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U.S. Nuclear Regulatory Commission
Attn: Document Control Desk (03-H8)
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Subject: **Corrective Action Effectiveness Review as Required by NRC Confirmatory Order EA-10-041, Section III, Paragraph 3b; Docket No. 70-1257; License No. SNM-1227**

Ref. 1. Letter, L.A. Reyes to R.J. Land; "Confirmatory Order (Effective Immediately) (NRC Office of Investigation Report No. 2-2009-024)"; December 2, 2010.

Ref. 2. Letter, R.J. Land to USNRC Document Control Desk; "Reply to a Notice of Violation; EA-10-041, NRC Office of Investigation Report No. 2-2009-024, Docket No. 70-1257; License No. SNM-1227; December 15, 2010.

Via Reference 1 the NRC conveyed Confirmatory Order EA-10-041 to AREVA NP Inc. (AREVA). The Order resulted from an alternative dispute resolution (ADR) session addressing issues involving an AREVA Advisory Engineer deliberately falsifying United Kingdom Department for Transport special transit permits (STPs) and deliberately failing to follow a procedure for the release of criticality safety calculations associated with fissile material shipments. Paragraph 3b. in Section III of Order EA-10-041 calls for a review of the effectiveness of corrective actions implemented relative to this event, as follows:

> "Within 12 months after the issuance of the Confirmatory Order, AREVA will conduct a review to determine the effectiveness of corrective actions and enhancements as described in its Reply to a Notice of Violation. The effectiveness review will also incorporate any commonalities from previous willful issues occurring within AREVA's U.S. Fuel organization within the last three years of the date of issuance of the Confirmatory Order. Upon completion of its effectiveness review, AREVA will develop and implement any additional corrective actions and enhancements, as warranted, to address any additional weaknesses or deficiencies. The results of AREVA's effectiveness review and development of additional corrective actions and enhancements will be communicated to the NRC within 60 days of development of resulting corrective actions."

AREVA's Reply to a Notice of Violation relative to this event was conveyed via Reference 2.

AREVA's corrective action effectiveness review (attached) was conducted under its formal corrective action program as Action No. 3 of WebCAP Condition Report 2011-674. The review concludes that the near-term corrective actions and long-term preventive actions have been effectively implemented and have met and/or continue to meet their objectives. The bases underlying these conclusions are set forth within the review.

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The review further concluded that two additional actions would be potentially beneficial as follow-up to the evaluated events, namely:

- An assessment of the AREVA Lynchburg Radiation Protection Supervisor misconduct issues relative to possibilities to improve/strengthen the Richland radiation protection program (the Lynchburg Radiation Protection Supervisor misconduct was one of three other AREVA Fuel willful misconduct events occurring in the time period prescribed for this effectiveness review); and

- An evaluation for potential improvements to AREVA's periodic refresher training module addressing willful misconduct.

These two actions have been added as Action Nos. 5 and 6 to WebCAP CR No. 2011-674, respectively. Due dates currently assigned to these actions are March 30, 2012 and April 30, 2012, respectively. Note that Action No. 4 of this CR covers the independent safety culture assessment due to be conducted in accordance with Paragraph 3c. of Section III of EA-10-041.

If you have questions relative to AREVA's actions to-date or the attached effectiveness review, please feel free to contact me at 509-375-8409.

Very truly yours,

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Revision 1

Effectiveness Evaluation as Required by
NRC Confirmatory Order EA-10-041, Section III, Paragraph 3b

Scope

The following evaluation has been conducted in response to the requirement in Paragraph 3b in Section III of NRC Confirmatory Order EA-10-041. This order was issued to AREVA NP Inc. (AREVA) on December 2, 2010 subsequent to an October 5, 2010 Alternative Dispute Resolution (ADR) proceeding to address the unauthorized alteration by an AREVA employee of three Special Transit Permits (STPs) issued by the United Kingdom Department for Transport (DfT). Section III, Paragraph 3b of the order is as follows:

> "Within 12 months after the issuance of the Confirmatory Order, AREVA will conduct a review to determine the effectiveness of corrective actions and enhancements as described in its Reply to a Notice of Violation. The effectiveness review will also incorporate any commonalities from previous willful issues occurring within AREVA's U.S. Fuel organization within the last three years of the date of issuance of the Confirmatory Order. Upon completion of its effectiveness review, AREVA will develop and implement any additional corrective actions and enhancements, as warranted, to address any additional weaknesses or deficiencies. The results of AREVA's effectiveness review and development of additional corrective actions and enhancements will be communicated to the NRC within 60 days of development of resulting corrective actions."

The Reply to a Notice of Violation referred to in Paragraph 3b of the Order is the following AREVA correspondence:

> Reply to a Notice of Violation; EA-10-041, NRC Office of Investigation Report No. 2-2009-024, Docket 70-1257; License No. SNM-1227; R.J. Land to U.S. Nuclear Regulatory Commission; December 15, 2010.

In addition to the review of this NOV response, this evaluation included a review of the following documents:

> NRC Office of Investigations Report No. 2-2009-024 and Inspection Report 70-1257/2010-003; August 10, 2010.
>
> NRC Confirmatory Order EA-10-041; conveyed December 2, 2010.
>
> AREVA WebCAP Condition Report No. 2009-2086 [This Condition Report captured the forty-five (45) actions identified by AREVA's Root Cause Analysis of this event.]

The Order requires that the effectiveness review of corrective actions and enhancements also "incorporate any commonalities from previous willful issues occurring within AREVA's U.S. Fuel

organization within the last three years of the date of issuance of the Confirmatory Order." Going back three years from December 2, 2010 has required consideration of two willful misconduct events at the Richland site, namely a 2008 event involving the falsification of site access authorization forms by a Richland Security Officer and a 2009 event involving the disabling of an Item Relied On For Safety (IROFS) by an operator in Richland's Dry Conversion Facility (DCF). AREVA's responses to the Confirmatory Orders associated with these events (EA-08-278 and EA-09-272, respectively) along with other supporting documentation were reviewed as a part of this evaluation. The evaluation also considered an event at AREVA's Mount Athos Road (MAR) fuel fabrication facility in Lynchburg, Virginia, where a Radiation Protection Supervisor deliberately completed a survey form for a UO2 pellet sample shipment, copying information (data and equipment) from another survey form he was given as an example. The investigation revealed a series of procedural non-compliance and willful misconduct issues associated with this employee that occurred over 2006-2010 in non-fuel areas of the MAR site. Condition reports documenting the cause analysis of these incidents and the resultant corrective actions were also reviewed.

Overall Conclusions

This effectiveness evaluation of corrective actions and enhancements for UK transportation permitting issues addressed in NRC Order EA-10-041 reached the following conclusions:

1. Near-term corrective actions set forth in AREVA's NOV response have been effective in addressing immediate consequences and implications of the event. This is evidenced by the restoration of productive regulatory permitting interfaces with the UK DfT and the resumption of the pertinent international shipments, without incident.

2. Long-term preventive actions set forth in AREVA's NOV response have been effectively implemented and have met and/or continue to meet their intended objectives.

3. Consolidation of AREVA NP shipping activities into the AREVA Business Unit Logistics (BUL) is a noteworthy supplement to the other preventive actions in the NOV response. International shipments are managed and coordinated by entities within the BUL based on established roles and responsibilities and formalized processes/procedures. The potential for inappropriate action by an individual contributor acting in relative isolation are minimized.

4. The willful misconduct events share a number of commonalities relative to causal factors. However the series of incidents associated with the MAR Radiation Protection Supervisor revealed safety culture deficiencies of a sort not revealed by the UK permitting or Richland incidents. An assessment of the MAR incidents relative to possibilities for improvements to the Richland radiation protection program is recommended.

5. AREVA has initiated a number of activities/programs that have potential long-term preventative benefits for all these events, and for willful misconduct events in general.

These include training initiatives, enhanced administrative/management controls, and a management observation program.

6. The UK permitting and the two Richland events were met with effective and consistent implementation of AREVA's progressive discipline program. Although the series of events at the MAR facility eventually resulted in disciplinary action, this was delayed by deficiencies in management oversight and site safety culture.

7. Richland's ongoing new employee and periodic refresher training programs pertinent to its events are generally judged to be adequate. However the periodic training module specifically addressing willful misconduct should be evaluated for potential improvement.

Additional information supporting these conclusions is provided in the following sections.

Discussion for the UK Permitting Event (Order EA-01-041)

The Reason for the Violation as conveyed in AREVA's NOV response of December 15, 2010 was taken from AREVA's underlying root cause analysis and identified the following key causal factors:

- Over-reliance on the knowledge and expertise of a single individual to conduct an important permitting function;
- Informal processes;
- Lack of clarity of roles and responsibilities, particularly in regards to international shipping;
- A breakdown in internal communications; and
- An inappropriate response to schedule pressures.

From a practical standpoint, the process for acquiring UK STPs came down to a Lynchburg, Virginia-based senior-level individual contributor, with minimal day-to-day technical oversight, using his personal experience/ expertise to acquire required transportation permits, under less-than-optimal regulatory conditions and intense schedule pressure.

AREVA's NOV response sets forth a significant number of near-term corrective actions and long-term preventive actions taken in response to this event. The short-term corrective actions were aimed at dealing with the immediate consequences and implications of the event, including but not limited to determining event cause, assessing extent of condition, re-establishing regulatory interfaces, and restoring normal shipping operations. These corrective actions have been effective as evidenced by the restoration of productive regulatory permitting interfaces with the UK DfT and resumption of the temporarily restricted shipping activities. These resumed shipping activities have been conducted under enhanced internal AREVA and external regulatory scrutiny, without incident.

Long-term preventive actions outlined in the NOV response address, amongst others, the areas of formalization of processes, roles, and responsibilities for international shipments; improvements in process oversight; adequacy of training for personnel directly involved in the shipping process; general employee training relative to Safety Conscious Work Environment (SCWE); and establishment of a management observation program to provide ongoing observation and reinforcement of task performance standards. It is the opinion of this evaluator that the long-term preventive actions outlined in the NOV response have been effectively implemented and have met and/or continue to meet their intended objectives. This is consistent with the findings of a one-year post-event effectiveness review conducted by the AREVA NP Quality organization as Action No. 42 under WebCAP CR No. 2009-2086. In addition, a training needs assessment to assess the training adequacy of AREVA shipping personnel was conducted by the AREVA training organization under Action No. 36 of this CR. No deficiencies were identified.

The AREVA NOV response also includes a section entitled "Additional Corrective and/or Preventive Actions Ongoing or That Will Be Taken." The first of the five listed actions addresses the transition of AREVA NP's transportation/logistics and shipping container management program to AREVA's Business Unit Logistics (BUL). The transition is complete relative to the shipment planning/coordination aspects of domestic and international shipping and is in-process relative to container management. This transition in-and-of-itself addresses many of the key causal factors implicated in this event. International shipments of the sort implicated in this event are now managed and coordinated by entities within the BUL, in accordance with established roles and responsibilities and formalized processes/procedures. The situation of an individual contributor working in relative isolation under intense schedule pressure would not be anticipated. As such, this transition is a noteworthy supplement to the other preventive actions noted in the NOV response.

Commonalities with Other Willful Misconduct Issues

Evaluation of commonalities with other willful misconduct events in the three years prior to December 2, 2010 (issuance date of EA-10-041) entailed consideration of two events at the Richland facility, namely the falsification of site access authorization forms by a Richland Security Officer in 2008 and the disabling of an IROFS in Richland's DCF by an operator in 2009. The UK permitting and two Richland events share a number of key causal factors. Perceived schedule pressure was an element in all three events. This was most pronounced in the transportation permitting and disabled IROFS events but was also an element in the security officer's desire to not "hold up" certain visitors awaiting plant access. The transportation permitting and disabled IROFS events also were adversely impacted by communication and supervisory/management issues. And lastly, all three events appear to have shared the element of the implicated individual judging that his actions, although unauthorized, would not impose an unacceptable safety risk.

The MAR radiation protection supervisor series of events is less clearly linked in that it involves safety culture deficiencies that were protracted, at least in this instance, over a longer period of time. Management oversight, process control, and communication deficiencies of a sort not

revealed in the UK permitting and the two Richland events were factors in the MAR Radiation Protection Supervisor misconduct issues. Schedule pressure does not appear to have come into play in any consistent manner. The MAR incidents do however include the element of the implicated individual rationalizing his misconduct based on his judging that his actions would not impose unacceptable safety risks. An assessment of the MAR incidents relative to possibilities for improvements to the Richland radiation protection program is recommended.

A number of initiatives pursued in response to the willful misconduct events have potential long-term preventive benefits applicable to all of the specific misconduct events, and for willful misconduct events in general. These include:

- Provision of Safety Conscious Work Environment (SCWE) training for employees in all AREVA US fuel facilities;
- Conduct of a SCWE employee survey and associated follow-up actions;
- Provision of Human Performance training for employees, including hands-on practical human performance tool training for certain Richland organizations;
- Implementation of a management observation program for AREVA U.S. fuel facilities; and
- Provision of training to specifically address willful misconduct.

Although not an ongoing/continuing action like the initiatives listed above, it must be noted that all of the individuals involved in the willful misconduct events were relieved of their duties pending completion of the pertinent investigations. Each of the employees was ultimately terminated. Effective and consistent implementation of the company's progressive discipline program cannot be ignored as a deterrent to acts of willful misconduct.

As in the case of post-event work stand-downs, training campaigns, and employee disciplinary actions, certain actions can lose their preventive benefits as institutional memory fades. In recognition of this fact, the topics of human performance, SCWE, and willful misconduct have been incorporated into Richland's new employee and periodic refresher training programs. These training programs were reviewed as part of this overall effectiveness evaluation.

New employee training is provided in a classroom/instructor setting. In the judgment of this evaluator, SCWE training is adequately addressed as part of the SafeStart Training for New Employees. Similarly, willful misconduct is adequately covered as part of the Human Performance for New Hire module.

Periodic (annual) refresher training for SafeStart/SCWE, human performance tools, and willful misconduct is provided as part of the computer-based site access training (SAT). In the judgment of this evaluator, coverage for SCWE and human performance tools is adequate. The refresher module for willful misconduct however could be strengthened to make it more forceful and to reduce its reliance on the specific past examples, which will become dated and less impactful overtime.

It should be noted that a common element in the initial and periodic training discussed above is management's priority on safety as opposed to production. Employees are instructed to stop and raise issues to supervisors and managers whenever they have concerns about the safety or propriety of planned or required actions. The clear message is that this questioning attitude is both desired and expected and in no case will be penalized.

Apart from these ongoing training initiatives, the management observation program is also an effective continuing program. Its benefits relative to reinforcement of work standards, increased management/supervisory presence in the workplace, and enhanced communication will continue to pay dividends relative to human performance and appropriate workplace conduct.