DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 16, 2004

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending July 16, 2004

A. Oxide Conversion Facility. Y-12 management briefed the Board via video conference on progress in addressing the issues raised in the Board's letter of December 31, 2003. Y-12 management supplemented the information provided in NNSA's initial response of April 29th. Y-12 management noted that evaluation and radiography of all suspect welds in OCF (due to missing radiographs) has been completed; that YSO's recent evaluation of the hydrogen fluoride cylinder pigtail connection task concluded that workers were adequately protected with the planned personnel protective equipment; and that YSO evaluation of the criticality controls for the uranium tetrafluoride glovebox was still in progress. In response to Board inquiry, Y-12 management will provide additional information on recent reviews of site-wide welding quality assurance.

B. Wet Chemistry Startup. As reported on June 10th, YSO had recently reviewed Primary Extraction and Secondary Extraction processes that had not been operated with enriched uranium in more than one year since startup authorization. Late last week, the site rep. observed the initial attempt to operate the Secondary Extraction system under "first use" controls. Following system alignment and other startup checks, but before starting flow through the centrifugal contactors, anomalous flow indications were observed on the system computer control screen. The supervisor shutdown the operation. This week, troubleshooting revealed that a feed concentration monitoring instrument was sending spurious signals to flow control circuitry. A procedural modification was approved to allow for manual adjustment of system fluid flows based on fluid sampling every 30 minutes and not require feed concentration inputs. BWXT plans to operate the system on this basis pending resolution of the monitoring instrument signal issue.

Following prior startup attempts and engineering problems (see July 1st, May 21st, and referenced site rep. reports), the Denitrator was successfully operated and produced uranium trioxide this week. The task to transfer the oxide from the product receiver to the product canning glovebox using pressurized nitrogen gas through a transfer line was unsuccessful, however, as the line appears to have plugged. Options to unplug the transfer line are under review.

C. ORNL Building 3019. As reported on March 19th, the 30% design review had been conducted for major Building 3019 modifications needed for the planned campaign to extract thorium-229 for medical purposes and down-blend the inventory of uranium-233. This week, the site rep. and staff discussed progress on this project with DOE and contractor personnel. Some noteworthy points:
- the contractor, Isotek Systems, continues to prepare to assume responsibility for Building 3019 operations; transfer of responsibility from UT-Battelle to Isotek Systems is planned for January;
- the 60% design review for the Building 3019 modifications is now planned for late August; the extraction and down-blending operations will require sound engineered controls for criticality safety and members of the DOE Criticality Safety Support Group are planning to participate in the 60% design review;
- analyses to determine functional classification of safety systems, structures and components are in progress; submission of the Preliminary Documented Safety Analysis is expected by October.

cc
Board Members