

UNITED STATES NUCLEAR REGULATORY COMMISSION REGION IV 1600 E LAMAR BLVD ARLINGTON, TX 76011-4511

December 3, 2014

Mr. Thomas A. Caine, Manager Vallecitos Nuclear Center GE-Hitachi Nuclear Energy 6705 Vallecitos Road Sunol, CA 94586

SUBJECT: NRC INSPECTION REPORT 070-00754/14-002 AND NOTICE OF VIOLATION

Dear Mr. Caine:

This letter refers to the inspection conducted on September 16-18, 2014, at your Vallecitos Nuclear Center in Sunol, California, with continued in-office inspection-related activities through November 24, 2014. During this inspection, the U.S. Nuclear Regulatory Commission (NRC) staff examined activities conducted under your license as they relate to public health and safety 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. The preliminary inspection findings were presented to you at the conclusion of the onsite inspection, and the final inspection findings were presented to you by telephone on November 14, 2014. The enclosed report presents the results of this inspection.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The violation involves your failure to conduct annual criticality safety refresher training between August 2011 and September 2014, a violation of your license. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (<u>http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html</u>). The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in accordance with the requirements of the NRC Enforcement Policy, Section 2.3.2, because the NRC identified the violation.

The NRC has concluded that information regarding: (1) the reason for the violation; (2) the corrective actions that have been taken and the results achieved; and (3) the date when full compliance will be achieved is already adequately addressed on the docket in your letter dated November 24, 2014 (ML14328A750). Therefore, you are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," 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 Web site at <u>http://www.nrc.gov/reading-</u>

<u>rm/adams.html</u>. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Dr. Robert Evans, Senior Health Physicist, at 817-200-1234 or the undersigned at 817-200-1191.

Sincerely,

/RA/

Ray L. Kellar, P.E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety

Docket: 070-00754 License: SNM-960

Enclosures:

- 1. NRC Notice of Violation
- 2. NRC Inspection Report 070-00754/14-002

cc w/encls:

Scott P. Murray, Manager, GE-Hitachi Nuclear Energy Dr. Robert B. Weisenmiller, Commissioner, California Energy Commission Gonzalo Perez, Chief, California Dept. of Public Health Ron Rogus, Senior Health Physicist, California Dept. of Public Health Kent M. Prendergast, Senior Health Physicist, California Dept. of Public Health Marylia Kelley, Executive Director, Tri-Valley CARES Pleasanton Public Library In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," 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 Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary, information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Dr. Robert Evans, Senior Health Physicist, at 817-200-1234 or the undersigned at 817-200-1191.

Sincerely,

/RA/

Ray L. Kellar, P.E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety

Docket: 070-00754 License: SNM-960

Enclosures:

- 1. NRC Notice of Violation
- 2. NRC Inspection Report 070-00754/14-002

cc w/encls:

Scott P. Murray, Manager, GE-Hitachi Nuclear Energy Dr. Robert B. Weisenmiller, Commissioner, California Energy Commission Gonzalo Perez, Chief, California Dept. of Public Health Ron Rogus, Senior Health Physicist, California Dept. of Public Health Kent M. Prendergast, Senior Health Physicist, California Dept. of Public Health Marylia Kelley, Executive Director, Tri-Valley CARES Pleasanton Public Library

DISTRIBUTION w/encl:

Breeda Reilly, NMSS/FCSE/ECB Mark Shaffer, D:DNMS Ray Keller, C:RSFS Gerald Schlapper, RSFS Brian W. Smith, NMSS/FCSE/ECB Linda Howell, DD:DNMS Robert Evans, RSFS M. Herrera, Fee Coordinator

SUNSI Review	ADAMS	Publicly Available		Non-Sensitiv	'e	Keyword:
By: RJE	■ Yes □ No	Non-Publicly Availa	ble	Sensitive		
OFFICE	RIV:DNMS:RSFS	C:RSFS				
NAME	RJEvans	RLKellar				
SIGNATURE	/RA/	/RA/				
DATE	11/25/14	12/03/14				

DOCUMENT NAME: S:DNMS\!RSFS\RJE\GE-Hitachi SNM 14-002.docx

OFFICIAL RECORD COPY

GE-Hitachi CC List:

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

Dr. Robert B. Weisenmiller, Commissioner California Energy Commission 1516 Ninth Street (MS 33) Sacramento, CA 95814

Gonzalo Perez, Chief California Dept. of Public Health Radiologic Health Branch, MS 7610 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 P.O. Box 997414, MS 7610 Sacramento, CA 95899-7414

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

Marylia Kelley, Executive Director Tri-Valley CARES 2582 Old First Street Livermore, CA 94550

Pleasanton Public Library 400 Old Bernal Avenue Pleasanton, CA 94566

NOTICE OF VIOLATION

GE-Hitachi Nuclear Energy Americas LLC Sunol, California

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

During an NRC inspection conducted on September 16-18, 2014, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

NRC Materials License SNM-960, Condition S-1, states, in part, that the authorized use is for activities in accordance with statements, representations, and conditions specified in Appendix A of the licensee's application.

Appendix A, Section 5.8 states that "area managers shall assure that new employees receive instruction in criticality safety...prior to their working with special nuclear materials (SNM) in a criticality limit area. A criticality control training program...shall be maintained to emphasize the need for following criticality control procedures and to aid personnel in understanding the various parameters which are essential to the maintenance of subcritical conditions....Employees requiring criticality safety training shall receive refresher training annually."

Contrary to the above, between August 2011 and September 16, 2014, employees requiring criticality safety training did not receive refresher training annually. Specifically, for a period in excess of one year, the licensee conducted work with SNM in criticality limit areas without receiving annual refresher training.

This is a Severity Level IV violation (Section 6.3).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance will be achieved, is already adequately addressed on the docket in the licensee's letter dated November 24, 2014 (ML14328A750). However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region IV, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you choose to respond, your response 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 Web site at http://www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

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

Dated this 3rd day of December 2014

U.S. NUCLEAR REGULATORY COMMISSION REGION IV

Docket:	070-00754
License:	SNM-960
Report:	070-00754/14-002
Licensee:	GE-Hitachi Nuclear Energy
Facility:	Vallecitos Nuclear Center
Location:	Sunol, California
Dates:	September 16-18, 2014
Inspector:	Robert Evans, Ph.D., P.E., C.H.P., Senior Health Physicist Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety Region IV
Accompanied by:	Breeda M. Reilly, Senior Project Manager Enrichment and Conversion Branch Division of Fuel Cycle Safety, Safeguards, and Environmental Review Office of Nuclear Material Safety and Safeguards
	Brian W. Smith, Branch Chief Enrichment and Conversion Branch Division of Fuel Cycle Safety, Safeguards, and Environmental Review Office of Nuclear Material Safety and Safeguards
	Ray L. Kellar, P.E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety Region IV
Approved by:	Ray L. Kellar, P.E., Chief Repository and Spent Fuel Safety Branch Division of Nuclear Materials Safety Region IV
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

GE-Hitachi Nuclear Energy Americas LLC U.S. Nuclear Regulatory Commission (NRC) Inspection Report 070-00754/14-002

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

Management Organization and Controls

• 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. The licensee implemented the onsite safety review committee as stipulated in the license. (Section 1)

Operational Safety

• The licensee consolidated the onsite special nuclear material (SNM) in accordance with its SNM consolidation plan. The SNM that remains outside of the storage bunker was being controlled by the licensee in secured locations. The inspector conducted site tours and noted that the area postings and security were adequate. (Section 2)

Training

• The licensee conducted training of site workers in accordance with regulatory requirements and site procedures, with one exception. The licensee's failure to conduct annual criticality safety refresher training between August 2011 and September 2014 was identified as a violation of the license. After the conclusion of the onsite inspection, the licensee took corrective actions which should prevent recurrence of the violation. (Section 3)

Maintenance and Surveillance of Safety Controls

• The licensee maintained the criticality alarm systems in accordance with regulatory requirements and site procedures. The licensee maintained calibration records for portable instrumentation. In response to NRC discussions, the licensee agreed to conduct a technical review of its default instrument efficiencies used to convert count rate measurements. (Section 4)

Emergency Preparedness and Fire Protection

• The licensee continued to maintain its emergency control and fire protection programs in accordance with license and procedural requirements. (Section 5)

Report Details

Summary of Plant Status

At the time of the inspection, the licensee continued to possess special nuclear material (SNM) at the Vallecitos Nuclear Center. Previously, licensed activities included fuel examinations within various hot cells. At the time of this inspection, no fuel examinations were in progress and most SNM remained in storage. Other work in progress included manufacturing of sealed sources under the licensee's State of California license.

On September 30, 2009, GE-Hitachi Nuclear Energy submitted a renewal application for its SNM-960 license. The SNM license expired on June 30, 2010, but the license remains under timely renewal as provided in Title 10 of the *Code of Federal Regulations* (CFR) 2.109(a). After consultation with NRC and State of California staff, the licensee resubmitted its renewal application in November 2012, requesting that the license be converted to a possession and storage only license. In response to NRC comments, the licensee submitted a revised license renewal application to the NRC by letter dated December 13, 2013. The licensee subsequently submitted an updated license renewal application to the NRC staff continued to review the licensee's revised application.

In addition to the license renewal, the licensee submitted updated Decommissioning Funding Plans (DFPs) to the NRC and State of California in November 2012, based on the licensee's revised license renewal application. By letter dated September 11, 2013, the NRC rejected the licensee's proposed DFPs. The licensee submitted a revised DFP to the NRC by letter dated January 31, 2014. The licensee subsequently submitted an updated DFP by letter dated August 1, 2014, based on additional discussions with the NRC. At the close of the inspection period, the NRC staff continued to review the licensee's updated DFP.

1 Management Organization and Controls (88005)

1.1 Inspection Scope

The inspector reviewed the licensee's oversight and control of licensed activities.

1.2 Observations and Findings

The personnel requirements are provided in Section 4 of Appendix A to the license. (Appendix A is referenced in License Condition S-1.) At the time of the inspection, all managerial and staff positions were filled with qualified individuals. The radiation safety staff included the radiation safety manager, radiation protection supervisor, and four technicians. Other site staff who provided support to the radiation protection department included the instrument technician who performed instrument calibrations and the radiochemistry leader who was responsible for onsite radiological sample analyses. In summary, site staffing was adequate to fulfill the requirements of the license.

The licensee implemented one staff change since the previous inspection. By letter dated May 30, 2014, the licensee notified the California Department of Public Health of a change in radiation safety managers. (The NRC licenses do not specifically require the licensee to notify the NRC of changes in the radiation safety manager position.) The inspector reviewed the qualifications of the new radiation safety manager against the

minimum qualification requirements provided in Section 4.3 of Appendix A to the license. The inspector concluded that the new individual assigned to the position met the minimum education and experience requirements provided in the license.

Regulation 10 CFR 20.1101(c) requires licensees to conduct annual reviews of the radiation protection program content and implementation. In addition, Section 4.4 of Appendix A specifies that the licensee's Vallecitos Technological Safety Council (VTSC) shall review annually the site safety and compliance program performance. The inspector reviewed the licensee's annual audit, conducted in March 2014. The auditor identified several areas for potential improvement including consistency between radiological survey maps and area postings. The auditor also noted that the licensee took corrective actions when notified of this recommendation. The inspector concluded that the audit met regulatory requirements.

The inspector also reviewed the status of the VTSC. The license requires the VTSC to meet at least quarterly and discuss relevant topics including radiation and criticality safety. The inspector reviewed meeting minutes from recent VTSC quarterly meetings. The VTSC discussed relevant topics including As Low As Reasonably Achievable (ALARA) goals for occupational exposures. In summary, the VTSC continued to function in accordance with license requirements.

1.3 <u>Conclusions</u>

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. The licensee implemented the onsite safety review committee as stipulated in the license.

2 Operational Safety (88020)

2.1 Inspection Scope

The inspector reviewed the licensee's control of operational activities to ensure compliance with license and procedure requirements.

2.2 Observations and Findings

The licensee plans to convert its SNM license from a possession and use license into a limited use license. In support of this effort, the licensee developed an inventory consolidation plan. The purpose of the consolidation plan was to reduce the inventory of SNM within site laboratories and hot cells, and to consolidate and store this material at the onsite storage bunker. The inspector reviewed the status of the licensee's SNM consolidation efforts.

The consolidation of the SNM was conducted in phases. One of the first phases involved the transfer of some SNM to the licensee's out-of-state fuel fabrication facility for recycling and reuse. The inventory consolidation plan also provided instructions for shipment of some residual SNM and other non-SNM wastes to an out-of-state disposal facility. The majority of the SNM will be stored in the onsite storage bunker. At the end of calendar year 2013, the licensee had completed the transfer of most SNM to the

storage bunker. The licensee subsequently submitted an updated SNM consolidation status report to the NRC by letter dated February 27, 2014.

In July 2014, the licensee transferred additional SNM to the storage facility. The inspector reviewed the transfer records and discussed the transfer with licensee staff. At the time of the inspection, only small quantities of SNM remained outside of the storage bunker. The inspector discussed the status of the February 2014 consolidation status report with licensee staff, and the licensee's staff agreed to update the report in the near future to document the current status of the SNM inventory.

During site tours, the inspector reviewed the security of SNM and conducted independent gamma exposure rate measurements using an NRC-issued Ludlum Model 2401-EC2 survey meter (NRC number 21450G, calibration due date of 11/07/14). The inspector noted that the licensee maintained control over the SNM n storage. The inspector's survey results during the site tour were consistent with the licensee's area postings.

2.3 <u>Conclusions</u>

The licensee consolidated the onsite special nuclear material (SNM) in accordance with its SNM consolidation plan. The SNM that remains outside of the storage bunker was being controlled by the licensee in secured locations. The inspector conducted site tours and noted that the area postings and security were adequate.

3 Training (88010)

3.1 Inspection Scope

The inspector reviewed the licensee's training programs for compliance with regulatory and license requirements.

3.2 Observations and Findings

Regulation 10 CFR 19.12 requires licensees to provide instructions to workers. Additional training requirements are provided in the appendix to the license. Appendix A, Section 4.3 specifies that a training program will be established to control contamination and radiation exposure to individuals. Section 7.3 provides instructions for radiation safety training including initial and refresher training. In addition, Section 5.8 specifies that a criticality control training program shall be maintained to emphasize the need to follow criticality control procedures and to aid personnel in understanding the various parameters which are essential to maintaining subcritical conditions. The inspector reviewed the licensee's implementation of its training programs for site workers.

Site Safety Standard 8.1, Radiological Training, Revision 8, provided detailed instructions for radiological training. The inspector reviewed selected employee training files and found the files to be complete. The licensee's records suggest that employees were being trained in radiation protection. Routine refresher training was offered electronically. The licensee's representative noted that refresher training had to be completed before employees could access the electronic radiation work permits. Respiratory protection and self-contained breathing apparatus training, medical clearances, and fit tests were provided to site workers in July-August 2014. In addition, individuals who signed or reviewed shipping papers received third-party training for the types of material being shipped.

The inspector also observed that the licensee offered first aid, hazardous material worker, fire team, fire extinguisher, building emergency team, and general emergency response training in 2014. However, the licensee did not always clearly document special or unique training such as on-the-job training for the radiochemistry staff; although, the inspector noted that the licensee was not required by procedure to conduct and document specialty training.

The inspector also reviewed the licensee's criticality safety training. Appendix A, Section 5.8 states that "employees requiring criticality training shall receive refresher training annually." The licensee expanded on this requirement in Safety Standard 8.1. Step 4.3 of this Standard states that criticality safety training shall be provided for personnel handling fissile materials in excess of 350-grams of equivalent uranium-235. The purpose of this training, according to the Standard, is to emphasize the requirements for following precise instructions but not to teach personnel how to set criticality limits.

During discussions with licensee staff, the inspector noted that the last formal criticality training had been held in August 2011. The licensee's training representative stated that, based on the wording of the Standard, it did not have to provide annual refresher training since August 2011 because its staff did not handle more than 350 grams of equivalent uranium-235 during its SNM consolidation efforts. In particular, the licensee's staff handled less than 300 grams at a time and closely followed site procedures. As a result, the licensee concluded that its staff did not meet the criteria for refresher training.

The NRC inspector noted that the license did not specify SNM quantity limits for refresher training. However, the license specifies that training is required if working with SNM in criticality limit areas, and the licensee handled SNM in criticality limit areas since August 2011 as part of its consolidation efforts. The licensee's failure to conduct license-required criticality safety refresher training between August 2011 and September 2014 was identified as a violation of License Condition S-1 which references Appendix A to the license (VIO 070-00754/1402-01).

The possibility of a criticality accident was remote; however, the inspector noted that the licensee did not always implement the double contingency principle during its consolidation efforts. The double contingency principle requires that process designs should incorporate sufficient factors of safety to require at least two unlikely, independent, and concurrent changes in process conditions before a criticality accident is possible. The licensee managed the SNM consolidation efforts mainly through administrative controls. Training was important because concurrent administrative failures, which would ordinarily be unlikely and independent (as required for double contingency), may conceivably occur if workers are not properly trained. In addition, the licensee's staff had to manage complex administrative tasks such as verifying SNM mass limits, tracking movement of SNM between areas, and ensuring physical spacing of containers during SNM movement. The inspector concluded that refresher training was necessary to reinforce the various controls needed to implement the double contingency principle while working in criticality limit areas. Therefore, the licensee's

failure to conduct refresher training since August 2011 had more than minor safety significance.

The inspector also concluded that the licensee incorrectly interpreted the license condition when it applied a 350-gram limit to refresher training in Safety Standard 8.1, instead of implementing the training requirement for working with SNM in criticality limit areas as specified in Section 5.8 of Appendix A to the license.

In response to the inspector's observations, the licensee instigated a Condition Report to investigate whether criticality training was required to be conducted in the 2012-2014 timeframe. The licensee concluded that the site procedure and site practices were out of compliance with license requirements. The licensee subsequently conducted refresher training, updated Safety Standard 8.1, and added a compliance calendar item to provide an annual reminder for this training. These corrective actions were completed by November 19, 2014.

The licensee voluntarily notified the NRC by letter dated November 24, 2014 (ML14328A750), of the corrective actions taken in response to the violation. The NRC inspector reviewed the licensee's response letter and concluded that the licensee adequately addressed the regulatory noncompliance. The NRC staff will review the implementation of these corrective actions during a future inspection to determine whether full compliance has been restored and will be maintained.

At the conclusion of the onsite inspection, the NRC was still reviewing the licensee's application for license renewal. The licensee informed the inspector that once the SNM license is renewed, the site training program will be revised as appropriate for consistency with the renewed license.

3.3 <u>Conclusions</u>

The licensee conducted training of site workers in accordance with regulatory requirements and site procedures, with one exception. The licensee's failure to conduct annual criticality safety refresher training between August 2011 and September 2014 was identified as a violation of the license. After the conclusion of the onsite inspection, the licensee took corrective actions which should prevent recurrence of the violation.

4 Maintenance and Surveillance of Safety Controls (88025)

4.1 Inspection Scope

The inspector conducted a review of the licensee's criticality alarm systems to ensure compliance with regulatory and procedure requirements. The inspector also conducted a review of radiation detection instrumentation calibrations.

4.2 Observations and Findings

Regulation 10 CFR 70.24 requires licensees to maintain criticality alarm systems. The licensee maintains two criticality alarm systems to monitor for criticality accidents. Each alarm system consists of three detectors, and a criticality alarm will activate if two of three detectors measure radiation levels above the alarm setpoints. Each alarm system

has two alarm setpoints, the alert and the high level alarm. The inspector reviewed the licensee's operation and maintenance of its two alarm systems.

The licensee conducted monthly criticality system functional tests in accordance with site procedures. The most recent test was conducted in early September 2014. The as-left alarm setpoints were in agreement with license requirements. The inspector also inquired about the status of the annual calibration. The last annual calibration was conducted in March 2014.

To support the movement of SNM in July 2014, the licensee temporarily readjusted the alarm setpoints. Change authorization 14-005 was issued to document the temporary change. This temporary change increased the alarm setpoint for the detectors to prevent spurious activation of the criticality alarm. The inspector confirmed that the licensee reset the alarm setpoints after completion of the SNM transfer.

The licensee continued to conduct maintenance on the systems to maintain operability. In recent months, the licensee continued to replace failed components with spare parts. The licensee is also considering its options for removing one of two criticality alarm systems from service since most SNM has been consolidated into the storage bunker. The remaining quantity of SNM outside of the storage facility was insufficient for criticality. The licensee plans to leave the wiring, relays, and horns in place in case the system has to be restored to service in the future. At the time of the inspection, the licensee had not implemented the change, pending further review of the change authorization.

The inspector also reviewed the licensee's calibration records for survey instrumentation in use at the site. By procedure, the licensee is required to calibrate its portable monitoring equipment at least annually. The licensee is authorized by the State of California to conduct instrument calibrations. Certain instruments had to be calibrated by a vendor, depending on the type of instrument. In summary, the licensee maintained records of instrument calibrations.

The inspector noted that the licensee routinely used conservative default instrument efficiencies when converting surface measurements from counts per minute to disintegrations per minute. This conversion was necessary to allow the licensee to compare the survey results to release limits. The licensee used a default conversion of 10-percent for alpha particulate measurements and 20-percent for beta-gamma measurements. These default conversions were included in at least two of the licensee's procedures including Nuclear Safety Procedure 3060, Revision 9, "Radiation Survey and Reporting."

The inspector questioned licensee representatives about the technical bases for these default efficiencies, in part, because the radionuclide mixture at the site may have changed over time. The licensee's staff agreed to confirm whether the two default efficiencies continued to be conservatively established. The licensee issued a Condition Report to investigate and document the technical bases for the two instrument efficiencies. The inspector will review the licensee's evaluation during a future inspection.

4.3 <u>Conclusions</u>

The licensee maintained the criticality alarm systems in accordance with regulatory requirements and site procedures. The licensee maintained calibration records for portable instrumentation. In response to NRC discussions, the licensee agreed to conduct a technical review of its default instrument efficiencies used to convert count rate measurements.

5 Emergency Preparedness and Fire Protection (88050 and 88055)

5.1 Inspection Scope

The inspector reviewed the licensee's fire protection program to evaluate the operational status and material condition of the fire protection systems. The inspectors also reviewed the licensee's emergency preparedness program to ensure compliance with license and regulatory requirements

5.2 Observations and Findings

Section 4.5 of Appendix A to the SNM license requires the licensee to establish emergency procedures. The inspector reviewed the licensee's emergency control and fire protection procedures. The inspector interviewed the licensee's fire chief. The inspector also conducted a walk-down of the licensee's emergency equipment.

The licensee has established three emergency notifications—notification of unusual event, alert, and site area emergency. The licensee concluded that it does not have sufficient radioactive material for the general emergency classification. The licensee has established an emergency response organization, emergency communications, and dedicated emergency equipment. The licensee's emergency control procedure also established the various scenarios for requesting offsite support and notifying government agencies.

The inspector reviewed the licensee's readiness for three types of emergencies—fire, criticality accident, and radiation emergency. The inspector confirmed that the licensee had established procedures, conducted training, and provided dedicated emergency equipment for these potential emergencies. The inspector noted that the licensee's emergency control procedure suggested that support staff would be onsite at all times; however, the licensee recently reduced staffing levels during non-working hours. The licensee agreed to update the applicable emergency procedure accordingly to discuss staff actions during off-normal working hours.

The inspector reviewed the status of the licensee's emergency training programs. The licensee had conducted and documented all required training, including training for the onsite fire team. The inspector observed the status of the stored emergency equipment. The licensee maintained equipment including self-contained breathing apparatus, air sampling pumps, cleanup kits, and radiological survey instruments. The licensee conducted an inventory of the equipment in March 2014, and the licensee visually verified the integrity of cabinet seals on a routine frequency. The inspector noted that the licensee continued to maintain a fire truck onsite, although site procedures did not clearly discuss the use of this equipment during emergency situations. The licensee

agreed to update its emergency procedures to include use of the fire truck as appropriate.

5.3 <u>Conclusions</u>

The licensee continued to maintain its emergency control and fire protection programs in accordance with license and procedural requirements.

6 Exit Meeting Summary

The inspector presented the preliminary inspection results to the licensee's representatives at the conclusion of the onsite inspection on September 18, 2014. The inspector presented the final inspection results to the licensee's staff by telephone on November 14, 2014. Representatives of the licensee acknowledged the findings as presented. During the inspection, the licensee did not identify any information reviewed by the inspector as proprietary.

SUPPLEMENTAL INSPECTION INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

<u>Licensee</u>

- J. Ayala, Radiation Protection Supervisor
- T. Caine, Manager, Vallecitos Nuclear Center
- T. Christman, Manager, Advanced Programs
- E. Hagberg, Radiological Measurement Technician
- D. Krause, Program Manager, Regulatory Compliance
- S. Murray, Manager, Facility Licensing
- E. Saito, Manager, Environmental Health and Safety

INSPECTION PROCEDURES USED

- IP 88005 Management Organization and Controls
- IP 88010 Training
- IP 88020 Operational Safety
- IP 88025 Maintenance and Surveillance of Safety Controls
- IP 88050 Emergency Preparedness
- IP 88055 Fire Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Opened</u>

070-00754/1402-01

VIO Failure to conduct annual criticality refresher training

<u>Closed</u>

None

Discussed

None

LIST OF ACRONYMS

ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
DFP	Decommissioning Funding Plan
IP	Inspection Procedure
NRC	U.S. Nuclear Regulatory Commission
SNM	special nuclear material
VTSC	Vallecitos Technological Safety Council