

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555



JUN 11 1980

Mr. L.O. Dorfman  
100 Windermere Ave. Apt. T-3  
Wayne, PA. 19087

Dear Mr. Dorfman:

Thank you for your letter of May 21, 1980 in which you suggest means of improving nuclear power plant safety by allowing only a predetermined amount of time for an operator to correct any abnormal condition before the reactor is automatically shut down. Nuclear power plants now use a similar, but slightly modified strategy. Operator action to correct an abnormal condition is allowed until predetermined conditions, such as power, flow, pressure or temperature rather than time, are exceeded which then results in automatic shutdown. The accident at TMI initially followed this course, that is, the operators were attempting to correct for a loss of feedwater flow when conditions, in this case reactor coolant system pressure, exceeded a predetermined limit and the reactor was automatically shut down. However an additional failure occurred (the pressure relief valve stuck open) and the operators were unable to correct the situation before reactor pressure fell to another predetermined limit which automatically initiated injection of emergency core cooling water. The operators misinterpreted the indication of high pressurizer level as showing that the reactor coolant system was overfull when in fact the high level was the result of flow out the relief valve which was emptying the system. Because of this error the operators reduced the emergency core cooling flow, the core eventually became uncovered and severe damage and possible partial melting of the core occurred.

Thus the accident at TMI was the result of operators overriding automatic actions rather than allowing too much time for operator action before initiating automatic controls. Since the accident operators have been given additional guidance concerning intervention and overriding of automatic controls. However, an absolute prohibition from overriding automatic functions is impractical, since a determined operator can do so in many ways, and is probably unwise, since the intervention by operators is desired in those situations that were not foreseen when the automatic systems were designed. We believe that although improvements in automatic controls can and should be made, the ultimate safety of the plant rests

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with the operator who must be well trained and provided with accurate and unambiguous instruments and controls.

If you wish to discuss this or other suggestions, please write or call me, or if I am unavailable, Mr. Warren Minners of my staff whose telephone is 301-492-7581.

Sincerely,

  
Roger J. Mattson, Director  
Division of Safety Technology

cc: W. Minners