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Our ref: HEM-09-49  
Date: May 14, 2009

Subject: Comments on Recent ORISE Reports (License No. SNM-00033, Docket No. 070-00036)

Dear Sirs:

Westinghouse Electric Company LLC (WEC) has observed several documents recently placed in the NRC's Agencywide Documents Access and Management System (ADAMS) on the Hematite docket containing reports by Oak Ridge Institute for Science and Education (ORISE). WEC takes this opportunity to provide comments on the ORISE reports concerning the Hematite Decommissioning Project.

The enclosure lists the references of the ORISE documents and provides WEC's comments accordingly. WEC would like to emphasize the importance of our involvement in discussions between the NRC's contractor and WEC's contractor.

We appreciate the opportunity to provide comments on the above mentioned documents. If you have any questions, please contact Gerard Couture, Hematite Licensing Manager at 803 647-2045 or by email ([couturgf@westinghouse.com](mailto:couturgf@westinghouse.com)).

Sincerely,

A handwritten signature in black ink, appearing to read "E. Kurt Hackmann".

E. Kurt Hackmann  
Director, Hematite Decommissioning Project

Enclosure

Cc: C. A. Lipa, NRC Region III/DNMS/MCID  
G. M. McCann, NRC Region III/DNMS  
J. A. McCully, Westinghouse  
W. G. Snell, NRC Region III/DNMS/DB

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Date: May 14, 2009

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- References:
- 1 ORISE (E. N. Bailey) letter to NRC (B. Watson), dated March 18, 2009, "Final Report – Independent Confirmatory Survey Summary and Results for the Hematite Decommissioning Project, DCN 1768-SR-01-0 (Docket 070-036; TAC No. J00344; NRC F1008; RFTA No. 08-005)"
  - 2 ORISE (D. Condra) letter to NRC (B. Watson), dated March 18, 2009, "Letter Report Comparing Analytical Data for the Hematite Decommissioning Project, Festus, Missouri (Docket No. 070-036, RFTA No. 08-004) DCN: 1768-LR-02-0"
  - 3 ORISE (M. G. Jadick) letter to NRC (B. Watson), dated March 2, 2009, "Revised Final – Input for the Site-Specific Decommissioning Inspection Report for the Hematite Decommissioning Project, Hematite, Missouri (Docket No. 070-036, RFTA No. 08-004) DCN: 1768-TR-01-1"
  - 4 ORISE (M. G. Jadick) to NRC (B. Watson), dated March 18, 2009, "Comments on Nuclear Safety Associates Calculations to Refine the Estimate of the Residual Mass of U-235 Associated with Piping Remaining in the Hematite Facility Decommissioning Process Building for the Hematite Decommissioning Project, Hematite, Missouri (Docket No. 070-036, RFTA No. 08-004) DCN: 1768-TR-02-0"

In Reference 1, ORISE submitted to the NRC an assessment of the results of an inter-comparison study of radiological soil samples collected during June, 2008. The conclusion reached by ORISE ("... an unknown portion of the Tc-99 may have been released from the sample during the drying process performed at the WEC contract laboratory") does not appear to be supported by the information provided in the assessment report when the results of the follow up intercomparison study (Reference 2) are considered.

In Reference 2, ORISE submitted to the NRC an assessment of the results of an inter-comparison study of radiological soil samples collected on January 7, 2009. A statement in the report says: "For Tc-99, the ORISE wet weight result and the Test America dry weight result are in general agreement. However, when comparing dry weight to dry weight concentrations, only one sample showed statistical agreement." WEC agrees that there is a bias in some of the data associated with liquid scintillation measurements that is not yet understood. WEC recognized a potential difference in the data obtained from the first inter-comparison, and started to investigate early in October 2008.

The Test America laboratory staff indicated during a WEC audit of the laboratory that the variability between the Test America and ORISE datasets had been discussed on several occasions by ORISE and the Test America staff. We believe that WEC should have been involved in these discussions. We understand that ORISE may have subsequently performed additional analysis as a result of those discussions. If so, please provide this data to WEC for evaluation, so that we can participate in identifying the source of the indicated discrepancy and complete our evaluation of this issue. WEC seeks to have the most accurate data available for sample analysis and to understand and correct any discrepancies.

In Reference 3, ORISE provided an assessment of WEC survey measurements used to estimate  $^{235}\text{U}$  quantities in the Process Building. The stated objective “was to verify that the instrumentation being used for surface activity measurements and subsequent U-235 gram calculations are being properly calibrated.” Based on input from ORISE and the NRC, WEC is continuing to improve the measurement program by developing a set of secondary standards that more closely represents the situation-specific geometries that may be encountered in future applications. It is noted that, with the exception of the need for situation-specific geometries in the use of the ISOCS, the issues ORISE documented in Reference 3 were identified by current WEC staff prior to November 2008 and have been addressed. In early February 2008, Canberra provided onsite training for the current Hematite technical staff and completed a detailed review of the ISOCS use. In addition, WEC has made improvements in procedures, operator training, qualifications and most recently, procurement of NIST traceable sources.

In Reference 4, ORISE indicated that the use of a 1”x 1” NaI detector with a Ludlum Model 19 instrument makes it difficult to accurately correlate the instrument response to the actual quantity of  $^{235}\text{U}$  in a pipe. This is in part due to the over-response by the instrument to low energy gammas while under responding to higher energy gammas. Although use of the Ludlum would still be conservative for WEC’s needs, in order to obtain more accurate measurement results, WEC has selected a less energy dependant instrument for future measurements, thus avoiding the complication imposed by potential spectral hardening effects and over estimating  $^{235}\text{U}$  content.