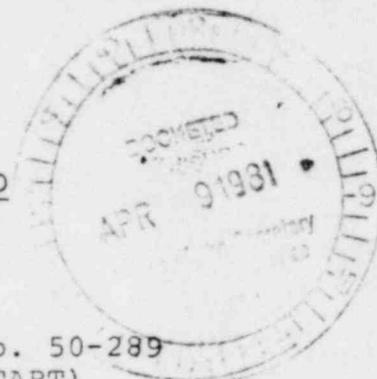


SHOLLY, 4/9/81

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

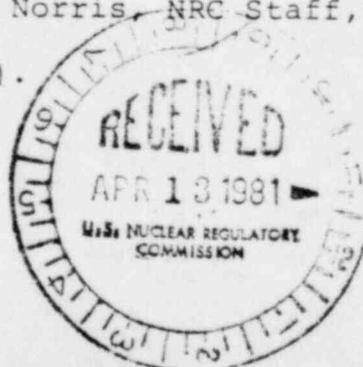


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| In the Matter of |) | |
| |) | |
| METROPOLITAN EDISON COMPANY, <u>ET AL.</u> |) | Docket No. 50-289 |
| |) | (RESTART) |
| (Three Mile Island Nuclear |) | |
| Station, Unit No. 1) |) | |

INTERVENOR STEVEN C. SHOLLY MOTION TO
THE ATOMIC SAFETY AND LICENSING BOARD
TO REJECT THE NRC STAFF ENVIRONMENTAL
IMPACT APPRAISAL ON TMI-1 RESTART OR
IN THE ALTERNATIVE TO SEEK LEAVE FROM
THE BOARD TO RAISE NEW CONTENTIONS

At the Special Prehearing Conference on 9 November 1979, the NRC Staff counsel informed the parties to this proceeding that the Staff intended to prepare an "environmental impact appraisal" on the proposed restart of TMI-1. Staff counsel projected that the "environmental impact appraisal" (EIA) would be completed on the same schedule as the Staff's "safety review" and projected a completion date of "January" 1980 (Tr. 375).

In response to an Interrogatory from this Intervenor (Interrogatory 12-1), the Staff responded in a filing dated 29 February 1980 that there was no schedule set for the filing of the EIA (response of Jan Norris, NRC Staff, to Sholly Interrogatory 12-1, 2/29/80).



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By letter dated 30 March 1981, over sixteen months after the Staff committed to providing an EIA on TMI-1 restart, the Staff transmitted an undated report entitled ENVIRONMENTAL IMPACT APPRAISAL BY DIVISION OF ENGINEERING EVALUATING THE PROPOSED RESTART OF THREE MILE ISLAND NUCLEAR STATION, UNIT 1, DOCKET NO. 50-289.

Upon reviewing this document, this Intervenor found it to be an incomplete, superficial, and meritless recanting of conclusions drawn over eight years ago by the NRC's predecessor agency in the original NEPA evaluation of TMI (NUREG-0552, December 1972), conclusions which bear only the most tangential relationship to the issues being investigated in this proceeding. While discussing such matters as the impact of restart on fish (through impingement and entrainment at the plant intake and discharge piping), the Staff's EIA refuses to substantively address three crucial issues:

1. The EIA refuses to address the environmental consequences of accidents beyond the design basis of TMI-1 ("Class 9" accidents).
2. The EIA fails to even mention, much less address, the potential impact of the cleanup of TMI-2 (or the lack thereof) on the operation of TMI-1, which is located adjacent to TMI-2.
3. The EIA fails to discuss socioeconomic impacts arising from the restart of TMI-1, despite a set of socioeconomic circumstances which has clearly been altered in fundamental ways since TMI-1 was originally licensed.

The most glaring inadequacy of the EIA is its failure to discuss in a substantive manner the environmental impacts of so-called "Class 9" accidents, or accidents which are beyond the design basis of TMI-1. A discussion of such accidents and their environmental impacts is central to an EIA on TMI-1 restart, particularly with respect to those accident sequences which have a close nexus to the TMI-2 accident.

It is ironic and incredible that the NRC Staff has taken the position in the EIA that it need not consider such impacts. Were it not for the occurrence of just such a "Class 9" accident at TMI-2 on 28 March 1979, there would be no restart proceeding and there would be no EIA on the restart of TMI-1. As it is, the central theme of this proceeding, indeed the only "thread" which ties together the seemingly diverse issues being considered in this proceeding, is a consideration of those issues which require re-examination as a result of the TMI-2 accident. Every issue which has been litigated in this proceeding had to have a demonstrated nexus to the TMI-2 accident before the Board accepted the issue in contention form.

There exists no real reason why the Staff's EIA excluded a discussion of the environmental impacts of "Class 9" accidents. The Staff, in relying on a single sentence from the Commission's 13 June 1980 "Statement of Interim Policy" on "Nuclear Power

Plant Accident Considerations Under the National Environmental Policy Act of 1969" (45 F.R. 40101), clearly misconstrues the intent of the "Statement of Interim Policy." The Staff has excluded a discussion of the environmental impacts of "Class 9" accidents from the EIA on the basis of a quote from the "Statement of Interim Policy" (the entire "Statement" is appended to this motion for the Board's reference):

"This change in policy is not to be construed as any lack of confidence om conclusions regarding the environmental risks of accidents expressed in previously issued Statements, nor, absent a showing of special circumstances, as a basis for opening, reopening, or expanding any previous or ongoing proceeding."

The Staff leaps from this sentence to the conclusion that the restart of TMI-1 does not pose "special circumstances" of the "types referred to in the policy statement". A fair reading of the policy statement would show that the examples used by the Staff as "types" of special circumstances which would warrant a deviation from the Commission's policy as embodied in the quote above were actually included in the policy statement as an explanation of why the environmental impacts of Class 9 accidents were not evaluated in previous NEPA reviews, except in the examples listed in the policy statement.

Had the Staff fully discussed the environmental impacts

of Class 9 accidents in the EIA, this would not have resulted in an "opening, reopening, or expanding any previous or ongoing proceeding" unless the discussion disclosed impacts which were clearly unacceptable. Rather, such a discussion would simply have represented the Staff fully discharging its responsibility under NEPA and the Commission's implementation of NEPA. Now, by completely failing to fulfill its responsibilities in this regard, the Staff has created the very real possibility that the completion of this proceeding will be delayed, a delay which was completely avoidable if the Staff had performed its task successfully.

The Staff has been promising this EIA for nearly a year and a half, all the time claiming (with the consent of the Board) that NEPA contentions were premature pending the issuance of the EIA. After receiving this worthless EIA, this Intervenor cannot help but wonder if this was not a cynical maneuver intended to place intervenors in the position of having to take what would appear to be "obstructionist" actions on the eve of the completion of the hearings in order to challenge the adequacy of the Staff's NEPA evaluation. It is difficult to postulate an "innocent" explanation for why this EIA took sixteen months to complete.

Rather than provide any basis whatsoever for failing to fully discuss the environmental impacts of "Class 9" accidents in the staff's EIA, the Commission's 13 June 1980

"Statement of Interim Policy" provides ample good cause for including such a discussion in the EIA on TMI-1 restart. There is no "previously issued Statement" which evaluates the environmental impact of TMI-1 restart--in fact, the EIA was to have represented just such an evaluation. In the policy statement, the Commission clearly set forth its position:

"It is the intent of the Commission in issuing this Statement of Interim Policy that the staff will initiate treatments of accident considerations in accordance with the foregoing guidance, in its ongoing NEPA reviews, i.e., for any proceeding where a Final Environmental Impact Statement has not yet been issued."

Since an FES has not yet been issued in this proceeding, and since the EIA is an exploration of whether in fact such an FES should be prepared, the Staff can hardly take the position that the Commission intended for the Staff to ignore the environmental impacts of Class 9 accidents in its NEPA review of TMI-1 restart. The policy statement is quite explicit in stating just how Class 9 accident considerations are to be handled in the Staff's NEPA reviews:

"It is the position of the Commission that its Environmental Impact Statements, pursuant to Section 102(c)(i) of the National Environmental Policy Act of 1969, shall include a reasoned consideration of the environmental risks (impacts)

attributable to accidents at the particular facility or facilities within the scope of each such statement. In the analysis and discussion of such risks, approximately equal attention shall be given to the probability of occurrence of releases and to the probability of the environmental consequences for those releases. Releases refer to radiation and/or radioactive materials entering environmental exposure pathways, including air, water, and ground water."

"Events or accident sequences that lead to releases shall include but not be limited to those that can reasonably be expected to occur. In-plant accident sequences that can lead to a spectrum of releases shall be discussed and shall include sequences that can result in inadequate cooling of the reactor fuel and to melting of the reactor core. The extent to which events arising from causes external to the plant which are considered possible contributors to the risk associated with the particular plant shall also be discussed. Detailed qualitative considerations that form the basis of probabilistic estimates of the releases need not be incorporated in the Environmental Impact Statements but shall be referenced therein. Such references shall include, as applicable, reports on safety evaluations."

"The environmental consequences of releases whose probability of occurrence has been estimated shall also be discussed in probabilistic terms. Such consequences shall be characterized in terms of potential radiological exposures to individuals, to population groups, and, where applicable, to biota. Health and safety risks that may be associated with exposures to people shall be discussed in a manner that fairly reflects the current state of knowledge regarding such risks. Socioeconomic impacts that might be associated with emergency measures during or following an accident should also be discussed. The environmental risks of accidents should also be compared to and contrasted with radiological risks associated with normal and anticipated operational occurrences."

(from "Statement of Interim Policy", emphasis added)

This Board should accept nothing less from the Staff in the EIA on TMI-1 restart. Although the lengthy quote above refers at the beginning to "Environmental Impact Statements", it would be irrational to assert that the policy is inapplicable to NEPA reviews, such as an EIA, which may be a predecessor to a full EIS.

The Staff refers in the EIA at page 13 to testimony on Class 9 accidents given by Staff witnesses at the restart hearings. Although the Staff could arguably be found to have complied with the portion of the Commission's policy statement regarding accident probabilities, it should be remembered that the Staff testimony discussed accidents in the manner of a safety analysis, not environmental impact analysis which is what is called for by NEPA and the Commission policy statement. In any event, written testimony at a hearing is no substitute for a full disclosure of environmental impacts and probabilities in an EIA. In short, the EIA should be able to stand on its own merits and not have to rely on other documents. It is quite clear that the Staff has fallen far short of its obligations in discussing the environmental impacts of Class 9 accidents.

The Staff's failure to address the potential environmental impacts of the effects of cleanup of TMI-2 (or the lack thereof) on the operation of TMI-1 is a second major deficiency in the EIA. The mere proximity of TMI-2 to TMI-1 makes this a unique situation whose environmental risk must

be fully disclosed by the Staff in the EIA on TMI-1 restart. As the Board has observed in the First Special Prehearing Conference Order:

"[I]n fact this very hearing is a form of NRC investigation into the relationship between the TMI-2 accident and the operation of TMI-1." (First Special Prehearing Conference Order, 18 December 1979, Sl. op. at page 8)

It is illogical to conclude, as the Staff has apparently done, that the EIA on TMI-1 restart need not consider the issue of impacts on TMI-1 from the TMI-2 cleanup (or lack thereof). There is no other place where such issues are addressed. The FES on TMI (NUREG-0552, December 1972) and the Final Supplement to the FES on TMI-2 (NUREG-0112, December 1976) fail to address these issues in even a general sense, and the Final PEIS on TMI-2 cleanup (NUREG-0683, March 1981) expressly does not address such issues on the basis that such a discussion is to be found in "a separate environmental review." This Intervenor is aware of no such "separate environmental review". unless the reference is to the EIA, in which case the reference is clearly mistaken since the EIA utterly fails to address this issue. It should be noted that consideration of this issue inevitably leads to a consideration of the impacts of accidents during the TMI-2 cleanup, including

accidents which might be viewed as "Class 9" accidents. A possible example of how such an accident might affect TMI-1 is the operation of the Submerged Demineralizer System in the TMI-2 spent fuel pool. The pools for TMI-1 and TMI-2 are physically separated, but the atmosphere above the pools is not (I know this from a recent tour of the TMI facility during which I discussed this with the Deputy Director of the TMI Program Office and viewed the lack of separation on my own; the separation was apparently not extended to the air above the pools so that both pools could make use of the overhead crane). Should an accident occur during operation of SDS while refueling operations are underway at TMI-1, such an accident could result in the need to evacuate the spent fuel handling building, thus risking an accident involving TMI-1 spent fuel. Other such sequences could also be postulated. The point is that the EIA should have evaluated such consequences and has failed to do so.

The third and final major deficiency in the EIA is the lack of discussion on possible socioeconomic impacts arising from TMI-1 restart. Such impacts might include impacts on housing, the economy of the local area, the marketability of farm products and seafood products from the Chesapeake Bay, impacts on local governments (from both a cost and a change in past practices standpoint), impacts

arising from increased emergency planning activity (including tests of the siren warning system), and the impacts arising from the psychological effects of restart of TMI-1.

Although the Commission, in CLI-80-39, precluded the discussion of such issues within the context of the litigation of issues in the restart proceeding, the Commission took no such position on the consideration of such issues in environmental impact analyses performed pursuant to NEPA. Indeed, both the Draft PEIS on TMI-2 cleanup (Draft NUREG-0683, July 1980) and the Final Environmental Assessment on the Krypton-85 venting from TMI-2 (Final NUREG-0662, May 1980) include discussion of psychological stress issues, and both were published before the Commission's order in CLI-80-39. The Staff's pursuit of these issues continued after the publication of CLI-80-39 in the Final PEIS on TMI-2 cleanup (Final NUREG-0683, March 1981), which was published well after CLI-80-39. It is clear that the Staff has included discussion of psychological stress issues in its NEPA reviews both before and after CLI-80-39 and that the Commission has reviewed all of these documents (the review of Final NUREG-0683 is continuing). Had the Commission desired that the Final PEIS not deal with such issues, a simple directive to the Staff could have accomplished the Commission's wishes; no such directive was given to the Staff and we are forced to conclude that the Commission

intended the Staff to continue to include analyses of psychological stress issues in its NEPA reviews were appropriate. It is certainly appropriate in the context of the Staff's EIA on the restart of TMI-1. It should be noted that the Commission's order in CLI-80-39 is under appeal in the U.S. Court of Appeals by petitioner People Against Nuclear Energy. It also bears noting that not only was psychological stress discussed in the Environmental Assessment on venting (NUREG-0662, May 1980), the alleged "alleviation" of psychological stress by quickly venting the Krypton-85 was cited by the Commission in its venting orders as a benefit of the venting procedure.

* * *

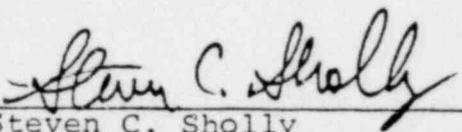
On the basis of the clear incompleteness and inadequacy of the Staff's Environmental Impact Appraisal on the restart of TMI-1, this Intervenor hereby moves the Board to issue an Order which rejects the Staff EIA which was transmitted to the Board and parties by letter dated 30 March 1981 and which directs the Staff to prepare either a new EIA or a supplement which fully discusses the issues raised in this motion (the environmental impact of Class 9 accidents, the environmental impact of TMI-2 cleanup on the operation of TMI-1, and the socioeconomic impacts of restart of TMI-1). Alternatively, should the Board find that it lacks jurisdiction to consider this motion, or should the Board rule against the motion, the Intervenor hereby seeks leave from

the Board to pose new contentions related to the EIA (the contentions are attached to this motion as Appendix B).

An alternative which the Board may consider, but which this Intervenor would urge against, would be for the Board to certify a question or questions to the Commission on the issues set forth in this motion. This Intervenor would be opposed to such a response to this motion on the grounds that this process has the clear potential for significant delay in the consideration of the issues presented herein, that it would delay this proceeding unnecessarily, and finally on the ground that the Board is properly empowered with construing the Commission's "Statement of Interim Policy" (13 June 1980, 45 F.R. 40101) and other standards referenced herein in responding to this motion.

DATED: 9 April 1981

RESPECTFULLY SUBMITTED,


Steven C. Sholly
Union of Concerned Scientists*
1725 I Street, N.W., Suite 601
Washington, D.C. 20006

* Affiliation is for identification and mailing purposes only; the views expressed herein and the relief sought hereby do not necessarily represent the views of the Union of Concerned Scientists. This Intervenor is representing himself on a pro se basis; UCS is represented by General Counsel Ellyn R. Weiss.

public health and safety, and with awareness of the choices ahead. We are directing our staff to include in the programmatic environmental impact statement on the decontamination and disposal of TMI-2 waste an overall description of the planned activities and a schedule for their completion along with a discussion of alternatives considered and the rationale for choices made. We are also directing our staff to keep us advised of their progress on these matters.

45 FR 289
Published 6/15/80

EPA Policy Statement Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents

Purpose

This is a statement of policy with regard to an Environmental Protection Agency (EPA) and Nuclear Regulatory Commission (NRC) task force report on guidance for use in State and local radiological emergency response plans at nuclear power plants.

Background

The NRC received a request from the Conference of Radiation Control Program Directors, an organization of State officials, to "make a determination of the most severe accident basis for which radiological emergency response plans should be developed by offsite agencies." In response, an EPA and NRC task force was established which prepared a report entitled "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0399, EPA 520/1-78-016, dated December 1978. Single copies of the report can be obtained by writing to the Director, Division of Technical Information and Document Control, Nuclear Regulatory Commission, Washington, D.C. 20555.

Planning Basis

The major recommendation of the report is that Emergency Planning Zones (EPZ's) should be established around light water nuclear power plants. The EPZ for airborne exposure has a radius of about 10 miles, the EPZ for contaminated food has a radius of about 50 miles. Predetermined protective action plans are needed for the EPZ's. The exact size and shape of each EPZ can be decided by emergency planning officials after they consider the specific

have from one-half hour to several hours warning in which to implement protective actions before a release of radioactivity to the atmosphere.

The chemical and physical characteristics of those radionuclides which contribute most significantly to human exposure are presented.

EPA Policy

EPA concurs in and endorses for the guidance contained in the task force report. It will be EPA's policy to incorporate its recommendations into all EPA emergency response guidance to State and local officials.

45 FR 40101

Published 6/13/80

Comment period expires 9/11/80

10 CFR Parts 50 and 51

Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969

AGENCY: U.S. Nuclear Regulatory Commission

ACTION: Statement of Interim Policy.

SUMMARY: The Nuclear Regulatory Commission (NRC) is revising its policy for considering the more severe kinds of very low probability accidents that are physically possible in environmental impact assessments required by the National Environmental Policy Act (NEPA). Such accidents are commonly referred to as Class 9 accidents, following an accident classification scheme proposed by the Atomic Energy Commission (predecessor to NRC) in 1971 for purposes of implementing NEPA. The March 28, 1979 accident at Unit 2 of the Three Mile Island nuclear plant has emphasized the need for changes in NRC policies regarding the considerations to be given to serious accidents from an environmental as well as a safety point of view.

This statement of interim policy announces the withdrawal of the proposed Annex to Appendix D of 10 CFR Part 50 and the suspension of the rulemaking proceeding that began with the publication of that proposed Annex on December 1, 1971. It is the Commission's position that its Environmental Impact Statements shall include considerations of the site-specific environmental impacts attributable to accident sequences that

¹ Proposed as an Annex to 10 CFR Part 50, Appendix D, 36 FR 22851. The Commission's NEPA implementing regulations were subsequently (July 18, 1974) revised and recast as 10 CFR Part 51 but at that time the Commission noted that "The Proposed Annex is still under consideration." 39 FR 26279.

lead to releases of radiation and/or radioactive materials, including sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core. In this regard, attention shall be given both to the probability of occurrence of such releases and to the environmental consequences of such releases. This statement of interim policy is taken in coordination with other ongoing safety-related activities that are directly related to accident considerations in the areas of plant design, operational safety, siting policy, and emergency planning. The Commission intends to continue the rulemaking on this matter when new siting requirements and other safety related requirements incorporating accident considerations are in place.

DATES: This statement of interim policy is effective June 13, 1980. Comment period expires September 11, 1980.

ADDRESSES: The Commission intends the interim policy guidance contained herein to be immediately effective. However, all interested persons who desire to submit written comments or suggestions for consideration in connection with this statement should send them to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Attention: Docketing and Service Branch.

FOR FURTHER INFORMATION CONTACT: R. Wayne Houston, Chief, Accident Evaluation Branch, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555. Telephone: (301) 492-7323.

SUPPLEMENTARY INFORMATION:

Accident Considerations in Past NEPA Reviews

The proposed Annex to Appendix D of 10 CFR Part 50 (hereafter the "Annex") was published for comment on December 1, 1971 by the (former) Atomic Energy Commission. It proposed to specify a set of standardized accident assumptions to be used in Environmental Reports submitted by applicants for construction permits or operating licenses for nuclear power reactors. It also included a system for classifying accidents according to a graded scale of severity and probability of occurrence. Nine classes of accidents were defined, ranging from trivial to very serious. It directed that "for each class, except classes 1 and 9, the environmental consequences shall be evaluated as indicated." Class 1 events were not to be considered because of their trivial consequences, whereas in regard to Class 9 events, the Annex stated as follows:

The occurrences in Class 9 involve sequences of postulated successive failures more severe than those postulated for the design basis for protective systems and engineered safety features. Their consequences could be severe. However, the probability of their occurrence is so small that their environmental risk is extremely low. Defense in depth (multiple physical barriers), quality assurance for design, manufacture, and operation, continued surveillance and testing, and conservative design are all applied to provide and maintain the required high degree of assurance that potential accidents in this class are, and will remain, sufficiently remote in probability that the environmental risk is extremely low. For these reasons, it is not necessary to discuss such events in applicants' Environmental Reports.

A footnote to the Annex stated:

Although this annex refers to applicant's Environmental Reports, the current assumptions and other provisions thereof are applicable, except as the content may otherwise require, to AEC draft and Detailed Statements.

During the public comment period that followed publication of the Annex a number of criticisms of the Annex were received. Principal among these were the following:

- (1) The philosophy of prescribing assumptions does not lead to objective analysis.
- (2) It failed to treat the probabilities of accidents in any but the most general way.
- (3) No supporting analysis was given to show that Class 9 accidents are sufficiently low in probability that their consequences in terms of environmental risks need not be discussed.
- (4) No guidance was given as to how accident and normal releases of radioactive effluents during plant operation should be factored into the cost-benefit analysis.
- (5) The accident assumptions are not generally applicable to gas cooled or liquid metal cooled reactors.
- (6) Safety and environmental risks are not essentially different considerations.

Neither the Atomic Energy Commission nor the NRC took any further action on this rulemaking except in 1974 when 10 CFR Part 51 was promulgated. Over the intervening years the accident considerations discussed in Environmental Impact Statements for proposed nuclear power plants reflected the guidance of the Annex with few exceptions. Typically, the discussions of accident consequences through Class 9 (design basis accidents) for each case have reflected specific site characteristics associated with meteorology (the dispersion of releases of radioactive material into the atmosphere), the actual population

within a 50-mile radius of the plant, and some differences between boiling water reactors (BWR) and pressurized water reactors (PWR). Beyond these few specifics, the discussions have reiterated the guidance of the Annex and have relied upon the Annex's conclusion that the probability of occurrence of a Class 9 event is too low to warrant consideration, a conclusion based upon generally stated safety considerations.

With the publication of the Reactor Safety Study (WASH-1400), in draft form in August 1974 and final form in October 1975, the accident discussions in Environmental Impact Statements began to refer to this first detailed study of the risks associated with nuclear power plant accidents, particularly events which can lead to the melting of the fuel inside a reactor.² The references to this study were in keeping with the intent and spirit of NEPA "to disclose" relevant information, but it is obvious that WASH-1400 did not form the basis for the conclusion expressed in the Annex in 1971 that the probability of occurrence of Class 9 events was too low to warrant their (site-specific) consideration under NEPA.

The Commission's staff has, however, identified in certain cases unique circumstances which it felt warranted more extensive and detailed consideration of Class 9 events. One of these was the proposed Clinch River Breeder Reactor Plant (CRBRP), a liquid metal cooled fast breeder reactor very different from the more conventional light water reactor plants for which the safety experience base is much broader. In the Final Environmental Statement for the CRBRP,³ the staff included a discussion of the consideration it had given to Class 9 events.

In the early site review for the Perryman site, the staff performed an informal assessment of the relative differences in Class 9 accident consequences among the alternative sites. (SECY-78-137)

In the case of the application by Offshore Power Systems to manufacture floating nuclear power plants, the staff judged that the environmental risks of some Class 9 events warranted special consideration. The special circumstances were the potentially serious consequences associated with water (liquid) pathways leading to radiological exposures if a molten reactor core were to fall into the water

body on which the plant floats. Here the staff emphasized its focus on risk to the environment but did not find that the probability of a core melt event occurring in the first place was essentially any different than for land-based plant. In its Memorandum and Order In the Matter of Offshore Power Systems,⁴ the Commission concurred in the staff's judgment. Thus, the Reactor Safety Study and NRC experience with these cases has served to refocus attention on the need to reemphasize that environmental risk entails both probabilities and consequences, a point that was made in the publication of the Annex, but was not given adequate emphasis.

In July 1977 the NRC commissioned a Risk Assessment Review Group "to clarify the achievements and limitations of the Reactor Safety Study." One of the conclusions of this study, published in September 1978, as NUREG/CR-0400, "Risk Assessment Review Group Report to the U.S. Nuclear Regulatory Commission," was that "The Review Group was unable to determine whether the absolute probabilities of accident sequences in WASH-1400 are high or low, but believes that the error bounds on those estimates are in general, greatly understated." This and other findings of the Review Group have also subsequently been referred to in Environmental Impact Statements, along with a reference to the Commission's policy statement on the Reactor Safety Study in light of the Risk Assessment Review Group Report, published on January 18, 1979. The Commission's statement accepted the findings of the Review Group, both as to the Reactor Safety Study's achievements and as to its limitations.

A few Draft Environmental Statements have been published subsequent to the Three Mile Island accident. These were for conventional land-based light water reactor plants and continued to reflect the past practice with respect to accidents at such plants, but noted that the experience gained from the Three Mile Island accident was not factored into the discussion.

Our experience with past NEPA reviews of accidents and the TMI accident clearly leads us to believe that a change is needed.

Accordingly, the proposed Annex to Appendix D of 10 CFR Part 50, published on December 1, 1971, is hereby withdrawn and shall not hereafter be used by applicants nor by the staff. The reasons for the withdrawal are as follows:

²It is of interest that the Reactor Safety Study never refers to nor uses the term "Class 9 accident" although this term is commonly used as loosely equivalent to a core melt accident.

³NUREG-0739, February 1977.

⁴Docket No. STN 50-437, September 14, 1979.

POLICY STATEMENTS

1. The Annex proscribes consideration of the kinds of accidents (Class 9) that, according to the Reactor Safety Study, dominate the accident risk.

2. The definition of Class 9 accidents in the Annex is not sufficiently precise to warrant its further use in Commission policy, rules, and regulations, nor as a decision criterion in agency practice.

3. The Annex's prescription of assumptions to be used in the analysis of the environmental consequences of accidents does not contribute to objective consideration.

4. The Annex does not give adequate consideration to the detailed treatment of measures taken to prevent and to mitigate the consequences of accidents in the safety review of each application.

The classification of accidents proposed in that Annex shall no longer be used. In its place the following interim guidance is given for the treatment of accident risk considerations in NEPA reviews.

Accident Considerations in Future NEPA Reviews

It is the position of the Commission that its Environmental Impact Statements, pursuant to Section 102(c)(1) of the National Environmental Policy Act of 1969, shall include a reasoned consideration of the environmental risks (impacts) attributable to accidents at the particular facility or facilities within the scope of each such statement. In the analysis and discussion of such risks, approximately equal attention shall be given to the probability of occurrence of releases and to the probability of occurrence of the environmental consequences of those releases. Releases refer to radiation and/or radioactive materials entering environmental exposure pathways, including air, water, and ground water.

Events or accident sequences that lead to releases shall include but not be limited to those that can reasonably be expected to occur. In-plant accident sequences that can lead to a spectrum of releases shall be discussed and shall include sequences that can result in inadequate cooling of reactor fuel and to melting of the reactor core. The extent to which events arising from causes external to the plant which are considered possible contributors to the risk associated with the particular plant shall also be discussed. Detailed quantitative considerations that form the basis of probabilistic estimates of releases need not be incorporated in the Environmental Impact Statements but shall be referenced therein. Such references shall include, as applicable, reports on safety evaluations.

The environmental consequences of releases whose probability of occurrence has been estimated shall also be discussed in probabilistic terms. Such consequences shall be characterized in terms of potential radiological exposures to individuals, to population groups, and, where applicable, to biota. Health and safety risks that may be associated with exposures to people shall be discussed in a manner that fairly reflects the current state of knowledge regarding such risks. Socioeconomic impacts that might be associated with emergency measures during or following an accident should also be discussed. The environmental risk of accidents should also be compared to and contrasted with radiological risks associated with normal and anticipated operational releases.

In promulgating this interim guidance, the Commission is aware that there are and will likely remain for some time to come many uncertainties in the application of risk assessment methods, and it expects that its Environmental Impact Statements will identify major uncertainties in its probabilistic estimates. On the other hand the Commission believes that the state of the art is sufficiently advanced that a beginning should now be made in the use of these methodologies in the regulatory process, and that such use will represent a constructive and rational forward step in the discharge of its responsibilities.

It is the intent of the Commission in issuing this Statement of Interim Policy that the staff will initiate treatments of accident considerations, in accordance with the foregoing guidance, in its ongoing NEPA reviews, i.e., for any proceeding at a licensing stage where a Final Environmental Impact Statement has not yet been issued. These new treatments, which will take into account significant site- and plant-specific features, will result in more detailed discussions of accident risks than in previous environmental statements, particularly for those related to conventional light water plants at land-based sites. It is expected that these revised treatments will lead to conclusions regarding the environmental risks of accidents similar to those that would be reached by a continuation of current practices, particularly for cases involving special circumstances where Class 9 risks have been considered by the staff, as described above. Thus, this change in policy is not to be construed as any lack of confidence in conclusions regarding the environmental risks of accidents expressed in any previously

issued Statements, nor, absent a showing of similar special circumstances, as a basis for opening, reopening, or expanding any previous or ongoing proceeding.⁵

However, it is also the intent of the Commission that the staff take steps to identify additional cases that might warrant early consideration of either additional features or other actions which would prevent or mitigate the consequences of serious accidents. Cases for such consideration are those for which a Final Environmental Statement has already been issued at the Construction Permit stage but for which the Operating License review stage has not yet been reached. In carrying out this directive, the staff should consider relevant site features, including population density, associated with accident risk in comparison to such features at presently operating plants. Staff should also consider the likelihood that substantive changes in plant design features which may compensate further for adverse site features may be more easily incorporated in plants when construction has not yet progressed very far.

Environmental Reports submitted by applicants for construction permits and for operating licenses on or after July 1, 1980 should include a discussion of the environmental risks associated with accidents that follows the guidance given herein.

Related Policy Matters Under Consideration

In addition to its responsibilities under NEPA, the NRC also bears responsibility under the Atomic Energy Act for the protection of the public health and safety from the hazards associated with the use of nuclear energy. Pursuant to this responsibility the Commission notes that there are currently a number of ongoing activities being considered by the Commission and its staff which intimately relate to the "Class 9 accident" question and which are either the subject of current rulemaking or are candidate subjects for rulemaking.

On December 19, 1979 the Commission issued for public comment⁶ a proposed rule which would significantly revise its requirements in 10 CFR Part 50 for emergency planning for nuclear power plants. One of the considerations in this rulemaking was

⁵Commissioners Gilinsky and Bradford disagree with the inclusion of the preceding two sentences. They feel that they are absolutely inconsistent with an even-handed reappraisal of the former, erroneous position on Class 9 accidents.

⁶44 FR 75187.

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the potential consequences of Class 9 accidents in a generic sense.⁷

In August 1979, pursuant to the Commission's request, a Siting Policy Task Force made recommendations with respect to possible changes in NRC reactor siting policy and criteria,⁸ currently set forth in 10 CFR Part 100. As stated therein, its recommendations were made to accomplish (among others) the following goal:

To take into consideration in siting the risk associated with accidents beyond the design basis (Class 9) by establishing population density and distribution criteria.

This matter is currently before the Commission.

This and other recommendations that have been made as a result of the investigations into the Three Mile Island accident are currently being brought together by the Commission's staff in the form of proposed Action Plans.⁹ Among other matters, these incorporate recommendations for rulemaking related to degraded core cooling and core melt accidents. The Commission expects to issue decisions on these Action Plans in the near future. It is the Commission's policy and intent to devote NRC's major resources to matters which the Commission believes will make existing and future nuclear power plants safer, and to prevent a recurrence of the kind of accident that occurred at Three Mile Island. In the interim, however, and pending completion of rulemaking activities in the areas of emergency planning, siting criteria, and design and operational safety, all of which involve considerations of serious accident potential, the Commission finds it essential to improve its procedures for describing and disclosing to the public the basis for arriving at conclusions regarding the environmental risks due to accidents at nuclear power plants. On completion of the rulemaking activities in these areas, and based also upon the experience gained with this statement of interim policy and guidance, the Commission intends to pursue possible changes or additions to 10 CFR Part 51 to codify its position on the role of accident risks under NEPA.

45 FR 11738

Published 6/20/80

Further Commission Guidance for Power Reactor Operating Licenses; Statement of Policy¹

I. Background

After the March 1979 accident at Three Mile Island, Unit 2, the Commission directed its technical review resources to assuring the safety of operating power reactors rather than to the issuance of new licenses. Furthermore, the Commission decided that power reactor licensing should not continue until the assessment of the TMI accident had been substantially completed and comprehensive improvements in both the operation and regulation of nuclear power plants had been set in motion.

At a meeting on May 30, 1979, the Nuclear Regulatory Commission decided to issue policy guidance addressing general principles for reaching licensing decisions and to provide specific guidance for near-term operating license cases.² In November 1979, the Nuclear Regulatory Commission issued the policy guidance in the form of an amendment to 10 CFR Part 2 of its regulations,³ describing the approach to be taken by the Commission regarding licensing of power reactors. In particular, the Commission noted that it would "be providing case-by-case guidance on changes in regulatory policies." The Commission has now acted on three operating licenses, has given extensive consideration to issues arising as a result of the Three Mile Island accident, and is able to provide general guidance.

Following the accident at Three Mile Island, the President established a Commission to make recommendations regarding changes necessary to improve nuclear safety. In May 1979, the Nuclear Regulatory Commission established a Lessons Learned Task Force,⁴ to determine what actions were required for new operating licenses and chartered a Special Inquiry Group to examine all facets of the accident and its causes.⁵ These groups have published

their reports.⁶

The Lessons Learned Task Force led to NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations" and NUREG-0585, "TMI-2 Lessons Learned Task Force Final Report." The Commission addressed these reports in meetings on September 8, September 13, October 14, and October 16, 1979. Following release of the report of the Presidential Commission, the Commission provided a preliminary set of responses to the recommendations in the report.⁷ This response provided broad policy directions for development of an NRC Action Plan⁸ work on which was begun in November 1979. During the development of the Action Plan, the Special Inquiry Group Report was received, which had the benefit of review by panels of outside consultants representing a cross section of technical and public views. This report provided additional recommendations.

The Action Plan⁹ was developed to provide a comprehensive and integrated plan for the actions judged appropriate by the Nuclear Regulatory Commission to correct or improve the regulation and operation of nuclear facilities based on the experience from the accident at TMI-2 and the official studies and investigations of the accident. In developing the Action Plan, the various recommendations and possible actions of all the principal investigations were assessed and either rejected, adopted or modified. A detailed summary of the development and review process for the Action Plan is provided in NUREG-0694, "TMI-Related Requirements For New Operating Licenses."

Actions to improve the safety of nuclear power plants now operating were judged to be necessary immediately after the accident and could not be delayed until the Action Plan was developed, although they were subsequently included in the Action

¹ Cf. NUREG-0396, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," November 1978.

² NUREG-0625, "Report of the Siting Policy Task Force," August 1979.

³ Draft NUREG-0960, "Action Plans for Implementing Recommendations of the President's Commission and Other Studies of the TMI-2 Accident," December 10, 1979.

⁴ All footnotes for this statement of policy appear at end of text.

⁵ "Staff Requirements—Discussion of Options Regarding Delegation of Licenses," memorandum from Samuel J. Chiles, Secretary to Lee V. Goswick, Executive Director for Operations, May 31, 1979.

⁶ "Suspension of 10 CFR 2.704 and Statement of Policy to Conduct of Adjudicatory Proceedings," 44 FR 63,001, November 9, 1979.

⁷ "Lessons Learned from TMI-2 Accident," Report Mission to NRR staff, May 31, 1979.

⁸ Report of the President's Commission on the Accident at Three Mile Island, "The Need for Change: The Legacy of TMI," October 1979.

⁹ U.S. Nuclear Regulatory Commission, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations," NUREG-0578, July 1979.

¹⁰ U.S. Nuclear Regulatory Commission, "TMI-2 Lessons Learned Task Force Status Report," NUREG-0585, August 1979.

¹¹ U.S. Nuclear Regulatory Commission Special Inquiry Group, "Three Mile Island: A Report to the Commissioners and to the Public," January 1980.

¹² U.S. Nuclear Regulatory Commission, "NRC Views and Analysis of the Recommendations of the President's Commission on the Accident at Three Mile Island," NUREG-0632, November 1979.

¹³ U.S. Nuclear Regulatory Commission, "NRC Action Plan," developed as a result of the TMI-2 Accident, NUREG-0690.