March 11, 1980

File Containment Purge

For: The Commissioners

From: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Thru: Executive Director for Operations

Subject: PROPOSED MAN ENTRY TO TMI-2 REACTOR BUILDING AND RELEASE OF KRYPTON GAS FROM PERSONNEL AIR LOCK ON EGRESS

Purpose: To inform the Commission of a planned release of approximately 24 curies of krypton 85 gas from the TMI-2 reactor building personnel air lock. The gas release will occur during egress of personnel from the air lock following the first entry into the reactor building.

Discussion: The licensee is planning an exploratory entry into the reactor building early in April. The entry team, comprised of two men, will enter the reactor building through the personnel air lock, survey and photograph the interior of the reactor building for approximately 20 minutes, and egress from the air lock. Entry team transit through the air lock will allow approximately 24 curies of reactor building krypton to migrate into the air lock. This krypton will be subsequently released to the environment through the plant ventilation system.

Assuming, conservatively, that krypton equilibrium is established between the reactor building and the air lock during entry team transit through the inner air lock door, and that the entire air lock air volume is released during egress through the outer door, a maximum of 24 curies of krypton 85 would be released to the environment. The release would be from the plant supplementary exhaust system and would occur over a 155 minute period. Assuming worst case meteorology, the release would result in a maximum total skin does at the site boundary of 0.68 millirads and a total body dose of 0.0082 millirems.

Alternatives to releasing the 24 curies of krypton 85 gas directly to the ventilation system and the environment have been investigated and were found impractical. Dose rates to the entry team while in the air lock in a krypton environment are expected to be in the 900 to 1000 mr per hour range. Any alternative method of removing krypton from the air lock will be lengthy and will subject the entry team to an unacceptably long transit time through a high radiation area.

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The reactor building entry program is being evaluated by the onsite NRC staff to ensure that radiation exposures to participating personnel will remain within the guidelines set forth in 10 CFR 20. An evaluation is also being performed of the expected benefit versus the risk of proceeding with the entry prior to removing the krypton from the reactor building atmosphere. The initial entry is intended to provide a visual assessment of the reactor building condition, commence radiation mapping of the reactor building, obtain swipe surveys from various surfaces, and demonstrate that a reactor building entry is feasible if emergency repairs were required in the future. The data provided by the first entry will be essential in assessing the course of the future decontamination and recovery efforts in the reactor building. The staff expects to complete the entry evaluations and the review of all associated procedures by March 20, 1980.

The reactor building entry is in the critical path of the TMI-2 recovery program and extensive and elaborate preparations have been made by the licensee to support this effort. Notification of the planned entry and the subsequent release of the 24 curies of krypton 85 is made at this time to ensure that any Commission concerns can be addressed in a timely manner without impacting the recovery schedule.

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