



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

June 1, 2021

Mr. Matthew Feyrer, Site Manager  
GE Hitachi Nuclear Energy  
6705 Vallecitos Road  
Sunol, CA 94586

SUBJECT: GE-HITACHI NUCLEAR ENERGY AMERICAS LLC – U.S. NUCLEAR  
REGULATORY COMMISSION ROUTINE SAFETY INSPECTION REPORT  
NO. 05000073/2021201

Dear Mr. Feyrer:

From March 8-11, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Nuclear Test Reactor located at the General Electric – Hitachi Vallecitos Nuclear Center. The enclosed report presents the results of the inspection which were discussed on March 11, 2020, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed various activities, and interviewed personnel.

Based on the results of this inspection, the NRC identified one Severity Level IV, non-cited violation of NRC requirements. Additionally, one other non-cited violation described in a previous inspection report is discussed in this inspection report. The violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violations are described in detail in the enclosed inspection report. However, because the violations are non-cited, no response to this letter is required.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (Agencywide Documents and Access Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Mr. Kevin Roche at (301) 415-1554, or by electronic mail at [Kevin.Roche@nrc.gov](mailto:Kevin.Roche@nrc.gov).

Sincerely,

*for*

Travis L. Tate, Chief  
Non-Power Production and Utilization  
Facility Oversight Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Docket No. 50-0073  
License No. R-33

Enclosure:  
As stated

cc: See next page

GE-Hitachi Nuclear Energy

Docket No. 50-073

cc:

Jeffrey Smyly, Manager  
Regulatory Compliance  
GE Hitachi Nuclear Energy  
Vallecitos Nuclear Center  
6705 Vallecitos Road  
Sunol, CA 94586

Thomas McConnell, Manager  
Nuclear Test Reactor  
GE Hitachi Nuclear Energy  
Vallecitos Nuclear Center  
6705 Vallecitos Road  
Sunol, CA 94586

Scott Murray, Manager  
Facility Licensing  
GE Hitachi Nuclear Energy  
3901 Castle Hayne Road  
Wilmington, NC 28401

David Heckman,  
Vallecitos Reg Affairs & Licensing Lead  
GE Hitachi Nuclear Energy  
Vallecitos Nuclear Center  
6705 Vallecitos Road  
Sunol, CA 94586

Commissioner  
California Energy Commission  
1516 Ninth Street, MS-34  
Sacramento, CA 95814

California Department of Health  
ATTN: Chief  
Radiologic Health Branch  
P.O. Box 997414, MS 7610  
Sacramento, CA 95899-7414

Test, Research and Training  
Reactor Newsletter  
Attention: Ms. Amber Johnson  
Dept of Materials Science and Engineering  
University of Maryland  
4418 Stadium Drive  
College Park, MD 20742-2115

SUBJECT: GE-HITACHI NUCLEAR ENERGY AMERICAS LLC – U.S. NUCLEAR  
REGULATORY COMMISSION ROUTINE SAFETY INSPECTION REPORT  
NO. 05000073/2021201 DATED: JUNE 1, 2021

**DISTRIBUTION:**

PUBLIC

BSmith, NRR

NParker, NRR

JBarromeo, NRR

TTate, NRR

KRoche, NRR

AWaugh, NRR

JBorromeo, NRR

RidsNrrDanuUnpo Resource

RidsNrrDanu Resource

BMaier, R-IV

**ADAMS Accession No.: ML21118B022****NRC-002**

<b>OFFICE</b>	NRR/DANU/UNPO	NRR/DANU/UNPO/LA	NRR/DANU/UNPO/BC
<b>NAME</b>	KRoche	NParker	TTate (PO'Bryan for)
<b>DATE</b>	5/6/2021	5/6/2021	6/1/2021

**OFFICIAL RECORD COPY**

**U.S. NUCLEAR REGULATORY COMMISSION**  
**OFFICE OF NUCLEAR REACTOR REGULATION**

Docket No.: 50-0073

License No.: R-33

Report No.: 05000073/2021201

Licensee: GE-Hitachi Nuclear Energy Americas, LLC

Facility: Nuclear Test Reactor

Location: Vallecitos Nuclear Center, Sunol, CA

Dates: March 8-11, 2021

Inspector: Kevin M. Roche

Accompanied by: Andrew Waugh, Inspector in Training

Approved by: Travis L. Tate, Chief  
Non-Power Production and Utilization  
Facility Oversight Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Enclosure

## EXECUTIVE SUMMARY

### GE-Hitachi Nuclear Energy Americas LLC Nuclear Test Reactor Inspection Report No. 05000073/2021201

The primary focus of this routine, announced safety inspection was the onsite review of selected aspects of the GE-Hitachi Nuclear Energy Americas LLC (GEH, the licensee) Class II research reactor facility safety program, including: (1) organization and staffing, (2) operations logs and records, (3) procedures, (4) requalification training, (5) surveillance and limiting conditions for operation (LCO), (6) experiments, (7) health physics, (8) design changes, (9) committees, audits and reviews, (10) emergency planning, (11) maintenance logs and records, (12) fuel handling logs and records, and (13) transportation activities. The NRC staff determined that the licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements. However, one non-cited violation was identified.

#### Organization and Staffing

- The GEH organization and staffing were consistent with technical specification (TS) requirements, except as noted in section 1 of this report.

#### Operations Logs and Records

- The operation logs and records were maintained in accordance with facility procedures and TSs.

#### Procedures

- Facility procedures were reviewed, approved, and implemented in accordance with TS requirements.

#### Requalification and Training

- The requalification program was conducted consistently with the TSs and the facility requalification plan, except as noted in section 4 of this report.

#### Surveillance and Limiting Conditions for Operation

- TS LCO and surveillance requirements were met.

#### Experiments

- Conduct and control of experiments and irradiations were in accordance with TSs, the applicable experiment irradiation authorizations, and associated procedures.

#### Health Physics

- Surveys were completed and documented to permit evaluation of the radiation hazards present in accordance with the radiation protection program.
- Postings met the regulatory requirements specified in Title 10 of the *Code of Federal*

*Regulations* (10 CFR) Part 19, "Notices, Instructions and Reports to Workers: Inspection and Investigations," and 10 CFR Part 20, "Standards for Protection against Radiation."

- Personnel dosimetry was worn, and doses were within the licensee's procedural action levels and NRC's regulatory limits.
- Radiation monitoring equipment was maintained and calibrated as required by TS requirements.
- Radiation protection training was provided to staff personnel in accordance with the radiation protection program.
- The radiation protection program was implemented by the licensee and satisfied regulatory requirements.
- Effluent monitoring and releases satisfied licensee and regulatory requirements.

#### Design Changes

- Changes were reviewed in accordance with site procedures using the criteria specified in 10 CFR 50.59, "Changes, tests and experiments."

#### Committees, Audits and Reviews

- Reviews and audits were conducted as required by TSs.

#### Emergency Planning

- Vallecitos Nuclear Center (VNC) Reactor Facilities Radiological Emergency Preparedness Plan (REPP), oversight, drills, and training were implemented as required by facility procedures and regulations.

#### Maintenance Logs and Records

- The licensee maintained records of principal maintenance activities in compliance with TS requirements and facility procedures.

#### Fuel Handling Logs and Records

- The licensee conducted and documented fuel handling activities in accordance with TS requirements and facility procedures.

#### Transportation Activities

- The program for shipping radioactive material satisfied regulatory requirements.

## REPORT DETAILS

### Summary of Facility Status

GEH operates a 100 kilowatt research reactor in support of neutron radiography, experiments, reactor operator training, and periodic equipment surveillances. During the inspection, the reactor was operated for radiography.

### 1. Organization and Staffing

#### a. Inspection Scope (Inspection Procedure (IP) 69001-02.01)

To ensure that the requirements of TSs 6.1 and 6.6.2 were met, the inspector reviewed the following:

- Nuclear Test Reactor (NTR) organizational structure and staffing chart
- Annual Report No. 59 for the GE-Hitachi NTR, dated March 21, 2019
- Annual Report No. 60 for the GE-Hitachi NTR, dated March 30, 2020
- standard operating procedure (SOP) 6.1 "Staffing Requirements," Revision 0

#### b. Observations and Findings

##### (1) Observations

The inspector found that since the previous NRC inspection, there was one personnel change in the organization at the NTR. The inspector verified that a new senior reactor operator qualified in 2020.

The inspector reviewed operations logs and associated records and confirmed that, with the exception described below, shift staffing met the minimum requirements for duty personnel. The inspector also reviewed records and staffing procedures and verified that management responsibilities were administered as required by the TS.

##### (2) Failure to maintain minimum staffing

As described in inspection report No. 05000073/2020201 (Agencywide Documents Access and Management System Accession No. ML20054A241), the inspector identified a non-cited violation during a previous inspection. However, because that report is security-related, it is not publicly available. Therefore, the violation is also described in this report.

TS 1.2.20 states:

The reactor is considered secured under either of the following two conditions:

1. The core contains insufficient fissile material to attain criticality under optimum conditions of moderation and reflection.
2. That overall condition where all the following conditions are satisfied:



- a. Reactor is shut down.
- b. Console keylock switch is OFF and the console key is in proper custody.
- c. No work is in progress involving in-core components, installed rod drives, or experiments in an experimental facility.

TS 6.1.3.1 states:

The minimum staffing when the reactor is not secured shall be composed of:

- a. A licensed operator in the control room.
- b. A second person present at the site familiar with NTR Emergency Procedures and capable of carrying out facility written procedures.
- c. A licensed Senior Reactor Operator shall be present at the NTR Facility or readily available on call.

Contrary to TS 6.1.3.1, on April 4, 2019, the minimum staffing requirements were not met for the facility when the reactor was not secured. Specifically, a licensed operator left the control room empty at 1250 PDT and left the console key at the console. Therefore, the console key was not in the designated storage safe as required to be "in proper custody." The reactor remained unsecured for approximately 1 hour until a radiation monitoring technician entered the control room, discovered the key, and immediately notified a licensed operator.

The licensee's corrective actions included attaching the console key to a large, highly visible key chain, implementing a flagging system to increase the likelihood of operators seeing the flag when the console key is not in proper custody, and training the NTR staff on the importance of securing the reactor prior to exiting the control room.

The failure to maintain the minimum staffing requirements of TS 6.1.3.1 when the reactor was not secured is a Severity Level IV violation. However, the inspector determined that the safety consequences were low because of the relatively brief time the reactor was unsecured during normal working hours with personnel present in the building, the reactor was shut down, and no one else entered the control room until the issue was identified. This issue was identified by the licensee and promptly reported to the NRC. This issue is a non-cited violation (NCV), consistent with Section 2.3.2.b of the NRC Enforcement Policy (NCV 05000073/2020201-01).

c. Conclusion

Except for the condition above, the inspector determined the NTR organization and staffing were consistent with the requirements in TSs 6.1 and 6.6.2.

## **2. Operations Logs and Records**

### **a. Inspection Scope (IP 69001-02.02)**

To ensure that the requirements of TSs 3.0, 4.0, and 6.0 were met, the inspector reviewed the following:

- SOP 6.3 "Reactor Log Books," Revision 0
- SOP 6.7 "Startup Summary," Revision 0
- SOP 6.10 "Shutdown Summary," Revision 0
- NTR console logbooks since the last inspection

### **b. Observations and Findings**

The inspector observed that logbook entries were maintained in accordance with approved procedures. The inspector reviewed selected logbook entries, request for operations, and pre-start and post-shutdown forms and determined that logs and records are maintained as required by the licensee's administrative procedures. The inspector verified that records also showed that operational conditions and parameters were consistent with the license and TS requirements.

### **c. Conclusion**

The inspector determined the licensee's logbook records and record keeping programs were maintained as required by NTR administrative procedures and met the retention requirements of the TSs.

## **3. Procedures**

### **a. Inspection Scope (IP 69001-02.03)**

The inspector reviewed the following to ensure that the requirements of TS 6.4 and NTR procedures concerning development, control, and use of written procedures were met:

- GEH VNC Vallecitos Safety Standards (VSS) No. 25.1 "Document Control," Revision 13 dated
- GEH VNC NTR SOP 9.3 "Engineering Release," Revision 0
- GEH VNC VSS No.: 2.0 "Change Authorization," Revision 22
- SOP 6.3 "Reactor Log Books," Revision 0
- SOP 6.7 "Startup Summary," Revision 0
- SOP 6.10 "Shutdown Summary," Revision 0
- SOP 8.4 "Off-Normal Alarm Response," Revision 0
- preventative maintenance records from 2018 - present
- engineering releases from 2018 – present

b. Observations and Findings

The inspector found that written procedures for the activities listed in TS 6.4 were available. The inspector verified those activities included normal reactor operations, abnormal operations, emergency conditions involving the potential or actual release of radioactivity, radiation protection, site emergency actions, and fuel handling. The inspector noted that the licensee completed, revised, and reformatted all procedures associated with operation of the reactor so that they were in a new standard format. The inspector also verified that the official, approved copies of reactor operations procedures were kept in the control.

c. Conclusion

The inspector determined the procedure revision, control, and implementation program satisfied procedural and TS requirements.

**4. Requalification Training**

a. Inspection Scope (IP 69001-02.04)

To ensure that the requalification training requirements of TSs 6.1.4, 6.2.4, 6.7.2, and 10 CFR 55.53, "Conditions of licenses," paragraphs (e) and (h), were met, the inspector reviewed the following:

- reactor operator requalification program for the "General Electric Nuclear Test Reactor" dated June 1987
- SOP 9.14 "Reactor Operator Requalification Program" Revision 0
- 2019 and 2020 master requalification files
- individual training records
- medical examination records
- biennial written tests from 2020
- annual operating tests for 2019 and 2020
- condition report (CR) #36312 – related to the NTR operator requalification program, opened February 23, 2021

b. Observations and Findings

(1) Observations

The inspector verified that training in the areas required by the requalification plan were performed throughout the training cycle. The inspector verified that written, operations, and emergency preparedness exams were completed during the training cycle, as required by the requalification plan, with the exception noted below. The inspector verified that a sample of licensed operators performed the required quarterly hours of reactor operations. Further, the inspector verified by record review that all active operators completed a biennial medical examination.

(2) Operators not completing the annual operating exam

The regulation in 10 CFR 55.59, "Requalification," paragraph (a)(2) states that each licensee shall pass an annual operating exam. In addition, the NRC-approved GEH NTR requalification plan requires that operating exams are administered to licensed operators during the first calendar quarter of each year.

Contrary to the above, two licensed reactor operators did not pass an operating exam between the first quarter of 2019 and July 2020. The inspector noted that the operators passed an operating exam in July 2020, but between the end of the first quarter of 2020 and July 2020, the operators conducted several licensed activities while not meeting the requirements of the requalification plan.

The licensee initiated a CR to track the issue. The inspector found that the licensee added tasks to the annual compliance calendar for each operator and the NTR manager to schedule, review and complete the operator requalification requirements. Additionally, a task was added to provide an independent review of the requalification plan requirements. The inspector noted that the licensee will give the operators training related to completing the requalification plan, and SOP 9.14 will be revised to reflect the compliance calendar tracking.

The failure of two licensed reactor operators to complete annual operating exams in the first quarter of 2020 is a Severity Level IV violation of 10 CFR 55.59(a)(2). However, the inspector determined that the safety consequences were low because the operators were able to pass the operating exam in July 2020. The inspector noted that this issue was identified by the licensee and reported to the NRC. This issue is an NCV, consistent with Section 2.3.2.b of the NRC Enforcement Policy (NCV 05000073/2021201-01).

c. Conclusion

Except for the violation noted above, the inspector determined that the NTR requalification program was conducted as required by NRC regulations, NTR TSs, and procedures.

**5. Surveillance and Limiting Conditions for Operation**

a. Inspection Scope (IP 69001-02.05)

To ensure that the requirements of TSs 3.0 and 4.0, were met, the inspector reviewed the following:

- daily startup and shutdown checklists, 2018 – present
- NTR preventative maintenance records, 2018 – present
- monthly surveillance check sheets, 2018 – present
- NTR console logbooks, 2018 – present

b. Observations and Findings

The inspector selected a sample of the TS-required surveillances to verify implementation and determined that the frequency and outcome met TS requirements. During the inspection, the inspector observed the performance of the daily startup checklist that support power operations to ensure certain LCOs are met. The inspector verified surveillance results were retained as required by TS 6.7.1 and licensee's procedural requirements.

c. Conclusion

The inspector determined that NTR operations followed the LCOs and surveillance requirements as stated in the TSs.

**6. Experiments**

a. Inspection Scope (IP 69001-02.06)

The inspector reviewed the following to verify compliance with TSs 3.5, 4.5, 6.2, and 6.4:

- experiment type approval for sample irradiation CA-161, "ANA Sample Irradiation," Revision H
- experiment approval forms from SOP 10.6, "Routine Experiment," for 2019 and 2020.
- Annual Report No. 59 for the GE-Hitachi NTR, dated March 21, 2019
- Annual Report No. 60 for the GE-Hitachi NTR, dated March 30, 2020
- NTR console logbooks, 2018 – present

b. Observations and Findings

The inspector reviewed the process for the approval and conduct of experiments at the facility. The inspector verified that the licensee's work tracking spreadsheet raises flags appropriately to notify of any restrictions and limitation thresholds that might be exceeded by the prepared work. The inspector found that experiments and irradiated material storage were addressed and in adherence with licensee procedures. The inspector determined that the experimental review and approval process for handling and storing trinitrotoluene-equivalent explosive material is in accordance with the TS and approved procedures.

c. Conclusion

The inspector concluded that experiments were reviewed and performed in accordance with the TS requirements and the licensee's written procedures.

## 7. Health Physics

### a. Inspection Scope (IP 69001-02.07)

The inspector verified compliance with 10 CFR Parts 19 and 20, and TSs 3.5 and 4.5 and reviewed the following:

- WI-27-105-01, "Posting and Control of Radiological Areas," Revision 3
- WI-27-105-02, "Management of Occupational Radiation Exposure," Revision 4
- CP-27-105, "Radiation Protection Program," Revision 7
- nuclear safety procedure (NSP) 3550, "Building 105/NTR Work Routines," Revision 13
- NSP 3550-F02\_R0, "Building 105 Semi-Annual and Annual Routines," Revision 0
- NSP 3550-F01\_R0, "Building 105 Daily, Weekly, and Monthly Routines," Revision 0
- GEH VNC VSS Procedure 5.4, "Radiological Surveys," Revision 5
- WI-27-105-01 "Posting and Control of Radiological Areas," Revision 3
- Annual Report No. 59 for the GE-Hitachi NTR, dated March 21, 2019
- Annual Report No. 60 for the GE-Hitachi NTR, dated March 30, 2020
- reviewed radiological surveys (daily, weekly, and monthly)
- reviewed instrument calibration records
- reviewed postings
- reviewed radiological release data for 2020 and 2021

### b. Observations and Findings

The inspector toured the facility and observed maintenance activities. The inspector also observed the use of dosimetry and radiation monitoring equipment. The inspector found practices regarding the use of dosimetry, radiation monitoring equipment, placement of radiological signs and postings, use of protective clothing, and the handling and storing of radioactive material or contaminated equipment was in accordance with regulations and the licensee's written radiation protection program. The inspector also verified that the licensee performed and documented annual self-assessments of the radiation protection program as a tool for assuring that radiation exposure was maintained as low as reasonably achievable.

The inspector reviewed records of radiation surveys and performed additional surveys during the inspection of the nuclear reactor facility and found them within the limits specified by the facility postings. The inspector did not observe any unmarked radioactive material in the facility. The inspector verified that the licensee posted a copy of the current NRC Form 3, "Notice to Employees," required by 10 CFR Part 19 at the entrance to the control room and reactor bay. The inspector reviewed dosimetry results and determined that doses to facility occupants were minimal and below regulatory limits. The inspector found that radiation monitoring devices were calibrated within the frequencies specified in procedures.

The inspector noted that the annual reports referenced above described the gaseous, liquid, and solid waste generated at the facility. The inspector found that the licensee also reported the results of air sampling and thermoluminescent dosimeters placed at locations around the facility as environmental radiation monitors. The inspector verified that the surface water and vegetation were analyzed by the licensee for indications of environmental impacts and the inspector also verified they showed no significant difference from background levels.

c. Conclusion

The inspector determined that the radiation protection program implemented by the licensee satisfied regulatory requirements.

**8. Design Changes**

a. Inspection Scope (IP 69001-02.08)

The inspector reviewed the following to verify compliance with 10 CFR 50.59, regarding design change control:

- change authorization, CA-312, "Remote Area Monitor System 945A Upgrade," Revision A
- CA-315, "NTR Manual Poison Sheet Modification," Revision 0
- CA-316, "NTR Rx Cell RAM failure, 50.59," Revision 0
- CA-317, "Valmet Conductivity Probe/Meter Installation," Revision 0
- reviewed VSS 2.0, "Change Authorization," Revision 22
- reviewed SOP 9.3, "Engineering Release," Revision 0
- document providing additional information for CR 34937, dated March 10, 2021

b. Observations and Findings

The inspector found that the licensee completed several 10 CFR 50.59 screens since the last inspection. The inspector verified that the 10 CFR 50.59 screen forms were used to determine whether a full evaluation of a change was needed. The inspector determined that all changes were reviewed and approved by the senior reactor operator/NTR Manager, Regulatory Compliance, Vallecitos Technological Safety Committee (VTSC), and the VNC Site Manager.

c. Conclusion

The inspector verified that the proposed changes at the facility were analyzed using the 10 CFR 50.59 review process.

## 9. Committees, Audits and Reviews

### a. Inspection Scope (IP 69001-02.09)

The inspector reviewed selected aspects of documents below to verify that the licensee had an oversight committee that conducted reviews and audits as required in TS 6.2:

- VTSC meeting minutes from 3Q2018-4Q2020.
- NTR audit reports from 2Q2019 and 4Q2020

### b. Observations and Findings

The inspector found that TS 6.2 requires that independent reviews shall be performed under a written charter or directive that describes subjects reviewed, responsibilities, authorities, and records. Furthermore, the independent review should include proposed tests and experiments, procedure revisions, proposed TS changes, any violations, and any unusual or operating occurrences.

The inspector reviewed the VTSC quarterly meeting minutes and found that the RSC provided appropriate independent review as required by TS. Additionally, the inspector verified the licensee conducted a quarterly audit of the NTR in accordance with licensee procedures.

### c. Conclusion

The inspector concluded that the VTSC provided the oversight required by the TS.

## 10. Emergency Planning

### a. Inspection Scope (IP 69001-02.10)

To ensure that the emergency preparedness requirements of 10 CFR 50.34, "Contents of applications; technical information," Appendix E, and TS 6.4.1 were met, the inspector reviewed the following:

- vallecitos nuclear center reactor facilities REPP, dated February 2020
- SOP 8.2 "Non-Reactor Emergencies," Revision 0
- SOP 8.3 "Abnormal Operation," Revision 0
- toured the central alarm station (CAS) and reviewed communications equipment
- reviewed the availability of procedures in the CAS and ensured they were up to date
- evacuation drill records from October 31, 2019
- fire drill performed October 28, 2020
- reviewed the training records for emergency response personnel from 2019 and 2020



b. Observations and Findings

The inspector reviewed the GEH REPP and implementing procedures to verify they were current, approved by management, and readily available in several locations for use as required by the REPP.

The inspector confirmed through document review that the licensee continues to maintain current memorandums of understanding with the Alameda Fire Department, Alameda County Sheriff, Falck Emergency Medical Services Ambulance Transport Provider, and the Hospital Committee for the Livermore-Pleasanton Areas, to support both onsite and offsite emergency response. The inspector reviewed training records for reactor staff and verified training was completed annually, as required by the REPP. Additionally, the facility is required to perform a biennial emergency drill in accordance with REPP. The inspector verified that emergency drills for calendar years 2019 and 2020 were conducted resulting in evacuations of the facility and participation of offsite organizations. In addition, the inspector found that the facility considered actual events (e.g. medical emergencies) and incorporated lessons learned into emergency planning.

c. Conclusion

The inspector concluded that the emergency preparedness program was conducted in accordance with the REPP.

## 11. **Maintenance Logs and Records**

a. Inspection Scope (IP 69001-02.11)

To ensure that the maintenance requirements of TS 6.7.1.b were met, the inspector reviewed the following:

- NTR preventative maintenance records 2018 – present
- NTR corrective maintenance cards:
  - safety rod #1, dated July 17, 2019
  - flux chart recorder, dated April 25, 2019
  - south cell door, dated August 7, 2020
  - reactor cell area radiation monitor, dated October 4, 2019
  - source drive limit switch replacement, dated September 8, 2020
  - reactor cell ram failure and replacement, dated August 24, 2020
  - new source log built and installed, dated October 27, 2020
  - "Safety Rod #2 Drive Motor Belt, Anvil," dated June 11, 2020

b. Observations and Findings

The inspector reviewed a selection of maintenance logs and console logbooks. The inspector determined that the selected significant maintenance items reviewed were documented and resolved as required by the licensee's administrative procedures. Additionally, the inspector verified by document review that maintenance records were retained for at least five years as required

by TS 6.7.1.

c. Conclusion

The inspector determined that the licensee maintained records documenting maintenance activities in compliance with TS requirements and NTR procedures.

## **12. Fuel Handling Logs and Records**

a. Inspection Scope (IP 69001-02.12)

To ensure that fuel integrity was maintained, the inspector interviewed licensee personnel and reviewed:

- Annual Report No. 59 for the GE-Hitachi NTR, dated March 21, 2019
- Annual Report No. 60 for the GE-Hitachi NTR, dated March 30, 2020
- NTR console logbooks since the last inspection

b. Observations and Findings

The inspector verified that the licensee did not conduct fuel movements and fuel inspection is not required by the TS. In the event fuel handling is required, the licensee indicated that they would develop procedures to conduct such operations. The inspector found that fuel integrity is verified via the primary chemistry surveillance. The inspector did not identify any issues with the results.

c. Conclusion

The inspector determined that the licensee conducted and documented fuel handling activities in accordance with TS requirements and licensee procedures.

## **13. Transportation Activities**

a. Inspection Scope (IP 86740)

The inspector reviewed the following to verify compliance with regulatory and procedural requirements for shipping or transferring licensed material:

- GEH VNC Vallecitos Safety Standards, Standard No. 7.5, "On-Site Transfers of Radioactive Material," Revision 9

b. Observations and Findings

The inspector noted that the licensee does not ship radioactive material. The inspector found that the irradiated material was held for decay until levels were below established limits, and the transfer forms indicated the material were surveyed prior to custodial change.

c. Conclusion

The inspector concluded that the radioactive material shipments were controlled according to procedures and regulatory requirements.

**14. Exit Interview**

The inspector reviewed the inspection results with members of licensee management at the conclusion of the inspection on March 11, 2021. The licensee acknowledged the results and conclusions presented by the inspector and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection.

## **PARTIAL LIST OF PERSONS CONTACTED**

### **Licensee**

J. Ayala - Radiation Protection Supervisor  
S. Cavanaugh - Security Specialist  
N. Deschine - SRO  
D. Heckman - Licensing Lead  
D. Lind - SRO  
T. McConnell - NTR Manager  
J. Smiley - Environmental Health and Safety Manager

## **INSPECTION PROCEDURES USED**

IP 69001      Class II Research and Test Reactors  
IP 86740      Transportation Activities

## **ITEMS OPENED, CLOSED, AND DISCUSSED**

### **Opened and Closed**

NCV 05000073/2021201-01      Operators not completing the annual operating exam

### **Discussed**

NCV 05000073/2020201-01      Failure to maintain the minimum staffing requirements for having a licensed reactor operator in the Control Room when the reactor was not secured as required by TS 6.1.3.1.a

### **LIST OF ACRONYMS USED**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
CAS	Central Alarm Station
CR	Condition Report
IP	Inspection Procedure
GEH	General Electric - Hitachi
LCOs	Limiting Conditions for Operation
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
NSP	Nuclear Safety Procedure
NTR	Nuclear Test Reactor
REPP	Radiological Emergency Preparedness Plan
SOP	Standard Operating Procedure
TS	Technical Specification
VNC	Vallecitos Nuclear Center
VSS	Vallecitos Safety Standards
VTSC	Vallecitos Technical Safety Council