DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 11, 1992

MEMORANDUM FOR: G.W. Cunningham, Technical Director

COPIES: Board Members

FROM: D.F. Owen

THRU: S.L. Krahn

SUBJECT: Rocky Flats Plant (RFP) Building 707 - DOE Submittal of Status of Functional and Preoperational Testing, Staff Assessment

1. Purpose: This memo provides the staff assessment of the DOE submittal of status of functional and preoperational testing in preparation for a DOE operational readiness review (ORR) and subsequent resumption of plutonium operations in Building 707.

2. Summary: The EG&G report, forwarded by DOE, does not provide specific information on the scope and dates of testing which have been performed to validate operability of vital safety systems (VSS). Also, the report does not provide specific information on the scope of testing that remains for VSS's which have not been fully tested. Based on the report and discussions with DOE-RFO, RFP does not comply with the stated intention of the DOE 90-4 Implementation Plan concerning completion of VSS testing prior to submittal of the EG&G readiness to proceed memorandum. While EG&G claims that remaining testing will not prevent a "valid assessment" of the VSS's by the ORR, there is no evaluation by DOE of the status of testing as stated in the DOE Implementation Plan. DOE has not provided any assessment as to whether testing results support commencing an ORR in the near future. The ORR is now scheduled to start September 21, 1992. The DOE submittal was received less than three weeks prior to the planned start of the ORR. This does not meet the commitment of the 90-4 Implementation Plan to provide this submittal along with the Criteria and Review Approach Document (CRAD) at least four weeks prior to the start of the ORR. To date, a DOE approved CRAD has not been submitted to the Board.

Based on the information provided in the DOE submittal, it cannot be determined if testing is at a sufficiently advanced stage to commence a DOE ORR. The staff considers that the DOE report does not provide an adequate testing status and evaluation of functional and preoperational testing.

3. Background: DOE is preparing for the Building 707 ORR. The DOE Implementation Plan for Recommendation 90-4 requires that the status of functional and preoperational testing be evaluated and reported as part of the detailed criteria to be submitted to the Board at least four weeks prior to the start of the DOE ORR (see attachment 1). The

Implementation Plan also states that "It is intended...that non-plutonium start-up tests (functional and preoperational) will be completed for vital safety system equipment before the EG&G readiness to proceed memorandum is sent to DOE."

4. Discussion:

a. DOE Submittal Summary: Ref (a) forwards an EG&G report intended to satisfy the 90-4 Implementation Plan requirement to evaluate and report on the status of Building 707 functional and preoperational testing. The submittal provides a list of equipment required to perform the current mission and its operability status. Two major pieces of equipment, the J-Module oxide burning equipment, J-25, and it's backup, J-60, are required for the Building 707 mission. Testing was performed on J-25 in July. The J-60 oxide burning equipment is still under repair. The EG&G report states that J-60 will be tested during the DOE ORR. Additionally, the report provides status of VSS testing. As of July 28, 1992, not all VSS testing is completed. Systems for which operability is "partially verified" include:

- HVAC, Pressure Control and Filtration
- HVAC, Inerting System
- Radiation Monitoring System
- Life Safety Disaster Warning System
- Fire Barrier System
- Fire Detection and Alarm Systems
- Fire Suppression System
- Emergency Power System

Safety Evaluation Reports will be completed for each VSS upon completion of individual system testing.

b. Staff Assessment: The staff notes the following on the subject submittal:

(1) The report often uses the statement "operability partially verified." The EG&G report does not provide specific status information on the scope or date of testing which has been performed or the scope of testing that remains for the VSS's which have not been fully tested. Test procedure/work package numbers are referenced but there is insufficient information to determine the scope of the testing which is done or remains to be done.

(2) There is no evaluation by DOE of the status of testing as stated in the DOE Implementation Plan. DOE has not provided any assessment of whether testing results support commencing an ORR in the near future; thus assuring that a premature ORR is avoided. The contractor report claims that "Lack of information from the post maintenance testing will not prevent the ORR team from performing a valid assessment of the VSS." The lack of detail noted above, however, does not allow for an independent assessment of that claim.

(3) Based on discussions with DOE-RFO, the VSS testing will not be completed prior to the EG&G submittal of their readiness to proceed memorandum, and will not be completed until sometime "prior to resumption." Testing requiring the longest time to complete include certain portions of the fire protection systems testing and HVAC system HEPA filter efficiency testing. As a result, RFP will not comply with the stated intention of the 90-4 Implementation Plan concerning completion of VSS testing prior to submittal of the readiness to proceed memorandum.

(4) The report was received at the Board on September 1, 1992. DOE-HQ (L.Barrett) has stated that the DOE ORR is currently scheduled to start on September 21, 1992. This submittal was received less than three weeks prior to the planned ORR. DOE has not met the 90-4 Implementation Plan commitment to provide the Board with this submittal along with the Criteria and Review Approach Document (CRAD) four weeks prior to the start of the ORR. To date, a DOE approved CRAD has not been submitted to the Board.

Based on the above discussion, it cannot be determined if testing is at a sufficiently advanced stage to commence a DOE ORR in the near future. The staff considers that the DOE report does not provide an adequate testing status nor evaluation and the submittal was received less than three weeks prior to the planned start of the ORR. As a result, the commitments made by DOE in the 90-4 Implementation Plan regarding this submittal have not been met.

c. Future Plans: The staff will continue reviewing the adequacy of the mission equipment and VSS testing programs. Additional documentation and information needed to evaluate this testing has been requested (see attachment 2) and an on-site review may be required.

Committee on Nuclear Facility Safety (ACNFS) identified additional short-term measures that should be completed prior to the resumption of plutonium operations.

The DOE's normal practice after an extended outage at a nuclear complex is to conduct a comprehensive ORR before resuming operations. In keeping with this practice and consistent with a May 3, 1990, DNFSB recommendation, the Secretary of Energy notified the DNFSB on June 20, 1990, that DOE would perform an ORR at RFP prior to resumption of plutonium operations.

EG&G is currently proceeding with a phased program to resume plutonium operations at RFP. Each phase of EG&G's program is intended to allow plutonium operations to be resumed in a specific building. The resumption program for each building consists of an EG&G program to upgrade the safety of operations, followed by a non-plutonium startup test program and an EG&G operational readiness review to confirm the adequacy of the upgrades to insure safety of operation at that building. At this point, EG&G will prepare a readiness to proceed memorandum to DOE. DOE will then conduct an operational readiness review.

Although this is the general sequence of events that has been developed, several practical problems will prevent this sequence from being fully serial. All equipment will have been functionally tested to the extent practicable prior to the EG&G operational readiness review. Some non-vital safety system preoperational tests will be performed throughout the review process including the period during which the DOE operational readiness review is conducted. It is intended, however, that non-plutonium startup tests (functional and preoperational) will be completed for vital safety system equipment before the EG&G readiness to proceed memorandum is sent to DOE. All non-plutonium testing will be completed and equipment dispositioned prior to the completion of the DOE Operational Readiness Review except for equipment that cannot be tested without introducing plutonium for either safety or process degradation considerations. The status of functional and preoperational testing for each building will be evaluated and reported to the Board as a part of the detailed criteria to be submitted at least 4 weeks prior to the start of the DOE ORR.

It is also likely that some steps in the DOE operational readiness review may begin before the EG&G readiness to proceed memorandum is issued, e.g., to observe special steps in the preparations to resume operations.

Based on the results of the DOE Operational Readiness Review which will include briefings of the DNFSB and the ACNFS, and following a public hearing, the Secretary will decide whether to issue an approval to proceed memorandum. When such a memorandum has been issued by the Secretary, EG&G will undertake a graded startup test program of plutonium operations.

Both the DOE Rocky Flats Office and a designated group of experts from the DOE Operational Readiness Review Team will observe the plutonium startup tests. When the results of these tests are sufficient to demonstrate that plutonium handling operations in the building are being conducted satisfactorily, the Assistant Secretary for Defense Programs will authorize a full return to normal plutonium operations.

September 4, 1992

Information Requested on Building 707 VSS
and Mission Equipment Testing

1. EG&G letters VMP-179-92 dtd June 23, 1992 and HSB-287-92 dated June 23, 1992 (Refs (a) and (b) of EG&G Building 707 Equipment and Safety System Status Report, JOZ-544-92 dated August 4, 1992)

2. The assessment, referred to in the JOZ-544-92 cover letter, of "equipment required for the current mission in Building 707 to determine the requirements for physical testing and extent of those tests."

3. Cold graded startup plan referred to in the JOZ-544-92 cover letter.

4. Completed Safety Evaluation Reports referred to in the JOZ-544-92 cover letter.

5. Test completion dates (approximate or exact) for the test procedures referenced under "Basis for Operability" in the test program summary of JOZ-544-92.

6. Titles of testing procedures referenced under "Basis for Operability" and "Outstanding Activities" in the test program summary of JOZ-544-92.