

# ENVIRONMENTAL COALITION ON NUCLEAR POWER

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## UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

### BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

METROPOLITAN EDISON COMPANY

(Three Mile Island Nuclear  
Station, Unit No. 1)

Docket No. 50-289  
(License Suspension)

### ECNP BRIEF ON THE NECESSITY OF A NEW FINAL ENVIRONMENTAL STATEMENT PRIOR TO THE DECISION WHETHER TO RESTART TMI-1

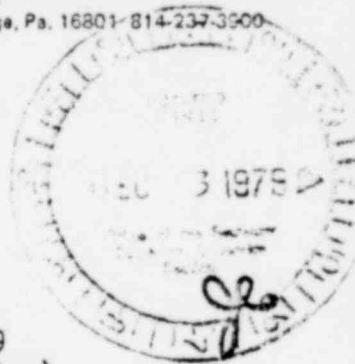
In briefs dated October 31, 1979, the NRC Staff (Staff) and the Suspended Licensee (Susp. Lic.) in this proceeding presented to this Board their respective views that no new or even supplemental Final Environmental Statement was necessary or required prior to the possible restart of TMI-1. Herein are the views of ECNP on this subject.

The history of the environmental reviews which have been made in reference to TMI-1 has been glossed over lightly by the Susp. Lic. in its brief, pages 1-5. This truncated review was designed to convey the impression that the AEC did an adequate job in its environmental impact study of TMI-1, and, as a result, that there are no changed or new circumstances calling into question the AEC's conclusions.

The applicable regulations here are those of the Council on Environmental Quality (CEQ), at 40 CFR 1502.9(c)(1), where it is stated

Agencies shall prepare supplements to either draft or final environmental impact statements if:

(i) The agency makes substantial changes in the



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proposed action that are relevant to environmental concerns; or

(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

ECNP submits that both of these conditions have been met in the case of the proposed restart of TMI-1.

First, the NRC has imposed a series of modifications in the plant itself and in operating procedures at TMI-1 as a result of the March 28, 1979, commencement of the accident at the adjacent nuclear power plant, TMI-2 (See NUREG-0578). Whether or not the recommended short and long term changes in equipment and procedures result in safer operating conditions at TMI-1 than at TMI-2 is not known. However, safety trade-offs have already been made, such that added safety margin to prevent the duplication of the TMI-2 accident may result in a reduced safety margin of systems not directly involved in failure in the TMI-2 accident.

For example, one such tradeoff has already been made with regard to the Pilot Operated Relief Valve (PORV) which was the valve which failed in the open position and greatly aggravated the TMI-2 accident. The situation is described in the "Technical Staff Analysis Report Summary" to the President's Commission on the Accident at Three Mile Island (p. 15-4)

To lessen the demand on PORV and hence the likelihood of PORV failure in B & W reactors, NRC currently requires that the pressure set-point for opening PORV be set above the reactor scram-pressure set-point. However, this raises the pressure against which ECCS must work in feedwater transients, and reduces the capability of ECCS coupled with the PORV to cool the reactor for an extended period of time.

This kind of "quick-fix" solution ordered by the NRC casts a large cloud of doubt over the statement made by the Susp. Lic. that

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...none of those modifications will make plant operation less safe or increase the quantity of releases from the plant; in fact, the exact opposite is true. (Oct. 31, 1979, p. 7).

Further confirmation of the confusion and uncertainty which has been shown by the NRC is illustrated by two findings described in the Report of the President's Commission

(i) Immediately after the TMI accident, NRC directed operators not to override automatic engineered safety features under any circumstances and to operate high pressure injection without regard for reactor vessel pressure/temperature limits. NRC modified this directive within a short time.

(ii) On April 5, NRC required all licensees operating B & W-designed reactors to revise their procedures so that in the event of HPI initiation with reactor coolant pumps (RCP) operating, at least two RCPs would remain operating. On July 26, NRC took the opposite position and directed licensees to shut down its pumps when HPI initiated....

The total effect of the "solutions" to the B & W reactor problems ordered by the NRC, when viewed in the context of the confusion over the proper courses of action described here, suggest that the NRC has made "substantial changes in the proposed action that are relevant to environmental concerns...." (40 CFR 1502.9(c)(1)). Not only have the courses of previously analyzed accidents been significantly altered, but also there is now no assurance, other than rhetoric and handwaving, that the environmental consequences of the altered accident paths are not now worse than those described in the original FES.

Therefore, on the basis of these reasons alone, a new or supplemental FES is required to evaluate the consequences of all new safety features and new procedures prior to the restart of TMI-1.

Concerning the second of the CEQ criteria for supplementing an FES, there are numerous items of "significant new circumstances or information" which require that the TMI-1 FES be supplemented prior to

decision whether to permit restart.

First, as was shown in the TMI-2 proceeding, the value of emissions of 74.5 curies of radon-222 in Table S-3 of 10 CFR 51.20(e) has been shown to be in error by many orders of magnitude. This error was recognized by the Commission in an Order of March 2, 1978, and the erroneous number was removed altogether from Table S-3 on April 14, 1978. To date, no value has been inserted in this Table and the matter is subject to litigation in individual reactor license proceedings.

Secondly when the final fuel cycle rule became effective on Sept. 4, 1979, a new radioactive waste product appeared for the first time in the revised Table S-3, technetium-99. This long-lived isotope (over 200,000 year half-life) had previously been ignored in many analyses, such as WASH-1400. Furthermore, when released to the environment, it is readily converted into an ionic form in which its behaviour mimics that of iodine and iodine compounds, with the result that it is a thyroid-seeking isotope. Yet no dose conversion factor is listed for technetium-99 for the thyroid gland in Reg. Guide 1.109 other than zero. Indeed, as is stated in footnote 1 to the new Table S-3

Table S-3 does not include...estimates of releases of Radon-222 from the uranium fuel cycle or estimates of Technetium-99 released from waste management or reprocessing activities. These issues may be the subject of litigation in individual licensing proceedings.

In radon-222 and in technetium-99 are found two isotopes which were either grossly misrepresented or ignored altogether in the original FES for TMI-1. Both demonstrate the necessity for a supplemented FES.

Thirdly, as this Board is already aware (see Washington Post, Outlook Section, November 11, 1979, page 1), the NRC already has information in the form of a detailed report (NRC-TR-520) that suggests that much of the basic data for a number of isotopes is seriously in error.

This report, although written specifically about a nuclear power plant in West Germany, applies to domestic reactors as well, because both countries rely on the dose-conversion factors in Reg. Guide 1.109. It is these very dose-conversion factors which the authors of the report call into question, for a dozen or so isotopes important to the nuclear fuel cycle, as being based on faulty experimental data. The German investigating team found that the total doses to the critically exposed members were well over ten (10) times the doses calculated using Reg. Guide 1.109.

The importance of these issues to the proposed restart of TMI-1 cannot be overestimated. If the conclusions contained in NRC-TR-520 are correct, it is inconceivable that TMI-1 could meet the new 40 CFR 190 regulations for exposures to members of the public, and its operation may not even meet the 10 CFR 20 regulations for offsite exposures. Thus, for these reasons alone, it is imperative that these new pieces of information be fully, openly, and candidly discussed in a supplemental FES prior to the decision whether to restart TMI-1.

Fourth, the recent accident at TMI-2 itself meets the criterion of "new circumstances or information". This accident has, for reasons which are now obvious, recently been designated by the NRC Staff as a Class 9 accident in another proceeding (Docket No. 50-272, dated August 24, 1979). This fact was conceded in a report containing a memorandum from Dr. Roger Mattson, Director of the TMI-2 Lessons Learned Task Force, and also, Director, Division of Systems Safety, USNRC, to Mr. Guy Cunningham, III, Acting Deputy Chief Hearing Counsel, wherein it is stated that

The accident at Three Mile Island Unit 2 involved a sequence of successive failures (i.e., small-break loss-of-coolant accident and failure of the emergency core cooling system) more severe than those postulated for the design basis of the plant. Therefore, we conclude that the accident at Three Mile Island was a Class 9 event. (footnote omitted, emphasis in the original)



This accident, then, appears to be the first acknowledged Class 9 accident in the commercial nuclear power program.

Prior to the TMI-2 accident, there had existed a belief (separate and distinct from any objectively determined fact) that there was a dividing line between a kind of accident called "credible" and a kind called "incredible." The so-called credible accidents were those accidents which the plant was designed to withstand, with moderate offsite exposures. The so-called incredible accidents, on the other hand, were those more severe and were believed to be of such low probability that plants were not designed to withstand them. This potentially wide range of "incredible" accidents was named "Class 9 accident." One Appeal Board ruled in ALAB-123 (6 AEC 331, 346 (1973)),

...Class 9 accidents...do not have to be considered; while it was recognized that their consequences "could be severe," it was concluded that "the probability of their occurrence is so small..."that their environmental risk is extremely low." (Quoting from letter to license applicants from AEC Director of Reactor Regulation, Sept. 1, 1971. Emphasis added.)

Subsequently, this language was codified in an annex to the old Appendix D of 10 CFR 50.

This belief, or conclusion, that Class 9 accidents were of such low probability of occurrence that their effects need not be considered by either the license applicant or the NRC Staff has been a solid foundation of not only NRC adjudications, but also judicial decisions for many years. (See, e.g. ALAB-489, or 8 NRC 194 (1978) at n. 52 and 53, for more references.).

The Appeal Board went on to say in ALAB-123,

The regulatory judgments used in the calculations of Class 9 accidents may be accepted as correct by licensing boards absent an affirmative showing that they are not correct: Here, no such showing has been made. (6 AEC 331, 348 (1973). Emphasis added.)

In rejecting the Intervenor's exceptions to the initial decision in that

proceeding, the Appeal Board stated clearly that prior to any attack on the Class 9 "judgments," some showing would have to be provided that such "judgments" were in error. The judgments in that decision were that the probability of a Class 9 accident was one in one million per year. (6 AEC 331, 348 (1973)).

ECNP submits that the occurrence of a Class 9 accident at TMI-2, beginning on March 28, 1979, constitutes an affirmative showing that the belief itself (or conclusion, or judgment) that a Class 9 accident

is deemed highly improbable; so unlikely, in fact, that a nuclear power plant need not be designed with protective systems or safety features to guard against it (ALAB-489, or 8 NRC 194, 209 (1978), emphasis added again)

is in error. The very occurrence of a Class 9 accident at TMI-2 demonstrates the inadequacy and inappropriateness of all past NRC adjudications on the subject. However painful it may be to some, a belief, or judgment, or conclusion, in the absence of knowledge, must give way to the acquisition or realization of knowledge.

It is this new knowledge that Class 9 accidents do indeed occur which constitutes "significant new circumstances or information..." which mandate that the old, out-dated FES for TMI-1 be supplemented to accept the reality of the occurrence of Class 9 accidents as a generic class. There is little doubt that the NRC Staff will object in a most strenuous fashion to such an order. And, indeed, there may be a very valid reason for such an objection. In the "Technical Staff Analysis Report Summary" to the President's Commission on the Accident at Three Mile Island, one of the "general findings" was

The NRC has an inadequate capability to independently analyze transients and accidents (page 13-3).

This finding of the President's Commission Technical Staff was echoed in equally blunt terms by the President's Commission itself.

With its present organization, staff, and attitudes, the NRC is unable to fulfill its responsibility for providing an acceptable level of safety for nuclear power plants (page 56).

As this Board is well aware, its fundamental responsibility is to determine whether or not there is reasonable assurance that TMI-1 can be operated without undue risk to the health and safety of the public. It is not too late for the NRC Staff to emerge from behind its stated belief that Class 9 accidents don't occur. Nor is it too late for the Staff to begin to review that wide range of heretofore unanalyzed accidents--Class 9 accidents--and to present its findings, openly and candidly, in a supplemented FES.

This new circumstance alone, the TMI-2 accident, should be sufficient to propel this agency into a supplemental FES without prodding or further delay. However, such does not seem to be the case. In its brief of Oct. 31, 1979, on the issue of psychological stress, the NRC Staff asserts that, with regard to the source of fears from the operation of TMI-1,

Radiological consequences of routine operation and of credible accidents are undeniably appropriate for consideration in an environmental analysis relating to the operation of the facility, and were treated in the FES previously prepared for the facility. (Staff Brief, p. 48-9, emphasis added).

Sadly, the Staff relies upon the now invalid distinction between "credible" and "incredible" accidents by referring to the old, outdated FES and the mistaken beliefs therein. Apparently, the Staff still does not recognize the pivotal role that the misguided belief in that distinction has had in allowing the Class 9 Accident at TMI-2 to occur at all. That belief insulated the NRC Staff, the Commission, and the courts from the less palatable aspects of nuclear reactor accidents. That belief allowed the resolution of safety problems by decree, rather than safety by experiment, understanding, and knowledge. That belief led the NRC to the problems graphically described in the Technical Staff Report Summary and the President's Commission Report cited above.

Furthermore, emergency preparedness and psychological distress must also be considered in a final supplement to the FES in light of the new

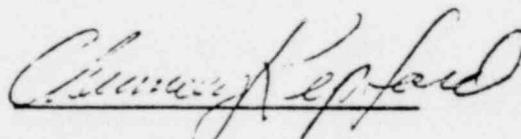


understandings which have emerged as a result of the TMI-2 accident.

ECNP also notes that the fact that this proceeding exists cannot justify any attempt to bypass NEPA, as the Staff proposes (See Staff Brief, p. 49). As determined by the court in *Greene County Planning Board v. FTC*, 455 F.2d 412, at 420-21 (2nd Cir., (1972)), Staff testimony or even the existence of an agency proceeding cannot constitute compliance with the Sec. 102(2)(c) requirement of NEPA. Rather, a final and complete FES must precede any major federal action and must accompany the licensing proposal through the agency review process.

The old "business as usual" cliches, palliatives, and pacifiers will not do. The NRC Staff must instead work toward restoring confidence in the regulatory agency and process, and insure that the public health and safety will be protected. A supplemental FES is wholly appropriate and necessary prior to any decision concerning the proposed restart of TMI-1, as mandated by NEPA and the CEQ regulations, as cited above.

Respectfully submitted,



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Dated this 29 day  
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CERTIFICATE OF SERVICE

I hereby certify that copies of ECNP BRIEF ON THE NECESSITY OF A NEW FINAL ENVIRONMENTAL STATEMENT PRIOR TO THE DECISION WHETHER TO RESTART TMI-1 has been served upon the following by deposit in the U.S. Mail, First Class, postage paid, on this 27 day of November, 1979:

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