

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

The Intervenor 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 Intervenor 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 Intervenor, 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 Intervenor and Petitioners assert that their interest will be affected by future experimentations at TMI-2.

Concerns of the Intervenor

1. Serious violations^a 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 quantities of 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 pressure vessel 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 Intervenor^s request that a Safety Evaluation Report^{and all other pertinent documents} be made available to the Intervenor^s and to the public prior to any further experimentation at TMI-2 which may affect the health and safety of the public.

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

3. The Intervenor^s 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 Intervenor^s 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,

Chauncey R. Kepford

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POOR ORIGINAL

Dated this 27 day of April, 1979.

The intervenors gratefully acknowledge the time spent with Mr. Roger Peterson 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.

POOR ORIGINAL

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1. postmarked - May 17th

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
METROPOLITAN EDISON COMPANY, et. al.
(Three Mile Island Nuclear Station,
Unit 2)

1979 1. 2) APR 16
-CELD

Docket No. 50-320

Murray T. Dickman
Carol Burns (FF)
Reply due June 6th

SUPPLEMENTAL PETITION TO THE DIRECTOR OF NUCLEAR REACTOR REGULATION

FOR

EMERGENCY ACTION

INTRODUCTION

This is a supplement to the Intervenors' Request to the Director of Nuclear Reactor Regulation for Emergency Action by the Nuclear Regulatory Commission, herein, "Request," docketed at 3:30 p.m., April 27, 1979. Despite the urgent need for relief requested in that emergency petition, the receipt of that petition has yet (May 15, 1979) not even been acknowledged by the Director of Nuclear Reactor Regulation.

This supplement to the April 27, 1979 Request is now submitted because of the continuing nature of the crisis caused by the March 28, 1979, catastrophe at Three Mile Island Nuclear Generating Station, Unit 2. (TMI-2). Through a series of operator errors, including violations of the Technical Specifications (Tech. Specs.), instrumental failures, and basic design deficiencies, initiated by a loss of feedwater to both steam generators at 4:00 a.m., March 28, the sequence of events over the sixteen or so following hours at TMI-2 brought the residents of Central Pennsylvania much closer to a potentially uncontrolled, uncontrollable, and uncontainable core meltdown than the public had heretofore been led to believe was possible.

Large releases of radioactive materials to the environment have already occurred. Ms Margaret Reilly, of the Commonwealth's Bureau of Radiological Protection, stated publicly on May 13, 1979, that some "dozens of curies of I^{131} " and "millions of curies of noble gases" had already been released from the badly damaged TMI-2 facility. (See Tech. Specs., Radiological, Limiting Conditions for Operation, Sec. 2.3.2.)

Contrary to the soothing assurances of NRC Staff and Applicant in their prepared testimonies during the evidentiary hearings which led to the licensing of TMI-2, when an emergency actually arose, no one was prepared to respond promptly and adequately to protect the health and safety of the public. One serious consequence of this lack of preparation has been the wholly inadequate radiation monitoring in the early days of the accident, a deficiency which remains today largely unchanged. (See Testimony of Robert B. Minogue, Director of the NRC Office of Standards Development, before the Energy Subcommittee of the Government Affairs Committee of the U.S. Senate, May 8, 1979.) In addition, there has been no objective attempt to estimate exposures to the public which occurred during those early days of the accident when environmental monitoring was so unconscionably deficient for so long a period of time, even though that minimal monitoring may have met NRC minimal standards.

It is important to observe that the information which has been and is being made available to the public concerning radiation exposure has been and is inconsistent, misleading, and inaccurate. For example, according to the "AdHoc Population Dose Assessment Group" Report, April 15, 1979, the maximum total dose received by any individual was estimated to be 86 millirem (mrem), throughout the course of the accident until April 7, 1979. However, this figure must be compared with population exposures discussed in the widely reported March 30, 1979 closed meeting of the Commissioners of the NRC.

On this morning of March 30, the licensee-operator, Metropolitan Edison, permitted the escape of very large quantity of radioactive gases over a period of one or two hours. Dose rates on the ground were estimated to be about 120 mrem/hour, for more than an hour.

In addition, in a public meeting on May 3, 1979, Mr. Thomas M. Gerusky, Director of the Bureau of Radiological Protection of Pennsylvania, reported that at 7:30 a.m., March 28, 1979, the dose rate in the dome of the containment structure was 600 roentgens per hour (R/hr). At that time, the containment structure was not isolated, and radioactive gases were escaping. Mr. Gerusky said the resulting projected dose rate in Goldsboro, situated due west of the plant and toward which the wind was then blowing, was 10 R/hr. According to "Preliminary Sequence of Events: TMI-2 accident of March 28, 1979," memo from R.L. Long to R.C. Arnold, the containment structure was not isolated until 7:56 a.m., March 28, 1979.

It should also be noted that the "Ad Hoc" report contains an average value of 0.19 mR/day,

or 0.008 mR/hour, as the background radiation exposure in this area of Pennsylvania. This value is based on thermoluminescent dosimeter (TLD) readings in the general vicinity of TMI-2 for the calendar year 1977 (AdHoc report, p 12) and should be compared with the "background" exposure rates disseminated to the press and public after the March 28 accident. In PNO-79-67AD, dated April 23, 1979, the NRC reported offsite readings were "consistent with normal background levels (0.02 mR/hr)" This value of 0.02 mR/hr is 2.5 times the 1977 average background value reported by the "Ad Hoc" group.

Furthermore, the Ad Hoc report uses an atmospheric dispersion model which dictates that doses fall off with distance according to a minus 1.5 power law beyond a 10 mile distance from TMI-2. The exposure data presented

in this Ad Hoc report do not support this model. From the NRC data in Table 3-5 through 3-10, meager and wholly insufficient though they are, it is obvious that in many directions exposures do not decrease according to the minus 1.5 power law. In numerous directions, the data show that exposures not only do not decrease with distance, they increase with distance from TMI-2. (See, for example, Table 3-6, Exposures in the North sector; Table 3-9, Exposures in the South Sector.) No justification is offered in the AdHoc report for the use of this patently defective distance decay model which is not supported by even the shallow data base revealed in this report. It can only be concluded that the obvious purpose of this inappropriate model is to conceal the magnitude of population exposures beyond 10 miles from TMI-2.

From accident sequences released by the NRC, it seems clear that large quantities of primary coolant water were vented through the electromatic relief valve (EMV) after the initial period when the core was uncovered. In this initial period of up to two hours, when decay heat was higher than in later periods, fuel cladding and steam reaction are believed to have occurred. It has been suggested that the reaction consumed approximately 40 percent of the total quantity of fuel cladding in the core (See "Core Damage Assessment for TMI-2," NRC Memorandum from R.O. Meyer to Roger J. Mattson, April 13, 1979, page 8). This would tend to suggest that in the upper region of the core, which was uncovered for the longest time, complete oxidation of at least some fuel cladding occurred, exposing the fuel material to the cooling water.

As a result, it is evident that fission products which were even slightly soluble in primary coolant water under the prevailing high pressure and high temperature conditions would have been leached out of the exposed fuel, and subsequently released to the containment sump through the EMV.

Consequently, it is probable that the large quantities of water released into the containment structure--reportedly over 400,000 gallons--have high fission product levels measured in tens or hundreds of microcuries per milliliter ($\mu\text{Ci/ml}$).

Both the volume and the probable high level of contamination of this water exceed the cleanup capabilities of the reactor coolant letdown system for an entire year's operation of that system (See TII-2 Final Safety Analysis Report, Tables 11.2-5, 11.2-6a, and Figure 11.2-3). The Intervenors are particularly disturbed by the numerous announcements and rumors that the dumping of this high-level waste water, purified or not, into the Susquehanna River is imminent. While conceptually it may be possible for the licensee-operator to upgrade this letdown system to treat at least superficially the contaminated water, there has been no publicly-disclosed discussion or evaluation of that capability or of the probabilities and consequences of any accidents, spills, or leaks which might take place during the proposed release of this water to the river. Similarly, there has been no publicly-disclosed justification for the licensee-operator's sudden rush to process and dump this high-level waste water as quickly as possible into the River and into the Chesapeake Bay. Furthermore, there has been no mention or evaluation of alternative methods of removing, storing, or disposing of this contaminated water.

The consequences of dumping any of the waste water in the primary coolant system or containment basement could be catastrophic to the health and the economic well-being of the many communities which obtain drinking water from the Susquehanna River. Additionally, since the Susquehanna River is the major fresh-water source for Chesapeake Bay, a leak of even a few hundred gallons of the radioactive containment water into the river could prevent the use of this Bay as a fishery for many years to come.

ISSUES FOR CONSIDERATION

As a result of the above, the Intervenor in the still ongoing operating license proceeding for TMI-2, now joined by their parent organization, the Environmental Coalition on Nuclear Power (ECNP), urgently request that the Director of Nuclear Reactor Regulation recognize the gravity of the consequences of releases of these radioactive materials from TMI-2. In this context, the Intervenor also urgently request that the Director order that a public evidentiary hearing with sworn testimonies and full opportunity for cross-examination be held in Harrisburg to openly and candidly ventilate the following issues:

1. The validity of the population exposure estimates made to date in whole or in part by the NRC, including an accounting for the numerous inconsistencies and contradictions such as those discussed above.
2. The entire scope of the proposed release into the Susquehanna River of the high-level contaminated water, purified or not, presently contained, or anticipated to be contaminated, at TMI-2.
3. The possible range of accidents and accidental discharges to the River and the full range of consequences--economic, environmental, and health--from such discharges.
4. The capability and intent of the licenseeoperator of TMI-2, to prevent minor or large-scale "inadvertent" contamination of the River, in view of the events since March 28, 1979.
5. The capability and intent of the licenseeoperator of TMI-2 to obey the rules of the Commission and all applicable statutes related to any operations at TMI-2, in view of the events since March 28, 1979.
6. The capability and intent of the Commission to ensure that:
 - (a) the rules of the Commission will be fully obeyed,
 - (b) the applicable statutes, including the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, and the National Environmental Policy Act of 1969 will be fully obeyed,
 - (c) the Commission or some other Federal agency will provide for monitoring capabilities to determine radioactive contamination levels wherever Susquehanna River water will be withdrawn for distribution for drinking water, irrigation, industrial processing, or other purposes prior to any further releases of presently contaminated water at TMI-2, purified or not, to the River,

6. continued

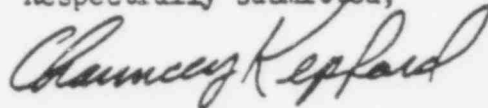
- (d) the Commission or some other Federal agency will provide for adequate monitoring capabilities to detect elevated levels of gaseous and particulate contamination from TMI-2, prior to any subsequent releases of airborne radioactive materials. The results tabulated in the AdHoc report emphatically demonstrate the need for a much more extensive and versatile environmonitoring capability to much greater distances from TMI-2.
7. The need for an Environmental Statement as required by Sec 102 (2)(c) of the National Environmental Policy Act of 1969. The events which have transpired since March 28, 1979, including, but not limited to, the enormous releases of Iodine-131 and noble gases, the threat of an imminent core meltdown, the releases of contaminated water which have already occurred, the threat of future releases of contaminated water which are or may not be anticipated, the threat of future releases of radioactive particulates--all go far beyond the events discussed in the Final Supplement to the Final Environmental Statement of December, 1976. The possible environmental impacts of future planned activities and unplanned or accidental ones at TMI-2 suggest that environmental statement is required for TMI-2.
 8. The method, mode, conveyance capabilities, routes, and destinations of the unusually high-level demineralized wastes to be generated at TMI-2, and the ultimate method of disposal of the wastes, including a discussion of accidents or leaks and the resulting consequences at any stage of this process.
 9. The possible negligent role of the Commission in licensing TMI-2 to operate, including the approval of the reactor design as being acceptable to protect the health and safety of the public, and the granting of an operating license to the licensee-operator knowing that the licensee-operator had insufficient technical experience and capabilities to operate TMI-2 safely.
 10. The question of whether or not the operating license should be temporarily or permanently withdrawn from the licensee-operator of TMI-2 for gross violations of the Commission's rules and of the operating license specifications and operating conditions for TMI-2. See Sec. 186 of the Atomic Energy Act of 1954, as amended, and the statutes and the sections of the Commission's rules cited in the Request of April 27, 1979.

REQUEST FOR RELIEF

1. The Intervenor hereby incorporate by reference paragraphs 1 through 7 from the April 27, 1979 Request contained under the heading, Relief Requested, and, in addition
2. The Intervenor request that the Commission prohibit and prevent any further releases of radioactive materials to the environment, gaseous, airborne, particulates, or in liquid form, until twenty (20) days after final action by the Commission on this supplemental petition, to enable the Intervenor and other affected members of the public to seek injunctive relief in the courts. See, for example, 10C.F.R. 20.601.
3. The Intervenor request that the Commission prohibit and prevent any further releases of radioactive materials to the environment, gaseous, airborne particulates, or in liquid form, until twenty (20) days after final action by the Commission on the Request of April 27, 1979, to enable the Intervenor to seek injunctive relief in the Courts. See 10 C.F.R. 20.601.
4. The Intervenor request that the Commission prohibit and prevent any further releases of radioactive materials, gaseous, airborne particulates, or liquid, until twenty (20) days after the completion of an evidentiary hearing in Harrisburg, Pa., open to the public, with sworn testimonies and full opportunity for cross-examination to examine the issues raised in this supplemental petition and Request of April 27, 1979.
5. The Intervenor request the Commission immediately inform the Intervenor by First Class Mail of any and all releases of radioactive materials, gaseous, particulates, or liquid, from TMI-2 which occur subsequent to the receipt of this supplemental petition.
6. The Intervenor request that the Commission mail to the Intervenor in a timely fashion copies of all materials which are pertinent to the issues raised in this supplemental petition and the ongoing crisis at TMI-2, including, but not limited to:

6. (a) the past or present condition of TMI-2, since March 28, 1979
- (b) all environmental radioactivity monitoring data pertaining to the accident at TMI-2, data already collected and additional data as it is collected in the future
- (c) all planned activities, procedures, or processes at TMI-2 which have the potential for releases of radioactive materials to the environment.
- (d) all planned modifications of equipment, processes, or structures at TMI-2
- (e) all planned cleanup operations inside any buildings contaminated during or subsequent to the TMI-2 accident
- (f) all chemical and isotopic analyses of contaminated areas and volumes, including primary coolant water, water in the containment sump, and air in the containment structure, and all subsequent and related analyses.

Respectfully submitted,



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May 16, 1979