



**HITACHI**

**GE Hitachi Nuclear Energy**

**Donald R. Krause**  
Manager, Regulatory Compliance and EHS  
Vallecitos Nuclear Center

6705 Vallecitos Rd  
Sunol, CA 94586  
USA

T 925 862 4360  
F 925 304-7435  
Donald.Krause@ge.com

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U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**Attn: Document Control Desk**

**Subject: Reply to a Notice of Violation; EA-10-096**

- References:
- 1) SNM-960, Docket 070-00754
  - 2) NRC Notice of Violation, EA-10-096, December 16, 2010
  - 3) NRC Inspection Report, 070-00754/10-001, October 8, 2010
  - 4) GEH VNC Pre-decisional Enforcement Conference, NRC R IV, November 10, 2010
  - 5) 30-day Report of Event - Contamination greater than 200 dpm/100 cm<sup>2</sup> alpha outside a restricted area, D. Krause to Document Control Desk, June 30, 2010
  - 6) NRC Pre-decisional Enforcement Conference Summary, EA-10-096, November 29, 2010
  - 7) Vallecitos Facility Inspection - NRC Request Response, D. W. Turner to G. Schlapper, August 19, 2010
  - 8) Vallecitos Facility Inspection - NRC Request Response, D. W. Turner to R. Evans, August 25, 2010

Enclosed with this letter is GE Hitachi Nuclear Energy's (GEH) response to the Notice of Violations described in Reference 2. The NRC cited three violations that were identified as apparent violations during an NRC inspection conducted at Vallecitos Nuclear Center (VNC) April 5 - 8, 2010 and August 16 - 19, 2010 (Reference 3).

The attachment provides GEH's response to the violations and details the actions taken to address these concerns. These actions were discussed at the Pre-decisional Enforcement Conference meeting with NRC on November 10, 2010 (Reference 4).

If additional information is needed regarding these events, please contact me on (925) 862-4360.

Sincerely,

Donald R. Krause  
Manager, Regulatory Compliance & EHS

Attachment

Cc file: DRK-2011-01  
E. Collins, Regional Administrator, USNRC R IV, Arlington, TX  
R. Evans, USNRC R IV, Arlington, TX  
G. Schlapper, USNRC R IV, Arlington, TX  
C. Ryder, EBB, Rockville, MD  
J. Buckley, TWFN, Rockville, MD  
G. Butler, CA RHB, Sacramento, CA

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## Attachment

### **Discussion**

By letter dated December 16, 2010, the NRC issued three violations to GEH relating to events that were identified during a routine inspection and follow-up questioning over a period of six months. The inspection was conducted on April 5-8 and August 16-19, 2010 and was a routine examination of activities conducted under the SNM 960 license. The final exit briefing was conducted telephonically on September 23, 2010. Details about the three apparent violations are provided in NRC Inspection Report 070-00754/10-001, which was issued on October 8, 2010 (ML102860111) (Reference 3).

On November 10, 2010, a pre-decisional enforcement conference was conducted in the Region IV office with GEH to discuss the apparent violations, their significance, their root causes, and VNC's corrective actions. During the pre-decisional enforcement conference, GEH provided their proposed corrective actions to prevent recurrence of the incident, and stated that VNC's short and long term corrective actions had been completed.

The violations involved: (1) the failure to follow procedures; (2) the failure to perform adequate surveys; and (3) the failure to issue a 30-day written report on time. When used in this letter, "Contractor" refers to the contract workers and their employer, for whose actions GEH is responsible as the license holder.

The following summarizes the NRC's findings.

### **Violation 070-00754/EA-10-096-01**

Special Nuclear License SNM-960, Condition S-9, states that the licensee shall establish, maintain, and follow written procedures for carrying out licensed activities.

Contrary to the above, on February 16, 2010, the licensee failed to follow "Personnel Contamination Monitoring, Reporting, and Decontamination," Revision 2, Section VI.A.1. Specifically, when exiting the area on February 16, 2010, a Contractor worker identified contamination on his wrist at 240-260 corrected counts per minute, but failed to log the personnel contamination as required by licensee procedure.

This is a Severity Level III violation (Section 6.7).

### **Violation 070-00754/EA-10-096-02**

10 CFR 20.1501 requires that each licensee make or cause to be made surveys that may be necessary for the licensee to comply with the regulations in 10 CFR Part 20 and that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, concentrations or quantities of radioactive materials, and the potential radiological hazards that could be present. Per 10 CFR 20.1003, *Survey* means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation.

Contrary to the above, on February 16, 2010, the licensee did not make or cause to be made surveys that were reasonable under the circumstances to evaluate the concentrations or quantities of radioactive material. Although the Contractor workers performed a survey after a transuranic contamination event, they specifically failed to perform an *effective* whole body survey (frisk) prior to exiting the restricted area. As a result, the workers left the site with contaminated clothing.

This is a Severity Level III violation (Section 6.7).

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### **Violation 070-00754/EA-10-096-03**

10 CFR 20.2203(a)(3) states, in part, that each licensee shall submit a written report within 30 days after learning of any of the following occurrences: Levels of radiation or concentrations of radioactive material in:

- (i) A restricted area in excess of any applicable limit in the license; or
- (ii) An unrestricted area in excess of 10 times any applicable limit set forth in 10 CFR Part 20 or in the license (whether or not involving exposure of any individual in excess of the limits in § 20.1301).

Contrary to the above, as of March 21, 2010, the licensee failed to submit a written report within 30 days after learning of an occurrence that resulted in levels of radiation or concentrations of radioactive material in an unrestricted area in excess of 10 times any applicable limit set forth in this part or in the license (whether or not involving exposure of any individual in excess of the limits in § 20.1301).

Specifically, on February 19, 2010, the licensee discovered a contamination incident that resulted in clothing contaminated with special nuclear material in excess of 10 times the applicable limit specified in the license of 20 disintegrations per minute (dpm) per 100 square centimeters. In particular, with a reporting limit of 200 dpm per 100 square centimeters, a shoe was identified with 606 dpm per 100 square centimeters – an amount greater than 10 times the applicable limit – in an unrestricted area. The required report was submitted to the NRC on June 30, 2010. The 30-day interval for this report required submission by March 21, 2010.

This is a Severity Level IV violation (Section 6.9).

### **GEH's Response to Violations:**

#### **1. Admission or denial of the alleged violations**

096-01: GEH admits that its Contractor workers failed to follow "Personnel Contamination Monitoring, Reporting, and Decontamination," Revision 2, Section VI.A.1.

096-02: GEH admits that its Contractor workers did not make or cause to be made surveys that were reasonable under the circumstances to evaluate the concentrations or quantities of radioactive material.

096-03: GEH admits that it failed to submit a written report within 30 days after learning of an occurrence that resulted in levels of radiation or concentrations of radioactive material in an unrestricted area in excess of 10 times any applicable limit set forth in this part (10CFR20) or in the license (whether or not involving exposure of any individual in excess of the limits in § 20.1301).

GEH agrees that the event resulting in the first two violations had potential significant consequences. GEH also agrees with the NRC assessment that the delay in reporting could have impacted the NRC's ability to perform its regulatory function.

#### **2. The reasons for the violation if admitted, and if denied, the basis for denying the validity of the violation**

GEH conducted an extensive root cause analysis to determine the actions causing the events of February 16 and 17, 2010. The results of this analysis are as detailed in the root cause analysis provided to the NRC during the August inspection, and a summary is as follows:

Probable Cause Of Event was that the individuals failed to perform a whole body frisk as required. The contaminated items were not detected during the routine frisk upon exiting the area.

##### Apparent Causes

- No procedure was generated or issued to cover the non-routine activity of opening and smearing objects inside a closed drum.

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- Individuals and supervisors completing the task did not recognize that the non-routine activity (drum opening) required a special procedure. The only person within Contractor personnel to recognize this was the former Western Operations Director.
- Contractor personnel did not accurately anticipate radiological risks associated with opening a drum containing material from Hot Cell 4.
- Non-standard and inadequate radiological controls implemented for task including area set-up, in process monitoring, PPE, and post job cleanup.
- Event detection was delayed and potential consequences aggravated due to poor surveying practices and lack of supervisory notification of skin contamination found following first drum opening evolution.

### Root Causes

1. Lack of formal conduct of operations.
2. Lack of working level work control document, (e.g., work package or "traveler").
3. Workers performed activities contrary to training and procedural requirements.
4. Supervision failed to maintain adequate oversight.
5. GEH Management/Radiological Controls not sufficiently integrated (inadequate training) into Contractor's work planning and approval process.

Additionally, as discussed during the Pre-decisional Enforcement Conference of November 10, 2010, the causes for Violation 096-03, failure to submit a written report within 30 days are:

- Procedures (i.e., reporting requirements) followed incorrectly. Contamination from two separate events was not immediately understood; and,
- Management system/work-direction less than adequate. Procedure for evaluating reportability did not include a peer check.

### 3. Short Term Corrective Actions Taken

GEH promptly initiated comprehensive actions to ensure appropriate compensatory and corrective measures were put in place. These actions not only address the items identified as the violations but also provided an opportunity to ensure that other programmatic issues were identified and addressed. While the items could likely have been addressed by a less extensive initiative, GEH considered that the benefits achieved by performing an overall Contractor program review were worth the additional efforts to improve the overall radiation safety and operation programs.

Below are descriptions of the near-term actions taken to address the violations.

#### Immediate Corrective Actions

- Stop Work issued for Contractor's work at the Vallecitos site on February 17, 2010 following the identification of personnel contamination. Additionally, GEH quickly stopped all similar Contractor work at multiple, NRC licensed sites in two other states until the event was understood and corrective actions implemented.
- Involved workers were removed from radiation work status pending dose assessment results.
- On February 17, 2010, personnel were decontaminated as necessary, contaminated shoes were decontaminated and whole body counts performed.
- Excreta collection (urine and fecal) was initiated for all three personnel involved during drum opening.

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- Area 200 secured and assessed by GEH to determine the extent of facility contamination. The areas outside building 217 were checked for contamination by GEH Radiation Technicians on February 17, 2010 and found to be free of contamination except for five spots just outside the building doorway, which were found not to be loose and easily cleaned up. These five spots were taped over and documented for future disposition. This survey was not documented.
- The Contractor's investigation and support team mobilized to the site on February 18, 2010.
- Individual statements were taken from personnel involved.
- Daily bioassays (urine and fecal) were taken on all three personnel until further notice pending bioassay results.
- Daily whole body counts being performed on the one individual showing positive intake.
- First set of bioassay samples along with nasal swabs and large area wipe (LAW) from Building 217 shipped for priority analysis by Test America on February 18, 2010.
- Second set of bioassay samples shipped on February 19, 2010.
- Isotope ratios to be determined for more refined dose assessment based on Cs-137.
- The Contractor performed a characterization survey of Building 217 on February 18, 2010.
- Following review of the characterization results, Contractor started facility decontamination of Building 217 to recover the area.

### Near-Term Corrective Actions Taken

- Determined the appropriate dose assessments and assignments to personnel involved in the incident.
- High dose individual restricted from further radiation work activities for remainder of the year.
- Performed a Root Cause Analysis to prevent future re-occurrence.
- Completed decontamination of Building 217.
- Submitted required report upon determining the occurrence that resulted in contaminated clothing in an unrestricted area was reportable.

### **4. Long Term Corrective Actions**

GEH and the involved Contractor developed a comprehensive plan to implement the determined corrective actions. These actions and their status were shared with the NRC during the pre-decisional enforcement conference (Reference 4).

- The Contractor implemented a formal "Conduct of Operations" program and training for Contractor personnel at GEH sites where Contractor had been performing similar work prior to restart. This activity included definition of, use of, and retraining on conduct of operations procedures and operational practices such as verbatim compliance, questioning attitude, and communications, as well as document change mechanisms (applicable to Root Causes 1, 2, & 5, Schedule: Completed).
- All contract/activity personnel attend unified briefing each day. Daily briefing includes personnel discussions regarding any environmental, radiological/ALARA and safety hazards and risks and how they are being considered and addressed. This briefing is in addition to job specific briefings (applicable to Root Causes 2, 3, & 4, Schedule: Completed).
- Implement formal work control system. Activities must be covered by approved procedures. Those procedures must be available so that workers can consult to ensure that appropriate authorizations have been granted for work to be performed (applicable to Root Causes 1, 2, & 5, Schedule: Completed).
- Contractor's project organization structure modified to clearly define the project organization as well as defined roles and responsibilities (applicable to Root Causes 3, 4, & 5, Schedule: Completed).
- Assessed and adjusted Contractor's project staffing level and personnel qualifications including operations supervision and management, radiological controls and health and safety personnel (applicable to Root Causes 3, 4, & 5, Schedule: Completed).

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- Assign an experienced GEH manager, supervisor or radiological controls individual to attend the daily pre-job briefing and to be involved in work task approval (applicable to Root Causes 3, 4 & 5, Schedule: Completed).
- Re-trained Contractor's project personnel in applicable portions of the Contractor's and GEH's Radiological Controls program including ALARA responsibilities and actions to be taken in event of a radiological event such as spread of contamination, personnel contamination, spill or similar type scenario (applicable to Root Cause 5, Schedule: Completed).
- Enhanced VNC event evaluation and reporting procedure revisions. Introduced parallel event evaluation paths (applicable to 096-03, Schedule: Completed).

### **5. The date when full compliance will be achieved**

GEH has completed all long and short-term corrective actions.

Considering all relevant circumstances and corrective actions, and in the exercise of the NRC's discretion, GEH believes no further enforcement action is necessary to ensure compliance with regulatory requirements.