September 1, 2009

EA-09-170

Mr. Charles Perkins, Site Manager
AREVA NP, Inc.
2101 Horn Rapids Road
Richland, WA 99352-5102

SUBJECT: RESPONSE TO DISPUTED NOTICE OF VIOLATION (70-1257/2009-201-01)

Dear Mr. Perkins:

We have completed review of the letter from Mr. R. E. Link, Environmental, Health, Safety & Licensing Manager, dated June 12, 2009, in response to our letter, and Notice of Violation (Notice), dated May 13, 2009. In your response, you denied the violation and described immediate actions taken in response to the violation.

The violation in the Notice concerned the failure to establish controls on moderation in accordance with the license requirements for AREVA NP, Inc. (AREVA). The license requires that when optimum moderation is not used to derive critical parameters, controls on moderation are established to ensure that the calculated neutron multiplication factor (k_{eff}) will not exceed 0.97 for credible abnormal conditions. The Notice cited three examples where optimum moderation was not used and the established moderator control could not ensure that k_{eff} will not exceed 0.97 for credible abnormal conditions. In each case, the item relied on for safety (IROFS) was to limit containers with spillable liquids to 20 liters or smaller (IROFS 1114 and 4712). AREVA's analysis for those cases demonstrated that less than 20 liters of water could cause k_{eff} to exceed 0.97.

The basis for your denial of the violation included the following:

(1) The accident sequences cited in the violation can meet the 10 CFR 70.61(b) requirement to be "highly unlikely" without IROFS 1114 or IROFS 4712.

(2) Two independent administrative controls on opening vessels ensure the subcritical margin will be maintained.

(3) Design features and controls other than IROFS are available which will limit or prevent spilled moderator from entering equipment with uranium oxide powder.

(4) The spill of powder from equipment (Sequence 830-50) is initiated by the failure of IROFS 1144, which was not mentioned in the Integrated Safety Assessment (ISA) Summary.

(5) The accident sequences cited in the violation meet the double contingency principle without IROFS 1114 or IROFS 4712.

NRC Staff's Review:

The U.S. Nuclear Regulatory Commission (NRC) staff's position that follows addresses each of your reasons for denying the cited violation.

Accident sequence are “highly unlikely” without IROFS 1114 or 4712

This is not relevant to the non-compliance cited in the Notice. AREVA must meet all regulatory requirements and license commitments. The non-compliance was specific to the license requirements for the use of moderator controls.

The performance requirements of 10 CFR 70.61 has additional requirements for nuclear criticality accidents beyond rendering them “highly unlikely” in accordance with 10 CFR 70.61(b). Specifically, 10 CFR 70.61(d) requires all processes to be subcritical under normal and credible abnormal conditions, including use of an approved margin of subcriticality for safety, and the use of preventive controls as the primary means to protect against a nuclear criticality accident. The commitments in the license regarding the use of moderator control are relevant to meeting the requirements of 10 CFR 70.61(d).

Two independent administrative controls on open vessels maintain the subcritical margin

The two controls mentioned are listed jointly as IROFS 1143 in the ISA Summary. The first control requires that the vessel will not be opened unless emptied of fissile material or written permission is provided by nuclear criticality safety staff. An open vessel does not provide moderation control. The requirement to empty the vessel prior to opening is a mass control and, therefore, is not relevant to the non-compliance cited in the Notice.

The second control requires that the open vessel be attended. This control is does not ensure subcriticality (i.e., $k_{eff} < 0.97$) under credible abnormal conditions since containers with up to 20 liters of water are still permitted in the area.

Design features and controls other than IROFS are available to limit the amount of moderator

This is not relevant to the non-compliance cited in the Notice. 10 CFR 70.61(e) requires that engineered and administrative controls necessary to comply with the performance requirements of 10 CFR 70.61 be designated as IROFS. As stated above, the commitments in the license regarding the use of moderator control are relevant to meeting the requirements of 10 CFR 70.61(d). Therefore, design features and controls which are not IROFS cannot be credited for demonstrating compliance with 70.61(d) (i.e., $k_{eff} < 0.97$).

In addition, you indicated that a test was performed after the NRC inspection was completed. The test involved spilling water above the dry conversion facility blender. You have not provided evidence that a single test is sufficient to make a conclusion about all credible abnormal conditions. The test does not demonstrate the adequacy of the available IROFS since design features and controls which are not IROFS affected the test results.

Sequence 830-50 is initiated by the failure of IROFS 1144

This is not relevant to the non-compliance cited in the Notice. IROFS 1144 is not a moderator control, and, as previously stated, the non-compliance was specific to the requirements for the use of moderator controls.

Accident sequences cited in the violation meet double contingency principle

This is not relevant to the non-compliance cited in the Notice. Loss of double contingency was not mentioned in the violation. As stated above, AREVA must meet all regulatory requirements and license commitments.

Based on our review of the information submitted in your June 12, 2009, response, the NRC determined that you did not provide a sufficient basis for the NRC to withdraw the violation. The NRC staff also reviewed the corrective actions that you described in your response and has concluded that the actions taken in direct response to the cited violation adequately address the immediate concerns associated with the violation.

However, we have determined that the corrective actions identified to avoid further violations are inadequate. These corrective actions are concerned with improving the quality of documentation in the nuclear criticality safety (NCS) and ISA programs. Although the NRC agrees that the NCS and ISA documentation needs improvement, as indicated in IFI 70-1257/2009-201-02 of the same inspection report, the basis for the Notice was the implementation of a control in violation of license commitments. In fact, the ISA and NCS documentation demonstrated that the moderator control was inadequate to ensure subcriticality under credible abnormal conditions.

Upon reconsideration and consultation with the NRC's Office of Enforcement, we have determined that the cited violation is valid and requires additional corrective actions to prevent recurrence. You must take the necessary corrective measures to resolve this violation in accordance with the applicable regulatory requirements. You are also required to respond to this letter within 30 days and should follow the instructions specified in the original Notice when preparing your response. In particular, you should include the reason for the violation and the corrective steps you have taken to prevent further violations. This violation will remain open until the NRC has verified implementation of your corrective actions during a subsequent inspection.

This disputed violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at www.nrc.gov; Select Public meetings and Involvement, then Enforcement Policy.

If you have any questions concerning this letter, please contact Blake Purnell, of my staff, at (301) 492-3212.

Sincerely,

/RA/

Daniel H. Dorman, Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No.: 70-1257
License No.: SNM-1227

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Daniel H. Dorman, Director
Division of Fuel Cycle Safety
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Office of Nuclear Material Safety
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Docket No.: 70-1257
License No.: SNM-1227

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