

**The Secretary of Energy**

Washington, DC 20585

November 10, 2003

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PROJECT BOARD

The Honorable John T. Conway
Chairman, Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, D.C. 20004-2901

Dear Mr. Chairman:

Thank you for your letter concerning the Safety Bases for the K-Area Material Storage (KAMS) Facility, Building 235-F, and FB-Line at the Savannah River Site. Your letter requested clarification of, or action related to, issues identified during a review that is part of an overall safety assessment undertaken in response to the Public Law 107-314, section 3183, *Study of Facilities for Storage of Plutonium and Plutonium Materials at Savannah River Site*.

First and foremost, the Department is committed to performing its missions safely. The Department believes that these facilities are safe to carry out their current missions, including the storage of plutonium received from the Rocky Flats Environmental Technology Site. Furthermore, the Department will take all steps necessary to assure that these facilities will continue to operate safely as mission needs evolve. The KAMS Safety Basis documents are being revised to reflect the potential additional storage capacity and the previous decision to extend the life of the facility. The Building 235-F Safety Basis is being upgraded to reflect the new storage and surveillance missions and resulting extended facility life. Responses to specific issues raised in your letter are enclosed.

If you have any further questions, please contact me or Ms. Jessie Hill Roberson, Assistant Secretary for Environmental Management, at (202) 586-7709.

Sincerely,

A handwritten signature in black ink that reads "Spencer Abraham".

Spencer Abraham

Enclosures

cc: Ms. Jessie Hill Roberson, EM-1
Mr. Mark B. Whitaker, Jr., DR-1
Mr. Jeffrey M. Allison, Manager, DOE-SR



Enclosure 1**Additional Responses to Issues Identified in Defense Nuclear Facilities
Safety Board (DNFSB) Letter, Dated June 12, 2003**

- Per Department of Energy-Savannah River (DOE-SR) direction, the contractor has established those facility conditions in the K-Area Materials Storage (KAMS) facility that do not require exhaust ventilation at any time to prevent plutonium release for all Design Basis Accidents.
- As part of the facility life extension evaluation, the Fire Hazards Analyses for both KAMS and 235-F are being reviewed to re-evaluate the need for Fire Detection and Alarms for these facilities. Department of Energy (DOE) plans to evaluate the results of these analyses to determine the appropriate action. The FB-Line Fire Detection and Alarm systems will remain deactivated for the remaining short life of the facility.
- The actuator tower above KAMS was modified to prevent a fire in the tower from propagating into the KAMS Material Storage Area (MSA) by creating a passive 40 ft² vent in the tower to release hot gases. The structural steel supporting the hoist motor and cable reel in the actuator tower was coated with fire proofing to provide a 90 minute fire rated enclosure. Additionally, the floor penetrations to the MSA from the Tower were sealed with grout to a thickness equivalent to a 3-hour fire rating. Since the combustible loading in the actuator tower, including transients, represents fire duration of less than 60 minutes, these actions have been considered acceptable for the current mission life of the facility. DOE plans to re-evaluate these for the extended life facility.
- An evaluation was performed in the early 1990's to determine the action necessary to decontaminate the Pu-238 process line (Plutonium Fuel Form Facility (PUFF)) located in Building 235-F. It was determined at that time that the risks of maintaining the current condition were acceptable and that it did not warrant the risk of suspending other operations ongoing within the facility. It was determined that the area would continue to be monitored and contained until such time of deactivation, when perhaps new technologies would be developed. SRS plans to evaluate the risks as part of the life extension DSA and evaluate additional compensatory measures (if available) that could reduce the risk.

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Enclosure 2

**Response to the Defense Nuclear Facilities Safety Board (DNFSB)
STAFF ISSUE REPORT of May 7, 2003
Safety Bases Review of Plutonium Storage and
Support Facilities at Savannah River Site**

K- Area Material Storage (KAMS)**DNFSB ISSUE:**

Duration of the planned storage mission significantly exceeds the 10 years originally expected.

DOE RESPONSE:

In April 2003, DOE Savannah River Operations Office (DOE-SR) informed its contractor that the expected life of KAMS would greatly exceed 10 years, and directed that the facility Safety Basis (SB) be upgraded commensurate with the extended facility life.

DNFSB ISSUE:

Current SB does not authorize storage of the quantity of Plutonium that would be required for consolidation.

DOE RESPONSE:

A departmental decision on storage of Hanford plutonium at the Savannah River Site has not yet been made. The current KAMS 10 CFR 830 compliant Documented Safety Analysis (DSA) and Technical Safety Requirements (TSR), approved by DOE-SR in May 2003, authorized sufficient plutonium storage capacity for the current requirements, including all material from the Rocky Flats Environmental Technology Site. In anticipation of a potential decision to receive material from Hanford, a revision to the KAMS DSA is in development that increases authorized plutonium material storage capacity.

DNFSB ISSUE:

Risk from Actuator Tower Fire accepted vice eliminated.

DOE RESPONSE:

The actuator tower above KAMS was modified to prevent a fire in the tower from propagating into the KAMS Material Storage Area (MSA) by creating a passive 40 ft² vent in the tower to release hot gases. The structural steel supporting the hoist motor and cable reel in the actuator tower was coated with fire proofing to provide a 90 minute fire rated enclosure. Additionally, the floor penetrations to the MSA from the Tower were sealed with grout to a thickness equivalent to a 3-hour fire rating. Since the combustible loading in the actuator tower, including transients, represents fire duration of less than 60 minutes, these actions have been considered acceptable for the current mission life of the facility.

This fire scenario related to the Actuator Tower area was evaluated as a Beyond Design Basis Accident (BDBA) as required by DOE-STD-3009. The BDBA serves as a basis for cost benefit considerations, if consequences exceeding the Evaluation Guidelines are identified in the BDBA range. This cost benefit decision was made by the original KAMS project team. The cost to demolish and remove (D&R) the Actuator Tower cables (Total Estimated Cost) was \$500K.

Given the low probability of the event, DOE-SR concurred with the KAMS project team decision that D&R activities were not warranted. DOE-SR plans to review this decision during the upcoming K-Area Safety Analysis Report (SAR) revision review and approval process.

DNFSB ISSUE:

The MSA Fire scenario does not apply for the activities authorized in the Basis for Interim Operation (BIO). The draft DSA allows new conditions that were not authorized in the BIO (e.g., different forklifts, which are not as robust nor explosion proof; storage of increase quantity of Plutonium; and alternate shipping containers (SAFKEG) that are insulated differently than the 9975 containers).

DOE RESPONSE:

Per DOE-SR direction, the contractor has established those facility conditions in KAMS that do not require exhaust ventilation at any time to prevent a plutonium release for all Design Basis Accidents. The use of the SAFKEG shipping container is not currently authorized in KAMS.

DNFSB ISSUE:

With above new conditions, ventilation system is required to be in operation during a fire in the MSA.

DOE RESPONSE:

Per DOE-SR direction, the contractor has established those facility conditions in KAMS that do not require exhaust ventilation at any time to prevent a plutonium release for all Design Basis Accidents.

DNFSB ISSUE:

Only Air-Flow Monitors are Safety Class (SC).

DOE RESPONSE:

Per DOE-SR direction, the contractor has established those facility conditions in KAMS that do not require exhaust ventilation at any time to prevent a plutonium release for all Design Basis Accidents. The Air-Flow Monitors are not required for these conditions and will be maintained as defense in depth equipment.

DNFSB ISSUE:

Safety Significant air vacuum alarm switch not adequately maintained in TSR.

DOE RESPONSE:

Per DOE-SR direction, the contractor has established those facility conditions in KAMS that do not require exhaust ventilation at any time to prevent a plutonium release for all Design Basis Accidents. The air vacuum alarm switch is not required for these facility conditions, and will be maintained as defense in depth.

DNFSB ISSUE:

Exhaust Fans are not SC.

DOE RESPONSE:

Per DOE-SR direction, the contractor has established those facility conditions in KAMS that do not require exhaust ventilation at any time to prevent a plutonium release for all Design Basis Accidents.

Building 235-F

DNFSB ISSUE:

10 CFR 830 compliant DSA does not reflect proposed new missions on long-term facility life.

DOE RESPONSE:

In April 2003, DOE-SR directed the contractor to upgrade the Safety Basis (SB) for the remainder of the facility commensurate with the extended facility life. Upgraded SB analysis is in progress for both the proposed storage and the surveillance projects and will be incorporated into the project as design input.

DNFSB ISSUE:

DSA has weaknesses (lacks identification of controls for events of low frequency i.e., Beyond Design Basis Accidents).

DOE RESPONSE:

The approved 235-F DSA is a graded approach DSA based upon a short facility life with a limited storage mission in which all storage is in shipping containers. Recently, DOE-SR informed the contractor that 235-F facility life would be extended at least 20 years. In April 2003, DOE-SR directed the contractor to upgrade the facility SB to be commensurate with the new extended life mission, which will include an evaluation of Beyond Design Basis Accidents. Additionally, the contractor is working on the SB documents for the planned storage and surveillance projects. These SB revisions will be approved and implemented prior to the commencement of operations for these projects.

DNFSB ISSUE:

Only Vaults are covered by fire detection and alarm systems.

DOE RESPONSE:

The 235-F Fire Hazard Analysis (FHA) is being re-evaluated to reflect the new storage and surveillance missions, and to reflect the extended life of the facility. All exemptions and equivalencies will be re-evaluated with respect to the new missions and extended facility life. The FHA will document the facility compliance with requirements and identify a compliance strategy for nonconforming items.

DNFSB ISSUE:

Fire suppression system deactivated and removed.

DOE RESPONSE:

The 235-F FHA is being re-evaluated to reflect the new storage and surveillance missions, and to reflect the extended life of the facility. All exemptions and equivalencies will be re-evaluated with respect to the new missions and extended facility life. The FHA will document the facility compliance with requirements and identify a compliance strategy for nonconforming items.

DNFSB ISSUE:

Significant amounts of combustibles next to vaults should be removed.

DOE RESPONSE:

The transient combustibles have been removed from this area. DOE-SR will continue to ensure through oversight the proper management of transient combustibles throughout the facility.

DNFSB ISSUE:

Risk from Plutonium 238 holdup in PUFF accepted vice eliminated. Plutonium 238 holdup significant and should be removed.

DOE RESPONSE:

An evaluation was performed in the early 1990s to determine the action necessary to decontaminate the Plutonium 238 process line (Plutonium Fuel Form Facility (PuFF)) located in Building 235-F. It was determined at that time that the risks of maintaining the current condition were acceptable and that it did not warrant the risk of suspending other operations ongoing within the facility. It was determined that the area would continue to be monitored and contained until such time of deactivation, when perhaps new technologies would be developed. SRS will evaluate the risks as part of the life extension DSA and evaluate additional compensatory measures (if available) that could reduce the risk.

DNFSB ISSUE:

Exhaust Vent system is Safety Significant (SS) for worker safety.

DOE RESPONSE:

The ventilation exhaust system's functional classification is based upon the current approved DSA. The system's classification will be re-evaluated during the facility DSA upgrade for extended life and for the Storage and Surveillance projects.

DNFSB ISSUE:

Without Fire Detection and Alarm, must use Public Address (PA) system to notify Workers of Fire. Some areas cannot hear PA system.

DOE RESPONSE:

The 235-F Fire Hazard Analysis (FHA) is being re-evaluated to reflect the new storage and surveillance missions, and to reflect the extended life of the facility. All exemptions and equivalencies will be re-evaluated with respect to the new missions and extended facility life. The FHA will document the facility compliance with requirements and identify a compliance strategy for nonconforming items.

DNFSB ISSUE:

Nuclear Incident Monitoring System (NIM) has been removed.

DOE RESPONSE:

DOE Order 420.1 provides the basis for when a criticality alarm system (CAS) is required. NIMs are SRS's instruments that make up the CAS. The facility presently does not require a CAS based on current DOE programs, procedures, and policies. Both the Storage and Surveillance Projects will evaluate the need for a CAS and will determine if NIMs must be installed.

FB-Line

DNFSB ISSUE:

DSA does not reflect Plutonium Oxide stabilization process being added to FB-Line.

DOE RESPONSE:

Prior to operation of the FB-Line plutonium oxide stabilization process, DOE-SR approved on 23 July 2003, the Building 221-F, FB-Line Facility Safety Analysis Report (SAR, WSRC-SA-2002-00006, Revision 1), Technical Safety Requirements (TSRs, WSRC-TS-980002, Revision 2) and Nuclear Criticality Safety Supplements (NCSSs, Numbers 5, 6, 28, 32) that reflects the plutonium oxide stabilization process.

DNFSB ISSUE:

DSA has weaknesses (lacks identification of controls for events of low frequency, i.e., Beyond Design Basis Accidents).

DOE RESPONSE:

DOE-SR agrees that the FB-Line DSA lacks controls for low frequency events (Beyond Design Basis Accidents). However, due to the short remaining operational life of the facility, and the cost and time to install any capital improvements, DOE-SR has determined to accept this lack of controls and work towards removing the hazards from the facility as quickly as possible. FB-Line current SB does ensure the safety of the facility during the remaining mission.

DNFSB ISSUE:

Fire Detection and Alarm system removed, but facility has short life.

DOE RESPONSE:

The Fire Detection and Alarm system for FB-Line will not be re-installed unless a new mission is identified for the facility. Appropriate compensatory measures have been taken by the contractor to avoid fires.