vulnerability. Therefore, Attachment 2 of the enclosed inspection report will not be made available electronically for public inspection in the NRC Public Document Room or from ADAMS.

Attachment 2 of the Enclosure contains Sensitive Unclassified Non-Safeguards Information. When separated from Attachment 2, this letter and Attachment 1 of the Enclosure are decontrolled.

Should you have any questions concerning this inspection, please contact Ms. Rachel S. Browder, Senior Health Physicist, at 817-200-1452 or the undersigned at 817-200-1151.

Sincerely,

/RA/

Janine F. Katanic, PhD, CHP, Chief
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 070-00754
License No. SNM-960

Enclosure:
NRC Inspection Report 070-00754/2018-001
Attachment 1: Publicly Available
Attachment 2: Non-Publicly Available

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket:	070-00754
License:	SNM-960
Report:	070-00754/2018-001
Licensee:	GE Hitachi Nuclear Energy Americas, LLC
Facility:	Vallecitos Nuclear Center
Location:	Sunol, California
Inspection Dates:	July 30 - August 2, 2018
Inspectors:	Rachel S. Browder, Senior Health Physicist Fuel Cycle & Decommissioning Branch Division of Nuclear Materials Safety Stephanie G. Anderson, Health Physicist Fuel Cycle & Decommissioning Branch Division of Nuclear Materials Safety Chris D. Steely, Health Physicist Fuel Cycle & Decommissioning Branch Division of Nuclear Materials Safety
Approved by:	Janine F. Katanic, PhD, CHP, Chief Fuel Cycle & Decommissioning Branch Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

GE Hitachi Nuclear Energy Americas, LLC
U.S. Nuclear Regulatory Commission (NRC) Inspection Report 070-00754/2018-001

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

Industrial/Academic/Research Programs

- The inspectors evaluated the elements of Safety Operations, Radiological Controls, and Facility Support at Vallecitos Nuclear Center. Within each element, the inspectors determined the licensee was adequately implementing its programs as required by license SNM-960 and regulatory requirements. The licensee provided oversight and control of site activities in accordance with regulatory, license, and procedure requirements. Site staffing was adequate to fulfill the requirements of the license. (Attachment 1, Section 1.2)

Material Control and Accounting

- The inspectors evaluated the licensee's Material Control and Accounting program. The results of the inspection contain security-related information and are documented in the non-public Attachment 2 of this report.

Report Details – Health and Safety

Summary of Plant Status

The NRC approved a 10-year license renewal for SNM-960, on August 9, 2017 (ADAMS Accession Number ML17097A188). Consistent with Confirmatory Order (EA-14-144), dated April 22, 2015 (ML14269A172) the NRC addressed the appropriate categorization (i.e., Category I, II, or III) of the facility during the review of the license renewal application. The NRC staff concluded that due to the uniqueness of the facility and the type and form of the licensed material, the licensee will not be categorized at this time. As a result of the license renewal, the NRC re-assigned the facility program code to 22155, "SNM greater than critical mass for commercial products and other non-fuel-cycle activities." Since the program code was changed, the inspection manual chapter was changed to 2800 and the following inspection procedures were determined to be utilized for the facility starting in Fiscal Year 2018 (ML18023A453):

- Inspection Procedure 71130.11, "Material Control and Accounting (MC&A)," will be used for MC&A inspections on a triennial frequency.

- Inspection Procedure 87126, "Industrial/Academic Research Programs," will be used for all safety operations, radiological controls, and facility support inspections on a triennial frequency.

- Inspection Procedure 81700.09, "Security Measures for Licensed Facilities," will be used for all physical security inspections on a triennial frequency.

At the time of the inspection, the licensee continued to possess and store special nuclear material (SNM) at the Vallecitos Nuclear Center (VNC). Historically, the licensee performed activities under its license that included fuel examinations within various hot cells. At the time of this inspection, the majority of SNM was consolidated in containers at the designated storage area. The remaining SNM was located in a designated vault and consisted of standards used for creating primary control standards for laboratory analysis and engineering studies. The inspectors observed there has been a significant reduction in work activities under the SNM license. Other radioactive material activities were performed under the licensee's State of California license.

1 Industrial/Academic/Research Programs (87126)

1.1 Inspection Scope

The inspectors reviewed the licensee's oversight and control of licensed activities within the elements of Safety Operations, Radiological Controls, and Facility Support. The inspectors reviewed the licensee's training program for compliance with regulations and license requirements.

1.2 Observations and Findings

a. Safety Operations

The inspectors observed the licensee's safety operations at the site to include the elements of criticality safety and fire protection. The inspectors interviewed licensee

employees involved with the criticality safety program and reviewed the licensee Procedure 6200, “Criticality Inspections”, Revision 9. Based on interviews with staff members and review of the procedure and program, the inspectors concluded the licensee was knowledgeable of its responsibilities with criticality safety and procedure requirements.

The licensee completed its annual assessments in a timely manner as required by procedure, under a qualified and technically trained individual with greater than one year criticality experience. Monthly functional alarm checks of the criticality safety alarm were satisfactorily performed. The licensee performed a criticality accident drill in October 2016, in which observations were noted by the licensee. The criticality alarm was only required to be operational when the licensee was moving SNM.

The licensee has an onsite fire team, with responsibilities for the four buildings licensed under the SNM-960 licensee. The inspectors interviewed the fire chief and reviewed the pre-fire plans for the site. The inspectors reviewed the fire control systems (e.g., detection and suppression) in the Radiological Laboratory Building, Building 103, Hillside Storage Facility (HSF), and Waste Evaporation Plant, to asses if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the areas. The inspectors noted that the licensee effectively maintained fire detection and suppression capability and maintained passive fire protection features in a good material condition. The inspectors verified the fire hoses and extinguishers were in good condition and available for immediate use, and that fire detectors and sprinklers were unobstructed. There was good housekeeping in the facility and there was no unnecessary transient materials that could impact fire protection controls.

b. Radiological Controls

The inspectors observed the licensee’s radiological controls at the site that included the elements of radiation protection, environmental protection, waste management, and transportation. The inspectors determined that the licensee had established adequate written procedures for the Radiation Protection (RP) program that implemented regulatory requirements. Based on interviews with licensee personnel and review of procedures, the inspectors determined that the requirements were established and maintained to control radioactive materials and prevent or minimize any associated hazards of radioactivity and radioactive materials.

The licensee performed the 2017 annual review of the RP program content and implementation as required by Title 10 *Code of Federal Regulations* (CFR) 20.1101(c). This was verified by inspectors with the review of the document, “Focused Self-Assessment Report,” dated May 7, 2018. The licensee reviewed each program area for the multiple licenses authorized at the facility, including personnel qualifications, training requirements, respiratory and exposure monitoring programs, as well as radiological instrumentation, and survey and contamination measurements and controls at the facility. In addition, the inspectors reviewed the As Low As is Reasonably Achievable (ALARA) program, as required by 10 CFR 20.1101, “Radiation Protection Programs.” The licensee procedure VSS 1.4, “ALARA Committee Charter,” Revision 0, implemented the program. The licensee convened quarterly meetings of the ALARA Committee, as required by procedure, and evaluated radiation dose goals throughout the year. The

ALARA Committee approved the 2018 dose goal of 9.060 person-rem, which was slightly reduced from 2017 dose goal of 10.404 person-rem. The actual dose received during 2017 was 8.641 person-rem. The majority of dose received at the facility was under other NRC and State of California licenses, in lieu of the SNM-960 license, based on the work activities performed at the facility. However, the licensee plans to perform maintenance on Hot Cell #3 during 2018, which is a hot cell where SNM-960 authorized materials had been used. The licensee explained that the maintenance will entail refurbishment of the manipulators and replacement of the cell ventilation filters. The licensee currently doesn't have a contract with a radioactive waste disposal facility; however, the radiological waste materials can be maintained safely onsite.

The inspectors also reviewed the Environmental Protection (EP) program in accordance with licensee procedure, "Environmental Monitoring Manual," Revision 2, and license requirements. As part of the review, the inspectors conducted on-site inspections, interviewed licensee personnel, and evaluated the training program. The inspectors reviewed effluent exhaust of Building 103, the weekly air sample station analysis, the process of boiling off liquid waste at the waste evaporator and the storage of all liquid and dry waste at the facility. Currently no liquid, sludge or dry active waste is being sent off-site. The licensee currently does not have a contract with a radioactive waste disposal facility; however, the inspectors concluded that radiological waste materials can be maintained safely onsite.

As part of the effluents inspection the inspectors reviewed the licensee's "Effluent Monitoring and Environmental Surveillance Programs Annual Report 2017." It was noted that the three ground water wells under NRC License SNM 960; GA, GN and GP measured levels were well below any action levels identified in the licensee's Environmental Monitoring Manual, Revision 2. All effluent exhaust, weekly air sample analysis, and ground water samples were within acceptable limits. The inspectors determined that the licensee was effectively implementing the EP program in accordance with their procedure and regulatory requirements.

The inspectors evaluated the waste management program. The waste was adequately protected from fire and the elements and stored in waste containers with the appropriate labels in accordance with 10 CFR Part 20. The inspectors reviewed procedures for the waste evaporator operation and for onsite storage. There has been no transfer of waste since the last inspection. The licensee had identified all liquid waste streams and air exhaust routes in the license renewal application, and the licensee was in compliance with their procedures and 10 CFR Part 20 Appendix B requirements.

c. Facility Support

The inspectors observed the licensee's facility support at the site to include the elements of maintenance/surveillance and emergency preparedness.

The inspectors observed the licensee conduct surveys of one of its laboratories and the HSF. The licensee used good radiological practices in performing the surveys. The licensee did not identify any contamination that was distinguishable from background levels during the gross survey of the radiological laboratory and HSF.

In a NRC Safety Evaluation Report for the license renewal (ML17097A193) the NRC recognized that a previous analysis had removed the license condition requiring a radiological contingency and emergency plan for the licensed materials. During the license renewal, the NRC re-validated that analysis. The results of the evaluation considered the following scenarios: Fire; UF6 cylinder rupture; and a criticality accident. Analyses of fire scenarios indicated that the ventilation and filtration systems limit the release of SNM due to a fire to insignificant quantities. Included in the scenario was the operation of a mixed oxide fuel laboratory in Building 102 and the expected plutonium inventory in Building 103. Maximum off site boundary zone dose was calculated to be well within regulatory limits. Also, operation of the mixed oxide laboratory is also no longer a licensed activity. It was concluded that fire is not a credible scenario for requiring an emergency plan.

In considering a scenario of a rupture of a UF_6 cylinder it was noted that there are no facilities for handling UF_6 cylinders at VNC; therefore, that accident scenario is not applicable.

The SNM materials utilized at the VNC are in a form where the potential for a criticality accident is negligible. A criticality accident is considered to be a non-credible event due to the physical characteristics preventing the accumulation of SNM required and the optimum conditions of moderation, reflection and geometry; therefore no emergency plan is necessary for VNC.

1.3 Conclusions

The inspectors evaluated the elements of Safety Operations, Radiological Controls, and Facility Support at VNC. Within each element, the inspectors determined the licensee was adequately implementing its programs as required by license SNM-960 and regulatory requirements. The licensee provided oversight and control of site activities in accordance with regulatory, license, and procedure requirements. Site staffing was adequate to fulfill the requirements of the license.

2 Exit Meeting

On August 2, 2018, the NRC inspectors presented the final inspection results to Mr. Matt Feyrer, Site Manager, and other members of the licensee's staff. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. The licensee stated that all documents and procedures reviewed during the inspection were marked as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION – HEALTH AND SAFETY

KEY POINTS OF CONTACT

M. Feyrer, Site Manager Vallecitos Nuclear Center
J. Ayala, Radiation Protection Supervisor
H. Stuart, Radiation Protection Technician
S. Covanaugh, Security Manager
J. Smyly, Environmental Health and Safety Manager
S. Murray, GEH Licensing
B. Lockwood, GEH-GM Operations

INSPECTION PROCEDURE USED

IP 87126	Industrial/Academic/Research Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed/Discussed

None

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
CFR	*Code of Federal Regulations*
EP	Environmental Protection
HSF	Hillside Storage Facility
MC&A	Material Control and Accounting
NRC	U.S. Nuclear Regulatory Commission
RP	Radiation Protection
SNM	Special Nuclear Material
VCN	Vallecitos Nuclear Center

NRC INSPECTION REPORT 070-00754/2018-001GE HITACHI NUCLEAR ENERGY AMERICAS, LLC. – DATED AUGUST 30, 2018

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■ SUNSI Review By: RSB	ADAMS: ■ Yes ☐ No	☐ Sensitive ■ Non-Sensitive	☐ Non-Publicly Available ■ Publicly Available	Keyword NRC-002

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