UNITED STATES OF AMERICA NUCLÉAR REGULATORY COMMISSION

COMMISSIONERS:

John F. Ahearne, Chairman Victor Gilinsky Richard T. Kennedy Joseph M. Hendrie Peter A. Bradford MAY 1 6 1980 DOCKETED USNRC MAY 1 6 1980 D Office of the Secretary Docketing & Service Branch

In the Matter of

METROPOLITAN EDISON COMPANY

(Three Mile Island Nuclear Station, Unit No. 1) Docket No. 50-289 (Restart)

MEMORANDUM AND ORDER

CLI-80- 16

On January 4, 1980, the Licensing Board certified two questions to the Commission in this proceeding:

- Whether the provisions of 10 CFR 50.44 should be waived or exceptions made thereto in this proceeding where a prima facie showing has been made under 10 CFR 2.758 that hydrogen gas generation during the TMI-2 accident was well in excess of the amount required under 10 CFR 50.44 as a design basis for the post-accident combustion gas control system for TMI-1.
- Whether post-accident hydrogen gas control should be an issue in this proceeding where post-accident hydrogen gas control was perceived to be a serious problem and was in fact a problem during the TMI-2 accident.

Although the Commission in its August 9 Order and Notice of Hearing did not specifically list hydrogen gas control as an issue to be considered by the Board, the Commission did not intend to exclude the issue from consideration by the Board. The Three Mile Island accident has in fact raised a safety issue regarding hydrogen control measures following a lossof-coolant accident that should be addressed. The Commission believes that, quite apart from 10 CFR 50.44, hydrogen gas control could properly be litigated in this proceeding under 10 CFR Part 100. Under Part 100, hydrogen control measures beyond those required by 10 CFR 50.44 would be required if it is determined that there is a credible loss-of-coolant accident scenario entailing hydrogen generation, hydrogen combustion, containment breach or leaking, and offsite radiation doses in excess of Part 100 guideline values. The design basis assumptions of 10 CFR 50.44, in particular the assumption that hydrogen generation following a loss-of-coolant accident is dependent on ECCS design as opposed to actual ECCS operation, doc constrain the choice of credible accident sequences used under 10 CFR 100.11(a). <u>Union of Concerned Scientists</u> v. <u>AEC</u>, 499 F.2d 1069, 1090 (D.C. Cir. 1974). Thus we answer the second certified question in the affirmative.

We answer the first certified question in the negative. We are of course aware that the Three Mile Island accident resulted in hydrogen being generated far in excess of the hydrogen generation design basis assumptions of 10 CFR 50.44. This was because the operator interfered with actual ECCS operation with the result that the safety system did not operate as designed and as 50.44 assumed it would operate. However, this is a safety issue that is not peculiar to Three Mile Island Unit 1 -- it is an issue that is common to all light water power reactors because operators generally have the physical capability to interfere with automatic ECCS operation. The proper response to this issue is not waiver of the rule under 10 CFR 2.758 because this case presents no "special circumstances", but rulemaking to either amend or suspend the present rule. The Commission is planning a broad rulemaking

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proceeding that will address the general question of possible safety features to deal with degraded core conditions. This rulemaking proceeding will include measures to deal with hydrogen generation following a loss-of-coolant accident. The results of this proceeding will be applicable to plants such as Three Mile Isiand Unit 1.

The question remains whether the hydrogen generation issue presented by the Three Mile Island accident is sufficiently serious and urgent that an immediate rule suspending the hydrogen generation design basis assumptions of 50.44 is required without awaiting completion of the degraded core rulemaking. We believe that the answer is no for the following reasons. First, such a suspension would only affect the context in which the issue would be evaluated, and not whether the issue would be evaluated at all. We have stated above that the hydrogen control issue can be litigated under 10 CFR Part 100. Under Part 100 the likelihood of an accident entailing generation of substantial (in excess of 10 CFR 50.44 design bases) quantities of hydrogen, the likelihood and extent of hydrogen combustion, and the ability of the reactor containment to withstand any hydrogen combustion at pressures below or above containment design pressure would all be at issue. A critical issue here would be the likelihood of an operator interfering with ECCS operation.

Second, the effect of a suspension of the 50.44 hydrogen design basis assumptions would be that constraining assumptions would be placed on hydrogen generation safety evaluations. Under those portions of 50.44 that would remain, and under 10 CFR Part 50, Appendix A, General Design Criterion 50, the evaluation would need to assume that a loss-of-coolant accident is certain to occur, that any hydrogen generated is certain to burn, and that the containment is

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certain to fail at pressures in excess of design pressure. The only issues would be how much hydrogen would likely be generated and whether the pressures resulting from combustion of the hydrogen would exceed containment design pressure. To be sure these types of assumptions would incorporate conservatisms in the analysis that would not be incorporated into a Part 100 analysis. However, after the Three Mile Island accident the Staff has given licensees explicit instructions not to turn off prematurely the ECCS system. As noted above, it was operator interference with ECCS operation that was the root cause of the hydrogen generation problem at Three Mile Island Unit 2. In our view this instruction, which had not been issued when 50.44 and General Design Criterion 50 were promulgated, compensates for the less conservative analytical framework of Part 100, and serves as a basis to sustain the present hydrogen generation assumptions of 50.44 at least for the interim until the degraded core rulemaking can be completed.

Thus we are leaving 10 CFR 50.44 in place for the time being until more deliberate and considered rulemaking can be completed.*

For the Commission

SAMUEL J.

Secretary of the Commission

Dated at Washington, D.C. this <u>IC</u> day of May, 1980. 4

^{*} Section 201 of the Energy Reorganization Act, 42 U.S.C. 5841, provides that action of the Commission shall be determined by a "majority vote of the members present." Commissioners Gilinsky and Kennedy were not present at the meeting at which this Order was approved. Had he been present, Commissioner Gilinsky would have dissented in part, as noted in the attached separate views of Commissioners Gilinsky and Bradford. Had Commissioner Kennedy been present, he would have voted to approve this Order. Accordingly, the formal vote of the Commission is 2-1.

SEPARATE VIEWS OF COMMISSIONERS GILINSKY AND BRADFORD

We would have waived 10 CFR 50.44. To us, a proceeding at Three Mile Island seems an extraordinary place for the Commission to adhere to the proposition that only five percent of the cladding will react to release hydrogen, given that the recent accident is known to have released several times that quantity.

