

ENVIRONMENTAL COALITION ON NUCLEAR POWER

Co-Directors: Mr. George Boomsma—R.D. #1, Peach Bottom, Pa. 17563 717-548-2836

Dr. Judith Johnsrud—433 Orlando Avenue, State College, Pa. 16801 814-237-3900



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of
METROPOLITAN EDISON COMPANY, et al.
(Three Mile Island Nuclear Station,
Unit 1)

}
} Docket No. 50-289
} (License Suspension)

SUPPLEMENT TO ECNP PETITION TO INTERVENE:
FINAL CONTENTIONS

The Environmental Coalition on Nuclear Power (ECNP), in accordance with the Commissioners' Order and Notice of Hearing (Federal Register, August 15, 1979) and 10 CFR 2, herein amends its Petition to Intervene in evidentiary hearings on the reopening or revocation of operating license of Three Mile Island, Unit 1 (TMI-1) and sets forth the following contentions¹.

Contention 1. ECNP contends that:

- (a) The plant computer for TMI-1 is old, obsolete, and inadequate to respond appropriately in emergency situations. During the accident at the adjacent TMI-2, the alarm printer on the similar computer at Unit 2 had a delay time of over two and one-half hours at one point, and ran more than an hour behind events for over seven hours.⁽¹⁾ This delay cannot be viewed as having adequately served the needs of the operators of TMI-2, and there is no reason to believe that a similar accident situation, with as severe or worse consequences, cannot occur at TMI-1 and be severely aggravated by slow and ambiguous computer alarm printer readings.
- (b) The low volume of primary cooling system water⁽²⁾ has the effect of reducing time available to operators and the plant control systems to apply remedial measures in the event of a loss of coolant accident (LOCA) such as the TMI-2 accident is now admitted to be⁽³⁾. The low water volume design deficiency means that possible operator error and mechanical, electrical, or electronic failure must be minimized so as to prevent either a repeat of the TMI-2 accident or an even worse accident.

¹ Because numerous studies and reviews of the Three Mile Island, Unit 2 accident have not been completed at this time (including the report of the Presidential Commission), ECNP reserves its right to expand or add to these contentions as new information becomes available (10 CFR 2.714 (a)(3) and (b)).

- (c) The electronic signals sent to the control room in many cases record the wrong parameters, and may, thereby, mislead the reactor operator. For instance, in the case of the Electromatic Relief Valve ("ERV; the Metropolitan Edison designation is RC-RV2), the signal sent to the control room to indicate a closure of this valve indicates only the electrical energizing of the solenoid which closes the valve, not the actual physical valve closing itself⁽⁴⁾. This misleading signal aggravated the accident at TMI-2. There is no reasonable assurance that this same problem, or comparable ones, cannot arise many times over at TMI-1. It is the obligation of the Suspended Licensee to provide sufficient information on the performance capability of all pertinent components of the control system to reasonably ensure that electronic signals will record, accurately and in a timely manner, all necessary and correct parameters.
- (d) The TMI-2 accident showed that many monitoring instruments were of insufficient indicating range to properly warn control room operators of ambient conditions. For example, the "hot-leg" thermocouples went off-scale at 620°F and stayed off-scale for over 8 hours for reactor coolant loop A and about 13 hours for reactor coolant loop B⁽⁵⁾. A higher temperature limit would have provided important information to the reactor operators. This situation is unchanged at TMI-1. All monitoring instruments for TMI-1 must be calibrated to provide full and accurate readings of the complete range of possible conditions under both normal and worst-case conditions. In addition, it is reported that the radiation monitors went off-scale during the TMI-2 accident⁽⁶⁾. It should be noted here that this eventuality was predicted in 1974 by the TMI-2 Intervenor, but dutifully denied by the NRC Staff and the Applicant during the TMI-2 licensing hearings. Needless to say, the TMI-2 Licensing Board accepted the assurances of adequate monitoring offered by the Staff and Applicant. Yet a similar situation still exists at TMI-1. All radiation monitoring equipment must be capable of recording the maximum possible releases of radiation in the event of a worst-possible accident (Class 9) in excess of Design Basis Accidents.
- (e) The accident analyses performed by both the Staff and Applicant were inadequate. Over the previous few years, and even in the brief pre-operational and operational life of TMI-2, a series of feed-water transients had been observed in B & W reactors. A seemingly unrelated problem with the "power operated relief valve" (PORV), whose first malfunction was on or about March 29, 1978, combined with a feed-water transient to bring about the March 28, 1979, accident at TMI-2. This sequence of multiple failures at TMI-2 could have been prevented if either the Applicant or the inspection arm of the NRC had been diligent concerning safety matters. This kind of multiple failure, combined with reactor operator errors, underscores the inadequacy of the accident analysis at TMI-2 and at TMI-1. There is no assurance that other "small break" "loss of coolant accidents" cannot occur at TMI-1 with similar or greater consequences.

The Suspended Licensee should remain in suspension until a thorough and objective analysis of the accident hazard, with the compounding problem of possible operator error, and offsite consequences have been completed, and it is objectively shown that TMI-1 is safe to operate. The "reasonable assurance" of safety assumed at TMI-2 was shown to be nonexistent through real experience.

- (f) Many vital instruments, instrument controls, and other components in the containment building of TMI-2 lost their ability to operate because they were not considered "safety-related". As examples, the pressurizer level indicators contained components which were not designed to withstand the high radiation levels (reported to be as high as 30,000 R per hour). The failure of these was accelerated by the water environment in the containment building. Similar instruments and control systems apply in Unit-1. That these instruments were not required to be safety grade points out clearly the inadequacy of the safety analyses of the Staff and Applicant.
- (g) The TMI-2 accident showed the need for water level instruments inside the reactor pressure vessel (RPV), as well as instruments to detect steam formation. In addition, this accident demonstrated the need for a vent for hydrogen at the top of the RPV. These deficiencies still exist at TMI-1 and must be corrected to provide substantially more than reasonable assurance that there will be adequate information concerning thermodynamic and all other conditions inside the reactor in the event of worst-case accidents.
- (h) The exemption for TMI-2 in 1975 from new safety requirements which would have required immediate isolation of the containment structure to prevent the leakage of radioactive gases to the atmosphere also applies to Unit 1. Immediate isolation of containment must be assured at TMI-1 by requisite additions or modifications of equipment or control technology.
- (i) The interface between the operator and the reactor, the control room panel, is not adequate to provide the appropriate and necessary information to the operators in the event of an accident. Control room and control panel design of TMI-1 must be altered to assure that all appropriate and necessary information is available to, received by, and comprehensible to operators and that control room facilities maximize ability of operators to respond to accident conditions quickly and accurately.

Contention 2. ECNP contends that emergency response preparation and evacuation planning for the public, who are and will be affected by operation of TMI-1 and activities at TMI-2, are still, almost five years after the licensing of TMI-1, inadequate, untested, and wholly unworkable. The fundamental question is whether or not it is even possible to carry out evacuations under realistic accident conditions. Studies and proposals for evacuation of the public from the entire area in which radiation exposures might be detrimental to the public's health and safety (including genetic well-being) are one thing; being able to carry out such paper plans successfully and quickly enough to protect the public is quite another.

(Contention 2 continued)

Emergency response and evacuation plans for TMI-1 must be finalized and demonstrated to be workable for the outermost distance in which the public could experience radiation exposure in excess of 40 CFR 190 standards which will be in effect prior to the earliest possible date for reopening of TMI-1.

The evacuation plans approved in the licensing at TMI-1 and TMI-2 are based upon the assumption that the levels of radiation exposure acceptable to public officials, up to levels that the officials deem necessary to avoid through evacuation, are acceptable to those members of the public at risk. This assumption is unjustified and is unacceptable on the grounds of public health, even ignoring the psychological damage done to those involuntarily subjected to this new form of terrorism, as the TMI-2 accident so vividly demonstrated.

In addition, the assumptions and conclusions concerning emergency preparedness and evacuation plans made by the TMI-2 Licensing Board⁽⁷⁾ now are known to be without merit. These erroneous conclusions and assumptions apply equally well to TMI-1. The TMI-2 accident demonstrated that a radiological accident is not, and cannot be treated, like any other kind of disaster which may require evacuation.

Furthermore, since any efforts at future evacuations will require the assistance of emergency personnel who will be just as anxious to leave as the general public, there is no assurance whatsoever that enough of these requisite individuals will stay behind, separated from their families, to assist in evacuation maneuvers. Nor has there been sufficiently demonstrated preparation of receiving centers and refugee care facilities or of the availability at all times and for all needs of fuel supplies to provide adequate transportation to accomplish evacuation. Neither has it been shown by the Suspended Licensee or NRC Staff that taking cover, remaining indoors, using blocking agents to minimize the thyroid uptake of radioactive iodine on a one time or continuing basis, or any other proposed measures short of full evacuation beyond the zone of radioactive contamination in the eventuality of an externally or internally propagated event causing breach of containment will adequately protect the public health and safety as is required under the Atomic Energy Act of 1954, as amended. Therefore, the license to operate TMI-1 should remain suspended and in the absence of demonstrated proof of evacuation capability should be revoked permanently.

Contention 3. ECNP contends that the Suspended Licensee is incapable of safely operating a nuclear power reactor, as has been conclusively demonstrated by the TMI-2 Class 9 accident that began March 28, 1979, and is still in progress. The inability of this Suspended Licensee to provide the management necessary to operate a reactor is evidenced by the unconscionably lax attitude of the management of Metropolitan Edison, which led to the wholesale rush to get TMI-2 into commercial operation, in spite of repeated serious mechanical malfunctions. It is the same management which permitted the lax conditions in the TMI-2 control room that allowed TMI-2 to operate with both auxiliary feedwater pumps turned off, a serious violation of the Technical Specifications for TMI-2. It is this same lax management attitude which almost permitted TMI-1 to begin operation on March 27, 1979, with one of these same auxiliary feedwater pumps

1296 057

(Contention 3 continued)
turned off.

This same management, which has since 1974 operated TMI-1 with numerous safety and safeguards violations, has failed to develop an adequately strong engineering capability or plant safeguards capability to assure safe operation of TMI-1. Therefore, restoration of the operating license for TMI-1 should be denied.

Contention 4. ECNP contends that reopening of TMI-1 must be prohibited until the Suspended Licensee and NRC Staff have fully evaluated the range of possible consequences of an accident such as the TMI-2 accident if:

- (a) the reactor operators had been less skillful than they were in handling the accident (i.e., what if they had been more prone to panic, and had made even more serious errors);
- (b) the accident had taken place in a reactor with a full inventory of fission products;
- (c) the accident had required an evacuation of the site, due to on-site contamination, at a reactor with spent fuel being stored on-site, either normally or in a compacted configuration;
- (d) there had been a core meltdown on, say, March 30, 1979;

and until the Suspended Licensee has provided reasonable assurance that the short-term and long-term alterations of equipment and practices required by the Commission can and will prevent the recurrence of the same or comparable or more serious sequences of events at TMI-1. NUREG-0600, which catalogues the non-compliances of this Suspended Licensee, forms a basis for evaluating the Licensee's and the Staff's ability to analyze and hence to prevent such accidents, or worse, from taking place in the future at TMI-1. The burdens of proof that all such sequences of events and their consequences have been analyzed lie with the proponents of reopening TMI-1 and the burdens of full review fall upon the NRC Staff, not upon the Petitioners/Intervenors (10 CFR 2.732).

Contention 5. ECNP contends that the cumulative impact of radiation exposure already received from the TMI site during the pre-March 28, 1979, operations of Units 1 and 2, plus the exposures of undetermined and now undeterminable magnitude received during the weeks and months of the TMI-2 accident⁽⁸⁾, plus future doses, from either normal or unanticipated emissions from a reopened TMI-1 or additional planned or unplanned releases of radioactive gases, water, or solid materials from TMI-2, will constitute an undue risk to the health and safety of our members and the entire population of the Susquehanna Valley and Southeastern Pennsylvania.

According to sworn testimony by Mr. Thomas M. Gerusky, Director of the Bureau of Radiation Protection of the Commonwealth of Pennsylvania, before the U. S. Congressional Committee on Science and Technology, Subcommittee on Natural Resources and the Environment on June 2, 1979, about fifteen (15) curies of Iodine-131 were released to the environment in the first month after the TMI-2 accident. In the Final Supplement to the Final Environmental Statement for TMI-2, it was estimated that about 0.01 curies of this isotope would be released during a year of normal operation.

(Contention 5 continued)

The fifteen curies, then, represents a release of 1500 times that expected for one year of normal operation, and 50 times more than the plant was expected to emit in its entire 30 year operating lifetime. As a result, any additional releases, due to even the normal operation of TMI-1, if normal operation is ever possible, would be far beyond those which the residents of this area were promised.

Similar considerations apply to the emissions of the radioactive noble gases released during the TMI-2 accident and those expected to be released in the coming months. In addition, many of the residents of the vicinity, already victimized by Metropolitan Edison in the TMI-2 accident, now face the continuing threat of releases of radioactively contaminated water into the Susquehanna River. These residents may now be placed in the position of having to drink, wash in, cook with, and being unable to prevent their children from consuming water containing radioactive contamination from TMI-2. These residents of the Susquehanna Valley (including members of ECNP) will thus be exposed to radiation for which they receive no commensurate benefit, radiation that was not expected to be released.

Contention 6. Many residents of central Pennsylvania were thoroughly and completely terrorized by the March 28, 1979, accident at TMI-2. This terror has turned the lives of many otherwise happy people into a living nightmare, because they know the accident at TMI-2 is not over, and that unannounced releases of radioactive materials continue. In addition, Metropolitan Edison now proposes to rush TMI-1 into operation. This rash and cruel act will have the effect of increasing the level of fear, terror, and bitter resentment among many residents of that beleaguered area. Already threats of violence have been made concerning the proposed operation of TMI-1.⁽⁹⁾

Metropolitan Edison has created a climate where people know that they are no longer safe in their own homes, they are afraid to grow food in their own gardens, and many will soon have reason to distrust the very water they drink. They have learned the utter contempt that Metropolitan Edison holds for their feelings and their health and safety.

One certain result of the reopening of TMI-1 will be a substantial increase in the tension in the area surrounding TMI-1. The outward manifestation of this tension may well appear as increased suicide rates, divorce rates, incidences of child beating, a general lowering of the general mental health of the populace, quite probably, acts of civil disobedience against TMI-1 and possible acts of violence, even sabotage against TMI-1.⁽¹⁰⁾ A good example of the psychological impact of the TMI-2 accident upon the residents of central Pennsylvania is afforded by the appended editorial.⁽¹¹⁾

ECNP contends that, for the residents within a 90-mile radius of TMI, psychological stress and damage to mental health, which is a vital part of the whole health of a human being, will inevitably be increased by the reopening of TMI-1 or by any future operation of a nuclear power reactor at Three Mile Island, and that such mental stress and damage to health constitutes an unacceptable threat to the health, safety, and lives of those so affected.

Contention 7. ECNP contends that the license to operate TMI-1 must remain in suspension because the safety evaluations for pressurized water reactors under which the TMI-1 reactor was originally licensed to operate have been shown by the TMI-2 accident commencing March 28, 1979, to have been inadequate to assess the potential range of events and consequences of those events and hence are invalid.

As required by 10 CFR 50.46, each PWR shall be equipped with an Emergency Core Cooling System (ECCS) which shall be designed so that its performance shall be to respond to postulated accidents in such a way as to limit the

(Contention 7 continued)

fuel temperature as specified in 10 CFR 50.46. This specification would not permit the fuel to melt. These postulated accidents include the double-ended rupture of the largest pipe in the reactor coolant system. All PWR power plants are licensed subject to this regulation. The procedures used to demonstrate this performance are not valid.

The Three Mile Island Unit II plant is licensed to operate subject to this requirement. On 28 March 1979 an accident occurred at this plant. The accident was initiated by an event less severe than the double-ended rupture of the largest pipe in the reactor coolant system. The consequence of this accident was that at least some of the fuel melted. This consequence was clearly in excess of the performance required under 10 CFR 50.46. Thus, the analyses used to predict such performance are invalid. Thus, it has now been established in fact by the evidence of 28 March 1979 at Three Mile Island Unit II, that the basis for granting these licenses was invalid, and they should be immediately suspended, or revoked. In addition to the hazard of gaseous and liquid releases that will compound the unmeasured doses already received, some of these same people will also be threatened by further radiation exposure and contamination of agricultural land by radioactive particulates in the form of cesium- and strontium-contaminated dust that may be expected to accompany clean-up operations at the damaged TMI-2. Thus, any additional dose received from operations, including ultimate decommissioning of TMI-1, will be additive and constitute an undue burden of risk beyond that already experienced but not fully or properly assessed. The cost-benefit analysis must be recalculated to take account of these issues and reissuance of the operating license withheld until the full and complete cost-benefit analysis has been finished.

Contention 8. ECNP contends that the operating license for TMI-1 must permanently be revoked regardless of the number or kind of measures which the Staff and Suspended licensee may undertake, because operation of either TMI-1 or TMI-2 would subject the people of central and southeastern Pennsylvania to double jeopardy and would constitute cruel and unusual punishment.

Contention 9. ECNP contends that unbelievably lax regulatory, inspection, and enforcement climate created, maintained, and defended by the NRC itself must bear a considerable amount of the responsibility for this accident and that the NRC is not competent to regulate the operation of TMI-1. The NRC practice of "regulation by audit" and regulation by inattention, rather than regulation by real inspection and real concern for safety, has created an atmosphere where utilities with lax management attitudes toward safety related concerns and consistent violations of the Commission's rules receive minimal, if any attention from the NRC. If the major enforcement action against the suspended Licensee to come out of the TMI-2 accident is to simply allow the restart of TMI-1, then the regulatory stance of the NRC will be crystal clear to all other operators of nuclear power plants: no violation of the NRC rules or even applicable statutes, no matter how flagrant, will bring about any substantial enforcement action (as permitted under Sec. 166 of the Atomic Energy Act of 1954, as amended) from the NRC. On the other hand, if the NRC were to permanently revoke the operating license for TMI-1 of the currently suspended Licensee, the message to the nuclear industry would be clear: serious safety violations bring serious consequences to the perpetrator.

Contention 10. ECNP contends that public confidence in the ability of the NRC to not only regulate the nuclear industry but also the willingness of the NRC to deal

POOR ORIGINAL

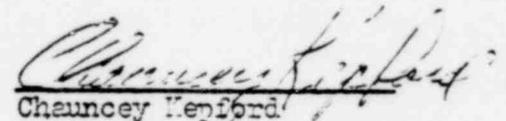
1296 060

(Contention 10 continued)

firmly with licensees which demonstrate a continuing disregard for and willful neglect of the Commission rules and the applicable statutes hinges the disciplinary action taken by the NRC with regard to this suspended licensee. Should the NRC continue its extraordinarily permissive regulatory stance toward the suspended licensee in view of the role of the habitual rule violations by the licensee in contributing to this accident, the signal would be clear to the public: any violation of rules and any threat to the public by any licensee will be immediately forgiven by the NRC. As a result, the members of the public will have good reason to live in fear of nuclear power plants, and this fear will contribute enormously to general panic, should any evacuation be called for.

In addition to the above contentions, the ECNP Intervenor include and incorporate by reference all contentions without change found in Additional Draft Contentions of the Environmental Coalition on Nuclear Power, dated October 5, 1975.

Respectfully submitted,

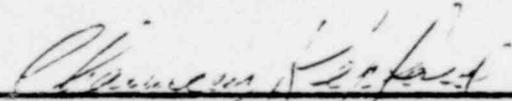

Chauncey Kenford
Representative of the
Intervenor
433 Orlando Avenue
State College, Pa. 16801
(814) 237-3900

POOR ORIGINAL

1296 061

CERTIFICATE OF SERVICE

I hereby certify that copies of SUPPLEMENT TO ECNP PETITION TO INTERVENE: FINAL CONTENTIONS have been served on the following by deposit in the United States mail, first class, postage paid, this 22 day of October, 1979:



Chauncey Kepford

Ivan W Smith, Esquire
Chairman
Atomic Safety and Licensing Board
U S Nuclear Regulatory Commission
Washington, DC 20555

Docketing and Service Section
U S Nuclear Regulatory Commission
Washington DC 20555



1296 062