

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 18, 1998

TO: G. W. Cunningham, Technical Director

FROM: M. T. Sautman

SUBJECT: RFETS Activity Report for Week Ending September 18, 1998

B771 Process Piping Removal. As discussed last week, the Site Rep and RFFO had several concerns with worker radiological protection for this activity. After the Site Rep discussed this with K-H, they also became involved. The radiological engineer produced additional characterization data for the system. This included survey results for the 2 drill bits used during tapping, a spill that occurred during draining, and a standpipe. In addition, controls were added in the revised ALARA Job Review and in response to questions asked during the pre-evolutionary brief. These included: radiological hold points, the use of respirators during the initial breach, getting a portable air monitor for an unmonitored room, taking air samples during the initial pipe cuts, verifying that the ejector pump exhaust flowed into the room air exhaust, restricting the use of power tools to one particular spot, and taping one end of every pipe piece. With these additions, the Board's technical staff finally agreed the controls were adequate. However, when RFFO asked to see the actual contamination surveys mentioned above, the radiological engineer could not find the drill bit surveys. In addition, the actual spill survey did not show low levels of contamination, but those that exceeded the RWP suspension limits. Furthermore, the radiological engineer later decided against the use of a portable air monitor. The Site Rep as well as RFFO and K-H personnel are concerned with how this job is being controlled and discussed this with the B771 radiological safety manager.

After a thorough pre-evolutionary brief, work started on the oxalic acid system Thursday. So far, the piping between two tanks has been removed. Contamination levels have been minimal, but were expected to be in this section. The pipes have been nearly full of a black tarry substance.

B779 Deactivation. B779 crews have started disconnecting and size reducing gloveboxes from the plutonium hydride laboratory. The Site Rep is following this work closely because of the instability of hydride and the larger amounts of holdup in these boxes. Glovebox size reduction is performed by workers in PremAire suits inside a soft sided containment tent. Workers had to evacuate the tent twice this week because of airborne contamination spikes (i.e., 309,000 and 200,000 DAC). The Site Rep thinks some additional controls may be needed since these spikes continue to occur.

After the first spike, B779 personnel met to determine the recovery plan for reentering the tent and decontaminating the area. The Site Rep attended the pre-evolutionary brief (PEB) for this activity the next morning and found it unsatisfactory. A different foreman ran the PEB because the original one was unavailable. Amazingly, this foreman did not know anything about the previous day's airborne contamination spike, much less anything about the recovery and decontamination activities

planned or the special RWP to be used. In addition, the foreman only discussed job assignments; he skipped nearly every required topic on the PEB checklist (e.g., hazards, egress routes). When the Site Rep asked to see his completed PEB checklist, he admitted he did not have one. The PEB was also extremely informal with several workers reading newspapers or leaving early. Afterwards, the Site Rep immediately contacted the Configuration Control Authority (i.e., Shift Manager). The CCA refused to authorize the job until the PEB was redone correctly and the original foreman put back on the job. Subsequent observations of 3 PEBs found them to be adequate.

Recommendation 97-2. Since August 27, B707 has had 7 OSR violations related to improper criticality limit surveillances. These are performed to ensure that the planned activity complies with all applicable criticality limits and that the current configuration complies with revised limits. This rash of incidents has been discussed with the K-H Executive Vice President and is being closely followed by senior management. The SSOC Vice President Nuclear Operations shutdown B707 this week when an eighth violation occurred. The suspension and OSR violation were later lifted when the investigation found that the infraction did not result from an improper surveillance. It appears that someone moved the cart and removed part of the posting for some reason. The Site Rep wants to emphasize that despite recent violations, the situation appears to be coming under control. Most of the recent violations resulted from building sweeps to make sure everything was in compliance or when new surveillances performed properly identified that limits were violated weeks or months earlier.

Residues. The Site Rep observed a treatability study for stabilizing calcium metal residues in B559. Water, 6N HCl, or 8N HNO₃ was added to beakers containing ten gram batches. The reaction was very vigorous. Characterization has found this material to contain up to 90% calcium metal. The treated materials will be tested to see how much reactive metal remains.

The operation of several residue lines is being affected by safeguards concerns. Safeguards personnel are requiring that all residue containers that are divided during repacking be assayed within 45 days. Sand, slag, and crucible repacking has been shut down for more than two weeks in order to assay the backlog of repacked containers. The ash and second combustible repacking lines are not allowed to start operations until they have assaying equipment available.

On two occasions, residue sampling operators in B776 may have been exposed to carbon tetrachloride concentrations in the air that exceeded the short term exposure limit by 80 and >500%. Both drums contained Ful Flo filters. Airborne concentrations have not been routinely monitored.

Tap and Drain. B371 completed tapping and draining the first area. Approximately 100 liters of nitric acid and water were removed. The solutions contained very little, if any, actinides.

cc: Board members