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Secretary of the Commission
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Comments on Critical Mass Energy Project et al. Docket No. PRM-50-203 Petition for Rulemaking and NRC Advanced Notice of Proposed Rulemaking -- Emergency Planning

Dear Sir:

Enclosed are the Power Authority of the State of New York's ("Authority") comments on the petition for rulemaking filed by the Critical Mass Energy Project et al and published in the Federal Register on June 6, 1979, 44 Fed. Reg. 32486 and NRC's advanced notice of proposed rulemaking published in the Federal Register on July 17, 1979, 44 Fed. Reg. 41483.

Since the issues presented in the NRC advanced notice of proposed rulemaking encompass all the major issues raised in Critical Mass Energy Project's petition, the attached comments, pertaining to both notices, are structured in accordance with the outling of issues presented in NRC's advance notice. Duplicate copies are enclosed, one for each proceeding.

Very truly yours,

Vito J. Cassan
Assistant General Counsel
Power Authority of the State of New York

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POWER AUTHORITY OF THE STATE
OF NEW YORK

Comments on NRC Advance Notice of Proposed Rulemaking on Adequacy and Acceptance of Emergency Planning Around Nuclear Facilities, 44 Fed. Reg. 41483.

Issues 1 and 14:

1. What should be the basic objectives of emergency planning?

   a. To reduce public radiation exposure?
   b. To prevent public radiation exposure?
   c. To be able to evacuate the public?

   To what extent should these objectives be quantified?

14. Would public participation in radiological emergency response drills, including evacuation, serve a useful purpose? If so, what should be the extent of the public participation?

Response:

The basic objectives of nuclear emergency planning should be to reduce public radiation exposure through the implementation of the safest and most practical procedures available. The basic risks inherent in emergency procedures must be balanced against the risks of radiation exposure. While the NRC can develop guidelines for emergency planning, the emergency procedures used at the time of the accident will depend upon the nuclear facility site characteristics and the circumstances surrounding the specific accident.

A further objective of nuclear emergency planning should be the development of action guidelines which can be incorporated into overall state disaster preparedness programs. For practicality and economy, nuclear emergency programs should, to the maximum extent possible, draw upon existing disaster planning programs and resources and provide for integration of nuclear emergency planning with those programs and resources.

It is implied by the NRC and urged by Critical Mass Energy Project et al. ("Critical Mass") that evacuation be considered a basic objective of nuclear emergency planning. It is also suggested by Critical Mass that practice evacuations be mandated. While evacuation should be considered as one procedure among many by which public radiation exposure may be lessened, it should not be raised to the status of a basic objective. A program whose basic objective is evacuation overlooks many more feasible, reliable and safer emergency procedures including the simple expediency of taking shelter. Since the basic objective of any emergency planning is to provide the greatest safety to the public during an emergency, one must insure that the unintended adverse results of

emergency procedures do not outweigh the intended radiation protection. The Authority opposes the concept of full-scale practice public evacuations. To the Authority's knowledge, full-scale practice evacuations of the extent suggested have not previously been attempted for any disaster.

The Environmental Protection Agency ("EPA") in its report entitled "Evacuation Risks--An Evaluation" ("EPA Report") listed over 250 major disasters occurring between 1960 and 1973 which required evacuation. Such evacuations were due to natural disasters (hurricanes, floods, fire and wind) and man-made disasters (chemical spills and fire). Thirty-one of the events listed required the evacuation of 1000 or more individuals. Yet no indication appears that pre-practiced large-scale evacuations were performed or are being performed as part of emergency planning for such disasters. The risk of injury from practice evacuation has already been recognized by the Commission. As previously pointed out in the Commission's denial of the Public Interest Research Group et al. ("PIRG") petition, 40 Fed. Reg. 43779, on this issue, and the EPA's report, practice evacuations would expose the population to greater risks of personal injury, death and economic loss than the risk associated with the possibility of a nuclear accident.

The claim is made by Critical Mass that the Commission repudiated Wash 1400 (risk probability of nuclear accidents) by its statement of January 18, 1979, thus implying that the basis for the Commission's denial of PIRG's petition with respect to this issue is invalid. While the Commission repudiated the executive summary of that report, recognizing that the probabilities calculated and presented in Wash 1400 were subject to deviations, it also recognized that the report represented the best calculations of nuclear risks to date. Considered in light of the Commission's statement of January 18, 1979, no demonstration has been made that EPA's assessment of risks is not accurate nor that the Commission's finding on the issue is erroneous. Proponents of practice evacuations fail to evaluate the risks presented by practice evacuations against the alleged advantages. These proponents also fail to indicate how circumstances surrounding an actual accident would be incorporated into such practice evacuations. Nor do they consider the confusion which can arise due to differing circumstances existing at the time of actual evacuation, due to a nuclear or non-nuclear disaster, as compared to circumstances existing during practice evacuations.

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If, for example, a flood, hurricane, tornado or chemical spill did occur in the "practice area" and evacuation was required, would the public reaction be to follow instructions at that time or follow a "pre-practiced" evacuation scheme which may dictate action for a different type of disaster? Alternately, would the public be directed to disregard information on nuclear emergency planning and practice evacuations in case of the more likely possibility of floods, hurricanes, blizzards, tornados, fires and chemical releases? Would the public be instructed that instead of relying on information concerning nuclear emergency measures, it must rely on official announcements and directions at the time if other disasters should be underway? The Authority agrees that the public should be made aware that emergencies may require evacuation and that State emergency agency directions should be followed during such an emergency. However, due to the risks inherent

in evacuation and the likely misapplication of practiced activities during both actual nuclear accidents and non-nuclear disasters, practice public evacuations will lessen public safety rather than promote it.

Issue 2:

2. What constitutes an effective emergency response plan for State and local agencies? For licensees? What are the essential elements that must be included in an effective plan? Do existing NRC requirements for licensees (10C.F.R. Part 50, Appendix E) and guidance for States (NUREG-75/111) lack any of these essential elements?

Response:

The Authority believes that the basic elements of an effective emergency plan are:

(1) organization;

(2) information-gathering network;

(3) dissemination of information to responsible officials and the public; and

(4) governmental ability to coordinate the actions of the public in times of emergency.

With respect to the licensee's program, planning elements for nuclear emergencies involve methods to provide:

(1) off-site determinations, including timely, pertinent information regarding radiological release rates, concentration of selected nuclides in the effluent streams, and wind speed and direction for the duration of the accident, as part of the normal functions of the plant staff organization.

(2) continuously manned communication links to designated Federal, State, local and corporate office;

(3) alternate emergency control centers as needed; and

(4) technical assistance to State and local emergency personnel.

State and local programs during such nuclear emergencies should involve methods to provide:

(1) trained manpower equipped with appropriate instruments for use on emergency radiation monitoring teams;

(2) emergency equipment to notify the public of emergency protective action;

(3) plans to safeguard or impound food stocks that have become contaminated; and

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(4) procedures to notify outside federal and commercial assistance as the need arises.

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Issue 2:

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Response:

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(1) organization;

(2) information-gathering network;

(3) dissemination of information to responsible officials and the public; and

(4) governmental ability to coordinate the actions of the public in times of emergency.

With respect to the licensee's program, planning elements for nuclear emergencies do involve methods to provide:

(1) timely, pertinent information regarding radiological release rates, concentration of selected nuclides in the effluent streams, and wind speed and direction for the duration of the accident;

(2) continuously manned communication links to designated Federal, State, local and corporate office;

(3) alternate emergency control centers as needed; and

(4) technical assistance to State and local emergency personnel.

State and local programs during such nuclear emergencies should involve methods to provide:

(1) trained manpower equipped with appropriate instruments for use on emergency radiation monitoring teams;

(2) emergency equipment to notify the public of emergency protective action;

(3) plans to safeguard or impound food stocks that have become contaminated; and

(4) procedures to notify outside federal and commercial assistance as the need arises.

Issues 3 and 4:

3. Should NRC concurrence in the associated State and local emergency response plans be a requirement for continued operation of any nuclear power plant with an existing operating license? If so, when should this general requirement become effective?

4. Should prior NRC concurrence in the associated State and local emergency response plans be a requirement for the issuance of any new operating license for a nuclear power plant? If so, when should this general requirement become effective?

Response:

The Authority supports the concept of Commission concurrance on certification of State nuclear emergency plans. However, the economic dislocations resulting from plant shutdowns or delays in issuing licenses in States where certification has been granted is unwarranted. A more reasonable approach is to require that certified emergency plans be binding upon Commission licensing and State siting boards. In States which have no certified plan, the Commission licensing boards should review the State's emergency planning programs during the course of the Commission licensing proceeding.

Issue 5:

5. Should financial assistance be provided to State and local governments for radiological emergency response planning and preparedness? If so, to what extent and by what means? What should be the source of the funds?

Response:

The Authority suggests that States could be encouraged to improve or establish emergency planning programs by implementation of a funding system similar to that established under the Coastal Zone Management Act. The funded program should incorporate emergency planning for the more likely natural and man-made disasters that occur frequently. Emergency planning programs encompassing these areas could lead to a substantial savings of life. It would also insure that emergency planning for nuclear disasters is compatible with the emergency response resources of the States.

Issues 6 and 14:

6. Should radiological emergency response drills be a requirement? If so, under whose authority: Federal, State or local government? To what extent should Federal, State and local governments, and licensees be required to participate?

14. Would public participation in radiological emergency response drills, including evacuation, serve a useful purpose? If so, what should be the extent of the public participation?

Response:

State and local government agencies should be encouraged to participate in emergency drills. A funding program as advocated in response to Issue 5 (which should have to be implemented through legislation) could provide this encouragement.

Licensees are presently required by 10 C.F.R. 50 App. E to perform drills on a periodic basis. Proposed State drills should include the combined efforts of the Commission, State and local agency personnel and the licensee. Such drills could be performed on a semi-annual basis for the initial years of plant operation for familiarization of the agencies involved and thereafter annually.

Issue 7:

7. How and to what extent should the public be informed, prior to any emergency, concerning emergency actions it might be called upon to take?

Response:

Public dissemination of information should be made in the context of overall State disaster planning. The focal point of emergency planning should be to inform local and state officials who will be responsible for emergency action. State and local actions, as embodied in the State emergency plan, are best presented to the general public by the State officials responsible for their preparation and implementation. The Commission, however, should be prepared to advise and assist the State in providing public information concerning the status of conditions during plant emergencies.

Critical Mass has suggested that detailed nuclear specific emergency action information be disseminated on an annual basis to the population within a 75,000 square mile area surrounding each plant. As indicated by the Commission, 40 Fed. Reg. 43779, the distribution of such information can only lead to confusion on the part of the public in the case of an actual emergency. Detailed information unrelated to actual conditions would severely handicap emergency response organizations in their efforts to direct the public in the event of an actual emergency. States, as part of their general disaster preparedness authority, should disseminate general information on public action during disasters, including nuclear emergencies. In this context, the Commission should cooperate with States by providing information and expertise on nuclear facility operation.

Issue 8:

8. What actions should be taken in response to the recommendations of the joint NRC/EPA Task Force Report (NUREG-0396/EPA520/1-78-016)?

Response:

The NRC/EPA joint task force recommends (NUREG-0396, EPA 520/1-78-016) ("NRC/EPA Report") two generic emergency planning zones around nuclear plants. The inner zone of 10 miles would be established for the direct exposure pathway and the outer zone of 50 miles would be established for the ingestion exposure pathway. The task force recommends that planning for predetermined protective actions is warranted within these zones since Protection Action Guides ("PAG") exposure limits could be exceeded in these areas in the event of a release comparable to a design-basis accident.

An effective emergency planning involves sound judgment, based on economic, societal and probabilistic considerations. The NRC/EPA report emphasized that current emergency practices are based upon public perceptions of the problem when it stated "...society tolerates much more probable non-nuclear events with similar consequence spectrums without any specific planning. Radiological emergency planning is not based upon probabilities, but on public perceptions of the problem and what could be done to protect health and safety. In essence, it is a matter of prudence rather than necessity". (NRC/EPA Report, Page I-2) While public perception must be accounted for in any emergency planning, the emphasis in emergency planning must be placed on the actual safety of the public.

The task force recommendation to increase the emergency planning zone for direct plume exposure to 10 miles has certain merit. This distance is based on site analyses performed by the task force. These analyses determined that the best estimate of releases following a loss of collant accident ("LOCA") would not cause PAGs to be exceeded beyond 10 miles for any site analyzed. Also determined was that even releases from the design basis accident (DBA-LOCA"), which the NRC/EPA report does not consider a realistic accident, and those from the less severe of the "Class 9" melt through accidents (involving releases of thousands of curies) would generally not cause even the most restrictive PAGs to be exceeded beyond about 10 miles from a power plant. Based on the results of these analyses, it appears that the use of a 10-mile nominal planning zone is a valid concept. However, it is recommended that the actual size of this zone should be determined on a site specific basis utilizing the topography, population distribution and meteorological conditions of the site. This would result in an emergency planning zone anywhere from a minimum of 5 miles to a maximum of 10 miles from the plant, based on site considerations.

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The request of the Critical Mass to extend the area for planning for direct exposure to a radial distance of 50 miles represents a one hundredfold increase in area over present commonly used practices. This would likely entail similar increases in the effort, manpower, and cost of administering such a program. Critical Mass attempts justification based on information and graphs in the NRC/EPA report, which indicate that the PAGs could be exceeded beyond 50 miles. However, in reviewing the cited data and other information contained in the report, the following

two facts contradict Critical Mass: (1) the probability of large doses drops off substantially about ten miles from the reactor and (2) in the intervals beyond 10 miles, there is little apparent distinction between the effectiveness of comprehensive evacuation plans and generic strategies which require little, if any, specific planning, upon projected early fatalities or injuries. The graphs and information referenced by Critical Mass pertain to a "Class 9" reactor accident, which is categorized by a core meltdown in which the containment catastrophically fails and releases large quantities of radioactive material (tens of millions of curies) directly to the atmosphere. In comparison, the DBA-LOCA accident, which is not even considered a realistic accident scenario in the NRC/EPA report, would only involve the release of thousands of curies. In addition, the probability of a "Class 9" accident in any one State is approximately one in 10,000 per year (based on 6 reactors per State and 1,5x10-5 probability per reactor).

Given the small probability of occurrence for an accident of this severity and the fact that there is little apparent benefit to be derived from comprehensive evacuation planning past 10 miles, the request of Critical Mass is unwarranted and unreasonable. The socio-economic cost of such planning is by no means justified by the limited benefits derived therefrom.

Similar to the request of Critical Mass is the NRC/EPA task force recommendation of planning for the ingestion pathway out to 50 miles. Their basis for this planning distance is that the potential exposure from the ingestion pathway could greatly exceed that from exposure to the plume out to this distance. However, this distance is based on an expected revision of the milk pathway Protective Action Guides. In fact, the report states that, should the current guidelines be maintained, an Emergency Planning Zone ("EPZ") of about 25 miles would achieve the objectives of the task force. The expected revision would result in recommendations for certain limited types of preventive measures (such as putting cows on stored feed) at projected doses as low as 1.5 Rem, which is substantially below the current guidelines of 10 Rem. In addition, the NRC/EPA report seems to require the same extensive planning measures for the 50-mile ingestion pathway as those for the 10-mile direct exposure pathway This is corroborated by the following excerpts from that report: "Responsible government officials should apply the applicable planning items listed in NUREG-75/111 in the development of radiological emergency response plans... The EPZ guidance does not change the requirements for emergency planning; it only sets bounds on the planning problem." (NRC/EPA Report, Pages 11, 14).

Based on the seemingly extensive planning requirements and the weak methodology utilized in developing the 50-mile guidelines, the task force recommendations for the ingestion pathway are not feasible nor reasonable. It is, of course, recognized that exposure from the ingestion pathway can exceed that from the plume. However, exposure through the ingestion pathway is much more easily controlled, thus, precluding the need for comprehensive preplanning.

The major ingestion area of concern is the milk pathway. The necessary actions to mitigate exposure from this pathway would entail the following: (1) determine if milk or feed levels of radioactivity are excessive, (2) identify farms in the area and sample milk and feed, (3) put cows on stored feed and/or take milk off the market until levels are acceptable. It is, therefore, felt that the performance of an assessment of the ingestion pathway parameters would be adequate preparation to handle exposure from the ingestion pathway in lieu of specific planning past 10 miles.

In general, emergency planning for direct exposure beyond 10 miles would be required only for the more severe of the "Class 9" melt-through accidents. As was previously stated, the design-basis accident would be adequately handled with emergency planning out to a maximum of 10 miles. In view of the large number of plant safety systems and the low probability for a "Class 9" reactor accident, it is not reasonable to have comprehensive planning for this type of nuclear accident. The use of State plans during natural disasters has proven to be quite effective as is documented by events such as the evacuation of hundreds of thousands of people from Texas to Louisiana for hurricane Carla in 1961. It must be realized that, even without comprehensive emergency planning past 10 miles, there certainly would be significant reductions in the population dose by utilizing, on an ad hoc basis, the general State emergency plans and the same considerations that went into the 10-mile area initial planning determinations.

Issues 9, 11 and 13:

9. Under what circumstances and using what criteria should a licensee notify State, local and Federal agencies of incidents, including emergencies? When, how, to what extent, and by whom should the public be notified of these incidents?

11. How should Federal agencies interface with State and local governments and the licensee during emergencies?

13. To what extent should reliance be placed on licensees for the assessment of the actual or potential consequences of an accident with regard to initiation of protective action? To what extent should this responsibility be borne by Federal, State or local governments?

Response:

If an event occurs which could result in the possible release of radioactivity off site in quantities designated as harmful by the site emergency plan, the licensee and/or Commission resident inspector should notify the Commission office of emergency response and the State emergency response office. The Commission, with the aid of the licensee, should evaluate the occurrence and submit information and recommendations on emergency action to the State emergency response office. Based upon the information and recommendations received, the State office of emergency planning should have the final power to determine

whether emergency actions should be implemented.

Issues 10 and 11:

10. How and to what extent should the concerns of State and local governments be incorporated into Federal radiological emergency response planning?

11. How should Federal agencies interface with State and local governments and the licensee during emergencies?

Response:

The focus for any emergency action plan for all types of possible disasters lies both legally and practically with the individual States. State agencies, in conjunction with local officials and with the aid of Federal agencies, are in the best position to coordinate disaster preparedness. Along with interstate action agreements, State plans could maximize the protection to its citizens from all forms of major disasters. By allocating manpower and money to generic emergency functions in a unified State emergency plan, considerable gains in public safety can be realized through the efficient use of manpower and monies available.

The Authority believes that the Commission should support local and State emergency planning by providing its expertise in the nuclear field to aid States in the development and application of general emergency response programs including nuclear facilities. In addition developing additional guidelines which could be an aid to State emergency planning, the Commission should develop detailed information on nuclear emergency response prerogatives and measures which can be initiated in times of nuclear emergency. The Commission should also develop an emergency response group which will coordinate its efforts with local and State government officials to insure that information is efficiently accumulated and disseminated during an emergency and that actions based upon this information are taken. Such a group must not only be familiar with emergency planning for nuclear facilities but with the overall concept of disaster preparedness and the status and ability of local and State programs to initiate emergency actions. This would require close cooperation, on a continuing basis, with local and State officials. Such planning should, however, be made within the context of a unified State emergency planning program.

Issue 12:

12. Should the licensees be required to provide radiological emergency response training for State and local government personnel? If so, to what extent? Should the Federal government provide such training? If so, to what extent?

Response:

Licensees in conjunction with the Commission should provide radiological emergency response seminars for State and local governmental personnel. On the local level, the licensee can familiarize local personnel with its facilities, its emergency response plan and the State-licensee emergency response plan interface.

On the State level, the licensee should familiarize State personnel with its facilities and provide seminars which will enable it to integrate its emergency plan and resources with that of the State. The NRC could also hold seminars for State personnel to explain the present state of emergency planning on a national level and integrate its resources with those of the State.