

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 2, 2000

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers / R. T. Davis  
**SUBJECT:** SRS Report for Week Ending June 2, 2000

**3H Evaporator:** Last Saturday, a 3H Evaporator safety-class (SC) interlock activated due to high pot pressure. The SC system performed as designed to isolate steam to the pot, which stopped the pressure transient. No damage to the evaporator systems nor release of material occurred.

The pressure increase appears to have been caused by a system alignment that prevented adequate flow of evaporator condenser overheads. WSRC diverts evaporator overheads back to the feed tank when the activity exceeds procedural limits. While the other two SRS evaporators are designed to allow simultaneous diversion of condenser overheads and the overheads collection tank, the 3H evaporator uses a pump for the overheads tank that prevents diverting both systems at the same time. During this event, the operator began pumping the overheads collection tank back to the feed tank per procedure based on high activity. The operator also noted that the condenser overheads activity was trending up and decided to divert overheads directly back to the feed tank. Shortly thereafter, a pressure alarm alerted the operator of a pot pressure increase and he secured feed to the evaporator. In addition, a distributed control system (DCS) interlock secured steam to the tube bundles (i.e., stopped evaporation). However, the pressure transient continued until the SC interlock setpoint was reached and the automatic isolation valves were closed, which stopped the pressure transient.

The 3H evaporator is shutdown pending resolution and corrective actions associated with this event. Some key issues that WSRC is reviewing include the following:

Operator and DCS actions for a high pressure alarm appear to be inadequate. WSRC believes that the steam lance, which supplies steam to the pot to agitate the waste, may have caused the additional pressure increase. WSRC is reviewing other sources of energy to the pot to ensure operator and DCS actions are appropriate.

It appears that this issue was recognized in 1998; however, WSRC actions to resolve this issue were inadequate (e.g., no DCS interlock, inadequate procedural controls).

During the event numerous DCS alarms occurred. Many of these alarms were nuisance alarms and may have distracted the operator. (3.a)

**H-Canyon Phase III Startup:** The DOE Readiness Assessment (RA) for this activity is expected to be complete by next Tuesday. Initial indications are that the RA team will identify findings associated with alarm response procedures, authorization basis, and response to loss of the DCS. The team also noted concerns with the WSRC RA process and facility readiness at the start of the WSRC RA. Pending resolution of the DOE RA pre-start findings, 2<sup>nd</sup> cycle operations are expected to restart in late-June. (3.a)

**Evaporator Potential Inadequacy in Safety Analysis (PISA):** As noted above, WSRC is reviewing other potential energy sources to the evaporator pots. Based on this review, a PISA has been identified for automatic supply of plant air to the tube bundles that may lead to evaporator pot pressurization and waste aerosolization. For the operating 2F evaporator, the alarm response procedure has been revised to ensure continued safe operations while this issue is resolved. (3.a)