

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 7, 2002

TO: J. Kent Fortenberry, Technical Director
FROM: Matt Forsbacka, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending July 5, 2002

The Oak Ridge Site Office was closed on Thursday in observance of Independence Day, and the Site Representative was on leave on Friday.

A. Oak Ridge National Laboratory (ORNL) Radiological Contamination Event: On Monday, ORNL declared an operational emergency as a result of radioactive contamination being discovered in several areas of the main ORNL site. The discovery of radioactive particles was made on Saturday during a routine pre-construction survey in support of work to be done along the 5th Street area of the main ORNL site. On Sunday, additional health physics resources were called in to broaden the scope of the survey which has been underway around-the-clock this week. Thus far, radioactive particles, which appear to be Strontium-90 (⁹⁰Sr), have been found in a line East of Isotope Circle that extends several hundred meters. The area of suspected contamination has been marked off, and personnel have been posted to restrict individuals from the effected areas. The source of the contamination has not yet been determined; however, a significant effort to characterize the particles and correlate site activities has provided insights:

1. Microscopic inspection of radioactive particles shows that they are attached HEPA filter fibers. The size of the particles range from 1/4-inch diameter to specks not easily visible. According to ORNL personnel, these particles are not respirable. In addition, preliminary isotopic analysis shows that the particles are pure beta emitters and that no alpha or gamma components have been observed – this is indicative of relatively pure ⁹⁰Sr.
2. On June 26, HEPA filters were changed out in Building 3038, an inactive facility that once did research with Sr isotopes. Post maintenance surveys did not indicate any contamination, but increased activity was detected in the 3039 stack. This stack is fed by 24 sources at the site, so work is underway to construct a plausible pathway for the contaminants.
3. Solubility of the particles in water and nitric acid have ruled out several potential sources on the site.
4. Plume models using meteorological data over the past week have been inconsistent with the pattern of radioactive particles found thus far. Additional resources to perform wide area surveys are being brought to the site.

This event has presented a significant logistical challenge, but ORNL personnel appear to be adequately coping with the situation. (1-C)

B. BWXT Y-12 Enriched Uranium Operations (EUO): On Wednesday, the Site Representative and YSO personnel walked down B-1 Wing in Building 9212, EUO, and observed the application of fire resistant material on load bearing columns on the first floor. The material is being troweled on; however, testing protocols of the adequacy of the application is based on a standard for sprayed fire-retardant materials. In addition, a copy of the work package was not readily available in the work area. (2-A)

cc: Board Members