DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 23, 2004

TO: K. Fortenberry, Technical Director
FROM: D. Grover and M. Sautman
SUBJ: Activity Report for the Week Ending April 23, 2004

Tank Farms: Two Technical Safety Requirement violations were declared after it was determined that a waste transfer in January and the most recent evaporator campaign were conducted without proper leak detection. Although an Office of River Protection (ORP) design reviewer identified the drawing discrepancy a year ago, an incorrect drawing was issued to a subcontractor for modifying two clean out boxes (COB), whose covers were also mislabeled. This resulted in waste transfers being conducted through a COB that had its encasement cut open and hot taps installed on its mining legs (which are connected to the primary slurry transfer line) rather than transferring waste through a COB which had its mining legs capped off and the appropriate leak detection in place. This confusion between the two COBs extended to one of the shift managers also. During the evaporator campaign, there were 4 slurry encasement leak detector alarms, 10 AW process pits/master pump shutdown alarms, and an AW COB general leak detector alarm. Engineers and operations staff investigating these alarms believed the alarms were due to condensation that formed in the encasement after the slurry transfer lines were flushed with much cooler water following transfer shutdowns. This belief was reinforced when the radiation dose rates did not increase when gallons of liquid were drained from the valve pit (low point) and a swab of a test riser found moisture, but not elevated contamination levels. Questions arose after it was identified that the radiation levels around the COBs were higher (up to 1.3 R/hr) after the evaporator campaign than they were before the transfers despite several line flushes. An engineer then discovered that the test risers were incorrectly labeled and that they had swabbed the wrong riser. During the critique, it was identified that all of the construction work packages and permits had the numbers of the COBs reversed. Contamination surveys did not find any contamination around the base of the spray cover enclosing the COB of concern. Furthermore, swabs of the test risers for the correct transfer line have not found any contamination either. The contractor has restricted all transfers involving COBs and initiated an extent of condition review for other COBs. Other ongoing actions include 1) developing a standing order to ensure an operability evaluation is performed for clearing alarms and resuming operations and 2) upgrading controls for resolving identified drawing deficiencies. The Site Rep discussed this event with both ORP and CHG senior managers, who are treating this as a serious event and are taking appropriate actions in response to it. (II)

Waste Treatment Plant (WTP): Bechtel completed their root cause analysis of why a black cell vessel was procured with nondestructive examination requirements that did not meet the Safety Requirements Document. The two root causes were: 1) ineffective cross-functional communication and 2) expectations for knowledge and use of the authorization basis (AB) not effectively communicated or enforced. In particular, several vessel group personnel did not believe they were responsible for identifying upper tier requirements (AB, contract, etc.) to be implemented in the design. Contributing causes were schedule pressure and procedure weakness for implementing AB changes into existing designs. (IV)