

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 30, 2003

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending May 30, 2003

A. Building 9212 Enriched Uranium Operations (EUO) Wet Chemistry Restart. The site rep. observed troubleshooting operations on denitrator system off-gas scrubber equipment. The denitrator takes feed from an evaporation process for conversion to uranium trioxide. This was the second attempt in the recent past at achieving required system vacuum for proper denitrator operation (a product quality concern). Required system vacuum, while achieved for a few moments during transient operations, was not maintained. Further system walk-downs and troubleshooting are being planned for this equipment. This problem represents another equipment-related issue in restarting wet chemistry operations. A summary of system restart efforts is as follows:

- Oxide Dissolver System: leak in steam calandria, calandria being procured (see April 4th report);
- Primary Extraction: transferred solutions for tank space management, system not operated;
- Intermediate Evaporation: density control system and condensate pump failure (see May 2nd report), troubleshooting continues;
- Secondary Extraction: transferred solutions for tank space management, system not operated;
- Wiped Film Evaporator: not yet operated
- Denitrator: off-gas scrubber equipment troubleshooting in progress as discussed above.

As a result of these equipment problems, no "first use" operation of a major wet chemistry system has been successfully completed since authorization to restart was granted on March 14th. The site rep. will continue to follow efforts to restart wet chemistry operations. (2-A)

B. Building 9215 EUO Machining Operations. Machining coolant circulating from machines goes to settling trays and then to holding storage tanks. On May 16th, operations personnel noticed an unusual substance (about 1/4 inch thick) had formed on the top surface of the coolant in the tanks. After securing the coolant circulation, suspended globules were also observed in the main settling trays and machine coolant pans of machines in Building 9215. This was the first observance of such a magnitude of suspended substances.

Sampling of the substances indicates the presence of hydrocarbons and machine coolant and other elements but nothing that immediately explains the formation of these substances. Oils have routinely been observed in the machine coolant in the past (mostly from part wipe-downs) and oil is routinely mechanically skimmed from the settling trays. Pour-up of several bottles of recycled machine coolant into the coolant system the prior day was accomplished but sampling of the heels from some of those bottles indicates nothing unusual. Additional sampling and evaluation continues and the current plan is to skim as much of the suspended substance from the tanks as possible and restart the circulation system.

While no direct safety issue is apparent, a formal Management Review/Critique of the issue was not called by EUO management until nearly two weeks after the event, following inquiry by YSO. The site rep. considers the unusual nature of the event would have warranted a more timely Management Review/Critique to best define potential causes and needed actions. (2-A)