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January 28, 1983
 4410-83-L-0024

TMI Program Office
 Attn: Mr. L. H. Barrett, Deputy Program Director
 US Nuclear Regulatory Commission
 c/o Three Mile Island Nuclear Station
 Middletown, PA 17057-0191

1983 JAN 31 AM 10 00
 U.S. NUCLEAR
 REGULATORY COMMISSION

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
 Operating License No. DFR-73
 Docket No. 50-320
 Personnel Airlocks

The purpose of this letter is to request NRC permission to extend the time period during which both airlock doors on both containment building airlocks may be open simultaneously during an entire entry period. This will enable a more expeditious passage of personnel through the radiation field existing in the vicinity of the airlocks, and thus represents an ALARA improvement. Shorter stay times in the radiation field are highly desirable from an ALARA standpoint, and a reduction in man-rem will be realized. As an example, the radiation field in the area of Personnel Airlock No. 2 is 450 mrem/hr gamma and by maintaining both airlock doors open instead of requiring the worker to cycle through the airlock, a savings of at least 8 mrem per person per passage is expected.

In developing this proposal, GPINC identified some concerns which need to be addressed. The primary concerns are the Reactor Building temperature and the control of airflow into the containment building.

Temperature

Calculations have been performed which indicate that the temperature inside the containment building during cold weather operation, with both equipment hatch doors open, could drop below 50°F which is the minimum temperature limit on the Reactor Coolant System (RCS). Therefore, procedural requirements will be established so that when both equipment hatch airlock doors are open, the building temperature will be maintained at or above 55°F, as indicated on the lowest reading containment building temperature indicator. If building temperature drops to 55°F, at least one equipment hatch airlock door will be shut to enable building temperature to increase. The purge system heaters will be used, as required, to maintain the building temperature above 55°F. The 55°F limit was chosen because the temperature detectors below the 305'

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Door

elevation are inoperable and adequate margin was desired to ensure the temperature at this elevation was greater than 50°F.

Air Flow

Procedures will be established to ensure there will be no significant release of radioactivity while both airlock doors on either or both airlocks are open. These procedures will implement the following, as some of the precautions to minimize the probability and magnitude of a release of radioactivity during the period when both airlock doors on either or both airlocks are open.

1. At least one watch person will be stationed in the immediate vicinity of the airlock.
2. Communications will be maintained between the airlock watch and the Command Center or the Control Room.
3. Containment conditions and work activities will be continuously monitored from the Command Center or the Control Room.
4. At least one containment purge exhaust fan will be operating (except when momentarily secured to equalize pressure) and a periodic check will be made to ensure sufficient airflow into the reactor building. This minimum airflow will be established by procedure.
5. Activities involving heavy load lifts will be analyzed and controlled to verify they can be safely performed.
6. The movement or manipulation of any component associated with the reactor coolant pressure boundary (with fuel in the vessel) will be prohibited.
7. An alarming airborne particulate radiation monitor and a tritium bubbler will be operating in the immediate vicinity of the airlock. The particulate detector will be adjusted to alarm if airborne concentrations exceed a predetermined value above background.

The combination of these factors coupled with the ability to rapidly close the airlock doors will minimize any potential release of radioactive material to the environment resulting from any credible accident when both airlock doors are open.

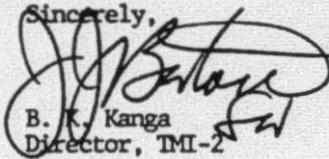
GPUNC letter 4410-82-L-0023 dated October 6, 1982, discusses the probability of a small release to the environment while the equipment hatch airlock doors are being opened. A curtain wall has been erected in the equipment hatch area so that any releases from the #1 airlock will now be to an indoor confined (but not air-tight) area rather than in direct communication to the environment. Thus, any release will tend to be contained by the curtain wall and will be drawn back into the reactor building once both airlock doors are opened and the purge started, thus reducing the total release estimated in GPUNC letter 4410-82-L-0023.

An additional item that has been considered in this evaluation is the minimization of the amount of dust and/or cold air that could enter the containment building. To offset these effects, a portion of the air flow into the equipment hatch airlock can be drawn from the M-20 area via a stairwell which provides communication between these two areas. This can reduce the amount of cold and dust laden outside air which may be drawn into this area via a damper in the equipment hatch area

curtain wall. To further reduce the dust drawn into the containment building, a filter will be installed in conjunction with the damper in the curtain wall.

If you have any questions, please contact Mr. J. J. Byrne of my staff.

Sincerely,



B. K. Kanga
Director, TMI-2

EKK/JJB/jep

CC: Dr. B. J. Snyder, Program Director - TMI Program Office