

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 20, 1996

TO: G. W. Cunningham, Technical Director

FROM: Jim McConnell and Harry Waugh, Pantex Site Representatives

SUBJECT: Pantex Plant Activity Report for Week Ending December 20, 1996.

1. **DNFSB Activity Summary:** Jim McConnell and Harry Waugh were on site all week.
2. New Issues:
 - a. Independent Safety Walkthrough: This week a group of weapons response experts from LANL, LLNL, and SNL and facility safety experts from DOE (Don Knuth and Roy Sheppens) conducted an informal survey of nuclear explosives areas to identify any high-priority safety concerns. The Site Representatives accompanied the group and provided some insights based on their knowledge. As a result of the review, M&H suspended two additional operations: dynamic balancing and painting. The dynamic balancer was suspended because of the lack of reliable controls to prevent overspeed of the turntable and lack of controls on the socket-head cap screws that secure the weapon holding fixture to the turntable. Operations in the paint bay (Building 12-41) were suspended due to the lack of controls on unnecessary combustibles (there were about 150 gallons of paint in the bay) and the lack of a rigorous analysis of the effects of a fire in the paint bay. These operations join radiography and accelerated aging on the list of activities recently suspended.

Analyses indicate that, with a few safety control upgrades, the radiography operations at Pantex may resume shortly. A joint letter from LANL, LLNL, and SNL indicates that it should be safe to expose nuclear explosives to up to 1000 Rads during radiography without risking a main charge HE detonation caused by static charge build-up on the detonators. The labs' analyses indicate a safety margin of at least an order of magnitude for the dose required to cause a charge separation and subsequent electrostatic discharge initiation of main charge detonators (i.e., exploding bridge wires). The margin of safety may be smaller for other explosives in a WR unit that may be more sensitive to electrostatic discharge, but activation of those charges should not result in unacceptable off-site consequences without a second, unrelated, fault. M&H and DOE must now incorporate this information and whatever new controls are deemed appropriate into the Basis for Interim Operation or a new Justification for Continued Operations before radiography activities can resume.

- b. Non-Buoyant Plume Releases from Bays: During this week's walk-down of nuclear explosive operations, the Site Representatives learned that the new radiography bays in Building 12-104A are designed not to vent the pressure from an HE explosion through the bay roof. Large bays such as the radiography bays in Buildings 12-104A and 12-84 are not even built with a frangible roof. In fact, the new radiography bays are so large that pressure from the design explosion is not expected to expel the blast doors from the bay with significant force. This design appears to infer that a release from these bays would result in a non-buoyant plume which generally results in higher off-site consequences than an energetic release. The ground-level release has not been

analyzed in the Building 12-104A SAR or the Basis for Interim Operation. Additionally, even though the new paint bay and the environmental chambers bay are built with frangible roofs, an explosion in those bays may result in a non-buoyant release due to their size. The Site Representatives pointed this concern out to DOE for additional analysis.

3. Issue Follow-Up:

- a. Nuclear Explosive Operator Qualifications: DOE has completed a detailed review of operator qualifications. Preliminary indications are that DOE will conclude that the M&H system for tracking proficiency is unnecessarily cumbersome and may have resulted in several uncertified or unqualified operators performing work on war reserve units. In a similar effort, M&H completed a thorough review of pre-operational checklists (the forms completed before each shift to guide the conduct of safety system operability checks). The review indicated that many pre-operational checklists were not completed properly and that the Production Technicians (PTs) did not consider the checks to be a fundamental part of the safety envelope. As a result, the Manufacturing Division Manager held an all-hands meeting with the PTs after which each PT was asked to sign a memo acknowledging that he or she had been briefed on the purpose of, and process for, completing pre-operational checklists. Both DOE and M&H are taking strong steps to improve the quality of these checks. This latest effort appears to be a strong signal that failure to complete the checks will not be tolerated and that confusion will not be an acceptable excuse.
- b. W69 NESS Single Integrated Input Document: On December 17-20, personnel from DOE, M&H, LANL, and SNL/NM who have been working on the W69 dismantlement project met with the NESS Group to review the draft W69 NESS Single Integrated Input Document (SIID). The group discussed the document, which is now about 2000 pages long plus an addendum of about 1000 pages, in significant detail. Questions raised on issues such as hazard analyses and tooling design should result in an improved final document that will require less time for the NESS Group members to evaluate. As a result of the meeting, the group decided that the NESS should be postponed two weeks and that people should expect the review to last up to three weeks.

4. **Additional Information:** Recently, a PT, who reportedly intended to play a practical joke on another PT, barricaded the entrance to a bay in Building 12-64 with a crowbar. However, the next person to activate the hydraulic door opener was a manager rather than the PT. The "joke" backfired significantly: the hydraulic door wedged the crowbar in place such that it took several minutes to remove it and the PT was subsequently referred to M&H management for disciplinary action. While the PT did receive formal discipline, he was not removed from the Personnel Assurance Program and he has since resumed performing normal PT operations.

5. Future Activities:

- a. January ? - M&H AT-400A Corporate ORR begins (tentative)
- b. January ? - DOE AT-400A ORR (tentative, based on conclusion of M&H ORR)
- c. January 7 - W87 NESS Revalidation begins
- d. January 8 - Bi-Monthly Production Meeting
- e. January 10 - W69 HAR due from LANL
- f. January 14 - W84 D&I Safety Evaluation
- g. February 4-21 - W69 Dismantlement NESS
- h. February 11 - W80 NESS Revalidation begins

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