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Writer's Direct Dial Number

May 9, 1980  
TLL 229

Division of Operating Reactors  
Attn: R. W. Reid, Chief  
Operating Reactors Branch No. 4  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

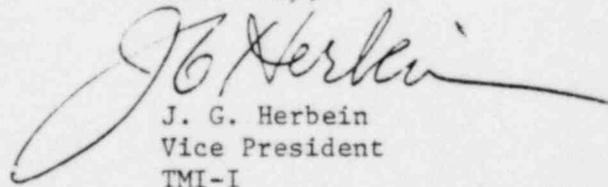
Three Mile Island Nuclear Station, Unit I (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Containment Purging and Venting During Normal Operation

In response to your letter dated January 28, 1980, Metropolitan Edison Company will limit the purge and vent valves to no more than 30°-50° open (90° being fully open). Metropolitan Edison Company will modify the valves and/or operators to accomplish this limit by January 1981 pending delays in receipt parts for the kit from the manufacturer. Until complete installation, Metropolitan Edison Company will limit purging to 90 hours during normal operations as discussed in our letter of August 7, 1980.

Regarding the performance of the solenoid valve used to pilot control the pneumatic valve actuators, we have reevaluated the condition and found that the Pratt Deficiency Report was for the inside containment valves in TMI-II (AH-V2A/B, 3A/B), and not for the outside containment valves (AH-V1A/E, 4A/B). Pneumatic valve actuators are not used in the vent and purging system inside containment in TMI-I. Limitorque operators are used for the TMI-I vent and purge isolation valves inside containment.

Also enclosed is our response to the interim positions contained in your letter of January 28, 1980.

Sincerely,

  
J. G. Herbein  
Vice President  
TMI-I

JGH:GS:hah

Enclosure

cc: J. T. Collins  
B. J. Snyder

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Position 1

Whenever the containment integrity is required, emphasis should be placed on operating the containment in a passive mode as much as possible and on limiting all purging and venting times to as low as achievable. To justify venting or purging, there must be an established need to improve working conditions to perform a safety related surveillance or safety related maintenance procedure. (Examples of improved working conditions would include deinerting, reducing temperature\*, humidity\*, and airborne activity sufficiently to permit efficient performance or to significantly reduce occupational radiation exposures.)

Response to Position 1

Reactor Building purges in TMI-I have been performed primarily for worker comfort (i.e., temperature and humidity control) and, on occasion, for airborne activity control. Containment entry has been, on an average, one to two times per week during operation. The primary purpose has been for operation surveillance checks, instrument calibration, and minor maintenance.

Met-Ed proposed to limit purging in TMI-I to 90 hours maximum during normal operations per year. To accomplish this limited purging, two items must be evaluated. One is the capability of the containment cooling system, and the other is RCS leakage through valves.

The original containment cooling system could not maintain the reactor building temperature within Technical Specification limits during the hottest summer days without help from the purge and vent system. To increase the capacity of the containment cooling system, a second industrial cooler was installed to serve containment during the 1979 refueling outage. Calculations show that the combined capacity of the two industrial coolers should be sufficient for the reactor building normal heat load.

RCS leakage through valves (i.e., stem leakage, body-to-bonnet, etc.) is a two-fold problem. The first part of the problem is that leakage contributes to the reactor building heat load and humidity. The second part of the problem is that leakage is a primary source of airborne radioactivity buildup. To correct this problem, short and long-term tasks have been established. The short-term tasks include identifying the leaking valves and make all prudent maintenance to reduce leakage. The long-term tasks include reviewing the leak tightness of the short-term fixes and possibly replacing valves during future outages.

Both items above (the second industrial cooler and the tasks on the leaking valves) will allow Met-Ed to stay within the 90 hours per year during normal operations purging limit. The only reasons for purging in the future should be if maintenance is needed on the containment building cooling system, or if a valve that has not been modified or replaced has an unacceptable leak rate and increases the airborne activity levels beyond acceptable limits.

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\* Only where temperature and humidity controls are not in the present design.

Position 2

Maintain the containment purge and vent isolation valves closed whenever the reactor is not in the cold shutdown or refueling mode until such time as you can show that:

- a. All isolation valves greater than 3" nominal diameter used for containment purge and venting operations are operable under the most severe design basis accident flow condition loading and can close within the time limit stated in your Technical Specifications, design criteria or operating procedures. The operability of butterfly valves may, on an interim basis, be demonstrated by limiting the valve to be no more than 30° to 50° open (90° being full open). The maximum opening shall be determined in consultation with the valve supplier. The valve opening must be such that the critical valve parts will not be damaged by DBA-LOCA loads and that the valve will tend to close when the fluid dynamic forces are introduced.
- b. Modifications, as necessary, have been made to segregate the containment ventilation isolation signals to ensure that, as a minimum, at least one of the automatic safety injection actuation signals is uninhibited and operable to initiate valve closure when any other isolation signal may be blocked, reset, or overridden.

Response to Position 2

- a. The TMI-I purge and vent valve manufacturer, Henry Pratt Co., has stated that the dynamic loads on the valves during accident conditions can be decreased by approximately 50% by limiting the valve opening to 65°. This is based on calculations done for similar type valves, which show that no parts will be overstressed at this opening and the stresses are one-half of the full open position stresses. Met-Ed proposes to limit the opening of the TMI-I purge and vent valves to 50° open in accordance with the NRC interim position. When the NRC approves this limited opening for TMI-I, Met-Ed will modify the valves and/or operators to accomplish this limit. Also, Pratt has stated that flow will tend to close the valves in this limited open position.
- b. Overriding, resetting, or bypassing of a containment isolation actuation signal will not cause any of the other actuation signals to be blocked or disabled.