December 13, 2016

Mr. Matt Feyrer, Site Manager
Vallecitos Nuclear Center
General Electric Company
6705 Vallecitos Road
Sunol, CA 94586

SUBJECT: GENERAL ELECTRIC – NUCLEAR REGULATORY COMMISSION ROUTINE, ANNOUNCED OPERATIONS INSPECTION REPORT NO. 50-73/2016-202

Dear Mr. Feyrer:

From October 3-7, 2016, the U.S. Nuclear Regulatory Commission (NRC, or the Commission) conducted a routine, announced inspection at the General Electric Vallecitos Nuclear Center. The inspection included a review of activities authorized for your facility. The enclosed report documents the inspection results, which were discussed on October 7, 2016, with members of your staff, and a subsequent re-exit meeting over the phone on November 8, 2016, with you and members of your staff.

This inspection was an examination of 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. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because they constitute a failure to meet regulatory requirements that have more than minor safety significance and the licensee failed to identify the violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter and its enclosure 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 Document Access and 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).

If you have any questions concerning this inspection, please contact Ossy Font at 301-415-2490 or by electronic mail at Ossy.Font@nrc.gov.

Sincerely,

/RA/

Anthony J. Mendiola, Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-73
License No. R-33

Enclosures:
1. Notice of Violation
2. NRC Inspection Report
   No. 50-73/2016-202

cc: See next page

General Electric Docket No. 50-73

cc:

Mark Leik, Manager
Regulatory Compliance
GE Hitachi Nuclear Energy
Vallecitos Nuclear Center
6705 Vallecitos Road
Sunol, CA 94586

Daniel Thomas, 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

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
P.O. Box 118300
University of Florida
Gainesville, FL 32611-8300

If you have any questions concerning this inspection, please contact Ossy Font at 301-415-2490 or by electronic mail at Ossy.Font@nrc.gov.

Sincerely,

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OFFICIAL RECORD COPY

NOTICE OF VIOLATION

General Electric Company
General Electric Nuclear Test Reactor

Docket No. 50-073
License No. R-33

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted October 2-6, 2016, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

> In accordance with Technical Specification (TS) 1.2.20.2.b, the reactor is considered secured when the console key is in proper custody. Nuclear Test Reactor (NTR) Standard Operating Procedure (SOP) 6.1, "Staffing Requirements," Section 4.3.2 also states that the reactor is considered secured when the console key is locked in the safe or in the custody of a licensed operator. Additionally, TS 6.1.3.1.a, states that the minimum staffing when the reactor is not secured shall be composed of a licensed operator in the control room.
>
> Contrary to the above, a non-licensed operator had access to the safe where the console key was stored. Additionally, General Electric (GE) did not meet the minimum staffing TS requirement because there was not a licensed operator in the control room when the reactor was not secured.

This is a Severity Level IV violation Section 6.1.d.

> Additionally, in accordance with TS. 6.4.1.h, GE is required to have procedures for Radiation protection. NTR SOP 7.6, "Protective Clothing," Section 5.6 requires the use of protective clothing, including gloves. Vallecitos Safety Standards (VSS) 8.1 states that visitors are not allowed in High Radiation areas. Also, VSS 5.5 "Radiation Work Permits," requires workers to move away from the source of any dose rate alarm and notify a radiation monitoring technician (RMT), and workers to exit the radiological controlled area upon receipt of an accumulated dose alarm and immediately notify the RMT responsible for job coverage.
>
> Contrary to the above, there was a failure to adhere to the radiation safety procedures in place on three occasions during the facility walkthrough portion of an operator license exam.

This is a Severity Level IV violation Section 6.7.d.

Pursuant to the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 2.201, "Notice of violation," the General Electric Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the NRC Inspector of the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation," and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full

compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system Agencywide Documents Access and Management System, accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390, "Public, inspections, exemptions, request for withholding," paragraph (b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21 "Protection of Safeguards Information: Performance Requirements."

In accordance with 10 CFR 19.11, "Posting of Notices to Workers," you may be required to post this Notice within two working days of receipt.

Dated this 13th day of December 2016

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

Docket No.	50-073
License No.	R-33
Report No.	50-073/2016-202
Licensee:	General Electric Company
Facility:	Nuclear Test Reactor
Location:	Sunol, CA
Dates:	October 3-7, 2016
Inspectors:	Ossy Font Michele DeSouza (Examiner)
Approved by:	Anthony J. Mendiola, Chief Research and Test Reactor Oversight Branch Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

General Electric
Vallecitos Nuclear Center
NRC Inspection Report No. 50-073/2016-202

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the General Electric Company (GE, the licensee) Class II research reactor facility safety programs including: (1) experiments; (2) committees, audits and reviews; and (3) transportation. In general, the licensee's programs were acceptably directed toward the protection of public health and safety, and were in compliance with the U.S. Nuclear Regulatory Commission (NRC) requirements; though, two Severity Level IV violations of NRC requirements were identified.

Experiments

- There were no new experiments noted since the last inspection. Previous experiment review and approval was done in accordance with Technical Specification (TS) requirements, licensee procedures, and regulations in Title 10 of the *Code of Federal Regulations* Section 50.59, "Changes, tests and experiments."

Committees, Audits, and Reviews

- The Nuclear Safety Review Group provided the oversight required by the TS.

Transportation

- Radioactive material produced in the reactor were typically transferred to the licensee's state broad scope license and were consistent with procedural requirements.

REPORT DETAILS

Summary of Facility Status

The General Electric Company's (GE, the licensee's) 100 kilowatt research reactor has been operated in support of neutron radiography, reactor operator training, and periodic equipment surveillances. During the inspection the reactor was operated to support radiography operations and examination of reactor operator candidates.

1. Experiments

a. Inspection Scope (IP 69001)

The inspectors reviewed the following to verify compliance with Technical Specification (TS) Sections 3.5 and 4.5, "Experiments," Section 6.2, "Independent Reviews," and Section 6.4, "Procedures":

- Annual Reports for License No. R-33, Docket No. 50-73, for the periods of January 1, 2014 through December 31, 2015
- Nuclear Test Reactor (NTR) Standard Operating Procedures (SOP) (NTR SOP) 10.1 "Experiment Type Approvals," for explosive material radiography, various dates
- NTR Console Log, various dates

b. Observations and Findings

The inspectors reviewed the process for the approval and conduct of experiments at the facility; during this inspection there was a specific focus on experiments involving the radiography of explosive material in the south and north cells. 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 experiments and storage on site were being addressed and in adherence. The inspector determined that the experimental review process and approval for handling and storage of TNT-equivalent explosive material is in accordance with TS and approved procedures.

c. Conclusion

Experiment review and approval was done in accordance with TS requirements, licensee procedures, and 10 CFR 50.59, "Changes, tests, and experiments," regulations.

2. Committees, Audits, and Reviews

a. Inspection Scope (IP 69001)

The inspectors reviewed the following to verify compliance with TS Section 6.2, "Independent Reviews":

- Annual Reports for License No. R-33, Docket No. 50-73, for the last two years
- Vallecitos Technical Safety Council (VTSC) Committee Meeting Minutes for the last two years
- Regulatory Compliance (RC) TS Audit, dated August 8, 2014
- Vallecitos Safety Standards (VSS) 1.1, "Charter – VTSC," Revision 10, dated June 2014
- VSS 25.1, "Document Control"
- Focused Self-Assessment Report NOS-2016-14
- Condition Report (CR) #18612

b. Observations and Findings

The inspectors verified that the Nuclear Safety Review Group (NSRG), composed of the VTSC and RC were in compliance with TS Section 6.2. VTSC composition, meeting quorums, and meeting frequency followed the requirement of VSS 1.1. The inspectors also reviewed the RC's periodic audits of the facility operations, maintenance, and administration. The independent group was completing the audits within the required 2-year cycle.

As a result of a focused self-assessment, the licensee generated CR #18612 when they identified that a number of health and safety standards were not reviewed. An example is the VTSC Charter, which requires an annual review; and contrary to this, the document was not reviewed in 2015.

c. Conclusion

The NSRG provided the oversight required by the TS.

3. Transportation

a. Inspection Scope (IP 86740)

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

- Selected records of radioactive material transfers for the last two years
- GE VNC VSS, Standard No. 7.5, "On-Site Transfers of Radioactive Material"
- Certificates for Transportation of Radioactive Material
- Various Survey Records

b. Observations and Findings

Records showed that radioactive material produced in the reactor and destined to be shipped off site were typically transferred to the facility's State of California Broad Scope License.

Radioactive material to be used on site were also transferred to the broad scope license and distributed by Environmental Health and Safety. The irradiated material was held for decay until levels were below established limits. The transfer forms indicated the material had been surveyed prior to custodial change. The program for radioactive material transfer and transport were consistent with procedural requirements.

The inspector also verified that individuals responsible for transporting radioactive material received radioactive material and transportation of radioactive material training. They are certified every two years.

c. Conclusion

Radioactive material produced in the reactor were typically transferred to the licensee's state broad scope license and were consistent with procedural requirements.

4. **Violations**

During two operator license exams taking place along with the inspections, two violations of NRC requirements were identified.

The operator license candidate, a non-licensed operator, had access to the safe where the console key was stored. As part of his duties, the individual needed access to the safe to acquire different keys for other areas. In accordance with TS 1.2.20.2.b, the reactor is considered secured when the console key is in proper custody. NTR SOP 6.1, "Staffing Requirements," Section 4.3.2 also states that the reactor is considered secured when the console key is locked in the safe or in the custody of a licensed operator. Contrary to this, the reactor was not considered secured every time the safe was opened because the individual had access to the console keys. Additionally, TS 6.1.3.1.a states that the minimum staffing when the reactor is not secured shall be composed of a licensed operator in the control room. Contrary to this, GE did not meet the minimum staffing TS requirement because there was not a licensed operator in the control room when the reactor was not secured. The licensee was informed that this was a Severity Level IV violation (VIO) against their TS and their procedures (VIO 50-73/2016-202-01).

Additionally, in accordance with TS. 6.4.1.h, GE is required to have procedures for Radiation protection. NTR SOP 7.6 Section 5.6 requires the use of protective clothing, including gloves. Contrary to this, on October 4, 2016, during the facility walkthrough portion of an operator license exam, the candidate failed to wear gloves into the high radiation area, twice touching potentially contaminated surfaces. VSS 8.1 states that visitors are not allowed in high radiation areas. VSS 5.5 requires workers to move away from the source of any dose rate alarm and notify a radiation monitoring technician (RMT), and workers to exit the radiological controlled area upon receipt of an accumulated dose alarm and immediately notify the RMT responsible for job coverage. Contrary to this, NRC

staff were required to enter the high radiation area as part of the exam but were considered visitors and issued personal electronic dosimeters (PED) with visitor set points. The lower set points resulted in exceeding and setting off the dose rate limit and dose limit alarms during the exam. Additionally, when the dose rate alarm was activated, the NRC staff walked away from the area, but the RMT was not notified and the facility walkthrough continued. The dose limit alarm was also activated shortly after the candidate realized he was not wearing gloves and had touched potentially contaminated surface and needed to be surveyed. The RMT was not immediately notified of the NRC's PED alarms. The inspector informed the radiation safety officer what occurred. The licensee was informed that this was a Severity Level IV VIO against their TS for failure to follow their procedures (VIO 50-73/2016-202-02).

5. Exit Interview

The inspectors presented the inspection results to licensee management at the conclusion of the inspection on October 7, 2016, with a subsequent re-exit meeting on November 8, 2016. The inspector described the areas inspected and discussed in detail the inspection observations and violations. No dissenting comments were received from the licensee. It was discussed that no proprietary material provided to the inspector during the inspection was removed from the facility.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Caine	Manager, GE VNC
D. Thomas	Manager, NTR
J. Ayala	Radiation Protection Supervisor and Interim Radiation Safety Officer
M. Leik	Manager, EHS

INSPECTION PROCEDURES USED

IP 69001	Class II Research and Test Reactors
IP 86740	Transportation

ITEMS OPENED, CLOSED, AND DISCUSSED

OPENED

50-73/2016-202-01	VIO	Failure to secure the reactor as required by the TS and licensee procedures by giving a non-licensed operator access to the key safe.
50-73/2016-202-02	VIO	Failure to implement the radiation safety procedures required by the TS.

CLOSED

None

DISCUSSED
None

PARTIAL LIST OF ACRONYMS USED

10 CFR	Title 10 of the *Code of Federal Regulations*
ADAMS	Agencywide Document Access and Management System
CR	Condition Report
GE	General Electric
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
NSRG	Nuclear Safety Review Group
NTR	Nuclear Test Reactor
PED	Personal Electronic Dosimeters
RMT	Radiation Monitoring Technician
SOP	Standard Operating Procedure
TS	Technical Specifications
VIO	Violation
VNC	Vallecitos Nuclear Center
VSS	Vallecitos Safety Standard
VTSC	Vallecitos Technological Safety Council