

July 15, 2016

Mr. Thomas Caine  
Vallecitos Nuclear Center  
General Electric Company  
6705 Vallecitos Road  
Sunol, CA 94586

SUBJECT: GENERAL ELECTRIC – U.S. NUCLEAR REGULATORY COMMISSION  
ROUTINE, ANNOUNCED INSPECTION REPORT NO. 50-73/2016-201

Dear Mr. Caine:

From June 13-16, 2016, the U.S. Nuclear Regulatory Commission (NRC, or 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 presents the results of that inspection.

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, no safety concern or non-compliance with NRC requirements was identified. No response to this letter is required.

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, 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 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).

T. Caine

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Should you have any questions concerning this inspection, please contact Ossy Font at 301-415-2490 or by electronic mail at [Ossy.Font@nrc.gov](mailto:Ossy.Font@nrc.gov).

Sincerely,

***/RA by William Schuster for/***

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

Enclosure:  
As stated

cc: See next page

General Electric

Docket No. 50-73

cc:

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

Dan Thomas, Manager NTR  
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Scott Murray, Manager  
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Commissioner  
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Sacramento, CA 95814

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

Test, Research and Training  
Reactor Newsletter  
P.O. Box 118300  
University of Florida  
Gainesville, FL 32611

T. Caine

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

Docket No: 50-73

License No: R-33

Report No: 50-73/2016-201

Licensee: General Electric Company

Facility: Nuclear Test Reactor

Location: Sunol, CA

Dates: June 13-16, 2016

Inspector: Ossy Font

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. 50-73/2016-201

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) procedures; (2) radiation protection program; (3) design changes; and (4) violation follow up. 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.

### Procedures

- Procedure administrative review, revision, adherence to, and implementation satisfied Technical Specification (TS) requirements.

### Radiation Protection Program

- The Radiation Protection Program and as low as reasonable achievable programs satisfied regulatory requirements.

### Design Changes

- Design changes were made in accordance with Title 10 of the *Code of Federal Regulations* 50.59, "Changes, tests and experiments," requirements, TS, and licensee procedures.

### Non-Cited Violation and Requalification Program

- A Severity Level IV non-cited violation was identified for the operation of the reactor by two individuals with expired operator licenses.

## 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 not operated due to a maintenance activity taking place.

#### 1. Procedures

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

To ensure that the requirements of Technical Specification (TS) 6.4, "Procedures," were being met, the inspector reviewed the following:

- Standard Operating Procedure (SOP) 9.4, "Change Authorization," Revision (Rev.) 16, dated June, 6, 2016
- Change Authorization (CA) 1022- SOP 6-7, "Startup Summary," dated January 7, 2016
- CA 1020- SOP 7-5, "Radiation Exposure Limits and Controls," dated May 14, 2015
- CA 1024- 6.1, "Staff Requirements," dated June 6, 2016
- GE Vallecitos Nuclear Center (VNC) Vallecitos Safety Standards (VSS), Various
- GE VNC Annual Report for the GE-Hitachi Nuclear Test Reactor (NTR) for the past two years

##### b. Observations and Findings

Records showed that procedures for TS required items were available. Changes were made for clarification. One change addressed operator distractions, the root cause of the two scrams that occurred in 2015. The licensee maintained approved procedures to satisfy the requirements of the TS.

##### c. Conclusion

Procedure administrative review, revision, adherence to, and implementation satisfied TS requirements.

#### 2. Radiation Protection Program

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

To ensure the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 20, "Standards for Protection Against Radiation," TSs 3.2, 3.4, 4.2, 4.4, and 6.3 requirements were being met, the inspector reviewed the following

Enclosure

- Meeting minutes of the GE VNC as low as reasonable achievable (ALARA) Committee for the past two years
- GE VNC dosimetry records for the past two year, Annual Radiation Protection Program Review for the past two years
- Radiological training records for the past two years
- Survey results for daily, weekly, monthly, routine, and special surveys for the past two years
- Respirator Fit Test and Self Contained Breathing Apparatus Training for the past two years
- Calibration and periodic check records for radiation monitoring instruments for the past two years
- GE VNC VSS, Various
- GE VNC Annual Report for the GE-Hitachi NTR for the past two years
- Form VNC-699, "Request for Additional Exposure," dated September 2011

b. Observations and Findings

The inspector toured the facility and interviewed licensee personnel, observing practices regarding the use of dosimetry, radiation monitoring equipment, and placement of radiological postings and barriers and determined that they were appropriate.

The licensee used a National Voluntary Laboratory Accreditation Program-accredited vendor to process personnel dosimetry. Radiation work permits were used for all activities to track workers and dose sources with appropriate alarm set points depending on each different area. Due to the reduced staffing levels, exposure amounts have increased for the two active license holders, though one is receiving the majority of the increase as the primary reactor operator. The facility has an administrative limit of 300 millirem/quarter. On occasion, a request for additional exposure has been submitted and approved. The inspector noted that, even with these increases, doses were well within the regulatory limits and consistent with the operations of the NTR.

The licensee's Radiation Protection Program (RPP) was established through various standards and procedures in use at the facility. These were maintained and available on-line. The program included requirements that all personnel who performed work in association with radioactive material receive training in radiation protection, policies, procedures, requirements, and facilities. These were being tracked on-line and completed at the required frequency. Additionally, the annual review of the RPP was being completed internally by different managers at the required frequency.

The inspector reviewed survey and calibration records and found that they were being completed as required with no safety issues identified. The inspector also observed surveys being performed and found the process appropriate. Copies of current notices to workers were posted in the facility.



The inspector reviewed the records documenting on-site and off-site effluent and environmental monitoring stations for the past two years. Airborne and water releases were below regulatory limits. Off-site samples indicated normal background.

c. Conclusion

The inspector determined that the RPP and ALARA programs satisfied regulatory requirements.

**3. Design Changes**

a. Inspection Scope (IP 69001)

To ensure the requirements of 10 CFR 50.59, "Changes, tests and experiments," the TS, and the licensee's administrative procedures were being met, the inspector reviewed the following:

- GE VNC Annual Report for the GE-Hitachi NTR for the past two years
- SOP 1.2, "Primary Makeup System," dated October 11, 1994
- SOP 9.4, "Change Authorization," Rev. 16, dated June, 6, 2016
- CA 309-Safety Rod Magnets
- CA 307-Change in Material used in the Primary Makeup System, dated June 3, 2015
- SOP 9.3, "Engineering Releases," Rev. 992
- ER numbers (Nos.) 16-10- Test and Acceptance of Safety Rod No. 1 Magnet Repairs, dated June 14, 2016
- ER Nos. 15-09- Repair of Leak in the Primary Makeup System, dated June 3, 2015
- 10 CFR 50.59, Determination Worksheet
- Safety Rod No. 1 Magnet Assembly Repair
- Change in Material used in the Primary Makeup System

b. Observations and Findings

During the inspection, the licensee conducted a maintenance activity to repair one of the safety rod magnet assemblies. Testing was performed and results correlated with previous data. All changes were reviewed and approved by the Senior Reactor Operator/NTR Manager, Regulatory Compliance, Vallecitos Technological Safety Council, and the VNC Site Manager as required.

c. Conclusion

Design changes were made in accordance with 10 CFR 50.59 requirements, TS, and licensee procedures.

#### 4. Non-Cited Violation Follow up

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

The inspector reviewed selected aspects of the following to review a self-identified violation.

- Condition Report 18665
- NTR Console Log Books, dated from November 10, 2015, to present
- NTR Daily Surveillance Check Sheets, from January 6, 2016, to March 10, 2016
- NRC Inspection Report No. 50-073/2015-201

##### b. Observations and Findings

The inspector followed up on a licensee-identified issue associated with the operation of the GE-NTR reactor by two individuals with expired operator licenses. The inspector determined that this issue represents a violation of 10 CFR 50.54(k), which requires that an operator licensed pursuant to 10 CFR Part 55, "Operators' Licenses," shall be present at the controls at all times during the operation of the facility. Specifically, the operators' licenses expired on January 6, 2016, and was not identified until March 10, 2016. The inspector reviewed logs and identified 21 instances of both individuals operating the reactor, either as the primary operator on duty or in relief of another operator, without supervision by a licensed operator. While the individuals had completed the requalification requirements and biennial medical exam, the licensees failed to submit a renewal application to the NRC. The individuals were immediately removed from reactor operator duties and neither license will be renewed for reasons including retirement of one of the individuals.

To address future operator license renewals, corrective action include the inclusion of expiration and renewal dates in the facility's compliance calendar. Additionally, the licensee is establishing policy and procedures for managing the requirements of 10 CFR Part 55.

The inspector determined that this issue represents a Severity Level IV violation of 10 CFR 50.54(k) based on example 6.4.d of the NRC Enforcement Policy. This non-repetitive, licensee-identified, and corrected violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2.b of the Enforcement Policy (NCV 50-073/2016-201-01).

##### c. Conclusion

A Severity Level IV non-cited violation was identified for the operation of the reactor by two individuals with expired operator licenses.

**5. Exit Interview**

The inspector presented the inspection results to licensee management at the conclusion of the inspection on June 16, 2016. The licensee acknowledged the findings presented 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**

S. Murray	GEH Manager
D. Hart	EHS Senior Vice President
M. Leik	EHS and Regulatory Compliance Manager
D. Thomas	NTR Manager
T. McConnell	Senior Reactor Operator
J. Ayala	Radiation Safety Officer

### **Others**

M. Kleman	Employees Resource Manager
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## **INSPECTION PROCEDURES USED**

IP 69001	Class II Research and Test Reactors
IP 86740	Transportation

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

### **OPENED**

50-073/2016-201-01	NCV	Reactor operation by two individuals with expired operator licenses.
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### **CLOSED**

50-073/2016-201-01	NCV	Reactor operation by two individuals with expired operator licenses.
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### **DISCUSSED**

None

## **PARTIAL LIST OF ACRONYMS USED**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ALARA	As Low As Reasonably Achievable
EHS	Environmental Health and Safety
GE	General Electric Company
GEH	GE Hitachi
IP	Inspection Procedure
No.	Number
NRC	U.S. Nuclear Regulatory Commission
NTR	Nuclear Test Reactor
Rev.	Revision
RPP	Radiation Protection Program
SOP	Standard Operating Procedure
TS	Technical Specification
VNC	Vallecitos Nuclear Center
VSS	Vallecitos Safety Standard