

October 30, 2009  
REL:09:047



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

Gentlemen:

**Subject: Thirty-Day Follow-up Report to September 30, 2009 Incident Reported Under 10 CFR 70.50(b)(2) (NRC Event No. 45402); AREVA NP Inc. Richland Facility; License No. SNM-1227, Docket No. 70-1257**

On October 1, 2009, AREVA NP reported to the NRC, under 10 CFR 70.50(b)(2), that on September 30, 2009 at approximately 1910 hours, an Air Balance technician at the Richland fuel fabrication facility discovered that the primary and final K-32A HEPA filters servicing the ammonium diuranate (ADU) area showed signs of deterioration. A call was also made to Washington State Department of Health.

This 30-day follow-up report is being submitted in accordance with 10 CFR 70.50(c)(2).

Caller Identification

The condition was reported to the NRC Operations Center by Robert E. Link, Manager, Environmental, Health, Safety and Licensing (EHS&L) at approximately 1449 hours on October 1, 2009 (Event No. 45402).

Incident Description

The K-32A HEPAs were examined at approximately 1910 hours on September 30, 2009 based on a request to follow up on some observations the previous day of a light dusting of particulate material of unknown origin at an inspection port downstream of the filters. (Subsequent survey of this material revealed radiological contamination levels below free release limits.) Air was diverted to HEPA filters in a parallel upper housing in order to check the filters in the lower housing that were in service. Investigation showed apparent deterioration and cracked creases of both the primary and final filters. These cracks were minor in nature, but the integrity of the media could not be assured.

At approximately 2030 hours the same day, EHS&L personnel were informed of the event. The only processes serviced by these filters and running at the time were the Mop Water Furnace and Cylinder Wash. EHS&L ordered that these be shut down. Stack monitoring samples were pulled on the K-32A system and showed stack concentrations that, while exceeding typical levels, were still low (i.e., below proceduralized action levels that would have required inspection of HEPA filters). A Health and Safety Technician's survey of the downstream side of the K-32A final HEPA housing revealed alpha smearable contamination levels that were below free release levels.

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### Safety Significance

The calculated stack concentration was  $1.3E-11$   $\mu\text{Ci}/\text{ml}$  with a projected concentration of approximately  $3.8E-16$   $\mu\text{Ci}/\text{ml}$  at the boundary of the restricted area (orders of magnitude less than the 10 CFR 20 Appendix B Table 2 equivalent concentration for air based upon ICRP 66 and 68 models for Type S uranium compounds). The total calculated activity of low enriched uranium released was approximately  $2.0$   $\mu\text{Ci}$ . Thus, the potential dose to a member of the public and the effect on the environment were essentially negligible. The risk to onsite personnel was also negligible. No external conditions affected the event.

Simultaneous failure of both primary and final K-32A HEPAs was analyzed in the Integrated Safety Analysis and was found not to constitute either an intermediate or high consequent event.

### Incident Response Actions

The effluent flow was diverted to a set of parallel HEPA filters. The compromised HEPA filters were replaced on September 30, 2009.

The associated corrective action report written on October 1, 2009 generated an Apparent Cause Analysis (ACA).

### Interim and Near Term Corrective Actions

To reduce the probability of recurrence, the following actions are being pursued:

The frequency of HEPA replacement for K-32A was increased to:

- Every 2 weeks for the primary HEPAs
- Every 3 months beginning December 30, 2009 for the final HEPAs

These frequencies are conservative relative to historic change-out frequencies for these filters and will occur even in the absence of visual signs of deterioration. The changes in frequency are subject to modification, depending upon other measures taken and subsequent experience.

Quarterly inspections of these filters will continue meeting license requirements (Chapter 9, Section 9.2.3).

### Incident Cause

The HEPA filters servicing the K-32A effluent system are subject to a chemical atmosphere, including hydrogen fluoride. This fact serves as the historic basis for enhanced surveillance applied to these filters.

### Corrective Actions

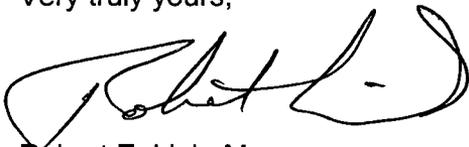
In addition to the actions mentioned above, Engineering will evaluate potential modifications to the K-32A off-gas treatment system to reduce challenges to the HEPA filters. This may

include replacing the present type of primary HEPA filters with a more chemically resistant filter/system.

As a related action, AREVA will be working to establish a clearer definition of HEPA filter deterioration/failure, particularly as it relates to 10 CFR 70.50 reportability. Visual inspections of HEPAs while in service can result in filter change-outs, even when accompanying data (stack results, downstream contamination surveys, etc.) indicate no degradation or loss of function.

If you have questions about this incident or AREVA's investigation and corrective actions, please feel free to contact me at (509) 375-8409.

Very truly yours,



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

/mah

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