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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
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METROPOLITAN EDISON COMPANY, et al.) Docket No. 50-320
)
(Three Mile Island Nuclear Station, Unit 2))

REQUEST TO THE DIRECTOR OF NUCLEAR REACTOR REGULATION
FOR
EMERGENCY ACTION BY THE NUCLEAR REGULATORY COMMISSION

This is an emergency request for immediate action by the Nuclear Regulatory Commission (NRC), brought under Sec. 2.202(a)(1) and 2.206(a) of the Commission's Rules and under Sec. 186 of the Atomic Energy Act (AEA) as amended. As a result of the near catastrophe at the Three Mile Island Nuclear Generating Station, Unit 2 (TMI-2) on March 28, 1979, extensive damage to the reactor core of TMI-2 has been reported (See, for example, testimony of Mr. Darryll Eisenhut before the Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, April 10, 1979, and NRC IE Bulletin 79-05A, April, 1979. See also Washington Post, April 8, and 9, 1979.) Events which have been publicly reported since about April 4, 1979, have suggested a stable situation with fission product decay heat being slowly but adequately removed from the damaged core of TMI-2. The purpose of this emergency petition is to request the Commission to hold public hearings prior to activation of any plans to alter in any way the current (i.e., as of April 23, 1979) experimental and operational status of TMI-2 not in accordance with the published Technical Specifications of TMI-2 (Appendix A

to License No. DPR-73, February 8, 1978).

The Intervenors observe that the Rules of the Commission contain procedures for the modification of a license, modification of the technical specifications, and for experimental programs at licensed facilities. See Parts 50.54(e), (f), (h), (n); 50.59 (a), (b), (c); and 50.90, 50.91, and 50.100.

Interest

The Intervenors in the TMI-2 Operating License proceeding, which is not yet completed--the York Committee for a Safe Environment and the Citizens for a Safe Environment (both of which are member groups of the Environmental Coalition on Nuclear Power (ECNP)--have members, as does ECNP, who live in the vicinity of TMI-2, within a distance of about 0.75 mile of the facility. These Intervenors, now to be joined by their parent organization, ECNP, are fully aware of the health dangers of continuing releases of radioactive materials from this nuclear facility and believe that any procedural or operational changes from the status quo may be exceedingly dangerous to their health and safety, including the possibility of death by acute radiation injury, should the proposed experimental procedures or operations fail or initiate further damage to the reactor. These Intervenors and Petitioners assert that their interest will be affected by future experimentations at TMI-2.

Concerns of the Intervenors

1. Serious violations of the Technical Specifications (Tech. Specs.) by the licensee have already occurred which have led to the current degraded conditions of the TMI-2 reactor core. Any change from the current reactor core cooling method either to convective cooling or to the use of higher pumping speed, now constitutes a new experimental situation whose safety implications are unexplored and unevaluated, and any such change or changes in procedures and operations are therefore not covered by the Tech. Specs. of the Operating License presently in effect.

2. Due to the degraded condition of the core and uncertainty of instrumentation accuracies, there is no assurance that convective cooling can or will remove decay heat rapidly enough from those regions where coolant water flow ranges from being restricted to being blocked. One possible consequence of a failure of convective cooling may be the necessity of restarting the pump or pumps, currently in operation, or the restarting of additional pumps, which could lead to unevaluated consequences, such as a disruption or rearrangement of what remains of damaged fuel pellets. The potential exists for a possible rapid reactivity insertion, followed by a catastrophic nuclear excursion or runaway; these potential results of altered procedures require full safety evaluation prior to undertaking any change in the cooling mode.

3. A further consequence of the failure of convective cooling may be core overheating, accompanied by more fuel rod cladding reaction with water and steam. This reaction produces not only large quantities of hydrogen gas, but also is a potential source of large amounts of energy. There is a possibility, if the reaction begins, that this energy can be generated at a rate faster than this heat can be removed by convective cooling. Again, a need to restart pumping may lead to unintended, and potentially catastrophic, consequences, yet unevaluated as is required by NRC rules and the Atomic Energy Act.

4. Due to the unusual ability of the hydrogen atom and molecule to penetrate and combine with many metals, the possibility exists that, due to the large quantitiesof hydrogen present in the pressure vessel under relatively high pressures (perhaps up to 2000 p.s.i.) and temperatures in the neighborhood of 500 to 600 degrees F. on or about March 28, 1979, through April 2, 1979, considerable quantities of hydrogen may have penetrated, and subsequently embrittled, the pressure vessel. As a result of this possible embrittlement, the reactor pressurevessel may now not have the structural capability of withstanding pressurization, should pressurization become necessary due to

insufficiently evaluated experimental procedures.

5. Similarly, the high hydrogen pressures, combined with relatively high temperatures, may have caused hydrogen embrittlement of unoxidized fuel cladding.

6. As a result of the fuel cladding- steam reaction already completed and associated high temperatures (1000F. to perhaps 3000 degrees F.) the internal structural components of the top areas of the core may be seriously weakened due to oxidation or embrittlement. Again, should reflooding of the core prove necessary, if convective cooling fails, unanticipated new problems and unevaluated results may occur, none the least of which may be the recently announced core lift phenomenon identified in Babcock and Wilcox reactors.

Relief Requested

1. The Intervenors request that a Safety Evaluation Report and all other pertinent documents be made available to the Intervenors and to the public prior to any further experimentation at TMI-2 which may affect the health and safety of the public.

2. The Intervenors request that a public hearing be held prior to any further experimentation at TMI-2.

3. The Intervenors request that they and their special consultant be informed prior to any further experimentation or change of licensed procedures or other alteration of the facility which may affect the health and safety of the public.

4. The Intervenors also request that, prior to any further experimentation at TMI-2, the public be evacuated from any areas that would be affected, should the experiment fail and control of the reactor be lost.

5. The Intervenors request that an array of live, real-time radiation detectors be deployed in the vicinity of TMI-2 and out to a radius of 40 miles to measure radiation levels in areas where exposures currently take place but are not measured by the Commission.

6. The Intervenors request that the NRC order and rigidly enforce an immediate halt to the continuing unannounced releases of radioactive materials from TMI-2, and that public announcement be required prior to any further planned releases of radioactive materials from TMI-2.

7. Lastly, in order to save time and to expedite matters, Intervenors request that all communications be directed to the authorized representative of the Intervenors, Dr. Chauncey Kepford, 433 Orlando Avenue, State College, Pa. 16801, (814) 237-3900, and, simultaneously, to the special consultant of the Intervenors, Dr. Richard Webb, 2858 111th St., Toledo, Ohio 43611 (419) 729-2324, AND TO COUNSEL TO DR. WEBB; ROBERT GARY ESQ, 1138 PINE ST #301 PHILADELPHIA PENNSYLVANIA 19107, (215) 629-0740, (215) 963-0600

Respectfully submitted,

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Dated this 27 day of April, 1979.

The Intervenors gratefully acknowledge the time spent with Dr. Roger Patterson and Dr. Carl Berlinger and reserve the right to withdraw this petition after the presently arranged telephone conference on Monday, April 30, 1979, between Dr. Berlinger and the special consultant to the Intervenors, Dr. Richard Webb.