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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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May 15, 1995

Mr. Mark Whitaker, EH-9
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Mr. Whitaker:

Enclosed for your information and distribution are nine Defense Nuclear Facilities Safety Board staff reports. The reports have been placed in our Public Reading Room.

Sincerely,

A handwritten signature in black ink, appearing to read "George W. Cunningham".

George W. Cunningham
Technical Director

Enclosures (9)

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 27, 1994

MEMORANDUM FOR: G. W. Cunningham, Technical Director

COPIES: Board Members

FROM: Herbert W. Massie, Jr.

SUBJECT: Rocky Flats - Restart Activities

1. **Purpose:** This memorandum provides a report of a meeting held on December 15, 1994, at Rocky Flats between Department of Energy (DOE) Rocky Flats Field Office (RFFO) and EG&G for proposed restart of three of nine activities placed on hold as a result of a safety infraction in Building 771. The meeting was attended by H. W. Massie of the Defense Nuclear Facilities Safety Board (DNFSB) technical staff.
2. **Summary:** The DOE RFFO manager verbally approved two of the three requested startup activities (thermal stabilization and plutonium metal brushing/repacking that will take place in Building 707). Drum movement of residues and other waste was not yet approved subject to evaluation of criticality. The DNFSB staff believes that a major concern as evidenced by the Building 771 criticality near event is related to "safety culture." The safety culture in buildings other than Buildings 559 and 707 is not mature. Improvements in conduct of operations and use of the safety authorization basis by workers, foremen, and first line managers are essential.
3. **Background:** In response to an unauthorized operation on September 29, 1994, that was reported to senior EG&G and DOE-RFFO managers on October 6, 1994, EG&G immediately terminated most nuclear operations utilizing Standing Order 34. Even work needed at Rocky Flats to reduce safety risk at the site (e.g., calcination of possibly pyrophoric plutonium oxides that originated from storage of Plutonium metal) was suspended. RFFO issued a memorandum stating that they would be the restart authority.
4. **Discussion:** The broader purpose of the December 15, 1994, meeting between EG&G and RFFO was to obtain RFFO approval for restart operations in three areas: (1) thermal stabilization of plutonium oxides, (2) brushing and repacking of plutonium metals, and (3) allowing drum movements >200 gram Plutonium fissile/drum. No request was made yet for restart of liquid stabilization in Building 771 since EG&G intends to meet DOE Order 5480.31 requirements prior to startup of these activities. The DNFSB staff notes the following:
 - a. The president of EG&G, as well as senior members of his staff, participated fully in the meeting. EG&G indicated from their analysis that the root cause of the unauthorized

draining of the process line in Building 771 was a failure of involved personnel to accept fully the requirements in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. In response to questions from the DNFSB staff regarding how to root out those individuals who do not want to comply with a proper "safety culture," EG&G stated that an employee survey was being conducted with about 150 employees covering several buildings.

Another contributing cause to the Building 771 incident noted by EG&G was that the period for retraining and requalification of several of the involved individuals had expired. Also, the shift technical advisor's (STA's) nuclear criticality safety training had expired.

- b. The chairman of the EG&G Safety Review Board (SRB) presented the basis for restart of the proposed three activities that utilized DOE Order 5480.31, *Startup and Restart of Nuclear Facilities*, as a framework. The shutdown in the Standing Order was labeled as a suspension for "precautionary measures" that is actually not governed by DOE Order 5480.31. The RFFO manager stated that even though technically the suspension did not require DOE restart approval, it was prudent to do so -- particularly in light of a recent event at the Y-12 facility in Oak Ridge, Tennessee. For all three requested restart activities, the following was performed: personnel interviews, verification of personnel training/qualifications, increased senior manager reviews, enhancement of training on nuclear criticality, and reevaluation of procedures. Two of the restart activities (thermal stabilization and Plutonium metal brushing/repacking) had undergone recent extensive ORRs in Building 707. Moreover, between May and October 1994, 191 Plutonium items had been successfully brushed/repacked.
- c. In response to EG&G's request for restart of the three proposed activities, each of the DOE RFFO managers, assistant managers (Office of Waste Management, Office of Training and Development, Office of Standards/Performance, and Assurance, Office of Environment, Safety, and Health) summarized his/her review of the proposed restart. Pending closeout of some delinquent training course completions, RFFO agreed that thermal stabilization and Plutonium metal brushing/repackaging should move forward. The proposed restart of drum movements (for Plutonium residues and waste materials with Plutonium content greater than 200 grams) was not approved by RFFO.

The following open issues identified by RFFO remain to be resolved by EG&G:

1. Complete criticality evaluations (i.e., double contingency) for all residue/waste drums types Item Description Codes (IDCs) versus only thirteen types initially selected. The rationale for this is that other drum types IDCs will need to be moved to handle/move the 13 drum types of near-term interest for residue characterization and RCRA purposes.

2. Provide a technical basis for the types of training courses required by the workers involved and verify current training records.
3. Complete issues associated with the hydrogen generation in certain drums of residues. DOE approval is not required per the DOE RFFO manager.
4. Resolve a criticality limits infraction issue concerning the stacking of drums (type IDC 292) three-high versus two-high as required by plant procedures.
5. Fix drums that have administrative drum infractions (e.g., labels).

DOE believed that if the above items were resolved, then drum movement may be approved.

- d. The major concern raised by the DNFSB staff in the meeting was related to the "safety culture" question. The staff believes that workers trained in Buildings 707 and 559 have a more mature safety culture. The workers in the other buildings (771, 776, 371) are behind the workers in Buildings 707 and 559. Discussions with the RFFO ESH acting manager confirmed this view.

5. **Future Staff Actions:** The staff will review the results of the Rocky Flats attitude survey and follow-up efforts associated with release of the drum movement hold. Also, a more detailed look at conduct of operations in Buildings 559, 707, 771 and 371 is planned for the second quarter of FY 1995.