

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 21, 1999

TO: G. W. Cunningham, Technical Director
K. Fortenberry, Deputy Technical Director

FROM: M. T. Sautman

SUBJECT: RFETS Activity Report for Week Ending May 21, 1999

Don Owen was at RFETS to observe Ready 99 and other site activities.

Recommendation 94-1. New gas generation data from SRS (see this week's SRS report) has raised questions whether the 9975 shipping container will ever be certified for sand, slag, and crucible (SS&C) residues. Although nearly all the SS&C has been repacked for shipment to SRS, RFFO is seriously thinking about stopping all shipments of SS&C to SRS. The SS&C would instead be repacked for disposal at WIPP. This strategy would require several actions:

- characterization data showing that SS&C is low risk,
- repacking all cans containing greater than 200 g plutonium,
- revising waste code description to include the aluminum cans and nylon bags,
- amending the residue EIS Record of Decision, and
- blending SS&C containing greater than 10% plutonium.

This new strategy would require changes to the implementation plan milestones. This strategy change would not result in any acceleration of the disposition of SS&C since the SS&C would be repacked in B371 only after repacking of the salts was complete in mid-2000.

During gas generation testing of a drum of wet combustibles, a meter detected that the concentration of combustible gases in the headspace of the bell jar was 99% of the lower explosive limit (LEL). The heater (used to maintain a temperature of 63°C) was then unplugged. Measurement of the gas concentration the next day found that the levels were still 68% of the LEL. The drum was later vented. (III-A.1.a)

Ready 99 Annual Emergency Preparedness Exercise. The two radiological scenarios were the rupture of two residue drums with a forklift inside B371 and a deflagration of a residue drum outside the B371 dock. Many of the initial responders became contaminated since little effort was made to control the contamination. The second event was timed so that several of the initial responders would be injured or contaminated. Command and control at the scene after the deflagration was practically nonexistent. In addition, building operations and radiological personnel did not appreciate the extremely high airborne radioactivity levels caused by the deflagration. The respirable source term was equivalent to 34 grams of plutonium. To put this in perspective, this would cause the airborne radioactivity in a 250' X 250' X 100' area to be approximately 2 million DAC, which results in an inhalation dose of 80 rem CEDE/minute! Rather than immediately evacuating a considerable distance

upwind, two dozen workers spent ½ hour between 10 and 25' away from the drum. The focus was on detecting surface contamination and not reducing the inhalation dose. None of the RCT's at the scene had any personnel protective equipment. When the uninjured workers did 'evacuate,' they only went 50' or so away for another 45 minutes until transportation arrived. Despite repeated requests, the shift superintendent at the incident command post was not provided information about the scene by the initial responders. For example, he never found out the number of drums that had been breached. Actions to remove injured workers, isolate the release, and control the scene were slow and weak. The effectiveness of the Emergency Operations Center was hampered by the lack of accurate information. There were also problems with excessive simulation and controllers. (I-A.4)

Building 771 Deactivation. The technical staff toured the B771 "birdcage" which will use counterbalanced tools and enhanced ventilation for the size reduction of gloveboxes. The technical staff expressed concern whether the workers would be sufficiently proficient with the operation of the birdcage before the actual size reduction of a hot glovebox as part of the management review demonstration. Subsequent discussions with K-H and RMRS indicate that they plan to disassemble cold gloveboxes with the birdcage prior to the start of the size reduction management review.

K-H has also purchased both oxy-gasoline and plasma arc torches for the size reduction of contaminated equipment. The technical staff is reviewing the fire hazards analysis and other safety analyses. The Site Rep suggested to K-H that they ought to see what the shower of sparks would do to a supplied air suit. K-H said they will test this during their upcoming oxy-gasoline torch demonstration. (III-B.1.a)

cc: Board members