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U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety  
and Safeguards  
Attn: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852-2738

Gentlemen:

**Subject: AREVA Concerns Relative to NRC Inspection 70-1257/2013-201**

**Reference:** Letter, L. Campbell to D. Grandemange; Inspection Report No. 70-1257/2013-201 and Exercise of Enforcement Discretion; March 20, 2013

Via the referenced letter, the NRC conveyed the results of the subject criticality safety inspection conducted at AREVA's Richland fuel fabrication facility over February 11-14, 2013. The report identified two Severity Level IV violations, namely constructing and operating a new facility without first obtaining an NRC license amendment and furthermore failing to conduct and document an adequate evaluation of the facility changes as required under 10 CFR 70.72. NRC determined that the violations resulted from matters not reasonably within AREVA's control, i.e. lack of clarity of the NRC requirement and associated guidance. Moreover the NRC concluded that the process as constructed is being operated safely and in accordance with regulatory requirements, rendering the safety significance of the violations low. Accordingly, the NRC exercised enforcement discretion in accordance with Section 3.5 of its Enforcement Policy, not citing and closing the violations with no requirement for AREVA response.

AREVA is not protesting the violations. It is however faced with the task of taking "all necessary steps to restore compliance and prevent recurrence, including steps to ensure that any future changes implemented without prior NRC approval will be based on a written evaluation that clearly documents your (AREVA's) reasoning for why the change does not require a license amendment, in accordance with 10 CFR 70.72(f)" (p. 2 of referenced letter). AREVA will not be able to complete these actions until provided with the additional clarity that the NRC acknowledges is needed in its regulation and regulatory guidance. As such, AREVA wishes to initiate the dialogue that will be necessary to resolve this issue.

Attached you will find a discussion of five major points of concern raised by the referenced NRC inspection report, providing the primary areas of focus for the improved clarity AREVA believe is needed. These technical issues requiring regulatory clarification/resolution have broad industry implications and AREVA suggests any dialogue in this regard extend beyond AREVA to the full complement of Part 70 licensees subject to these requirements. As discussed in a telephone call with you on June 3, 2013, AREVA foresees that the outcome of the NRC/Industry dialogue may involve clarification to Regulatory Guide 3.74, NUREG 1520 or the drafting of an industry paper for NRC endorsement.

**AREVA NP INC.**

2101 Horn Rapids Road, Richland, WA 99354  
Tel.: 509 375 8100 - www.aveva.com

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AREVA looks forward to working with the NRC and its industry colleagues in achieving improved clarity in this key regulatory area. Please feel free to contact me in this regard at 509-375-8409.

Very truly yours,



R. E. Link, Manager  
Environmental, Health, Safety & Licensing

c:

U.S. Nuclear Regulatory Commission  
Attn: Marissa Bailey  
One White Flint North  
11555 Rockville Pike  
Mail Stop: 3WFN 13A44  
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission  
Attn: Marilyn Diaz  
One White Flint North  
11555 Rockville Pike  
Mail Stop: 3WFN 13A44  
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission  
Attn: Robert Johnson  
One White Flint North  
11555 Rockville Pike  
Mail Stop: 3WFN 13A44  
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission  
Attn: John Kinneman  
One White Flint North  
11555 Rockville Pike  
Mail Stop: 3WFN 13A44  
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission, Region II  
Attn: Anthony Gody  
245 Peachtree Center Avenue, Suite 1200  
Atlanta, GA 30303-1257

## AREVA Concerns Following NRC Inspection 70-1257 2013-201

AREVA has five major concerns involving the basis of the two not cited violations imposed with enforcement discretion:

1. What is the definition of "Types of Accident Sequences" as used in 10 CFR 70.72 and Reg. Guide 3.74?
2. What constitutes a "new process" in accordance with 10 CFR 70.72 and Reg. Guide 3.74?
3. What constitutes "prior experience with a control or control system" in accordance with 10 CFR 70.72 and Reg. Guide 3.74?
4. Can process controls be designated as IROFS or can an IROFS be given a new application within the licensee's configuration control program without prior approval by the NRC?
5. What constitutes "adequate documentation of a 70.72 review"?

### What is the definition of "Types of Accident Sequences"?

**AREVA's Prior Position and basis for the as-inspected state:** During the performance of a process hazards analysis or nuclear criticality safety analysis, a new initiating event or accident sequence does not necessarily create a new type of accident sequence. For example, if a criticality accident could be caused by a flood, explosion, fire, overbatch, precipitation etc. and these causes have been previously evaluated in the licensee's approved ISA, any criticality accident resulting from these conditions would not constitute a new type of sequence. In the case of a chemical exposure, loss of containment of a currently utilized chemical if already listed as a hazard in the licensee's approved ISA would not constitute a new type of accident sequence, regardless of the cause or location of the loss of containment.

AREVA believes that the basis of this position is supported by Regulatory Guide 3.74, "Guidance for Fuel Cycle Facility Change Process", section 2.1 where it states prior approval would be necessary

"...if they exceed the performance requirements and if they result from hazards that previously did not have associated accident sequences listed in the ISA Summary. New types of accident sequences may include for example, the addition of a sprinkler system to an area where the moderator is not currently available; or the use of a new chemical in an existing process (thereby creating a new hazard), unless the chemical is used elsewhere in the facility and is already described in the ISA summary."

**NRC's Position Stated in the inspection report:** To be the same type of accident sequence, consideration must be given not only to the type of hazard and the initiating event, but also to the specific control systems or subsequent events in the accident sequence. The inspection report states that both NUREG-1520 and Reg. Guide 3.74 were referenced to conclude that AREVA's position is not consistent with the NRC's stated position.

Although not specifically referred to in the inspection report, a section that discusses when accident sequences can be combined is found in NUREG 1520 on page 3-17, which states:

“The ISA Summary need not list as a separate type of accident sequence, every conceivable permutation of an accident. Accidents having characteristics that all fall into the same categories can be grouped as a single type of accident sequence in the ISA summary provided that the following conditions are met:

- i. The initiating IROFS failures or events have the same effect on the system.
- ii. They all consist of failure of the same IROFS or system of IROFS.
- iii. They all result in violation of the safety limit on the same parameter.
- iv. They all result in the same type and severity categories of consequences.”

**AREVA’s Concern in need of clarification:** If this section in general and item ii in particular establish what constitutes a “New Type” of accident sequence in 70.72 space rather than giving instructions on how the ISA summary may be structured, then it seems that the NRC position would not allow the use of a new IROFS or different combination of IROFS for an identified accident sequence without prior NRC approval, which would greatly increase the number of required license amendments and is a significant disincentive for a licensee to be able to pursue systematic process and safety improvements.

#### **What constitutes a new process in accordance with 10 CFR 70.72?**

**AREVA’s Prior Position and basis for the as-inspected state:** A new process constitutes a process activity not previously conducted by the licensee. For example, AREVA’s addition of a building to house the unloading of UN solution and its subsequent storage in a series of 10,000 gallon tanks, although a new installation, was not a process new to AREVA. AREVA has/had previously stored uranium solutions in unfavorable geometry tanks (25,000 gallon working volume), lagoons (million gallon lined impoundments), and 55-gallon drums. The control for the material stored in these “processes” is/was concentration control.

AREVA believes this position is supported by RG 3.74 section 2.2 a. which states: “The NRC does not require prior approval for changes involving processes, technologies, or control systems for which the licensee has prior experience.”

#### **NRC’s Position Stated in the inspection report:**

“...the licensee’s installation of the UN Building is a new process that has not previously been conducted at the facility.”

**AREVA’s Concern in need of clarification:** There is a significant difference between a “new installation” and a “process new to a licensee”. This narrow interpretation of a “new process” seems to be counter to the guidance provided in RG 3.74 section 2.2 a. which states: “The NRC does not require prior

approval for changes involving processes, technologies, or control systems for which the licensee has prior experience.”

**What constitutes prior experience with a control or control system in accordance with 10 CFR 70.72?**

**AREVA’s Prior Position and basis for the as-inspected state:** AREVA’s prior experience with a component, control, or control system, not previously designated as an IROFS or designated as an IROFS for a different initiating event or specific physical condition can be the basis for the designation of an IROFS at a later date without “Prior approval from the NRC”.

AREVA believes that the basis of this position is supported by Regulatory Guide 3.74 sections 2.2 b. and c. which state:

“b. Licensees may evaluate a change against the 10 CFR 70.72 (c) (1)(ii) criteria at the system or component level. Key factors that the licensee should consider when making this evaluation are whether it has prior experience and knowledge of the process, technology, or control system...”

“c. ‘Prior experience’ refers to experience in normal or pilot plant operations and not just experience gained as part of limited-duration or scale research and development or testing.”

Additionally ISG-12 section 3.2 also appears to support this conclusion because IROFS listed for other accident sequences may be credited during reportability evaluations provided the IROFS is in place physically where the event occurred, performs a safety function that prevents or mitigates the event in question.” While the ISG is with regard to reportability, it recognizes that a declared IROFS can be credited as performing a valid safety function at locations other than its initial application.

**NRC’s Position Stated in the inspection report:** The inspection report indicates a licensee must have prior experience using the same combination of components that function together to control the same process condition. The inspection report states:

“The inspector concluded that although the licensee had experience with the individual components used throughout the UNB process, it did not demonstrate prior experience using those components for criticality control, or to control the same process parameters, or in the same combination as a system of controls that function together to perform a discrete safety function.” The example used in the inspection report is although AREVA had experience with low temperature interlocks, “it does not have experience using them to prevent solution from freezing.”

**AREVA’s Concern in need of clarification:** This limited interpretation of prior experience would require NRC prior approval for relatively simple changes. For example, using temperature to control the change of a compound’s physical state from gas to liquid could not be used to control the change of the same compound’s physical state from liquid to solid. Similarly a control system used to prevent a process

stream from getting hot enough to remove uranium from ion exchange resin could not be used to prevent freezing and subsequent concentration of uranium in solution without prior NRC approval. One of the statements of consideration for the new Part 70 was that the rule change was not supposed to require more license amendments than were required prior to the rule change.

**Can process controls be designated as IROFS or can an IROFS be given a new application without prior approval in accordance with 10 CFR 70.72?**

**AREVA's Prior Position and basis for the as-inspected state:** AREVA allows the safety organization, at their choosing, to designate existing components or control systems as IROFS without prior NRC approval if:

- the component or control system can perform the needed safety function in a reliable manner
- AREVA has experience with these components or systems

This current allowance is permitted regardless of whether or not the item or control system has been previously designated as an IROFS and is listed in the ISA summary. In the case of an existing IROFS, AREVA allows currently used controls or control systems to be designated as IROFS even if they do not prevent the same physical condition(s). This declaration is done in accordance with AREVA's NRC-approved ISA methodology to assure the component or control system meets all Subpart H requirements.

AREVA believes that the basis of this position is supported by RG 3.74 section 2.2 c,

c. "Prior experience' refers to experience in normal or pilot plant operations and not just experience gained as part of limited-duration or scale research and development or testing."

**NRC's Position Stated in the inspection report:** The inspection report indicates a licensee must have prior experience using the same combination of components that function together to control the same process condition. For example the inspection report states:

"...the licensee has a long history of using pH monitors and interlocks, though it could not point out where else this type of control system is used to prevent precipitation for criticality safety. The inspector concluded that although the licensee had experience with the individual components used throughout the UNB process, it did not demonstrate prior experience using those components for criticality control, or to control the same process parameters, or in the same combination as a system of controls that function together to perform a discrete safety function."

**AREVA's concern in need of clarification:** This limited interpretation would not allow the use of a process control or defense in depth barrier (not declared as an IROFS) as an IROFS at a later date without prior NRC approval. For example, a pH control system used as a process control or as a defense in depth non-IROFS safety control could not be designated as an IROFS without prior NRC approval. This

interpretation would also preclude a licensee from using the same pH control system designated as an IROFS to prevent removing uranium from an ion exchange column in one system as a pH control IROFS to prevent precipitation for criticality safety in a second system without prior NRC approval. The flexibility to make these types changes without prior NRC approval appears to be supported by RG 3.74 section 2.2 c, and current industry practice. Additionally, one of the statements of consideration for the new Part 70 was that the rule change was not supposed to require more license amendments than were required prior to the then proposed rule change. AREVA recognizes its obligation to perform the necessary review of the designation of a control or barrier as an IROFS in accordance with its NRC approved ISA methodology.

#### **What constitutes adequate documentation of a 70.72 review?**

**AREVA's Prior Position and basis for the as-inspected state:** AREVA has a procedure controlling the evaluation of changes to assure compliance with 70.72 requirements. This calls out AREVA's use of a "Change Impact Form" to document the reviewer's evaluation of the change. The form is a check list of questions to assure the evaluator assessed the necessary scope of review, with a space for comments/justifications as needed. The procedure states "The original of the EHS&L Change Impact Evaluation Form plus any supporting information is maintained with the change documentation." In this specific case, the Change Impact Form that documented the evaluation of the change, the letter AREVA sent to the NRC and the NRC's response were all included in the Engineering Change Notice (ECN) documentation package. The ECN also contains additional information and analysis that the evaluator takes into consideration for the 70.72 assessment.

AREVA believes that the basis of this position is supported by Regulatory Guide 3.74 section 3 where it indicates that a check list is adequate for some types of evaluations, but that in some cases that more detail might be required. The inclusion of the letter to the NRC, and the NRC's acceptance of the AREVA position along with the ECN information was deemed sufficient "basis for why construction and operation of the UNB did not need prior NRC approval." AREVA acknowledges that we did not specifically state on the change impact form that the final installation did not deviate in any substantial manner from the design described to the NRC in the face-to-face meeting or in the written evaluation provided to them that was the basis for the NRC's letter. AREVA recognizes its continued responsibility to assure that changes to the design characteristics important to the finding of the 70.72 review must be assessed as to their potential impact on the determination made to meet 70.72 obligations.

**NRC's Position Stated in the inspection report:** "...the licensee's procedure did not require a written evaluation documenting the basis for why construction of the UNB did not need prior NRC approval. The licensee's check list, without such a justification did not demonstrate that a "full evaluation" of the change had been performed. The failure to perform or document an evaluation of the construction of the UNB as required in 10CFR 70.72(b) and 70.72(f) is violation..."

**AREVA's Concern in need of clarification:** If a more detailed change evaluation than was included in this ECN is required for all facility changes, including procedural changes, to meet the NRC's expectation, this increased administrative burden will consume limited expert resources which can better be used in activities that directly provide greater safety margin in plant operations.