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federal emergency
management agency

Report to the President

State Radiological Emergency Planning and Preparedness in Support of Commercial Nuclear Power Plants

June 1980

FEDERAL EMERGENCY MANAGEMENT AGENCY
Washington. D.C. 20472

June 30, 1980

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

On December 7, 1979, you directed the Federal Emergency Management Agency (FEMA) to review, by June 1980, the State emergency plans in those States with operating nuclear reactors. This review has been completed. We also have conducted a review of the plans in those States where plants are scheduled for operation in the near future. Our evaluation of State plans shows that significant progress has been made in this important area of preparedness, but there is much left to be done. We shall continue with other Federal agencies to provide assistance to the States and local governments to improve their radiological emergency planning and preparedness.

In addition, as you directed, this Agency has taken the lead in off-site emergency planning and response, and is working to develop and issue an updated series of interagency assignments which would delineate agency capabilities and responsibities and clearly define procedures for coordination and direction for both emergency planning and response. We have assured, in our continuing discussions with the Department of Energy (DOE), that the resources of that Department will be readily available and augmented as needed for radiological emergencies. The DOE plan will be integrated with the overall National Radiological Emergency Preparedness Plan which FEMA is preparing.

FEMA is also working with other agencies to develop programs for meeting public information and education needs related to radiological emergencies. Research in several important areas related to radiological emergency preparedness is being conducted by FEMA and other Federal agencies. Adequate funding for the Federal radiological emergency preparedness programs remains a problem.

We are pleased to submit to you our report on State radiological emergency planning and preparedness.

Respectfully,

John W. Macy, Jr.
Director

Enclosure

Report to the President

State Radiological Emergency

Planning and Preparedness

in Support of

Commercial Nuclear Power Plants

Federal Emergency Management Agency

June 30, 1980

ACKNOWLEDGMENT

To ensure that this report contained the very latest information concerning the status of State radiological emergency planning and preparedness, the FEMA headquarters and regional staffs involved in its preparation worked under a very tight schedule from the end of May through June, 1980.

The efforts of the FEMA headquarters Radiological Emergency Preparedness Division of the Population Preparedness Office, and the representatives of FEMA Regional Offices VI and X assigned to headquarters for this project, are specifically acknowledged. FEMA also acknowledges the efforts and support of all of its Regional Offices, the FEMA Mathematics and Computation Laboratory at Charlottesville, Virginia, the Federal Interagency Regional Assistance Committees, other FEMA headquarters components and the Nuclear Regulatory Commission in providing the necessary data and other assistance, without which this report would not have been possible.

This report was prepared with management oversight by Frank A. Camm, Associate Director, Plans and Preparedness Office, and John W. McConnell, Assistant Associate Director, Population Preparedness Office, FEMA.

The report was prepared by the Radiological Emergency Preparedness Division with the assistance of other FEMA personnel as listed below:

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Finally, thanks are in order for the many State and local government people who are working very hard to improve the quality of radiological emergency planning and preparedness and who so willingly provided the necessary input to this report.

FEDERAL EMERGENCY MANAGEMENT AGENCY
Washington, D.C. 20472

June 30, 1980

Mr. Sheldon A. Schwartz
Acting Director, Radiological
Emergency Preparedness Division
Federal Emergency Management Agency
Washington, D.C. 20472

Dear Shelly:

Please convey my sincere appreciation to the members of your staff who prepared this report. I am particularly impressed by the high quality and technical accuracy of the report. I have observed the long hours and attention to duty that were necessary to construct the report, make revisions, handle the tremendous typing load, and arrange for printing and artwork. The expertise and personal dedication of both the professional and clerical members of your staff are praiseworthy.

I must also acknowledge your outstanding personal leadership in this important effort.

Sincerely yours,

John -

John W. McConnell
Assistant Associate Director
for Population Preparedness

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Executive Summary

Overview

The Three Mile Island nuclear power plant accident in March 1979, prompted a major re-thinking of the whole area of radiological emergency planning and preparedness. When the President responded to the report of his Presidential Commission on this accident in December 1979, he asked the Federal Emergency Management Agency (FEMA) to assume responsibility for the coordination of off-site radiological emergency preparedness around nuclear power plants. As part of that directive, FEMA was asked to review the status of State emergency plans in those States with operating reactors and report on that review by June 1980.

This report gives the result of this review, but it does more: it addresses the combined activities of the States, local governments and cooperating Federal agencies to meet the President's objectives of improving the health and safety of the public living near nuclear power plants. The review indicates that all States with operating reactors are busily revising their plans as a first and vital step in assuring the optimum for level of preparedness. FEMA is however, less than satisfied with the level of actual preparedness in place, and is concerned about the ability of the Federal government to offer significant assistance to State and local governments in providing needed new, vital resources. Achievement of demonstrated preparedness is admittedly a more long-term process.

Recognizing this, the Nuclear Regulatory Commission (NRC) and FEMA have acted to create national evaluation criteria in which the emergency planning and preparedness objectives for both utilities and State and local government were set side by side. Issued initially for interim use and comment, these criteria and the comments of State and local governments, provide the basis for a national preparedness standard.

An intrinsic portion of improved preparedness around commercial nuclear power plants is detailed planning for, and knowledge of, the expected Federal response to a wide range of accident categories enumerated in the joint FEMA/NRC criteria. FEMA has acted promptly to suggest new and specific roles for the Federal agencies under authorities given it by Presidential Order 12148 which formed the Agency.

Today, FEMA can report substantive progress in its role as Federal coordinator. It has moved to clarify specific agency assignments, and will formalize these assignments in a FEMA regulation. Working with the principal signatories, FEMA and the Department of Energy (DOE) will shortly announce a successor to the Interagency

Radiological Assistance Plan (IRAP) as part of the National Radiological Emergency Preparedness Plan. FEMA is developing a coordinated Federal radiological preparedess and response capability as an umbrella for integrating the elements of national response. NRC and FEMA are coordinating their respective roles which will be forthcoming as agency rules governing the approval of State and local radiological emergency plans and preparedness.

FEMA is also conducting studies of the evacuation times around 12 nuclear power plants with the highest population density, or other special problems, and is developing standard scenarios for exercising emergency plans and preparing guidance for the evaluation of joint exercises of utility and State and local emergency plans. With funds made available from NRC, FEMA is coordinating pilot installations of computer-assisted accident assessment equipment in New York and in Illinois. FEMA also favors developing Federal policy and guidance concerning the use of potassium iodide as a thyroid blocking agent. FEMA is also of the opinion that plans should be formulated to enable effective stockpiling and distribution of potassium iodide to all members of any potentially affected populations within the 10-mile Emergency Planning Zones (EPZs) being established around commercial nuclear power plants in the United States.

There are 40 States that have populations within 10 miles of nuclear power plants licensed to operate (73), under construction (88) and planned (66). The total number of people living within 10 miles of these plants is about 3,336,000. In one State (Pennsylvania) the number exceeds 500,000; in another 400,000 (New York); in 2 others 200,000, and in 7 others 100,000. This is an indicator of the impact of nuclear power plants from the viewpoint of off-site emergency preparedness needs.

Turning to the review of State plans in States with operating reactors, the report shows that a significant number have either completed, or will shortly complete, plans which include the 10-mile EPZ concept and most of the evaluation criteria. This has been accomplished by the States using a variety of resources which include assessments on utilities, acceptance of voluntary technical and financial help from utilities, by use of the State crisis relocation planners and the FEMA Regional staffs. Six States have moved to fund plans and preparedness improvements by legislative enactment.

As to the actual state of preparedness, the situation is less sanguine. With only 5 months since announcement of the joint FEMA/NRC criteria, little of the needed support facilities such as communications equipment and the public alerting and notification systems are actually in place. Some States (e.g. Florida, Nebraska, New Jersey, Virginia) have agreed to accept utility offers of such supporting hardware, but the flood of orders and the time required to design and specify equipment militate against full operational capability much before July 1, 1981.

On the Federal side, offerings of assistance to States have been made against expected Congressional supplementary appropriations, which have not been realized. Despite many assurances, actual help has been limited. Because of budgetary limitations, the FEMA Regional Assistance Committees (RACs) have not been operating in the full assistance role anticipated, and some agencies are performing regional roles at headquarters offices, a mode of operation which is time consuming and distasteful to many States.

From their point of view, the States say that the entire upgrading program has been hastily contrived and imposed on the States with insufficient time for comment and agreement on criteria. Two issues which dominate State reaction are the requirements for notification of 100% of the public inside a 5-mile radius of the nuclear power plant within 15-minutes, and the requirement for a nuclear facility near-site emergency operating facility about 1 mile from the nuclear power plant. States are also concerned about the integration of communications systems and emergency messages, and are by no means satisfied with their role vis-a-vis NRC and its licensees. Some States wish to have a more direct access to data for decisionmaking and in the design of State plans using computer data links capable of transmitting plant operational information to State and county emergency offices.

Overall, FEMA sees the funding problem, especially in the context of short-term imposed deadlines, as the central issue which may prevent full preparedness on the part of State and local government. Related to this is the question of public acceptance of commercial nuclear power and whether the public is willing to accept the discipline and cost of radiological emergency preparedness around commercial nuclear power plants. FEMA is leading the development of the public education program requested by the President, but views this type of education as a time consuming process. The question of what is to be done in the short-term, and by what means it will be funded, remains an issue to be resolved, perhaps by legislation.

A summary of the conclusions and recommendations which highlight the principal issues involved in upgrading the status of plans and preparedness in States where there are commercial nuclear power plants follows. The detailed statement of conclusions and recommendations is contained in Part VI of the report.

Conclusions of the Report

The conclusions of the report can be summarized under 6 topics which deserve priority attention. They are: (1) Status of State Plans and Preparedness, (2) Federal Responsibilities, (3) Dissemination of Knowledge, (4) Accident Assessment, (5) Protective Response, and (6) Financial Considerations.

1. Status of State Plans and Preparedness

Based on the Federal review of plans, the States and their involved local governments are all working at an increased pace towards improving their radiological emergency plans and preparedness and are trying to meet the new criteria developed after the Three Mile Island accident. The States and their local governments vary greatly in their abilities to expeditiously improve matters in this area in terms of personnel, equipment, funds, and other resources required to do the job effectively and in a timely manner. In general, the preparedness aspects (that is the ability to implement paper plans and respond effectively), will lag the development of plans for some time. This is because of 3 major factors influencing acquiring a satisfactory state of preparedness: (1) evolving and challenged standards and criteria for systems to alert and notify the public in the event of an emergency within the 10-mile EPZs being established around each large nuclear power plant; (2) evolving and competing systems for improving accident assessment; and (3) lack of funds to acquire these systems and other preparedness resources.

As of June 26, 1980, FEMA regions have reviewed the available plans of all 31 States affected by operating nuclear power plants. All 31 States have begun the necessary upgrading of their State plans and 8 States have submitted revised plans for review against the new evaluation criteria. These 8 plans are being reviewed by the FEMA Regional staff and the RACs.

By the end of 1980, FEMA expects that 25 or more States will have upgraded their plans based on suggestions received from FEMA. Of these, 15 will be submitted for formal review in accordance with procedures established in the proposed FEMA rule. This formal submission will, in each case, be either preceded or closely followed by an exercise and a public meeting at one of the operating power plant sites covered by the plan. Because of the need for plans within the 10-mile EPZs, about 250 local jurisdictions are also affected. Approximately 60% of these local jurisdictions have plans on file with FEMA which have been reviewed by the Regions. Included with the plans of the 15 States that expected to submit plans for formal review in 1980, will be the plans of at least 45 local jurisdictions. These plans should meet most of the requirements of the new evaluation criteria with the 1 major exception being the alerting and notification systems.

By the end of 1981, FEMA estimates that 27 of the 31 States affected by operating power plants will submit plans for formal approval.

There is a definite link between preparedness to cope with the broad range of natural and manmade civil emergencies and readiness to effectively handle radiological emergencies. Those states that have a strong comprehensive emergency preparedness program including a good general emergency plan, are more likely to show strength in the development of an effective radiological emergency preparedness program. Achieving effectiveness in the radiological areas will be difficult without such general emergency preparedness strength.

On the other hand, it is clear that some radiolgocal preparedness measures, such as those related to notification and warning, evacuation, exercises that simulate radiological accidents, training, and intensive planning effort at all levels of government and the utilities, are bound to add significantly to the general civil emergency preparedness of the Nation.

2. Federal Responsibilities

FEMA has moved to assume leadership of the program using the existing interagency organizational arrangements appropriately strengthened. While a separate division has been established within FEMA to administer the radiological emergency preparedness program, the 10 professionals assigned are on detail from NRC. Some key members of that staff will be returning to NRC later this fiscal year and their expertise will be difficult to replace. Qualified, experienced people from other Federal agencies are also key to the success of the program, but their availability is less assured as increased activity has demanded more of their time.

FEMA and NRC are working jointly to avoid duplication in their responsibilities to review and approve State and local radiological emergency plans. The President has charged FEMA with the lead role, and NRC has a statutory responsibility under its "protection of health and safety" mandate. Both have suggested a legislative remedy which would give FEMA sole responsibility for State and local govern-ment plan approval.

States are concerned about the nature and adequacy of the Federal response to a radiological emergency and how this response will fit that of the State and local governments. States continue to ask why no Federal plan exists when there is so much emphasis on production of State plans. Such a plan is under preparation and should be completed by September 30, 1980.

While Federal agency responsibilities for assisting State and local governments have not changed significantly since 1975, there is value in having them formalized in regulation.

3. Dissemination of Knowledge

The general state of knowledge on the part of the public and on the part of planning and responding officials has not kept pace with the needs for radiological emergency preparedness. There is insufficient, focused knowledge about how to plan and conduct protective actions such as evacuation, sheltering or the use of radioprotective drugs in areas surrounding commercial nuclear power plants. While a number of States have begun public education programs as part of their preparedness activities, there is little or no commensurate activity on the part of the Federal Government outside of formal training for emergency planning and response officials. Service institutions such as hospitals have not oriented their professional training towards consideration of the conditions incident to a major power plant accident which may involve large numbers of people requiring treatment or evacuation.

Because of past policies, the general public is poorly prepared to understand the basic elements of radioactivity and its effect on their health and safety. The new evaluation criteria issued by NRC and FEMA have not been explained to the public for lack of time, and there is a danger that the public will not support the costs of emergency preparedness, even though judged small by this report in comparison to the investment in nuclear power plants. Practical information on the control of accidental radiological exposure to humans in the 50-mile ingestion (food) exposure pathway EPZ is slow in coming and what exists is poorly coordinated. There is a pressing need to educate and inform the public as a part of exercising of State and local plans, and particularly on the use of alerting and notification systems.

4. Accident Assessment

The preparedness of State and local governments with respect to radiological dose assessment technology, monitoring instruments, and the systematic and coordinated organization of personnel and resources, is generally inadequate to meet the requirements of the new evaluation criteria. The existing stock of radiological instruments, many old rehabilitated civil defense instruments, is not suited to the character of nuclear plant accidents. Self reading personnel dosimeters of appropriate range which resist shock and environmental insult are sorely needed. Additional training and guidance in the design and conduct of field monitoring programs is slow in coming and depends directly on new instruments, and new radiological accident assesment techniques. There is wide variation in State dependence on the nuclear power plant operator as a source of accident assessment instruments and methodology.

States and local governments believe that the new criteria require more than their resources can accomplish in the time allowed. The strong capability available to NRC and its licensees causes an imbalance in the manner in which decisions on accident asessment are to be reached by States and local governments. To correct this imbalance, the use of new and sophisticated computer assessment technology for radiological assesment by the States, which combines analyses of meteorological, topographical, demographical, and plant effluent data, and performs projections of radiological dose to the public, would be of great help. This equipment could also aid in assessment of non-radiological emergencies such as chemical spills, floods, and tornadoes. This concept needs more support and encouragement by the Federal Government so that States and local governments can better respond to accidents. The Federal Government itself is slow in adapting these techniques to the civil disaster preparedness area.

5. Protective Response

There is a need for Federal leadership in the highly complex matters of the planning approaches to evacuation, sheltering, and the use and distribution of potassium iodide as a radioprotective drug to protect the thyroid under some radiological accident situations. These 3 protective measures have long been recognized as vital elements of radiological emergency planning and preparedness.

Related to these protective measures is the need for the Federal Government to expeditiously complete and convert to official Federal guidance, the various "Protective Action Guides" (PAGs) promulgated by the Environmental Protection Agency (EPA) and the Department of Health and Human Services (DHHS). Many States and local governments have been urging this. PAGs are based on numerical values of projected radiological dose commitment to individuals in the general population that warrant protective action following a release of radioactive materials. They also serve as guidelines to decision makers who may have to implement protective measures. At this time, these PAGs have only the status of "Agency" guidance, and EPA and DHHS state that to make them Federal guidance requires approval of the President.

As an assist to planning and preparedness, standardized guidance on interdicting or controlling the accidental radiological exposure to humans via domestic animals and agricultural products in the food chain, needs to be developed.

6. Financial Considerations

Radiological emergency preparedness costs are significant for State and local governments. State and local government costs for implementation of the new evaluation criteria is about $1 million one-time per site in a typical State. The 15-minute alerting and notification system is a large portion of the total cost. For sites with relatively high populations within the 10-mile EPZ, initial cost could reach $2 million or more. Recurring costs of 10% of these amounts per year could be expected. Federal Government costs are relatively low when compared to the investments made in nuclear power plants. For example, FEMA requested $8.9 million as a supplement to its FY 1980 budget which has not been approved by the Congress. FEMA plans to request an amount not in excess of this for its FY 1981 budget supplement for its Radiological Emergency Preparedness Program. Without these funds, FEMA will be severely limited in its ability to assist State and local governments in meeting the needs of the new emergency preparedness criteria and in stimulating the development of advanced monitoring and accident assessment technology.

There is little evidence that a funding mechanism for emergency preparedness around nuclear power plants exists. Much of what has been accomplished resulted from post Three Mile Island initiatives. Local governments are most in need of adequate and continuous funding. Although the average costs for preparedness are low relative to revenue from taxes, many States find themselves with inadequate funds for preparedness. Six States have, however, passed laws to fund some of their costs. Funds are derived from assessments on the utilities. Several States are entertaining similar legislation. While some States find that the consumer of electricity should pay for radiological emergency preparedness, other States disagree. Associated Federal costs are paid for by appropriations that are derived from general tax revenue.

Studies, performed by the Presidential Commission, the NRC Special Inquiry Group, the National Academy of Public Administration, and the NRC and FEMA staffs, recommend that a major part of the cost of preparedness should be paid for by the nuclear utilities. They say that cost of preparedness should be incorporated into the cost of electricity from nuclear power plants. They all agree that local government costs should be paid by the utilities. Some of these studies indicate that the utilities should also pay State costs. The studies do not address recovery of Federal costs. FEMA is addressing this matter.

Recommendations

In the light of the foregoing conclusions, the report offers the following recommendations:

o FEMA and other involved Federal agencies should continue to provide encouragement and assistance in the development of State and local government radiological emergency plans and preparedness.

o FEMA and NRC should work closely with States, local governments, and industry to develop realistic standards and criteria for systems to alert and notify the public within the 10-mile EPZs in the event of an emergency.

o FEMA, State, and local governments should continue the current emphasis on radiological emergency preparedness activities recognizing that they can contribute to, but ultimately their success will depend directly on the strength of a comprehensive civil emergency readiness program of the nation.

o FEMA and NRC should continue to expedite the clarification of their roles related to review and approval of State and local government radiological emergency plans and preparedness.

o Other Federal agencies cooperating with FEMA in this activity should commit the personnel needed to carry out their responsibilities including specific budgeting and personnel assignment actions if necessary. Presidential initiatives may be necessary to assure this.

o FEMA should press for the revision of the DOE Interagency Radiological Assistance Plan and the promulgation of the National Radiological Emergency Preparedness Plan by September 30, 1980.

o The Federal Interagency Central Coordinating Committee for Radiological Emergency Planning and Preparedness (FICCC) should take vigorous actions to complete training course development for all levels of on-the-scene personnel and make arrangements for making the training courses available promptly.

o FEMA, in cooperation with the FICCC, should expedite its efforts in the area of public education and information, and material should be made available by the end of 1980.

o FEMA and NRC should develop sharing arrangements with nuclear utility organizations and States for pilot computer-assisted emergency assessment systems in the States associated with the 12 power plant sites with Emergency Planning Zones with high populations identified by NRC.

o FEMA, NRC, and DOE should cooperate with the utility industry in the evolution of a national system of communication and computer data transmission which could lead to a system involving the States and deal with the all-risk approach to emergency management at the local level.

o Protective Action guidance by FEMA and other Federal agencies such as evacuation and sheltering should be based on a computerized model whose assumptions on human behavior are rigorously tested and subject to public review.

o The Department of Health and Human Services should develop and promulgate without further delay, Federal policy and guidance for the use of potassium iodide as a protective measure. FEMA, in cooperation with DHHS, should develop policy and guidance for the stockpiling and distribution of this drug.

o EPA and DHHS should expeditiously convert their " Agency" Protective Action Guides into official Federal guidance.

o Recognizing that 50-mile EPZs for the ingestion exposure pathway are being established around nuclear power plant sites, DHHS, EPA and the Department of Agriculture should expeditiously develop standarized Federal guidance on interdicting or controlling the accidental radiological exposure to humans via domestic animals and agricultural products in the food chain.

o States should work out equitable arrangments with utilities and appropriate governmental entities for funding of emergency preparedness around nuclear power plants.

o States should be encouraged to place radiological emergency preparedness costs into the costs of electric power so that they are viewed as an extention of original investment decisions for the nuclear power plants.

o If the States fail to act, or choose not to act as recommended above, the Congress should create a fund derived from assessments on nuclear power which would be used to assure the appropriate level of radiological emergency planning and preparedness.

o FEMA, in cooperation with other Federal agencies, should study the issue of the recovery of Federal costs for radiological emergency preparedness and make appropriate recommendations for action by the Congress.

I.

Introduction

A. Scope of Report

This report deals mainly with State and local government radiological emergency planning and preparedness in support of commercial nuclear power plants. It provides a brief history of the Federal program with the State and local governments before and after the accident at the Three Mile Island nuclear power plant. Ongoing and new programs to improve Federal, State, and local capabilities in this area are discussed. The current status of plans and preparedness is examined on a State-by-State basis and time schedules and costs for meeting new planning and preparedness criteria are indicated.

Finally, individual State views on their planning and preparedness efforts are included as Appendix A to the report.

B. Background

1. Radiological Emergency Planning and Preparedness Before the Accident at Three Mile Island

a. An Overall Perspective

In the past quarter century of commercial nuclear power development, with its attendant supporting fuel cycle facilities, as well as the use of radioactive materials for medical, industrial, scientific and educational purposes, the record of nuclear safety has, in general, been excellent. But, it has not been flawless and we have been given some serious warnings. The "defense-in-depth" concept, that is, multiple barriers designed to separate radioactive materials from man and the environs, has governed the practical uses of nuclear energy. These multiple barriers have been breached in some of the accidents and incidents of record, resulting in radiological exposures to man and contamination of the environment. Fortunately in most of these accidents and incidents, off-site radiological consequences were relatively minimal, but the potential for more serious consequences existed.

Prior to the accident at the Three Mile Island nuclear power plant on March 28, 1979, radiological emergency planning and attendant preparedness as it relates to nuclear facilities was seldom, if ever, in a position of high visibility within the nuclear industry or within the Federal, State and local governments. Historically, the numbers of personnel, resources and funds devoted to emergency planning and preparedness have been a relatively small percentage of the total resources used to construct, operate, and maintain these facilities. There were a variety of reasons for this state of affairs.

First, relatively low priority was assigned to emergency planning and preparedness and this has at its roots, the individual, political, societal, governmental and industrial perceptions of a high technology endeavor of man. Second, two long cherished notions contributed to this low priority: (1) that nuclear facilities were designed, constructed, and operated with such integrity, the chances of a serious accident occurring were extremely remote; and (2) that even if an accident were to happen, because of the integrity of design, construction and operation, any accident would have little effect in terms of off-site radiological consequences.

With respect to the first notion, it is a fact that two relatively serious events, in terms of "chance", have occurred in large power reactor facilities in the United States within a four year period: (1) the serious fire at the Browns Ferry nuclear power plant, and (2) the accident at the Three Mile Island nuclear power plant. Also on record is a string of lesser order incidents at nuclear power plants that could have resulted in serious accidents.

The notion that little would happen in terms of off-site consequences is, to some measure still supported by the integrity of the facilities themselves. The role and actions of operators and nuclear facility management during both of the aforementioned events have been extensively analyzed. But, we note here that tardy notification of off-site organizations occurred, some correct moves were made, but at the same time, many incorrect moves were also made. It is fortunate that in both of these accidents, off-site radiological consequences were either non-existent or relatively minimal. However, we came uncomfortably close in both of these accidents to potential consequences that could have caused grievous harm to individuals, our society, our environment, and our national energy program.

Other reasons for an historically weak radiological emergency response planning and preparedness program with respect to the operation of nuclear facilities, are rooted in long-seated deficiencies in general emergency planning and preparedness programs at the Federal, State and local government levels in the United States. Notwithstanding the massive Federal, State, local, and industry response at Three Mile Island, advance emergency planning and coordination needs improvement. Initially at Three Mile Island, the coordination among Federal, State, and local authorities was a problem.

General emergency planning and preparedness programs, embodied in civil defense and emergency services programs, have not received the attention they deserve. Emergency preparedness programs have suffered from fragmentation of efforts, motivation problems, inadequate attention, and inadequate funding. This is partially the reason why the new U.S. Federal Emergency Management Agency (FEMA) was established on April 1, 1979. FEMA brings together the major Federal agencies which have had responsibilities in civil preparedness, continuity of government during a national emergency, and disaster response and recovery.

Any radiological emergency planning and preparedness program that is conceived, must depend ultimately on an adequate general emergency planning and preparedness base, at Federal, State, and local government levels. Efforts to develop a proper radiological emergency response posture in support of these nuclear power plants has in part suffered because of a less than satisfactory general emergency planning and preparedness program. Adequate, well-conceived general emergency planning, and consistently funded preparedness at all levels of government necessary to cover the wide range of hazards in our technological society, is one of the keys to an improved radiological emergency planning and preparedness program.

In summary, the justification and need for proper radiological emergency planning and preparedness programs in support of nuclear facilities are based upon: (1) the fact that serious accidents have occurred especially in recent times; and (2) the nuclear industry is expanding with many more facilities becoming operational by the end of the century. The last bastion of the "defense-in-depth" concept, which is emergency planning and preparedness, has not received the support which it deserves. A high visibility and adequate emergency planning and preparedness program, including adequate training programs, can help alleviate many of the fears surrounding the operation of nuclear facilities and can contribute to the overall safety of this high technology industry. This means an augmented commitment of dedicated, competent people, and relatively modest funds and resources.

b. History of the Program

In the early 1970s, the Office of Emergency Preparedness (OEP), a predecessor of FEMA, recognized the need for increased emphasis on planning for radiological emergencies at commercial nuclear power plants. While the Atomic Energy Commission (AEC) had issued regulations[1/] requiring their licensees to have emergency plans for dealing with incidents at the nuclear power plants themselves, little or no off-site planning was being done for protection of life and property in surrounding communities. AEC and its successor, the Nuclear Regulatory Commission (NRC), had historically taken the position that, because the probability of an accident was low at a commercial nuclear power plant, emergency planning and preparedness was a matter of lower importance when compared to the primary emphasis necessarily placed on design, engineered safety features, and siting of the facilities.

In January 1973, the OEP issued a Federal Register notice (38 FR 2356)[2/] directing the AEC, as lead agency, to provide planning assistance to State and local governments for the preparation of radiological emergency response plans in support of nuclear facilities. Along with OEP, the U. S. Environmental Protection Agency (EPA), Department of Health, Education and Welfare (DHEW), and the Defense Civil Preparedness Agency (DCPA) within the Department of Defense (also a predecessor of FEMA) agreed to support the AEC in providing this planning assistance to the States and were assigned specific responsibilities. Since Federal law does not require State or local governments to have peacetime radiological or nuclear emergency plans, nor does it require States with plans to test those plans, acceptance of this assistance was entirely at the discretion of the States.

The AEC thus implemented an essentially non-statutory, voluntary program of planning assistance to the States which included

the formation of a Federal interagency headquarters and regional infrastructure to carry out the responsibilities assigned in the Federal Register notice; the preparation and issuance in 1974 of a "Guide and Checklist for Development and Evaluation of State and Local Government Radiological Emergency Response Plans in Support of Fixed Nuclear Facilities," AEC WASH-1293, (reissued as NRC, NUREG-75/111 in 1975);[3] and the formation of a Federal Interagency Central Coordinating Committee on Radiological Emergency Response Planning and Preparedness and task forces to develop training programs and guidance on off-site radiological emergency instrumentation for States and local governments.

In January 1975, the AEC was abolished. The lead agency responsibility for providing planning assistance to State and local governments for radiological emergencies related to nuclear facilities became a responsibility of NRC.

On December 24, 1975, the Federal Preparedness Agency (FPA) within the General Services Administration, a successor to OEP, whose authorities now reside in FEMA under Executive Order 12148,[4] reissued a revised and updated Federal Register notice (40 FR 59494)[5] replacing the OEP notice. Lead agency responsibility for "reviewing and concurring" in State and local government radiological emergency response plans, was assigned to the NRC and the planning assistance function was expanded to include accidents involving the transportation of radioactive materials. The agencies involved were increased to a total of eight and they were urged to make their expertise available to State and local governments and were assigned specific responsibilities. In addition to EPA, DHEW, and DCPA, the new agencies included the Department of Transportation (DOT), the Federal Disaster Assistance Administration (FDAA) within the Department of Housing and Urban Development, and the Energy Research and Development Administration (ERDA). All agencies involved agreed to assume the assigned responsibilities. ERDA became the Department of Energy in 1977, and FPA and FDAA functions are now conducted by FEMA by virtue of Reorganization Plan No. 3 of 1978.[6]

The 1975 statement of responsibilities made NRC the lead agency in radiological incident emergency response planning, training, and other assistance activities covered by the notice. Specifically, NRC became responsible for:

1. Issuance of guidance to other Federal agencies concerning their responsibilities and authorities in radiological incident emergency response planning and in providing planning assistance to State and local governments. (In June 1976, NRC issued a planning handbook for Federal agencies (NUREG-0093/1)[7] to guide them in assisting States and local governments in developing and evaluating their plans.)

2. Development and promulgation of guidance to State and local governments in coordination with other Federal agencies for the preparation of radiological emergency response plans.

3. Review and concurrence in such plans.

4. Determination of the accident potential at each licensed fixed nuclear facility.

5. Issuance of guidance for establishment of effective systems of emergency radiation detection and measurement.

Other involved Federal agencies were assigned responsibilities in support of NRC's lead role and consistent with their expertise in the radiological emergency planning and preparedness area.

On March 15, 1977, NRC issued Supplement No. 1 to the Guide and Checklist (NUREG-75/111)[8/] which identified 70 essential elements which, if present in a State radiological emergency response plan, would earn an NRC "concurrence". Thereafter, NRC concurred in the plans of 14 States as follows:

State	Date of NRC Concurrence	State	Date of NRC Concurrence
1. Alabama	2/9/79	8. Kansas	9/19/78
2. Arkansas	5/3/79	9. Nebraska	9/21/79
3. California	8/15/78	10. New Jersey	9/30/77
4. Connecticut	12/21/77	11. New York	1/23/79
5. Delaware	7/24/78	12. South Carolina	11/23/77
6. Florida	8/4/78	13. Virginia	10/22/79
7. Iowa	2/27/79	14. Washington	3/29/77

At the time of the accident at Three Mile Island, NRC had concurred in the plans of 11 States that voluntarily sought NRC concurrence.

2. Radiological Emergency Planning and Preparedness After the Accident at Three Mile Island

The accident at the Three Mile Island nuclear power plant caused a major re-thinking of the whole area of radiological emergency planning and preparedness. Post Three Mile Island major activities which reflect this re-thinking are discussed below.

a. An Adequate Planning Basis

What is an adequate planning basis for radiological emergencies at fixed nuclear facilities? This question, (rephrased as -- What kind of an accident at a nuclear facility should we plan and prepare for handling?") was essentially asked by many of the State and local governments, and their national organizations some years ago. This resulted in two Federal agencies, NRC and EPA, launching an effort to examine this question.

In August of 1976, a joint U.S. Nuclear Regulatory Commission/U.S. Environmental Protection Agency Task Force on Emergency Planning was formally appointed to look into this matter. In December of 1978, after over two years of work, the joint NRC/EPA 11-member Task Force unanimously concurred in and published its report, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" (NUREG-0396/EPA-520/1-78-016) 9/

A major conclusion of the Task Force report was that there is no specific nuclear power plant accident that one can identify as being the accident for which plans and preparedness programs should be in place. Rather, the Task Force came down on the side of planning for consequences, with only minimal concern for the uncertainties or probabilities of accidents. And, to define an adequate, improved planning basis, the Task Force recommended that essentially generic Emergency Planning Zones (EPZs) be established around all nuclear power facilities in the United States. The Task Force further determined and recognized that the AEC and NRC Low Population Zone (LPZ) concept used for siting purposes had little real meaning in terms of off-site emergency planning and preparedness. The Task Force, in essence, rejected the concept of the "LPZ" for definitive and comphensive off-site emergency planning. Further, the Task Force recognized the need to develop an emergency planning basis to address the so-called "Class 9" accidents, or accidents resulting in extensive damage to, or melting of, the nuclear fuel core.

This need for a capability to accommodate emergency situations beyond the so-called "design basis accidents" used in plant and site evaluation, makes generic rather than site-specific zones appropriate for emergency planning supportive of large nuclear power plants. The Task Force decided that the establishment of Emergency Planning Zones (EPZs) of about 10 miles in radius for the airborne "plume" radiological exposure pathway, and about 50 miles in radius for the ingestion or food radiological exposure pathway, would be sufficient to define the areas in which planning for the initiation of predetermined protective measures is warranted for any given nuclear power plant. The Emergency Planning Zone Concept is illustrated in Figure 1.

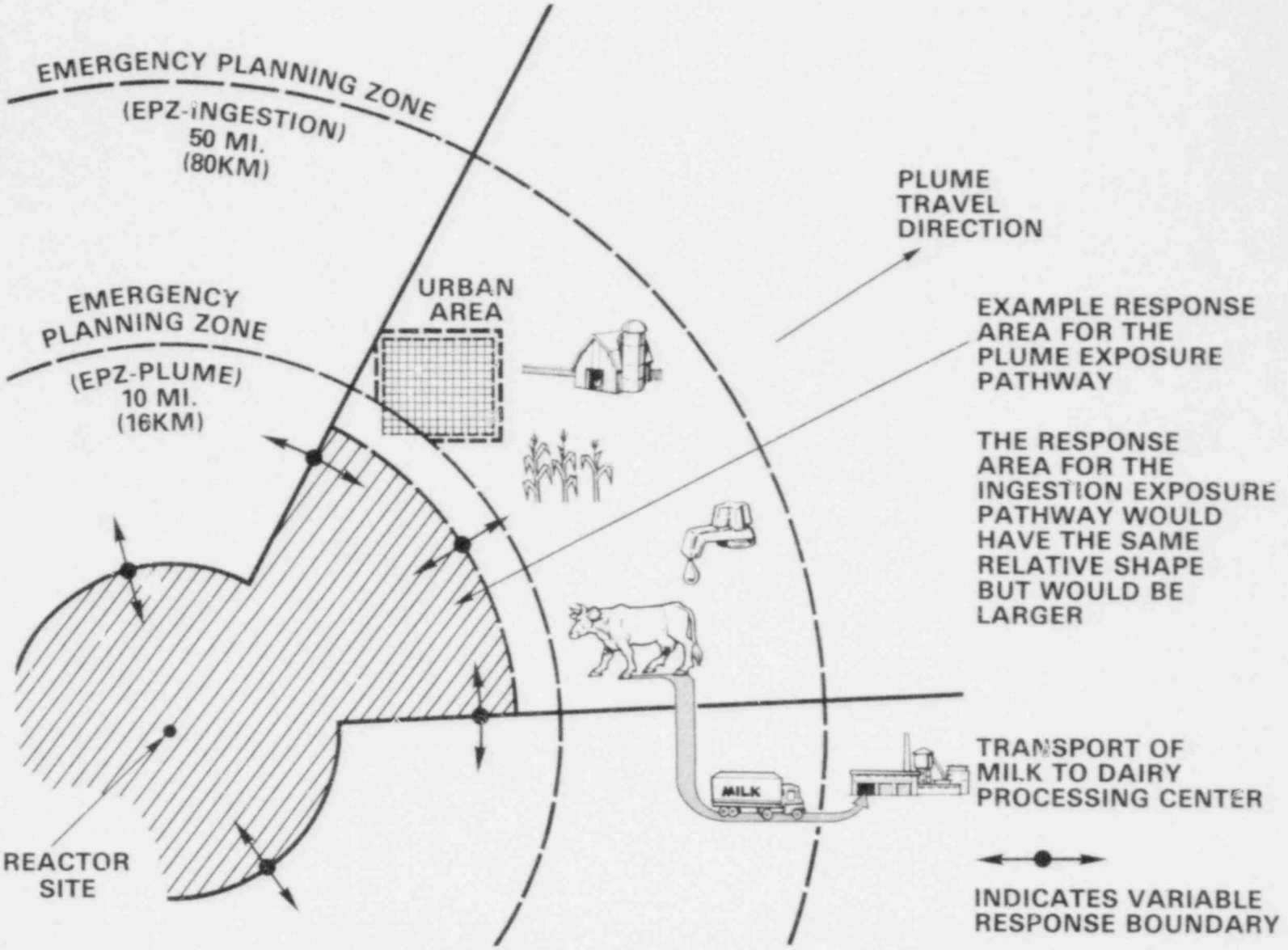

Figure 1 Concept of Emergency Planning Zone

Although not without some initial controversy and resistance from many quarters, the Task Force report is a major milestone along the way toward defining an adequate radiological emergency planning basis. The report, and the recommendations contained in the report, were formally endorsed by the Commissioners of the NRC on October 5, 1979, by the EPA Administrator on January 15, 1980, and accepted by FEMA in January, 1980. These Emergency Planning Zones are now being established around all nuclear power plants in the United States.

b. Executive Branch Actions and Initiatives

Two weeks after the accident, the President established a Presidential Commission on the Accident at Three Mile Island consisting of 12 members chaired by Dr. John G. Kemeny, President of Dartmouth College. In October 1979, the Presidential Commission published its final report.10/

Shortly after the publication of the Presidential Commission's Report, the President appointed a group of senior advisors to review the report and its recommendations. On December 7, 1979, the President announced a series of decisions and recommendations which included the area of emergency planning and preparedness.11/ He assigned FEMA responsibility to head up "all off-site emergency activities and to complete a thorough review of emergency plans in all the States of our country with operating nuclear reactors by June 1980."

The Presidential Commission made a number of recommendations regarding emergency preparedness which are summarized in the fact sheet which accompanied the President's statement of December 7, 1979, as follows:12/

> The [Kemeny] Commission found that at all levels of government, planning for the off-site consequences of radiological emergencies lacked coordination and urgency. Their recommendations call for significant change: an improved State response plan as a requisite for granting an operating license; FEMA should have the lead responsibility, in consultation with NRC and other appropriate agencies, for radiological emergency planning; emergency response plans should be based on various classes of accidents and local communities should have funds and technical assistance for local planning; research on medical means of mitigating radiation effects should be expanded; a program is needed to educate the public on nuclear plant operation, health effects

from radiation and protective actions against radiation; further study on mass evacuation is necessary; and plans for providing Federal emergency support should be revised to assure improved coordination and more effective capabilities.

The following is an extract from the fact sheet prepared in connection with the President's statement. FEMA is directed to:

- o Take the lead in off-site emergency planning and response;
- o Complete by June 1980, the review of State emergency plans in those States with operating reactors;
- o Complete, as soon as possible, the review of State emergency plans in those States with plants scheduled for operation in the near future;
- o Develop and issue an updated series of interagency assignments which would delineate respective agency capabilities and responsibilities and clearly define procedures for coordination and direction for both emergency planning and response;
- o Assure that the Department of Energy (DOE) resources and capabilities for responding to radiological emergencies are made available and augmented as needed to service civilian-related radiological emergencies; and
- o Assure the development of programs to address the recommendations for additonal research and public education needs.

In addition, the President urged that:

- o NRC assist FEMA in these activities;
- o The Director of FEMA report periodically to the Nuclear Safety Oversight Committee (established by Executive Order of March 18, 1980)13/ and the President on progress that has been made;
- o State and local officials work with FEMA to assure the necessary coordination of their respective emergency responsibilities; and
- o FEMA provide States with technical assistance whenever appropriate.

A supplemental appropriation for Fiscal Year 1980 in the amount of $13.3 million, was submitted to Congress to improve emergency preparedness. Of this sum, $8.9 million was intended for use by FEMA and $4.4 million by NRC. The President urged prompt Congressional consideration, but Congress has not approved these funds.

c. FEMA/NRC Memorandum of Understanding

In response to the President's directive, NRC and FEMA on January 11, 1980, signed a Memorandum of Understanding (MOU) delineating each Agency's responsibilities in radiological emergency preparedness (45 FR 5847).[14]

The MOU applies to emergency preparedness for nuclear reactors (including commercial nuclear power plants), fuel cycle facilities which are subject to NRC emergency planning regulations, and certain other fuel cycle and materials licensees which have a potential for significant accidental off-site radiological releases. For the first six months, however, the parties intended that the emphasis be placed on emergency preparedness supportive of commercial nuclear power plants.

Specifically, the MOU listed the following FEMA responsibilities with respect to emergency preparedness as they relate to NRC:

1. To take the lead in off-site emergency planning and review and assess State and local emergency plans for adequacy.

2. To complete by June 1980, the review of State and local emergency plans in those States affected by operating reactors.

3. To complete, as soon as possible, the review of State and local emergency plans in those States affected by plants scheduled for operation in the near future.

4. To make findings and determinations as to whether State and local emergency plans are adequate and capable of implementation (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualifications, and equipment adequacy).

5. To assume responsibility for emergency preparedness training of State and local officials.

6. To develop and issue an updated series of interagency assignments which would delineate respective agency capabilities and responsibilities, and define procedures for coordination and direction for emergency planning and response.

The MOU listed the following NRC responsibilities for emergency preparedness:

1. To assess licensee emergency plans for adequacy.

2. To verify that licensee emergency plans are adequately implemented (e.g., adequacy and maintenance of procedures, training, resources, staffing levels and qualifications and equipment adequacy).

3. To review the FEMA findings and determinations on the adequacy and capability of implementation of State and local plans.

4. To make decisions with regard to the overall state of emergency preparedness (i.e., integration of emergency preparedness on-site as determined by the NRC and off-site as determined by FEMA and reviewed by NRC) and issuance of operating licenses or shut down of operating reactors.

FEMA and NRC also agreed to cooperate in other areas, specifically in NRC licensing reviews, review of State and local emergency plans, evaluation of exercises to test plans, preparation of emergency preparedness guidance, training of State and local officials, and developing of a public information program concerning emergency preparedness.

The Memorandum of Understanding is in effect from January 14, 1980 through September, 1980, and will be updated at the end of this period to reflect desired changes at that time.

d. FEMA Headquarters Organization

In February 1980, FEMA created a new division within its Office of Population Preparedness, the Radiological Emergency Preparedness Division. This division became immediately responsible for the conduct of the FEMA radiological emergency preparedness effort. The new division:

- Develops guidance for the preparation of State and local off-site radiological emergency response plans and preparedness.

- Reviews and assesses State and local off-site radiological emergency plans and preparedness.

- Develops guidance for training of State and local officials for response to radiological emergencies.

- Assists in the development of the National Radiological Emergency Response Plan for dealing with radiological emergency response and preparedness.

- Develops guidance on preparation, conduct, and evaluation of drills and exercises by State and local radiological emergency response organizations, and evaluates and assesses these drills and exercises.

- o Monitors status of planning, training, and overall capabilities of State and local governments for radiological emergency response.

- o Provides guidance to the Federal interagency Regional Assistance Committees (RACs) and monitors their activities.

- o Assists in any proposed rulemaking related to off-site emergency preparedness for fixed nuclear facilities.

- o Coordinates, through the Federal Interagency Central Coordinating Committee on Radiological Emergency Response Planning and Preparedness, the activities of other Federal departments and agencies involved in the radiological emergency response planning program.

- o Assists in the development of the FEMA education and public information programs called for by the President's message of December 7, 1979.

- o Monitors FEMA and other Federal agency activities in the area of research and development for radiological emergency planning and response.

This new division is presently staffed by ten professional people and one administrative assistant detailed from NRC, until June 30, 1980, (to be extended until September 30, 1980), and is assisted by FEMA headquarters support staff and the 10 Regional Offices of FEMA. The program has benefited through the generosity of the NRC in detailing knowledgeable people to FEMA. This is being done to further assure that the program direction provided by FEMA will continue uninterrupted. It will also allow time for the Office of Management and Budget (OMB) to issue a determination order transferring the functions and 8 personnel spaces related to State and local government radiological emergency planning and preparedness from NRC to FEMA. Of the 8 personnel, 6 spaces would be encumbered with people on the detail from NRC. At this time, it is uncertain how many of these 6 people, or the other members of the detail, will accept employment at FEMA. This uncertainity could have a serious impact on the program since it might force FEMA to hire less experienced people. The period of time needed for the hiring process and the training and orientation of the new people could run 6 months or longer.

II.
Status of State/Local Radiological Emergency Plans and Preparedness Versus New Criteria Document

A. Results of Federal Review - States Affected by Operating Nuclear Power Plants

This part of the Report presents the current status of radiological emergency preparedness in the following 31 States:

Alabama	Nebraska
Arkansas	New Hampshire
California	New Jersey
Colorado	New York
Connecticut	North Carolina
Delaware	Ohio
Florida	Oregon
Georgia	Pennsylvania
Illinois	South Carolina
Iowa	Tennessee
Maine	Vermont
Maryland	Virginia
Massachusetts	Washington
Michigan	West Virginia
Minnesota	Wisconsin
Missouri	

Over the past 1 1/2 years since the Three Mile Island accident, significant progress has been made in the improvement of radiological emergency preparedness by most States and localities affected by nuclear power plants. Much of the progress has been accomplished since the publication of the new criteria document, NUREG-0654/FEMA-REP-1 in January 1980. Even though this interim guidance has not been made final pending analysis of public comments received, it is recognized by the States and localities to be basically sound. While most of the revised plans are in draft form, they indicate an elevated commitment to radiological emergency planning and preparedness at the State and local level.

As of June 26, 1980, FEMA Regions have reviewed the available plans of all 31 States and have discussed the status with respect to the new evaluation criteria with State officials. As a result of these discussions, all 31 States have begun the necessary upgrading of their State plans and 8 have submitted revised plans for examination. These 8 plans are being reviewed by the FEMA Regional staff and the RACs.

By the end of 1980, FEMA expects that 25 or more States will have upgraded their plans based on suggestions received from FEMA. Of these, 15 will be submitted for formal review in accordance with procedures established in the proposed FEMA Rule (44 FR 42341 "Review and Approval of State and Local Radiological Emergency Plans and Preparedness") which was issued for comment on June 24, 1980. This formal submission will, in each case, be either preceded or closely followed by a exercise at one of the operating power plants covered by the plan. FEMA intends to use the procedures in this proposed rule as a general guide until it is promulgated in August 1980.

Because the proposed FEMA rule requires that each State plan have site specific features, about 250 local jurisdictions are affected. Approximately 60% of these local jurisdictions have plans on file with FEMA and have been reviewed by the regions in conjunction with the review of State plans. By the end of 1980, 15 States are expected to submit plans for formal review. At least 15 power plant sites (of a total of 31 in these 15 States) will have plans which affect about 45 local jurisdictions. This will require that the plans of these 45 local jurisdictions will meet most of the requirements of the new evaluation criteria (issued January 28, 1980), with the exception of alerting and notification systems. These alerting and notification systems will be subject to requirements still under consideration by FEMA and NRC and will be in place later to meet the schedule in the NRC rule.

By the end of 1981, FEMA estimates that 27 of the 31 States will submit plans for formal approval.

The following material is a State-by-State summary of the adequacy of preparedness of the 31 States against the new criteria. In almost every case, both the State and local plans are under revision. FEMA and several other Federal agencies are assisting the States and localities in their efforts. The general problems identified in the Federal review of the plans are presented in Part V of this report. Additional details of the status of plan development are presented in Appendices B and C.

All reviews were made with respect to the States' plans for the 10-mile Emergency Planning Zone (EPZ) for the radioactive plume exposure pathway. Planning for the 50-mile ingestion exposure pathway has yet to be implemented in the majority of States.

Each of these reviews incorporates as part of a background section, remarks concerning the status of site specific aspects of power plants in that State. The reviews also include a listing of the local jurisdictions affected by these power plant sites. The review also considers under preparedness aspects, the evolution of the plans and expected actions. If significant experience with exercising exists, it is discussed. Finally, each State-by-State review summarizes special items of interest reported by the FEMA regional office.

Federal Review of
Radiological Emergency Preparedness
State of Alabama

1. General Background

Alabama has 2 commercial nuclear power plants which are operational at 2 sites and 1 under construction at a third site. Browns Ferry, located in Limestone County, which impacts on 36,900 people in the 10-mile emergency planning zone (EPZ) is operated by the Tennessee Valley Authority. The site has 3 operating units. The first unit received an operating license in 1973, the second in 1974, and the last in 1976. The Farley plant, which impacts on 9,700 people in the 10-mile EPZ, is operated by the Alabama Power Company. It is located in Houston County and has 1 unit which has been operating since 1977, and another unit under construction. The Tennessee Valley Authority is also constructing a plant, Bellefonte, in Jackson County, with a population of 25,100 within the 10-mile EPZ.

2. Status of State Preparedness

The Alabama plan received NRC concurrence under the previous emergency planning criteria in September 1979. The State has exercised its State plan on numerous occasions under the previous NRC criteria.

The Regional Assistance Committee (RAC) reviewed the current Alabama Radiological Emergency Response Plan dated September 1, 1979, against the new criteria in April 1980. The review indicated some deficiencies in meeting about 70% of the evaluation criteria. On the other hand, the RAC stated, "We believe the capabilities of the various elements of government in Alabama to respond to fixed nuclear facility accidents are much better than reflected" in the plan. State planners, working in concert with State Radiological Health and local personnel, are currently rewriting the State and local plans to meet the new criteria. The major portion of the effort is related to plan format and expansion to include the 10- and 50-mile EPZ concepts. The State expects to have the plan ready for review by fall 1980. The State considered county plans to be a vital part of the State plan, therefore, plans for counties are included as annexes to the State plan. The State has indicated that the new criteria will be met by January 1981, with the possible exception of the 15-minute alerting with sirens. An exercise will be held concurrently with the submission of the revised plan to FEMA.

Previous exercises have shown the State to be adequately prepared to handle radiological emergencies off-site. It is anticipated the State will have little difficulty in demonstrating its level of preparedness under the new criteria.

Federal Review of
Radiological Emergency Preparedness
State of Arkansas

1. General Background

The Arkansas Power and Light Company operates 2 commercial nuclear power plants at their site 6 miles northwest of Russellville, in Pope County, Arkansas. The first unit was licensed by the NRC in 1974. The second unit was licensed in 1978. There are approximately 28,600 people living in the 10-mile emergency planning zone around the site, and 4 county governments need to develop emergency plans to respond to a potential radiological accident.

2. Status of Preparedness

In May 1980, the Regional Assistance Committee (RAC) reviewed the existing Arkansas Radiological Emergency Preparedness Plan, Annex Q, dated December 1979. The plan was reviewed in accordance with the new criteria. The formerly concurred-in plan did not fully meet the new expanded criteria. Many of the items identified as inadequate did not reflect upon the capability of the State, but instead substantiated the fact that capabilities were not adequately documented in the plan.

A new State plan, written in accordance with the new criteria, is scheduled to be submitted for RAC review in July 1980. The plan is scheduled for an exercise in October 1980, and any deficiencies or needed changes in procedures identified will be incorporated into the plan. Arkansas expects to have a new plan by January 1981.

During the RAC review in May of 1980, the plans for Pope, Johnson, Logan, and Yell counties were reviewed. There are significant problems with the plans and major revisions are required. An initial training exercise has been completed in each county. The major needs identified include communication equipment for county officials and equipment for alerting and notifying the general public.

3. Special Interest Item

The one-time costs for the State and local governments are funded from two sources: State general funds and funds provided by the utility as a result of recent legislation. The utility provided funds to establish and maintain a State Nuclear Planning and Response Office adjacent to the nuclear facility. The cost to establish and and operate this office until January 1, 1981, is $280,000. State general funds of approximately $50,000 will be expended by all State agencies prior to January 1, 1981.

Federal Review of
Radiological Emergency Preparedness
State of California

1. General Background

There are 2 operating nuclear power plant sites in the State of California. Rancho Seco, located in Sacramento and operated by the Sacramento Municipal Utility District, has 1 unit which became operational in August 1974. San Onofre, which is operated by Southern California Edison and located in San Diego County has 1 unit which became operational in March 1967. There are 2 other units under construction at San Onofre which are expected to become operational in mid-1981 and 1982. Another site, Diablo Canyon, is nearly ready to operate and the utility is applying for a license. This facility, to be operated by Pacific Gas and Electric, is located in San Luis Obispo County. It has 2 units scheduled to come on line in July 1980 and March 1981. Humboldt Bay is a small nuclear power unit in Humboldt County. This plant is operated by the Pacific Gas and Electric Company. It has 1 unit of early design which has been shutdown indefinitely and currently has only a provisional operating license.

The Rancho Seco site impacts on 3 counties (Sacramento, Amador, and San Joaquin), and approximately 10,500 residents live within the 10-mile emergency planning zone (EPZ). The San Onofre site includes San Diego and Orange Counties, and approximately 36,600 people live within the 10-mile EPZ. The Diablo Canyon site impacts only San Luis Obispo County, and approximately 13,400 residents within the 10-mile EPZ. The Humboldt Bay site impacts only Humboldt County with 38,500 people, within the 5-mile EPZ recommended for this site.

2. Status of Preparedness

The State Nuclear Power Plant Emergency Response Plan was developed in 1975 and updated in August 1978. The 1978 plan received Nuclear Regulatory Commission concurrence in August 1978, based on previous criteria. The Region IX Regional Assistance Committee (RAC) reviewed the State plan in March 1980 against the new criteria. The State plan addresses most of the basic planning criteria but must be revised to meet all of the new criteria. The greatest weakness is that the standard operating procedures (SOPs) for many of the State

agencies were never developed and/or included in the plan. The details necessary to document a capability for accident assessment and protective response are not included in the plan. The plan will be revised and at least 1 of the State agencies, the Department of Health, will contract to have its SOP developed by a consultant.

Local plans have been prepared by the following counties: Orange (1975), San Diego (1975), Humboldt (1976), Sacramento (1967 - revised in 1979), and San Luis Obispo (1977). Only a number of limited exercises or drills have been conducted which necessarily reduces the value of these plans for operational use. The previous criteria,applied by the State, resulted in planning zones ranging from 1.9 miles to 6 miles. The new criteria requiring plume exposure EPZs of about 10 miles increases the number of jurisdictions involved only for the Rancho Seco site, where San Joaquin and Amador Counties must now develop radiological emergency plans.

All local radiological emergency plans were reviewed by the Region IX Regional Assistance Committee between April and June 1980. The plans generally follow the State's format and address the majority of the basic criteria. While they must be updated to meet new criteria, they do provide a good planning foundation to build on. At the local level, the various agency SOPs will be revised to meet the new criteria.

Presently, for both Rancho Seco and Diablo Canyon, local and utility representatives have designed a siren system to meet the new criteria for their respective areas. The utilities and local governments anticipate the hardware will not be ordered for several months as NRC and FEMA are developing more definitive guidance.

California has a good foundation in radiological emergency planning with its existing plans and has the impetus for revising the plans through the State legislation which mandates a timetable as well as funding from utilities for plan revision. The State has hired 3 staff members for radiological emergency planning and will expand funding to the local level when the site studies and planning recommendations are completed. They estimate that they will update the State plan by October 1980, and revise the local plans by January 1981. The timing of exercises will be greatly influenced by regulatory decisions of FEMA and NRC. Full-scale exercising could begin by April 1981.

3. Items of Special Interest

Radiological emergency planning at the State and local level is being held up due to a State Senate Bill which requires individual site studies for each facility to be used as a basis for planning. The individual site studies are to investigate various factors such

as accident probability, specific release materials, topography, and meteorology. The site studies have not yet been completed. This has delayed the start of full-scale revisions to the State and local plans. The State estimates that it will publish planning standards based on these studies by the end of June 1980.

In response to public concern in California over plant safety and a general feeling that the 10- and 50-mile emergency planning zones endorsed by NRC, FEMA and EPA may not be adequate, Senate Bill 1183 was signed into law by the Governor on September 22, 1979. The bill contains the following provisions:

1. Individual site studies to determine the magnitude of hazard and suitable emergency planning zones for each nuclear power plant are to be accomplished by March 22, 1980. The results are to be used as a basis for upgrading and expanding response planning at each site.

2. The State shall revise its Nuclear Power Plant Emergency Response Plan to reflect the information provided in the study within 6 months after the study has been made. An initial draft of the local plans shall be submitted within 6 months. After the study has been made, a final plan will be completed, reviewed, and approved by March 22, 1981.

3. All State and local costs, not otherwise reimbursed by Federal funds, shall be borne by the operators of the nuclear power plants. A fund of up to $2,000,000 for these purposes will be drawn from the licensed operators. This State funding provisions will be repealed on January 1, 1983.

The Diablo Canyon plant is ready for licensing and may well become a focus for public and political concern over the public health and safety issues of nuclear power. This is compounded by recent earthquake activity in the State, and by the discovery of the Hosgreve fault which lies 10 miles off the coast from this plant.

Federal Review of
Radiological Emergency Preparedness
State of Colorado

1. General Background

There is 1 nuclear power plant operating in the State of Colorado. The Fort St. Vrain facility, located in Weld County (35 miles north of Denver) is operated by Public Service of Colorado. It has one unit which became operational in December 1973. It is a gas-cooled power reactor with an output of about 1/3 that of the large light water power reactors. The NRC has recommended smaller Emergency Planning Zones (EPZs) for this reactor and FEMA has concurred in this recommendation. EPZs of 5 miles for the plume exposure pathway and 30 miles for the ingestion exposure pathway have been recommended. Weld County, with approximately 1,280 residents, is included within the 5-mile plume exposure EPZ. There are no other nuclear power plants planned or under construction in Colorado or adjacent States which would require emergency planning within the near future.

2. Status of Preparedness

The State prepared a State Plan entitled, "Fort St. Vrain Radiological Emergency Plan" in May 1976, and updated it in July 1979. While this plan was based on previous guidance, it was not concurred in by the Nuclear Regulatory Commission. The State prepared a revised draft entitled, "State Radiological Emergency Response Plan for Fort St. Vrain, Nuclear Generating Plant, Platteville, Colorado" in April 1980, and further updated it in June 1980. The Weld County plan was updated in draft form in May 1980. These updates are based on the new criteria. A formal review of these plans is being conducted by the Region VIII Regional Assistance Committee in June 1980 too late for inclusion of formal review comments in this report. However, a pre-review of the revised plans shows that most of the new criteria are covered.

The Fort St. Vrain emergency preparedness planning process is near completion. Two primary plans impact on the public: the Colorado Division of Disaster Emergency Services (DODES) and the Weld County plans. In addition, the Fort St. Vrain utility plan is under review. An exercise of the State plan was conducted on February 28, 1980, and was considered to be successful. Although the exercise was conducted using plans developed with the old criteria, only a few discrepancies could be attributed to differences between old and new criteria. The exercise showed that the plans are essentially operational. A complete exercise will be conducted within one year of the last exercise to determine if the plans are as good as they appear to be and to determine if new criteria are successfully implemented.

All parties to the plans are working to resolve problem areas. It will be October or November 1980 before the plans are brought into complete compliance with the new criteria and deficiencies are resolved. Some areas under development will require both time and money for implementation. The following items are currently being worked on:

1) A revised system of public notification to reduce the time downward to the 15-minute design objective set by the new criteria.

2) Development of a near-site emergency operating facility.

3) Potassium Iodide has been purchased by the State Health Department but has not been received to date. Once received, it will be distributed according to the plan.

4) A brochure has been developed for the purpose of educating the public on the Fort St. Vrain plan and the local emergency response plans. The State has approved the brochure, and after review by FEMA, it will be published and distributed.

5) Back-up meteorological equipment has been ordered by the State Health Department. Units should be in place within the next three months. The DODES Office has been assigned funds to procure a mobile command post, which should be available within the next six months.

3. Items of Special Interest

Two elements of the new criteria are of concern to State and utility officials. They are considering requesting relief from the Nuclear Regulatory Commission on the 15-minute time limit for public notification. In addition, the utilities are seeking relief from the requirement for a near-site emergency operating facility. At this time, it appears that the Public Service Company will have to build a facility within one mile of the reactor.

Printing of the plans will be cause for some delay. The costs involved for DODES and Weld County plans, including the cost of the public information brochure, is estimated to be $15,000. The State is concerned about the source of funding as well as obtaining the funds in a timely manner.

A public meeting, chaired by FEMA Region VIII, is planned for late July or early August 1980. The emergency plans will be discussed and public comment will be solicited prior to submission for approval by FEMA headquarters.

Federal Review of
Radiological Emergency Preparedness
State of Connecticut

1. General Background

There are 2 operating nuclear power plant sites in Connecticut. Haddam Neck facility, located in Middlesex County, is operated by Connecticut Yankee Atomic Power. It contains 1 unit which became operational in June 1967. The Millstone facility is located in New London County and is operated by Northeast Nuclear Energy. It has 2 operational units which came on line in October 1970 and September 1975. An additional unit has a construction permit, but will not become operational for several more years.

Millstone affects Middlesex and New London Counties and 11 communities with an approximate population of 118,900 residents within the 10-mile emergency planning zone (EPZ). Haddam Neck affects Middlesex, New London, New Haven, and Hartford Counties and 19 communities with an approximate population of 61,600 residents within the 10-mile EPZ.

2. Status of Preparedness

Connecticut prepared a plan (State of Connecticut Emergency Operations Plan) in October 1975. Annex V (Fixed Nuclear Facility Radiological Emergency Response Plan) was prepared in March 1977 and updated in March 1978. This plan, which includes the radiological emergency response plans and procedures for affected local communities, received concurrence of the Nuclear Regulatory Commission in December 1977. At present, the plans and procedures for 8 communities around Haddam Neck and 7 communities around Millstone have not been prepared and included in the State plan. The State is requesting that 3 communities around Haddam Neck and 2 around Millstone be deleted as not requiring detailed planning since only a small portion of each falls within the 10-mile plume exposure EPZ.

The Connecticut Office of Civil Emergency Preparedness has the primary responsibility for the State's radiological emergency response plannning. The existing State plan, which is based on the previous criteria was submitted for review by the Region I Regional Assistance Committee (RAC) against the new criteria in February 1980. The RAC review was completed in May 1980, and comments were provided

to the State. The RAC found that 15 of the criteria elements were acceptable and 28 elements were not. The remaining criteria elements all require some modification, clarification or documentation of preparedness capability. The State has begun revision of the State plan with a target of January 1981 for completion. The target date for completion of drafts pertaining to communities within the 10-mile plume exposure EPZ is September 1980.

The State has indicated that they have many individual agency standard operating procedures (SOPs) that are not included as a part of the State plan. These SOPs cover much of the specific detail required by the new criteria to be contained in radiological emergency response plans. They have agreed to provide these SOPs to be included in the State plan. At the same time, the State, by its own admission, recognizes the need to reorganize their existing plan. Its enormous size and complexity make its effective execution questionable.

In view of the cooperative spirit demonstrated during the course of the regional evaluation of the numerous plans and the State's frequent exercises and drills conducted to evaluate major portions of emergency response capabilities, the RAC reports that the general level of Connecticut's preparedness is good.

3. Items of Special Interest

The State believes that there are deficiencies in the interim critera. They feel that the 15-minute notification criteria is too stringent. They feel that things such as inventories, call lists, and detailed SOPs should not be made a part of the overall plans and procedures; and, they feel that additional technical guidance (thyroid blocking, respiratory protection, distribution of potassium iodide, etc.) and resources (funds for communications, warning, instrumentaiton, training, planning, etc.) are required to enable the State to achieve the level of preparedness implied in the new guidance criteria.

Federal Review of
Radiological Emergency Preparedness
State of Delaware

1. General Background

Delaware has no operating commercial nuclear power plants existing or planned within its boundaries. However, it is affected by nuclear facilities in three other States. Portions of the State are within 50 miles of the Peach Bottom facility in Pennsylvania and the Calvert Cliffs facility in Maryland, which will require some State planning for the 50-mile ingestion exposure emergency planning zone (EPZ). Portions of New Castle and Kent Counties, including 11 communities and approximately 12,600 people are within the 10-mile plume exposure EPZ of the Salem facility located at Lower Alloways Creek, New Jersey.

2. Status of Preparedness

The State Emergency Planning and Operations Division has the lead role in planning. The January 1978 Radiological Emergency Response Plan received concurrence from the Nuclear Regulatory Commission in July 1978, and was revised in August 1978. This State plan was based on the previous planning criteria. The first draft update of the State plan utilizing the new criteria, and site-specific for the Salem facility, was submitted for Region III Regional Assistance Committee (RAC) review in May 1980. The plan was reviewed by FEMA staff, but time did not permit a detailed review by the assistance committee to meet the deadline for this report. However, the plan is now undergoing such review.

The FEMA staff review indicates that extensive revisions will be required, including development of a New Castle County Plan, Implementing Procedures and Standard Operating Procedures. The plan represents the initial update of the previously concurred-in plan. Work is continuing on the plan, and it is expected that a more comprehensive update will be completed prior to August 1, 1980. The exercise and the 50-mile ingestion exposure pathway EPZ portions of the plan have not been addressed in detail to date.

Although a more comprehensive update of the existing Radiological Emergency Plan is expected prior to August 1, 1980, the RAC does not feel that all of the detailed planning will be accomplished

prior to November 1, 1980. An area of particular concern is the requirement for 15-minute warning/notification of the population within the 10-mile EPZ. Until such time as a comprehensive exercise is held, a judgment on the State preparedness would be premature.

3. Items of Special Interest

The 15-minute warning criterion is perceived as a significant problem by the State's staff. They have serious doubts from a technical aspect as to whether a practical solution can be devised, and they find the financial aspect to meet this criterion difficult at this time.

The facility operator has made few positive contributions to either the new required planning effort, or equipment requirements. Close contact and a semblance of cooperation have been maintained by the utility.

Due to the very limited size of the State Emergency Planning and Operations Division, which has the lead role in planning, and the failure, to date, of the utility to significantly assist the effort, delays in completion can be expected, especially with respect to the detailed planning required to develop standard operating procedures.

Federal Review of
Radiological Emergency Preparedness
State of Florida

1. General Background

There are 3 operating nuclear power plant sites in the State of Florida: Turkey Point, in Dade County, impacting on 41,500 people within the 10-mile emergency planning zone (EPZ); Crystal River, in Levy County, impacting on 13,300 people within the EPZ; and St. Lucie, in St. Lucie County, impacting on 68,600 people within the EPZ. Turkey Point and St. Lucie are operated by Florida Power and Light Company. Crystal River is operated by Florida Power Corporation.

2. Status of Preparedness

The State plan received Nuclear Regulatory Commission concurrence in 1978 based on previous criteria. Since that time, the State has conducted a number of radiological emergency preparedness exercises based on this plan -- probably more than any other State. Each of the exercises, while highlighting some weak areas, indicated an adequate level of overall preparedness of the response organizations.

Due to the development and issuance of the new criteria, the State plan requires extensive modifications. Since the county plans are considered part of the State's plan (annexes to the State plan), they are a key part of the updating effort to meet the new requirements. State planning is a joint effort of State Radiological Health and State Disaster Preparedness personnel working in concert with local emergency preparedness directors.

Current schedules call for a review of the revised site specific State plan(s) by the Regional Assistance Committee (RAC) by September 1980. Additional site-specific local plans for the 3 operating facilities are scheduled for completion by November 1980. Planning for the 50-mile ingestion exposure EPZs for the sites (which would involve 20 additional Florida counties) is not being undertaken at this time.

Florida has had extensive experience in radiological emergency planning, organization, and exercising their plans. While the State's schedule for updating current plans to conform to new

criteria is somewhat behind other States, State planners appear to be proceeding satisfactorily toward an adequate level of preparedness.

The State has identified that radiation measuring devices, response team equipment, and individual dosimeters are needed. They have also defined the scope of early warning systems necessary to meet the requirements of the new criteria.

Exercise of all appropriate agencies is scheduled for early fall, 1980. The results of these exercises will form the basis for completion of necessary plans prior to submission to FEMA for final review and approval.

Federal Review of
Radiological Emergency Preparedness
State of Georgia

1. General Background

The Georgia Power Company has one operating nuclear facility, Hatch, in Appling County, affecting 5,700 persons within the 10-mile emergency planning zone (EPZ); and one facility under construction, Vogtle, in Burke County, affecting 2,000 persons within the 10-mile EPZ.

State planning is being undertaken by the Georgia Department of Natural Resources in close cooperation with the Georgia Civil Defense Office. Local county plans within the EPZ are considered part of the State plan and are annexes thereto. Counties within the EPZ for Hatch are Appling, Toombs, and Jeff Davis. No planning is currently being done for the Vogtle nuclear facility.

In addition to the above, the State has developed plans for all nuclear facilities whose 50-mile (ingestion) EPZs extend into the State. These include: TVA-Sequoyah (Tennessee); Oconee (S. Carolina); Savannah River and the Allied General Nuclear Services Barnwell Nuclear Fuel Plant, (S. Carolina); and Farley (Alabama).

2. Status of State Preparedness

State and local plans which were developed under previous criteria were reviewed by the Regional Assistance Committee in March 1980. They have since been revised and updated to reflect current critiera. The most substantive findings were related to expansion of the plans to cover the new EPZs. Current planning efforts are scheduled for completion in June 1980, with exercises to be conducted in early fall, 1980.

Indicative of the support given radiological emergency planning in Georgia is the fact that State resources were provided (manpower and equipment) from several State agencies to support the current effort, sometimes to the detriment of other program functions. Additionally, the State has procured and equipped a mobile laboratory for use in radiological emergency response.

Federal Review of
Radiological Emergency Preparedness
State of Illinois

1. General Background

There are 3 sites in Illinois which have a total of 6 nuclear power plants in operation. There are 4 additional sites which will have operating nuclear power plants in the next few years.

The Dresden site, located 9 miles east of Morris in Grundy County, is operated by Commonwealth Edison. This site's first unit began operation in 1960. It has since been retired, but 2 additional units continue to operate. This site creates planning requirements for the counties of Grundy, Kendall, and Will. There are approximately 36,000 people within the 10 mile emergency planning zone (EPZ). The Zion site, operated by Commonwealth Edison, has had 2 operating units since 1973. This site, located 40 miles north of Chicago, affects Lake County for the 10-mile EPZ with a population of 165,000. The Quad Cities site, operated by Commonwealth Edison, has had 2 operating nuclear units since 1972. This site, located in Rock Island County, affects 2 other Counties Whiteside and Henry. Within the 10-mile EPZ, there are approximately 5,500 persons.

Commonwealth Edison has 2 units scheduled to begin operations in 1984 and 1985 at the Braidwood site in Will County. The site is 24 miles south southwest of Joliet, and could affect 27,000 persons living in the 10-mile EPZ. Illinois Power has 1 facility which they expect to begin operation in March 1983 at the Clinton site. A second unit is scheduled to begin operation in 1987. The site is located 6 miles east of Clinton in Dewitt County. It could affect a population of 12,000 within the 10-mile EPZ. The Byron nuclear facility, operated by Commonwealth Edison, has 2 nuclear units scheduled to begin operation in 1982 and 1983. The facility is located in Ogle County 17 miles southwest of Rockford and could affect an approximate population of 20,000 within the 10-mile EPZ. Commonwealth Edison also has 2 nuclear units nearing completion at the La Salle site located in Livingston County, 11 miles southeast of Ottawa. The 2 units are scheduled to begin operation in November 1980, and November 1981. There are approximately 15,000 people living in the 10-mile EPZ around the site.

2. Status of Preparedness

The Regional Assistance Committee (RAC) reviewed the (draft) Illinois Plan for Radiological Accidents and the county and local plans for the Dresden nuclear power plant May 1980. The results of this review and its recommendations were presented to the State in early June 1980. The RAC's general assessment is that the State has made a successful "first cut" in upgrading the planning process and believes a sustained effort by the State in the development and refinement of procedures will produce a plan conforming to the new criteria within a year. Planning around the Dresden nuclear power plant is laying the ground work for all other off-site planning in Illinois. The Dresden off-site plan is scheduled for a September 1980 exercise.

Illinois is developing exercise scenarios. The first trial scenario is to be used for a Dresden exercise. The Zion plan is scheduled for an exercise in December 1980. No exercise date has been set for the Quad Cities Plan.

Federal Review of
Radiological Emergency Preparedness
State of Iowa

1. General Background

The Iowa Electric Power and Light nuclear power plant, Duane Arnold, which has been in operation since 1974, is located in Linn County. It is 8 miles northwest of Cedar Rapids, and there are approximately 82,600 people living in the 10-mile emergency planning zone (EPZ).

The State of Iowa is contiguous to Illinois and Nebraska each of which have operating commercial nuclear power plants near the Iowa border. The Quad Cities nuclear power plant in Illinois has been in operation since 1972. Clinton and Scott Counties in Iowa have a population of about 18,100 people within the 10-mile EPZ around Quad Citites. The Fort Calhoun nuclear power plant in Nebraska has been licensed to operate since 1973. Harrison and Pottawattami Counties in Iowa have a population of about 4,600 people within the 10-mile EPZ.

2. Status of Preparedness

The previous Iowa Radiological Emergency Plan received the Nuclear Regulatory Commission's concurrence in February 1979, based upon prior criteria. Even though much work remains to bring Iowa's plan into conformity with the new criteria, historically, Iowa has been used as an example of a model State radiological emergency preparedness program.

The previous comprehensive exercises, Sunshine I, II, and III, have clearly demonstrated the State's capabilities.

The Iowa Radiological Emergency Plan, Annex F, was reviewed by the Regional Assistance Committee (RAC) on May 29, 1980. The plan reviewed was the first draft which attempted to comply with the new criteria. The RAC review identified the need for additional development of local plans.

The current status and projected completion of county plans is as follows:

- o Duane Arnold nuclear power plant - The Benton County plan is estimated to be completed by July 1980. Linn County does not intend to revise the current plan developed by a contractor employed by Duane Arnold until final issuance of NRC/FEMA criteria.

- o Quad Cities nuclear power plant - The Clinton County plan is completed. Scott County anticipates completion of the plan by June 20, 1980.

- o Ft. Calhoun nuclear power plant - The Harrison County plan is expected to be completed by the end of June. The Pottawatami County plan is scheduled to be completed by the end of July 1980.

- o The above county plans will be reviewed by the Regional Assistance Committee in September 1980. No exercises are scheduled for FY 1980.

Federal Review of
Radiological Emergency Preparedness
State of Maine

1. General Background

The Maine Yankee power plant operated by the Maine Yankee Atomic Power Company, is located in Lincoln County, 10 miles north of Bath, Maine. The plant has been licensed to operate since June 1973. There are 20 communities and approximately 28,200 people living in the 10-mile emergency planning zone (EPZ).

2. Status of Preparedness

On September 14, 1979, the responsibility for radiological emergency planning was transferred from the Maine State Police to the Maine Bureau of Civil Emergency Preparedness. Maine submitted its plan in January 1980. The plan was reviewed in accordance with the new criteria.

The Regional Assistance Committee (RAC) identified deficiencies in the plan and developed specific written suggestions for each element. The review comments were presented to the State, and the State was given the opportunity to respond and schedule corrective actions. Many of the State corrective actions are scheduled to be completed by the end of June, 1980. The State indicated that on some of the corrective actions, such as training and exercising, Federal assistance will be needed.

Local plans will be written and included as a part of the State plan. The State asserts that FEMA/NRC need to provide additional information and guidance regarding sheltering and respiratory protection. The revised plan is scheduled to be exercised in August 1980.

Federal Review of
Radiological Emergency Preparedness
State of Maryland

1. General Background

There is 1 operational nuclear power plant in the State of Maryland, the Calvert Cliffs plant located in Calvert County. It is operated by the Baltimore Gas and Electric Company. It consists of 2 units which came on line in July 1974 and December 1976. Three counties (Calvert, St. Mary's, and Dorchester) and approximately 15,600 residents are affected by the 10-mile plume exposure emergency planning zone (EPZ). In addition, Maryland is affected by the Peach Bottom nuclear power plant in Pennsylvania. Cecil and Harford Counties and approximately 12,100 residents in Maryland are within the 10-mile of this facility.

2. Status of Preparedness

The Maryland Civil Defense and Disaster Preparedness Agency has lead responsibility for radiological emergency planning. The plans are included as Annex Q (Radiological Emergency Response Plan) to the Maryland Disaster Assistance Plan. Appendix Q-1, which deals specifically with the Calvert Cliffs nuclear power plant and incorporates the separate plans and procedures for Calvert, Dorchester and St. Mary's Counties, was prepared in March 1980, and reviewed by the Region III Regional Assistance Committee (RAC) in April 1980. The RAC prepared comments and met with State planning officials to discuss their review. Sixty-two of the criteria items were not reviewed since they were either being revised or were contained in implementing procedures which were not submitted with the plan. Of the guidance criteria items reviewed, 26 were found to be acceptable and 16 require additional work.

The State is revising the plan and developing implementing procedures and standard operating procedures. Their schedule called for final drafting in early June 1980. Then, the plan and procedures will be distributed to applicable State agencies and local jurisdictions for concurrence after which the plan will be submitted to the Governor for approval. The target date for submission to the RAC for formal review is July 1980. A series of training sessions and drills will be held starting in June 1980. A full exercise will be conducted in August 1980.

The State has begun work on Appendix Q-2 of its plan which is site-specific for the Peach Bottom facility. This portion of the plan will incorporate the separate plans of Harford and Cecil Counties. The target date for its completion is now set for the end of August, 1980. No schedule is set for exercising this part of the plan.

In addition to the 10-mile EPZ for the State and counties, the State has begun planning for the 50-mile ingestion exposure EPZ. Completion is expected in June 1980.

The Baltimore Gas and Electric Company, which owns and operates the Calvert Cliffs facility, has been very cooperative and helpful to the State and 3 counties in the plume exposure 10-mile EPZ during the planning stages. They hired a consulting firm to work with the State's staff to develop the State and local emergency plans for Calvert Cliffs. The Philadelphia Electric Company, which operates the Peach Bottom facility in Pennsylvania, has not been as cooperative with the State and local jurisdictions involved during the planning stages.

Both the Peach Bottom and Calvert Cliffs facilities are currently in the process of examining different systems that may be used to provide timely notification to State and local government response organizations in the event of an emergency at the facilities.

The basic capability of the State and localities to respond is considered to be good. However, until a comprehensive exercise is conducted, sound conclusions cannot be drawn. Required planning and exercising is scheduled to be completed by January 1981.

3. Items of Special Interest

The Baltimore Gas and Electric Company, State civil preparedness officials, and county officials all feel that a near-site operations facility is not needed. If they are required to have one for Calvert Cliffs, they feel that it should be located outside the 10-mile EPZ.

The costs for installation and maintenance of warning systems is presumed by the State to be covered by the plant operators.

Federal Review of
Radiological Emergency Preparedness
Commonwealth of Massachusetts

1. General Background

Massachusetts has 2 operating commercial nuclear power plants within the Commonwealth and is adjacent to a nuclear power plant in Vermont. These facilities affect 29 towns and a population of about 53,600 within the 10-mile emergency planning zones (EPZ) around them. Pilgrim 1 nuclear power plant, operated by Boston Edison, is located in Plymouth County 4 miles southeast of Plymouth, Massachusetts. This facility was licensed to begin operation in September 1972. A second unit is scheduled to begin operation in December 1986. There are 12 towns and a population of 32,100 within the 10-mile EPZ.

Yankee-Rowe 1, operated by Yankee Atomic Electric Company, is located in Franklin County, 25 miles northeast of Pittsfield, Massachusetts. This facility has been licensed to operate since July 1960. The facility 10-mile EPZ encompasses 11 towns and a population of 21,500.

Vermont Yankee nuclear power station in Vermont affects 7 towns and a population of 5,000 in Massachusetts in the 10-mile EPZ.

The Nuclear Regulatory Commission is currently reviewing an application for a construction permit from Northeast Nuclear Energy Company to construct 2 reactors at the Montague site in Franklin County.

2. Status of Preparedness

The Massachusetts Civil Defense Agency (MCDA) is responsible for the Commonwealth's radiological emergency planning. In the months following the accident at Three Mile Island, the MCDA made an extensive effort to develop a plan for the State and the 29 towns. Although they did not have the benefit of the new criteria (which was published 2 months after they had completed their plan), they did include the 10-mile plume exposure pathway EPZ, and provisions on emergency classification and action levels, and other refinements to previous guidance that were under development by NRC and FEMA.

Since Massachusetts has just expended a great deal of time and resources in developing and coordinating their plan with the numerous State and local agencies which are party to it, they feel that it should undergo a detailed review by FEMA and the Federal agencies on the Regional Assistance Committee (RAC) before they make further changes or improvements to satisfy the new criteria.

During the last few months members of the Region I FEMA staff have worked with MCDA on a daily basis to review the plan, interpret the criteria, and suggest improvements. The RAC has examined the plan in detail, and a formal review has been presented to Massachusetts officials. Massachusetts has examined the FEMA/RAC review comments, responded and scheduled implementation milestones for those items all agree must be upgraded to meet the new criteria. The State's dissatisfaction with several criteria elements, particularly the 15-minute notification criterion, has been addressed through comments on the criteria. It should be noted that all affected town plans are part of the State plan and that the comments generally apply to both.

The State has scheduled corrections for most of the deficiencies identified in the plan by September 1980. It is anticipated that the revised plan will be exercised in October 1980. The addition of the Civil Defense National Radio System (CDNARS) to Vermont and New Hampshire emergency operation centers is being considered as a means of establishing a reliable system for interstate communications.

3. Item of Special Interest

Massachusetts will participate with Vermont and New Hampshire in the Interstate Communications Workshop to be hosted by FEMA Region I. Representatives of utilities, State communication elements, State emergency services, and health and police departments will attend the workshop in July 1980.

Federal Review of
Radiological Emergency Preparedness
State of Michigan

1. General Background

There are 5 nuclear power plant sites in the State of Michigan: 3 operational and 2 under construction. Operating sites include: Big Rock Point in Charlevoix County, operated by Consumers Power Company, impacting on approximately 4,700 persons within the 5-mile plume exposure pathway emergency planning zone (EPZ) recommended for this site; Palisades in Van Buren County, operated by Consumer Power Company, impacting on 30,600 persons within the 10-mile EPZ; and D. C. Cook in Berrien County operated by Indiana and Michigan Power Company, impacting on 56,000 persons within the 10-mile EPZ.

Facilities under construction include: Fermi in Wayne County, impacting on 72,800 persons within the 10-mile EPZ; and Midland in Midland County, impacting on 67,900 persons within the 10-mile EPZ.

2. Status of Preparedness

The Michigan Emergency Preparedness Plan-Nuclear Facilities Procedures was prepared by the Michigan Division of Radiological Health, and was reviewed by the Regional Assistance Committee (RAC) in May 1980, in accordance with the new criteria. Changes and modifications to the plan are scheduled to be completed by June 1980; an exercise of the plan is also scheduled for that month. Procedures for the State Emergency Operating Center and other response organizations will also be tested during the exercise.

Radiological emergency plans for Charlevoix and Emmet Counties (associated with Big Rock Point), Berrien County (associated with Cook), and Allegan and Van Buren Counties (associated with Palisades) were completed in draft form in April 1980.

A drill has been conducted in Charlevoix and Emmet Counties where draft plans, as well as operating procedures, were discussed and tested. Another such drill is scheduled in June 1980 prior to the State exercise discussed above.

3. Items of Special Interest

Administrative rules which identify the classification of nuclear incidents within the State are presently being revised to conform with new criteria. Temporary rules have been adopted while a permanent modification is under legislative review and public

hearing (a process which is expected to be completed in 1981). In addition, legislation has been proposed and is being considered to amend Michigan Act 390 to provide for the acceptance of funds from utilities for radiological emergency planning purposes.

Federal Review of
Radiological Emergency Preparedness
State of Minnesota

1. General Background

There are 2 nuclear power plants operated by the Northern States Power Company in the State of Minnesota. Monticello, in Wright County impacts on an estimated 14,900 persons in Anoka, Wright, Sherburne, and Hennepin Counties which lie within the plant's 10-mile emergency planning zone (EPZ). Prairie Island, with 2 units located in Goodhue County, impacts on an estimated 16,800 persons in Dakota and Goodhue Counties which lie within the 10-mile EPZ.

2. Status of State Preparedness

The State's initial radiological emergency plan, the Minnesota State Nuclear Power Plant Emergency Plan, was reviewed initially by the Regional Assistance Committee (RAC) in February, 1980. The current schedule calls for the revised and updated plan per the new criteria to be ready for final RAC review in June 1980. All of the county plans are integrated into the State plan, including those of Houston County, a portion of which is impacted by the 5-mile EPZ recommended for the LaCrosse, Wisconsin nuclear power plant in Wisconsin.

The State's current schedule calls for table-top exercises of the completed plan to be held in July 1980, and a full-scale exercise of the plan in September 1980.

3. Items of Special Interest

Although plan development is somewhat behind other States, Minnesota is laying the ground work for good operational capability to respond to a nuclear facility incident. Notably in this respect:

- The State legislature has held hearings to determine State actions needed to meet the new criteria and has subsequently passed legislation entitled, "The Minnesota Nuclear Safety Act."

- Monies have been appropriated from the State's general fund to the Department of Public Safety for the purpose of purchasing necessary equipment, including that needed for public warning systems, protective

devices, and communication systems -- both on the State level and for the operational support of affected local governments.

- The Department of Public Safety, Division of Emergency Services, has been authorized to increase its complement of personnel working on radiological emergencies preparedness matters by two full-time positions.

Federal Review of
Radiological Emergency Preparedness
State of Missouri

1. General Background

The Union Electric Company is constructing the Callaway commercial nuclear power plant in Callaway County, 10 miles southeast of Fulton, Missouri. The first unit is scheduled to begin operation in December 1982; and the second unit in 1990. The 10-mile emergency planning zone (EPZ) impacts approximately 5,400 people in Callaway, Gascondale, Montgomery and Osage Counties.

The Cooper nuclear power plant in Nebraska has been in operation since 1974, and the 10-mile EPZ for this facility impacts Atchison County in Missouri with a population of 3,500.

2. Status of State Preparedness

The radiological emergency response plan for the State of Missouri was reviewed by the Regional Assistance Committee (RAC) on May 6, 1980. This review principally examined the State plan as it pertains to the Cooper nuclear power plant in Brownsville, Nebraska. Further updating and revisions will be necessary before compliance with the new criteria can be fully accomplished.

The review of the local plan (Atchison County) for the 10-mile EPZ was also accomplished on May 6, 1980. It fell far short of meeting the new criteria, as it was written prior to January 1980. A new local plan, written to comply with the new criteria was received by the FEMA Regional Office on June 2, 1980, too late to be reviewed and evaluated as a part of this report. Of the 98 criteria required to be addressed by the State, 60 have been satisfied. Because the county plan for Atchison County was completed prior to issuance of the new criteria, only 13 of 84 criteria have been addressed. A preliminary look at the new plan indicates that it is, at least, as far developed as the State Plan. The State's projected deadline for completion of acceptable plans is August 1981.

Missouri adequately demonstrated its response capability in a joint exercise with Nebraska at the Cooper nuclear power plant in December 1979. No further exercises are planned for FY 1980.

Federal Review of
Radiological Emergency Preparedness
State of Nebraska

1. General Background

There are 2 operating nuclear power plants in the State of Nebraska: Ft. Calhoun, located in Washington County and operated by Nebraska Power District, and Cooper Station, located in Nemaha County and operated by Omaha Public Power District. The Ft. Calhoun facility impacts on approximately 10,300 persons within the 10-mile emergency planning zone (EPZ), all within Washington County; the Cooper Station impacts on approximately 2,800 persons within the 10-mile EPZ, all within Nemaha County.

2. Status of State Preparedness

The original Nebraska radiological emergency plan was rewritten to conform with the new criteria. It was submitted for review to the Regional Assistance Committee (RAC) in April 1980, and the plan is currently being revised. At the present time, of the 98 elements needing correction or revision in the State plan, 78 have been accomplished by the State. Affected county plans are included in the State plan, and of 84 criteria in these local plans which were not addressed in the opinion of the RAC, 71 have been satisfied. Complete compliance with the new criteria according to the State, would exceed current State manpower and budget resources.

Based on the State's planning assumptions, there are 2 projected completion dates for the radiological emergency plan: January 1981 is the date which the State has indicated for completion if plan revisions are made using existing resources, and providing that corresponding changes are made in emergency plans and procedures for the nuclear facilities; and October 1981 is the date which the State has indicated for completion of criteria items in the plan which can be resolved only through additional funding support for planning assistance, equipment procurement and consultant services.

Nebraska adequately demonstrated their ability to respond to a nuclear facility accident through test exercises with the Ft. Calhoun facility in July 1979, and with the Cooper facility in December 1979.

3. Items of Special Interest

It is Nebraska's official position that no further development of the State radiological emergency plan (which includes local plans) will take place until the NRC/FEMA criteria is promulgated in final form.

Federal Review of
Radiological Emergency Preparedness
State of New Hampshire

1. General Background

There are no operating nuclear power plants in New Hampshire. However, the Vermont Yankee nuclear power plant located in Windham County, Vermont has a 10-mile plume exposure emergency planning zone (EPZ) which extends into Cheshire County, New Hampshire and includes New Hampshire towns with a population of about 8,200. The Seabrook nuclear power plant, to be operated by Public Service of New Hampshire has 2 units under construction in Rockingham County, and has a 10-mile EPZ which includes 14 towns with a population of about 39,000. The facility is scheduled to begin operation in 1983.

2. Status of Preparedness

The New Hampshire Civil Defense Agency (NHCDA) is responsible for the State's radiological emergency response planning. The State had a 1971 nuclear accident/incident plan. This plan needed a complete revision to satisfy the new guidance criteria. The revised plan (New Hampshire State Emergency Plan, Annex R, Radiological Emergency Response) was completed in April 1980. It has been reviewed by the Region I Regional Assistance Committee (RAC) and a formal review was presented to New Hampshire officials. Twenty-two of the criteria items were found to be acceptable. The remainder required some type of clarification or strengthening, but all were addressed to some degree. New Hampshire has scheduled implementation dates for those elements which must be more fully developed to meet the new criteria. All local (town) plans will be a part of the State plan.

With the preparation of their revised plan and the continued revision underway, the State has made a significant effort toward increasing their level of preparedness. There is a need for better inter-State coordination and communications; and, provisions must be made for communications with Federal emergency response organizations. There are currently no written procedures for inspection, inventory, and operational checks of radiological detection and monitoring instruments annually. The Department of Health procedures must be strengthened to include procedures for accident assessment

decisions, procedures on distribution of potassium iodide, and methods of estimating total population exposure.

3. Items of Special Interest

The intense concern surrounding the Seabrook facility and constant meetings and related activities on the situation have been a drain on the limited resources available to the NHCDA. FEMA Region I has authorized the use of the Nuclear Civil Protection (NCP) Planner, and provided Regional staff on virtually a full-time basis to assist in plan development. To complete the planning effort and continue enhancing the State's preparedness posture, a good deal of FEMA and Federal agency support is still required. FEMA is expected to provide continuing staff assistance, the continued use of the NCP planner, as well as detailed guidance and assistance in the public information, training, and exercise areas.

The question of funding for many of the areas to be upgraded remains unsolved. New Hampshire has provided some projected costs and others will be forwarded as received. New Hampshire feels that a planner and a secretary will be required for plan maintenance, updating and exercising.

Federal Review of
Radiological Emergency Preparedness
State of New Jersey

1. General Background

There are 2 operating nuclear power plant sites in the State of New Jersey. The Oyster Creek site located in Ocean County, contains 1 unit which became operational in August, 1969. It is operated by the Jersey Central Power and Light Company. The Salem (Artificial Island) nuclear power plant, located in Salem County, is operated by Public Service Electric and Gas Company. It contains 2 units which became operational in December 1976, and April 1980, respectively.

There are also 2 sites with construction permits in New Jersey. The first, Forked River in Ocean County, will be operated by Jersey Central Power and Light Company and will consist of 2 units. The other is Hope Creek also with 2 units, collocated with Salem on Artifical Island and will be operated by Public Service Electric and Gas Company.

The only county within the 10-mile plume exposure pathway emergency planning zone (EPZ) of the Oyster Creek site is Ocean County with 2,800 people living within the zone. The Forked River site is under construction and is located near Oyster Creek and affects the same area. There are 2 counties and 25,000 people within the 10-mile EPZ for the Salem site. The counties are Salem and Cumberland. The Hope Creek site is collocated with Salem and will affect the same area and population.

2. Status of Preparedness

New Jersey wrote a State plan, titled the New Jersey State PIPAG (Procedures for Implementing Protective Action Guides) Manual-An Emergency Response Plan for Major Nuclear Facilities, in August 1976, and updated it in November 1977. The State plan received concurrence from the Nuclear Regulatory Commission in September 1977.

The State of New Jersey has assigned 2 agencies (the Department of Environmental Protection and the New Jersey Division of State Police) to serve as their Office of Primary Responsibility for rewriting the existing plan to comply with the new criteria. The rewriting effort was initiated in March, 1980 and incorporated the affected counties. The plan is being rewritten in 2 volumes: Volume I, Radiological Assessment, being prepared by the New Jersey Bureau of Radiation Protection of the New Jersey Department of Environmental Protection and Volume II, Emergency Response, being prepared by the Emergency Management Section of the New Jersey Divison of State Police.

A meeting to discuss contiguous State planning was conducted during May 1980, between State planning officials of New Jersey and Delaware and regional personnel from FEMA Regions II and III. The State of New Jersey is presently drafting a Memorandum of Understanding between the 2 States in reference to the 10-mile EPZ for the Salem site. New Jersey is also drafting a Memorandum of Understanding between New Jersey and each State within the 50 mile ingestion exposure pathway EPZ (Maryland, Pennsylvania, New York, and Delaware) in reference to their responsibilities and points of contact during an emergency.

The State of New Jersey is working to have their plan revised in draft based on the new criteria by June 1980. Exercises of the State plan will be conducted for Salem in September 1980, and for Oyster Creek in November 1980. Based on the informal review of the plans by Region III staff during the rewriting process, the draft should satisfy the applicable State/local criteria elements of the new guidance with a few exceptions related to the planning and physical implementation involved with the following:

1. A prompt public notification system. The estimated completion time is June 1, 1981.

2. The near-site emergency operations facilities. The projected start of construction is January 1, 1981.

3. Exposure control and detection systems. Scheduled completion date is September 1, 1980.

4. Potassium iodide. Decisions on distribution to be made approximately 3 months after potassium iodide becomes available.

5. Public education pamphlets. To be published and distributed 8 months after funds become available.

6. A more advanced monitoring and communications system is to be completed approximately 6 months after the availability of funds.

3. Items of Special Interest

Recent State legislation established a fund to be used for the planning effort and for the purchase of hardware needed to achieve adequate preparedness. This will be accomplished by assessing a percentage of the gross receipts of the utilities involved. (Public Service Electric and Gas and Jersey Central Power and Light) based on their total operating area. The bill would also establish the State's primary role (as opposed to county/local governments) in the initiation and coordination of a radiological emergency response.

The Public Service Electric and Gas Company has hired Parsons, Brinkerhoff, Incorporated, as consultants to prepare an evacuation analysis for the New Jersey State portion of the 10-mile EPZ for the Salem site. The analysis will be performed in accordance with the new criteria and is scheduled for completion in June 1980.

Federal Review of
Radiological Emergency Preparedness
State of New York

1. General Background

There are 3 nuclear power plant sites ith operating units in New York State. The Indian Point plant is located in Westchester County and contains three units, Numbers 1, 2, and 3, which became operational in March 1962, September 1973, and April 1976, respectively. Units 1 and 2 are operated by Consolidated Edison Company and Unit 3 is operated by the Power Authority of the State of New York (PASNY). Unit 1 is of early design and is no longer operating. The Nine Mile Point plant, located in Oswego County and operated by the Niagara Mohawk Power Company, became operational in August 1969. The Fitzpatrick plant co-located with the Nine Mile Point plant is operated by the Power Authority of the State of New York and became operational in October 1974. The Ginna plant came on-line in September 1969. It is located in Wayne County and is operated by the Rochester Gas and Electric Company. Construction permits for an additional 5 units distributed among these and 3 other sites have been issued. One additional unit is scheduled for the Nine Mile Point site. The Shoreham and Jamesport sites with 1 and 2 units, respectively, are both located in Suffolk County and both will be operated by the Long Island Lighting Company. The Sterling site, with 1 unit proposed, will be in Cayuga County and will be operated by Rochester Gas and Electric Company.

There are 4 Counties and approximately 213,000 residents within the 10-mile emergency planning zone (EPZ) of the Indian Point site. The counties are Westchester, Rockland, Orange, and Putnam. The Nine Mile Point/Fitzpatrick site affect only Oswego County with approximately 35,100 people within the 10-mile EPZ. The Ginna site contains Wayne and Monroe Counties with approximately 38,800 residents in the 10-mile EPZ. The Shoreham and Jamesport sites both affect only Suffolk County within the 10-mile EPZ involving approximately 61,600 and 34,100 residents, respectively. Within a 10-mile radius of the Sterling site are portions of Wayne, Cayuga and Oswego Counties with approximately 39,400 residents.

2. Status of Preparedness

The State "Emergency Plan for Radiological Accidents" was revised in September 1977 and updated in December 1978. The plan received concurrence from the Nuclear Regulatory Commission in January 1979. The plan was informally reviewed by the Regional Assistance Committee (RAC) against the new criteria and comments were provided to the State. The State then established a task force consisting primarily of Office of Disaster Preparedness and the Department of Health personnel to rewrite the State plan in line with the informal

review comments. The work is proceeded in 2 sequential steps: 1) plan formulation; and 2) development of specific operating procedures which incorporates the new criteria. The actual writing of the State plan is scheduled for completion in September 1980, with internal drafts available for review prior to the final submission for review and approval.

The firm of EDS Nuclear has been hired by the utilities at Indian Point and Nine Mile Point to work with the counties to develop off-site plans. As of May 22, about 65% of the new planning criteria had been satisfied for Orange, Putnam, Rockland and Westchester counties (Indian Point) and Oswego County (Nine Mile Point). Revised drafts of these plans are to be submitted to FEMA Region II in June 1980. By mid-July, 1980, draft plans for all counties within 10 miles of Indian Point and Nine Mile Point should be complete. County plans at the Ginna site (Monroe and Wayne counties) are being prepared by the county civil defense directors. The plans should be completed in September or October 1980. Completion of integrated operating procedures for the State and County plans is scheduled for November. Exercises and drills to test the plans will be conducted beginning December, 1980.

The State and county plans will be developed to meet State criteria which the State considers to be more stringent than that contained in NRC/FEMA criteria. The emergency response concept is being specifically tailored to the State's particular demographic, institutional, and political conditions.

Consolidated Edison and the Power Authority of the State of New York have been quite involved in developing planning and response capabilities around Indian Point. Their assistance includes: hiring of consultants to help with State planning and to develop comprehensive evacuation plans and implementing procedures; installing a network of radiation monitoring devices (18 area monitors have been installed to date) and emergency operating facilities operable on a 24-hour basis; initiating studies to determine the best method of alerting the population within a 10-mile radius (methods under study include a siren system, a system utilizing telephone equipment, radio alert systems, and various combinations of these); and training of radiological monitors and county emergency preparedness personnel. They have procured inventories of potassium iodide. They intend to install additional radiation monitoring devices around Indian Point to provide for continuous telemetered radiation level readings to a central location.

3. Items of Special Interest

a. Pending Legislation

The Fink Bill has passed the State Assembly and is being considered by the Senate. Its major provisions are as follows:

1) Would clearly establish the State's primary role (as opposed to the county) in initiating and coordinating a radiological emergency response.

2) Would provide for a one-time assessment of $2 million and an annual fee of $500,000 on each utility operating a nuclear power facility support the off-site emergency preparedness, including instruments, other equipment, and staff.

b. State's Monitoring Concept

The State proposes to monitor (on a 24-hour basis) the actual operation of each commercial reactor via a central computer facility in Albany that would simultaneously duplicate data available to the plant operators. The State would, therefore, be able to immediately initiate emergency response procedures if a potentially serious accident develops.

c. Potential Delay at Ginna

Rochester Gas and Electric has repeatedly offered assistance to Monroe and Wayne Counties to develop off-site plans. The counties have declined and are thus far developing plans on their own and in coordination with each other. However, they are lagging behind counties at Indian Point and Nine Mile Point, which are receiving assistance from the utilities. The primary reason for refusing utility assistance is a fear that the utility's consultant costs will be passed on to the consumers, resulting in higher electric bills. Another factor which could delay completion of plans is a dispute between the State, on one hand, and Monroe and Wayne Counties on the other, as to whether the State or the counties should have the authority to initiate and coordinate an emergency response. The projected September 1 date for completion of draft plans for these counties is optimistic and assumes that either or both of the following will occur:

1) Some assistance offered by the utility will be accepted; and/or

2) The State will become more directly involved in preparing the plans.

As of this writing, it is likely that the latter will occur.

Federal Review of
Radiological Emergency Preparedness
State of North Carolina

1. General Background

There is 1 operating nuclear power plant site in North Carolina. The Carolina Power and Light nuclear power plant, Brunswick units 1 and 2, is located 3 miles north of Southport in Brunswick County, North Carolina. Unit 2 began operating in December, 1974, and Unit 1 began operation in November, 1976. The 10-mile emergency planning zone (EPZ) around the site impacts 10,200 persons and affects 2 county governments.

Duke Power has a nuclear facility, McGuire 1, which is scheduled to begin operation in November 1980. McGuire is located 17 miles north of Charlotte, North Carolina. The 10-mile EPZ around this site impacts 36,600 people and parts of 5 counties.

Carolina Power and Light is also constructing a 4-unit nuclear power plant site, Harris 1, 2, 3 and 4, 20 miles southwest of Raleigh, North Carolina. This facility, when completed, will impact upon 13,900 people and 4 counties within the 10-mile EPZ.

2. Status of Preparedness

The North Carolina radiological emergency response plan, as developed under prior criteria, was nearing the point of NRC concurrence when the criteria was changed in early 1980.

North Carolina has undertaken a rewrite of the State Radiological Emergency Plan to meet the new criteria. The State planning staff has indicated that site-specific plans for the Brunswick facility will be completed by August 1, 1980. Additional site-specific plans for McGuire, Harris, and Perkins will be in the same format. The Regional Assistance Committee (RAC) expects to review the preliminary North Carolina site-specific plans early in July 1980.

3. Items of Special Interest

State planning officials have raised opposition to the 15-minute warning criteria and indicate that the criteria will be impossible to meet in North Carolina without the expenditure of extremely large sums for warning devices.

Federal Review of
Radiological Emergency Preparedness
State of Ohio

1. General Background

There is 1 one operating nuclear power plant in the State of Ohio, Davis-Besse, operated by Toledo Edison Company, impacting on approximately 17,200 persons in Ottawa and Lucas Counties within the 10-mile emergency planning zone (EPZ). Two nuclear facilities are in the construction phase: Perry in Lake County, which will impact on approximately 68,300 persons in Lake, Ashtabula, and Geauga Counties within the 10-mile EPZ; and Zimmer in Clermont County, which will impact on approximately 16,300 persons in Clermont County within the 10-mile EPZ. In addition to the above, a population of 32,100 in Columbiana County lies within the 10-mile EPZ of the Beaver Valley nuclear power plant in Pennsylvania.

2. Status of Preparedness

The Ohio Plan for Response to Radiological Emergencies at Licensed Nuclear Facilities will be appended to the State's Emergency Operations Plan. The original State radiological emergency plan, which included the Ottawa County plan was rewritten to conform with the new criteria and submitted to the Regional Assistance Committee (RAC) in April 1980. The State expects to revise the plan as a result of the RAC review by June 1980. Plans for the area of Columbiana County within the 10-mile EPZ of the Beaver Valley nuclear power plant started according to the State's schedule, and will be completed in December 1980. Planning involving counties impacted by the 10-mile EPZ of the Zimmer facility (still under construction) will be completed by December 1981. The Perry facility planning will be completed by December 1982, according to the State.

Scheduled exercises of the State and facility plans are as follows: Davis-Besse, September 1980; Zimmer, July 1981; and Perry, June 1983. Yearly tests are scheduled following these initial tests by the State. Exercises involving the area impacted by the Beaver Valley facility have not been scheduled.

Federal Review of
Radiological Emergency Preparedness
State of Oregon

1. General Background

There is 1 operating nuclear power plant in Oregon. The Trojan Plant, located in Columbia County (30 miles northwest of Portland) is operated by the Portland General Electric Company. It contains 1 unit which became operational in November 1975. The 10-mile emergency planning zone (EPZ) in Oregon includes only Columbia County and approximately 5,400 residents. However, it also includes Cowlitz County in the State of Washington with approximately 51,000 people residing within the 10-mile EPZ.

2. Status of Preparedness

The State had prepared a State Plan ("Accident Response System") in March 1976 based on previous criteria. This plan, which included plans and procedures for Columbia County, never received a concurrence from the Nuclear Regulatory Commission. However, the plan was exercised annually (most recently in December 1979) and the exercise was found to be adequate. The State issued revised plans and procedures in April 1980, which are intended to be in full compliance with the new guidance criteria. The Region X Regional Assistance Committee (RAC) has completed its initial review of the revised plan and found that it addressed most of the essential criteria elements. Further revisions are necessary but, for the most part, they pertain to items which will require minor changes, clarification, and documentation of the capability that already exists.

Implementation of the plan and training of response personnel will begin in July 1980. A tabletop exercise is scheduled for October 1980, and a field exercise will be conducted in December 1980, or January 1981.

Oregon State's personnel are somewhat knowledgeable with respect to their plans, procedures, and concept of operations. They have the capability for accident assessment and implementation of protective measures for the 10-mile EPZ. However, procedures will have to be developed and training of personnel will have to occur before the State has the capability to implement protective measures for the 50-mile ingestion exposure EPZ.

The public education and public information programs are scheduled for implementation in September 1980. The State has ordered the necessary radiological equipment to fully outfit its Radiological Health personnel. Portland General Electric has installed a dedicated communication system between the Trojan facility and all appropriate emergency operating centers in the States of Oregon and Washington. In addition, they will contract for development of the public warning system by June 1980, with installation to be completed by February 1981.

3. Items of Special Interest

The State of Oregon has passed legislation requiring the operator, Portland General Electric, to provide $100,000 annually for assisting the State in preparing, maintaining, and exercising the State and county radiological emergency plans and procedures.

The Oregon State Health Division believes that the Federal Government should issue specific guidance on the use of protective drugs (potassium iodide) for the general population. Oregon is also uncertain about its interface with various Federal agencies during a response to an incident and feel this area needs further coordination.

Federal Review of
Radiological Emergency Preparedness
Commonwealth of Pennsylvania

1. General Background

Pennsylvania has 3 operating nuclear power plants. The Peach Bottom site is located in York County and affects approximately 15,800 people in the 10-mile emergency planning zone (EPZ). The facility is operated by the Philadelphia Electric Company. Its 2 units became operational in October 1973 and July 1974. The Beaver Valley site, located in Beaver County and operated by the Dusquesne Light Company, became operational in January 1976. There is a population of approximately 115,100 located in the 10-mile EPZ. The Three Mile Island facility, operated by Metropolitan Edison Company, is located in Dauphin County and impacts on 161,500 people within the 10-mile EPZ. The 2 nuclear plants were initially licensed to operate in April 1974 and February 1978. Unit 2 has been shut down indefinately and Unit 1 is currently not operating. Dusquesne Light Company has a construction permit for an additional unit at Beaver Valley. Philadelphia Electric Company is constructing a 2-unit nuclear power plant (Limerick) in Montgomery County which will impact on approximately 159,200 people within the 10-mile EPZ. The first unit is scheduled to begin operation in November 1983 and the second unit is scheduled for operation in November 1985. Pennsylvania Power and Light is constructing a 2-unit nuclear power plant (Susquehanna) in Luzerne County. There is a population of approximately 52,400 living in the 10-mile EPZ. The first unit is expected to begin operation in December 1981, and the second unit in April 1983.

Counties within the 10-mile EPZ of the operating facilities are: Lancaster and York affected by both Peach Bottom and Three Mile Island; Beaver affected by Beaver Valley; and Cumberland, Dauphin, and Lebanon affected by Three Mile Island. An additional 5 counties are within the 10-mile EPZ for the sites with construction permits. They are Luzerne and Columbia Counties affected by Susquehanna; and Berks, Chester, and Montgomery Counties affected by Limerick.

2. Status of Preparedness

Following the accident at Three Mile Island, the State Disaster Operations Plan, Annex E, Emergency Nuclear Incidents (Fixed Nuclear Facility) was revised in September 1979. This plan, while partially based on the previous guidance, had not received concurrence from the Nuclear Regulatory Commission. The Commonwealth has now prepared a draft revision of Annex E Fixed Nuclear Facility Incidents dated March 1980, which is based on the new criteria.

The Regional Assistance Committee (RAC) reviewed the draft against the new criteria and determined that 3 criteria items are completely missing. They are: 1) the plans for dispatching representatives to the plant operator's near-site emergency operating facility; 2) the decision chain for authorizing emergency workers to incur radiological exposures in excess of the general protective action guides; and, 3) an appendix listing, by title, procedures required to implement the plan. An additional 39 criteria elements were found to need work to bring them fully into compliance with the criteria. However, they generally require only minor changes and a minimum amount of work before the plans can be formally submitted. Many of the criteria, particularly those dealing with the development of specific procedures, need only to be strengthened, clarified and made more specific. The Commonwealth is incorporating the review comments into the revised State plan and intends to complete all State planning by January, 1981.

The county plans for the Three Mile Island facility (York, Lancaster, Dauphin, Lebanon and Cumberland) have been submitted to the RAC for review. The Beaver County plan (for Beaver Valley) is currently under development. The York and Lancaster County plans and procedures which are site-specific for the Peach Bottom facility are nearly complete. The RAC anticipates completing their review of these county plans by the end of July 1980. The local plans deal principally within the 10-mile EPZ. There are no plans yet which cover the 50-mile ingestion exposure EPZ. The State plan and the 5 counties surrounding Three Mile Island will exercise their plans on July 16, 1980.

The Region III RAC believes that the overall level of preparedness in Pennsylvania is good and will get better when all the county plans are completed and a vigorous exercise program is implemented.

3. Items of Special Interest

The Three Mile Island facility assigned a planner to work with the State on the July 1980 exercise and revision of the State plan.

A U. S. Department of Agriculture meeting was held in March 1980, to address the 50-mile ingestion exposure EPZ. The Commonwealth's Department of Agriculture has expressed some reluctance to do the detailed planning necessary for the 50-mile EPZ.

Federal Review of
Radiological Emergency Preparedness
State of South Carolina

1. General Background

There are 2 nuclear power plant sites with operating units in the State of South Carolina: H.B. Robinson, in Darlington County, and impacting Chesterfield and Lee County populations of 27,900 within the 10-mile emergency planning zone (EPZ); and Oconee, in Oconee County and impacting Pickens County with a population of 41,400 within the 10-mile EPZ.

Three additional sites are currently under construction: V.C. Summer, Fairfield County, which will affect Newberry, Richland, and Lexington County populations in the 10-mile EPZ of 9,200 when the unit becomes operational (estimated for early 1981); Cherokee, in Cherokee County affecting 33,500 persons, and Catawba, in York County affecting 64,000 persons in the 10-mile EPZ.

2. Status of Preparedness

In 1977, South Carolina was one of the first States to receive Nuclear Regulatory Commission concurrence in its radiological emergency plan under prior criteria. The current plan updated in December 1978, was reviewed by the Regional Assistance Committee (RAC) in April 1980. State planners are actively rewriting the plan to conform to new criteria. The target date for the revised State plan is July 1, 1980. Site specific local plans for the 2 operating sites are projected for late 1980. Local plans for the Summer site are estimated for completion by March 1981.

The warning criteria of 15 minutes will, apparently, not be met until funds are made available to the State for this purpose. This warning capability requirement affects the populations listed above.

3. Items of Special Interest

In April 1980, Governor Richard W. Riley issued a directive to assess the State's off-site response capabilities in the event of a nuclear facility incident. A Task Force was established and conducted extensive interviews with representatives from State

agencies, the nuclear industry, and the Federal Government regarding their respective roles, responsibilities, and capabilities. The report reflects the status of State capabilities as they existed during the survey period. It should be noted that many of the Task Force recommendations are currently being initiated. The Task Force concluded that the new NRC/FEMA criteria provides a sound basis for the identification of essential planning elements, but the Task Force questions if the means for implementation are available.

Federal Review of
Radiological Emergency Preparedness
State of Tennessee

1. General Background

In the State of Tennessee there are 5 nuclear power plant sites, only 1 of which, Sequoyah, in Hamilton County, has 1 unit conducting low power testing and another unit scheduled to be operating in July 1980. The Sequoyah facility, operated by the Tennessee Valley Authority (TVA), impacts on an estimated 35,700 persons within the 10-mile emergency planning zone (EPZ).

Other facilities under construction by TVA and populations impacted by their 10-mile EPZs are: Watts Bar in Rhea County, 11,800 persons; Hartsville in Smith County, 13,000 persons; and Phipps Bend in Hawkins County, 20,600 persons.

2. Status of Preparedness

Since early February 1980, the State has undertaken a complete rewrite of the Tennessee Multi-Jurisdictional Radiological Emergency Plan for the Sequoyah plant in conformance to the new criteria. The revised plan was reviewed by the Regional Assistance Committee (RAC) in April 1980, with a final review scheduled for June 1980. An exercise of the plan was conducted June 16 and 17, 1980.

FEMA conducted a special warning survey study to enable Tennessee planners to design the warning system required to meet the 15-minute warning criteria. The Tennessee Valley Authority, under seperate contract, has funded the preparation of the plan, training for State and local personnel, and for exercising the plan. TVA has also provided staff augmentation to the State Department of Public Health, Division of Radiological Health.

September 1980, has been set as the target date for completion of the site-specific plan for the Watts Bar facility. No other planning has as yet been scheduled.

Federal Review of
Radiological Emergency Preparedness
State of Vermont

1. General Background

The Vermont Yankee nuclear power plant, operated by Vermont Yankee Nuclear Power Company is located 5 miles south of Brattleboro in Windham County. The nuclear power plant was licensed to begin operation in February 1973. The 10-mile emergency planning zone (EPZ) for this site encompasses 6 towns with a population of about 14,900. Yankee-Rowe nuclear power plant, operated by the Yankee Atomic Power Company and located in Massachusetts, has been licensed to operate since July, 1960. There are 6 towns in Vermont with a population of about 5,000 located in the 10-mile EPZ for this site.

2. Status of Preparedness

The Commissioner of the Department of Public Safety (DPS) is responsible for the State's radiological emergency planning, and the Planning Division of the Department has been assigned the planning function. In the months following the accident at Three Mile Island, the Department of Public Safety has made a dedicated effort to develop an effective plan for the State and the 12 towns. Although Vermont did not have the benefit of the new criteria when their draft plan was published in January 1980, they did include the 10-mile EPZ, emergency classification and action levels and other refinement to previous guidance. Since the new criteria was published, the State has undertaken a continuous upgrading effort.

During the last few months, members of the Region I Task Force on Radiological Emergency Preparedness have worked with Vermont to review the plan, interpret the criteria and suggest improvements. The Regional Assistance Committee examined the plan (with changes through April 9, 1980) in detail, and made a formal review presentation to Vermont officials in May 1980. Vermont has examined the review comments, identified potential problems and resources required, and scheduled a completion date of June 1980. One local plan (Vernon) has been received and is now under review at the FEMA Regional Office. Other local plans are under development.

The State intends that exercising be conducted annually in 4 phases. Three exercises will evaluate individual components of the plan, and 1 will be a total comprehensive response exercise. The projected date for the first exercise is December, 1980.

3. Items of Special Interest

To assist the State in its preparedness posture, FEMA has authorized the use of 2 planners; 1 from the Nuclear Civil Protection Contract, and 1 from the Diaster Preparedness Improvement Grant.

The question of funding for many of the areas to be upgraded remains unsolved. Vermont has provided some projected costs. Vermont feels that a planner and a secretary will be required for plan maintenance, updating and exercising.

Federal Review of
Radiological Emergency Preparedness
Commonwealth of Virginia

1. General Background

There are 2 operating nuclear power plant sites in Virginia which are operated by the Virginia Electric and Power Company. The Surry site, located in Surry County, has two units which became operational in May 1972 and January 1973, respectively. The 10-mile emergency planning zone (EPZ) for this site encompasses parts of 5 counties (Surry, James City, York, Newport News, and Isle of Wight), and a resident population of approximately 62,100 people. The North Anna site, located in Louisa County, has 2 units in operation. One unit became operational in November 1977, and the second unit began low power testing in April 1980. An additional 2 units have construction permits. The 10-mile EPZ for this site includes parts of 5 counties (Louisa, Spotsylvania, Hanover, Caroline, and Orange), and a resident population of approximately 8,300 persons.

2. Status of Preparedness

The Commonwealth's Office of Emergency and Energy Services, in cooperation with the Health Department, has lead responsibility for radiological emergency planning. Their Radiological Emergency Response Plan is included as Annex I-V to Volume II of the Emergency Operations Plan - Peacetime Disaster. The State Plan Annex was prepared in April 1967, and most recently revised in October 1979, based on the previous criteria. It received concurrence from the Nuclear Regulatory Commission in October 1979.

The Region III Regional Assistance Committee (RAC) recently reviewed the State Plan against the new criteria. Concurrent with the RAC review, the State has begun revising the State plan based on the new criteria. The plan was already based on 10- and 50-mile emergency planning zone concepts. The State schedule for completion of radiological emergency planning activity is as follows: June 1980 - begin updating county plans and submit draft State plan for review; September 1980 - exercise State plan at 1 site with all associated counties participating; October 1980 - complete State and local plans; December 1980 - complete warning systems.

Virginia Electric and Power Company, the operator of the 2 nuclear power plant sites, has contracted with a consulting firm to make a feasibility study for warning systems around each of the facilities. System designs have not been completed, but the firm has submitted a series of reports on the North Anna site and recommends use of outdoor sirens only. The operator plans to provide both an improved warning system and an improved communication system. However, when installed, the operator expects the local governments to assume responsibility for maintenance. The target date established by the operator for installation of the 2 systems at both sites is December, 1980. State officials believe that this is an unrealistic date.

Federal Review of
Radiological Emergency Preparedness
State of Washington

1. General Background

Washington is contiguous to the Trojan nuclear facility in Oregon which is operated by Portland General Electric. This site contains 1 unit which became operational in November 1975. Its 10-mile emergency planning zone (EPZ) extends into Cowlitz County, Washington and includes approximately 51,100 residents.

There are 5 units that are being constructed by the Washington Public Power Supply System (WPPSS) in 2 locations. Units 1, 2, and 4 (Hanford) are located in Benton County on the Hanford Nuclear Reservation. Two counties (Benton and Franklin), with approximately 1,500 residents are within the 10-mile EPZ. Off-site planning for these facilities will also include planning for a Department of Energy "N" reactor located at this same facility. Units 3 and 5 (Satsop) are located in Grays Harbor County. The 10-mile EPZ for Satsop encompasses portions of Grays Harbor and Mason Counties involving approximately 8,000 persons.

2. Status of Preparedness

The Washington State Plan for Fixed Nuclear Facility Incidents was prepared in May 1976 and updated in April 1977. It received concurrence from the Nuclear Regulatory Commission in March 1977. This plan, which is based on previous criteria, was reviewed against the new criteria by the Region X Regional Assistance Committee (RAC) in April 1980. Much of the information required was missing or, if present, difficult to find, or lacking sufficient detail. The plan needs to be rewritten to meet the new criteria. Following the Region X RAC review, comments were provided to the State. FEMA also developed and provided a format guide and content and schedule for submission of revised State plans and procedures.

The local plans for Cowlitz County are being revised with the assistance of Portland General Electric and will be submitted for review by the RAC in July 1980. The State will be submitting portions of their plan for RAC review beginning in June 1980 with total submission by September 15, 1980. Planning for Hanford (Benton and Franklin Counties) has begun with submission of plans and procedures scheduled for March 1981. The plans and procedures for Cowlitz County are currently being revised. They will be completed and submitted for RAC review in July 1980.

The plans for the State of Washington and Cowlitz County have been exercised annually, with the most recent exercise conducted in December 1979. The State and county plan to exercise jointly with the State of Oregon during a tabletop exercise in October 1980 and a field exercise in December 1980 or January 1981.

The State Health personnel have not demonstrated a capability for accident assessment. Appropriate procedures will have to be developed and training of personnel will have to occur before the State has the capability for accident assessment and implementation of protective measures for the 50-mile ingestion exposure EPZ.

The Portland General Electric Company has installed a dedicated communication system between the Trojan facility and all appropriate emergency operating centers in the States of Washington and Oregon. In addition, they contracted for development of the public warning system in June 1980, with an estimated completion of installation by February 1981.

The Environmental Health personnel have acquired the necessary radiological equipment to fully outfit their Radiological Health personnel. The public education and public information program for Cowlitz County, in conjunction with the State of Oregon and Columbia County, are scheduled for implementation by September 1980.

3. Items of Special Interest

Two of the response agencies in Washington (Department of Emergency Services and Department of Social and Health Services) do not feel that they have sufficient legislative authority to fulfill their responsibilities as outlined in their response plan. Both agencies feel the lack of clear authority to respond to an accident at a nuclear facility which is not licensed or regulated by the State; (i.e, Department of Energy facilities on the Hanford Nuclear Reservation or Department of Defense facilities such as the Trident Submarine Base at the Navy's nuclear shipyard at Bremerton). The State would like to have these facilities included in their State planning effort.

Washington State is concerned over the absence of a system and/or program to coordinate and deliver training, education supplies (i.e., emergency equipment), and manpower support to the affected counties. They would like to develop a permanent forum of the concerned parties (State and Federal agencies, affected counties, and utilities within and outside the State) so that issues, concerns, capabilities, and preparedness items could be discussed on an ongoing basis.

Federal Review of
Radiological Emergency Preparedness
State of West Virginia

1. General Background

There are no operational nuclear power plants in West Virginia. However, the state is affected by the Dusquesne Light Company's Beaver Valley nuclear power plant in Pennsylvania. Hancock County and approximately 8,600 people are within the 10-mile emergency planning zone (EPZ) for this site.

2. Status of Preparedness

West Virginia has an April 1969 plan entitled, "Peacetime Radiological Incident Control Plan." However, this document does not deal with nuclear facilities. In November 1979, the State reported that they were not active in development of State or local plans because of staffing limitations. Subsequent to that, the State received a commitment from the Dusquesne Light Company to assist the State and Hancock County. The State radiological emergency plan will be submitted to the Regional III Radiological Assistance Committee (RAC) in June 1980. The Hancock County plan was submitted to the RAC on June 15, 1980.

An employee was recently assigned as a planner under the Nuclear Civil Protection (NCP) contract. His first assignment is to prepare a West Virginia State Radiological Emergency Response Plan. The State plan should provide support to Hancock County in the 10-mile EPZ and in the 50-mile ingestion EPZ.

The Duquesne Light Company is working on the establishment of a notification system for the residents of Hancock County who reside within the 10-mile EPZ for the Beaver Valley facility, and a communications system which will provide suitable contact between the facility and the Hancock County Office of Emergency Services.

Federal Review of
Radiological Emergency Preparedness
State of Wisconsin

1. General Background

There are 3 operating nuclear power plant sites in the State of Wisconsin. The LaCrosse site, located in Vernon County, is operated by the Dairyland Power Company. The facility was licensed and began operation in July 1967. There are approximately 1,100 people living in the 5-mile plume exposure pathway emergency planning zone (EPZ) recommended for this small plant.

The Wisconsin-Michigan Electric Power Company operates 2 nuclear power units in Manitowoc County. The two units at the Point Beach plant were licensed to operate operation in November 1970 and March 1973. The Point Beach site in Manitowoc County has a population of approximately 23,200 living in the 10-mile EPZ. The Kewaunee facility, operated by Wisconsin Public Service Company, is located in Kewaunee County and affects approximately 11,100 people living in the 10-mile EPZ. A population of approximately 81,800 live in Kenosha County within the 10-mile EPZ of the Zion nuclear power plant in Illinois. There are also 7,500 people living in Pierce County who are within the 10-mile EPZ of the Prairie Island nuclear power plant in Minnesota.

2. Status of Preparedness

The State submitted its draft Peacetime Radiological Emergency Response Plan in March 1980, and the Regional Assistance Committee (RAC) reviewed the plan in April 1980. Many of the RAC's comments addressed language, documentation and specificity needs. The State generally concurred in the recommendations, but they would like the Federal Emergency Management Agency to clarify some of the new criteria items. The effective date for the revised State plan will be June 30, 1980.

The Vernon County (LaCrosse), Pierce County (Prairie Island), and Kewaunee County (Kewaunee nuclear power plant) plans have been reviewed by the RAC and their comments have been incorporated in the plan. The Dunn County hosting plan for Pierce County citizens has also been reviewed by the RAC and the necessary revisions incorporated Manitowoc County (Point Beach) and Kenosha County (Zion) plans are being reviewed by the State and will be submitted for RAC review by June 30, 1980. Racine County and Walworth County hosting plans for Kenosha County (Zion) citizens are also being reviewed by the State and will be submitted for RAC review by June 30, 1980.

The State is proposing to test its plan and the Pierce County (Prairie Island) plan in September 1980. The entire State staff has been most responsive to the new requirements and timely in its responses during the planning effort.

B. Results of Federal Review - States Affected by Nuclear Power Plants Scheduled For Operation in the Future

This part of the report presents the current status of radiological emergency preparedness in the following 9 States:

Arizona	Louisiana
Indiana	Mississippi
Kansas	Oklahoma
Kentucky	Rhode Island
	Texas

These 9 States do not currently have operating commercial nuclear power plants within or near their borders. They are however, affected by facilities either 1) under construction within the State, 2) under construction in an adjacent State, or 3) planned within the State.

A summary of the major issues identified by the States and a summary of the generic problems identified in the Federal review are both presented in Part V of this report.

Federal Review of
Radiological Emergency Preparedness
State of Arizona

1. General Background

Palo Verde will be the only nuclear power plant affecting the State of Arizona in the near future. The facility, to be operated by the Arizona Public Service Company, was granted a construction permit in May 1976. The plant will have 2 units. It is expected to be fueled in 1982 and be operating in April 1983. The site is located west of Phoenix at Palo Verde in Maricopa County and the 10-mile plume exposure pathway emergency planning zone (EPZ) lies entirely within the county. Approximately 2,700 people reside within the zone which is in a remote desert area.

2. Status of Preparedness

FEMA Region IX staff will begin work in June 1980, with the Arizona State staff to discuss State/county planning as follows: review the State work schedules, products, and means of accomplishing the planning objectives; review the new criteria and discuss FEMA national guidance, policies, and philosophy affecting off-site nuclear power plant emergency planning, and preparedness criteria; and, identify possible future Federal resources and assistance that may be needed to expedite development of plans. The planning schedule established by the State is as follows:

a. Planner training and orientation - early 1980;
b. Detailed concept of operations - early 1980;
c. First draft plan - end of 1980;
d. First draft, radiological technical aspects of draft plan - end of 1980;
e. Evaluation and testing of first draft - mid-1981;
f. Identification of requirements for capability development - mid-1981 - in the following areas:

   (1) Communication hardware
   (2) Radiological equipment
   (3) Alert system hardware
   (4) Training of personnel
   (5) Response organizations training exercise

g. Partial capability development - end of 1981
h. Capability development completed - end of 1982

3. Items of Interest

Arizona is off to a good start in its initial off-site planning efforts. The State is in a unique position in that it has appropriate legislation, adequate funding and manpower, and a competent planning staff.

In May, 1980, Arizona House Bill 2171 was signed into law by Governor Bruce Babbitt. The bill designates the Division of Emergency Services (DES) as the lead agency in planning, appropriates $125,000 of State funds for the planning process, and assigns DES to coordinate and provide emergency services in the event of a state of emergency resulting from an accident at a nuclear facility. The Arizona Atomic Energy Commisson is to develop the technical radiological operational aspects of the emergency plan.

Federal Review of
Radiological Emergency Preparedness
State of Indiana

1. General Background

There are 2 nuclear power plants being constructed by Northern Indiana Public Service in the State of Indiana: Bailly in Porter County, impacting on approximately 91,700 persons in the 10-mile emergency planning zone (EPZ) in Porter and LaPorte Counties, and Marble Hill in Jefferson County, impacting approximately 11,000 persons in the 10-mile EPZ in Jefferson, Scott, and Clark Counties.

2. Status of Preparedness

The original State plan for radiological emergencies was written in July 1974, and revised in May 1980, to conform with the new criteria. July 1980 has been tentatively set for initial review of the 10-mile EPZ portion of the plan by the Regional Assistance Committee (RAC). The State's timetable for completing plans for areas affected by the ingestion exposure pathway (50-mile EPZ) is December 1980.

Since there will be no operating nuclear power plants within the State until 1982, no schedule of testing or exercising has been set. Procedures have been written to implement the State plan. A draft plan for Jefferson County has been written; however, no other affected counties have begun planning.

Federal Review of
Radiological Emergency Preparedness
State of Kansas

1. General Background

The Kansas Gas and Electric, Wolf Creek nuclear power plant, located 3.5 miles northeast of Burlington, Kansas, is presently under construction with an estimated completion date during 1983. The 10-mile emergency planning zone (EPZ) is confined to Coffey County and affects 3,700 people. Three Kansas counties; Brown, Nemaha, and Doniphan, fall within the 50-mile ingestion exposure EPZ of the Cooper nuclear power plant in Nebraska.

2. Status of Preparedness

The radiological emergency plan for the State of Kansas was completed in 1978, reviewed by the Regional Advisory Committee (RAC) and subsequently received NRC concurrence. The Kansas Plan was developed to respond to any incident at the Cooper nuclear power plant, Brownville, Nebraska.

Kansas estimates that their State plan will be updated to comply with the new criteria by October 31, 1980, and that the local plans will be updated by December 31, 1980. These revisions will be in support of the Cooper nuclear power plant and the Wolf Creek nuclear power plant.

Even though the State of Kansas is not within the 10-mile EPZ of Cooper, Kansas has participated in all Cooper exercises in the past. The State of Kansas was one of the first States to recognize the need for and to develop a plan for response to nuclear power plant incidents. This effort dates back to as early as 1973.

Federal Review of
Radiological Emergency Preparedness
Commonwealth of Kentucky

1. General Background

There are no operating nuclear power plants in the Commonwealth of Kentucky, nor are there any nuclear power plants under construction or planned. The State is, however, contiguous to 2 facilities under construction: Marble Hill in Jefferson County, Indiana; and Zimmer in Clermont County, Ohio.

The Marble Hill facility impacts on Oldham and Trimble counties within the 10-mile emergency planning zone (EPZ), affecting an estimated 6,700 persons. The Zimmer facility impacts on Bracken, Pendelton, and Campbell Counties within the 10-mile EPZ, affecting an estimated 7,200 persons.

2. Status of Preparedness

The State plan is to be incorporated as Annex Q to the State National Disaster Plan. It was written to conform to new criteria and was reviewed by the Regional Assistance Committee in March 1980. Modifications to the plan as a result of that review are expected to be complete for the portion of the plan dealing with the Zimmer facility in June 1981. No plan is under development at this time for the contiguous area impacted by the Marble Hill facility.

Federal Review of
Radiological Emergency Preparedness
State of Louisiana

1. General Background

Currently there are no operating commercial nuclear power plants in Louisiana, nor are there any in the adjacent States which now affect the State. This situation is due to change in the near future. Approximately 700 people in Tensas Parish are within the 10-mile emergency planning zone (EPZ) around the Grand Gulf nuclear power plant in Claiborne County, Mississippi. Grand Gulf is expected to begin operations in 1981.

Louisiana Power and Light is constructing a commercial nuclear power plant at its Waterford site, located in St. Charles Parish, 20 miles west of New Orleans. The facility is expected to begin operation in 1982. There are approximately 42,600 people living in the 10-mile EPZ around the site.

Gulf States Utilities is constructing 2 nuclear power plant units at the River Bend site in West Feliciana Parish, 24-miles north north west of Baton Rouge. The first reactor is licensed to begin operation in 1985, and the second in 1995. This nuclear power plant facility will affect 19,200 people and 5 parishes within the 10-mile EPZ.

2. Status of Preparedness

The Louisiana State Radiological Emergency Plan, along with site specific plans for Tensas Parish, were completed in April 1980, and forwarded to FEMA Region VI for unofficial review, comment and assessment as a first effort, "rough draft" plan intended to comply with the new criteria. The Regional Assistance Committee convened on May 27, 1980, reviewed the plan in committee, and generally agreed the plan addressed the new criteria areas quite well for the first attempt. The RAC comments and recommendations are being forwarded to Louisiana for their consideration in the rewrite. It is anticipated that the completed State and site-specific plans will be forwarded to FEMA Region VI for RAC review and submission to FEMA headquarters in September 1980.

Federal Review of
Radiological Emergency Preparedness
State of Mississippi

1. General Background

Mississippi Power and Light is in the process of constructing he Grand Gulf nuclear power plant. Grand Gulf is scheduled to begin operation in 1981. It is located in Claiborne County about 25 miles south of Vicksburg, Mississippi. When completed, the power plant will impact 6,600 people within the 10-mile emergency planning zone (EPZ).

The Tennessee Valley Authority is also in the process of constructing a nuclear power plant, Yellow Creek, in Tishomingo County, Mississippi. This facility is located 15 miles east of Corinth, Mississippi. It is scheduled to begin operation in 1985. The facility will impact 7,200 people in the 10-mile EPZ.

2. Status of Preparedness

Mississippi has developed the first draft of the State plan using the new criteria. The FEMA regional staff has reviewed the plan and provided advice and guidance to the State. The 2 commercial nuclear power plants which are under construction are not scheduled for immediate fueling. However, the State does not wish to delay the licensing process and the planning staff has promptly started the planning process. The State has indicated that the State plan will be complete and ready for review by mid-June 1980, with an exercise scheduled for early in 1981.

3. Items of Special Interest

Most of the State planning effort and assistance to local governments has resulted from the diversion of the Nuclear Civil Protection (NCP) planning staff. Additional resources (i.e., manpower and funds) are needed to support radiological emergency planning beyond FY 1980.

Federal Review of
Radiological Emergency Preparedness
State of Oklahoma

1. General Background

Public Service of Oklahoma received a limited work authorization (LWA) from the Nuclear Regulatory Commission (NRC) in July 1978, to begin work on Black Fox nuclear power plant. The site is located 23 miles east of Tulsa. Construction allowed under the LWA has been completed but authority has not been granted to continue work. If the plant becomes licensed, the 10-mile emergency planning zone (EPZ) for this facility could affect 4,100 people living in Rogers County.

2. Status of Preparedness

The State of Oklahoma has not initiated the development of a radiological emergency plan because of the questionable continuation of Black Fox. If and when the possible construction of the commercial nuclear power plant becomes more firm, the State will initiate appropriate actions.

Federal Review of
Radiological Emergency Preparedness
State of Rhode Island

1. General Background

There are no commercial nuclear power plants in the State of Rhode Island. However, there are certain local communities that are within the 50-mile ingestion exposure pathway emergency planning zone (EPZ) of 2 facilities sited in 2 contiguous States. These facilities are: Millstone at Waterford, Connecticut and Pilgrim at Plymouth, Massachusetts. Emergency communication notification with both facilities is established. The Rhode Island State Police is the point of contact for any initial emergency messages sent from the plants.

The State's planning for the implemention of protective measures associated with the 50-mile EPZ is being handled as a contingency plan to the existing Basic State Emergency Plan.

2. Status of Preparedness

The coordinating arrangements required to initiate emergency planning actions with the contiguous States where the facilities are sited is in progress. The timetable for the State and local governments to acquire necessary support equipment and materials,and the hiring and training of the State emergency services personnel is estimated for October 1981.

3. Items of Interest

The State schedule for completion of planning, training of personnel, and acquisition of necessary hardware and equipment will change if funding is not provided. Funding is anticipated from the involved nuclear facilities. No other sources of funding has been identified.

Federal Review of
Radiological Emergency Preparedness
State of Texas

1. General Background

Houston Lighting and Power Company has 2 commercial nuclear power plants under construction at the South Texas site located in Matagorda County, 12 miles south southwest of Bay City. The South Texas 1 unit is scheduled to begin operation in September 1983, and South Texas 2 in September 1985. There are approximately 2,000 people living in the 10-mile emergency planning zone (EPZ).

Texas Utilities Generating Company is constructing 2 nuclear power units at the Comanche Peak site. Comanche Peak 1 is scheduled to begin operation in February 1982. Comanche Peak 2 is scheduled to begin operation in February 1984. The Comanche Peak site is located 4 miles north of Glenn Rose, in Somerville County. There are approximately 6,400 people living in the 10-mile EPZ.

B. Status of Preparedness

The Texas Department of Public Safety, Office of Disaster Emergency Services, has submitted objections to 15 major provisions of the new criteria to NRC and FEMA. Likewise, they have requested clarification on many other provisions of the new criteria.

Despite the objections, the Texas Department of Public Services, Office of Disaster Emergency Services, has initiated a rewrite of the Texas Radiological Emergency Plan. This plan will attempt to meet the general intent of the new criteria, and yet be consistent with State and local laws. The State has indicated they will submit the Plan to FEMA Region VI in August 1980, for review.

3. Items of Special Interest

The State has indicated they do not anticipate receiving any special funds from nuclear utility companies for emergency planning, equipment, or training. It is their point of view that constitutional and statutory law places the responsibility for protecting life and property on government. It would be inappropriate to make a special assessment upon nuclear utilities unless

the same principle would apply to all other commercial enterprises: banks, chemical plants, institutions, etc. They state, "Government services are provided to all segments of commercial and private community; nuclear utilities should not have to pay a subscription fee to receive what is being provided to the remainder of the community at common cost."

III.
Federal Interagency Programs to Improve Radiological Emergency Planning and Preparedness Capabilities

A. Proposed FEMA Rule on Review and Approval of State Radiological Emergency Plans and Preparedness

FEMA is preparing a proposed rule concerning review and approval of State radiological emergency plans and preparedness. This rule proposes to establish policy and procedures for review and appproval by FEMA of State emergency plans and preparedness for coping with the off-site effects of radiological emergencies which may occur at nuclear power facilities. The rule does not cover other Nuclear Regulatory Commission (NRC)-licensed facilities. The rule sets out criteria which will be used by FEMA in reviewing, assessing, and evaluating the plans and preparedness; it specifies how and where a State may submit plans; it describes certain of the processes by which FEMA makes findings and determinations as to the adequacy of State plans and the capability of State and local governments to implement these plans and preparedness measures. Such findings and determinations are to be submitted to the Governors of affected States and to the NRC for use in its licensing proceedings.

The proposed rule codifies the joint FEMA/NRC planning objectives found in "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans in Support of Nuclear Power Plants" (NUREG-0654/FEMA-REP-1)[15] as the basis for judging the adequacy of State and local planning. It is consistent with the language in the proposed NRC rulemaking discussed in Part II.B. of this report.

According to the FEMA proposed rule, State and local plans will be submitted by the Governor of the State to the appropriate FEMA Regional Office for review. The Regional Director will make appropriate public notification and complete a review on an expedited basis. The State, in coordination with the appropriate local governments and the nuclear facility to which the plan applies, will conduct an exercise of the plan. This exercise will be reviewed and critiqued by the FEMA Regional Director using the assistance of appropriate regional personnel from FEMA and other involved Federal agencies. The results of this review and critique will be made known to the State, the nuclear facility management, and the NRC.

Either the State or the FEMA Regional Director will conduct a public meeting at a location near the nuclear facility which the plan supports. Adequate notificaton of the meeting will be given to the public. At the meeting, the State and local government(s) will discuss their plan and describe the concept of operations for their emergency response. FEMA will describe the Federal agencies' role in the review process and make known any judgments it has made regarding the adequacy of the plan.

The public will have had advance access to the plan and will be able to present comments. These meetings are designed to accomplish two main objectives. First, the public will be afforded an opportunity to identify any weakness that they perceive in the plan and be able to discuss any concerns they have. Secondly, by being involved at this phase, the public will be better informed about the preparedness of the State and local governments and should better understand what actions will be taken in the event of an accident at the facility.

When the FEMA Regional Director has completed the review of the State plan, and an exercise has been conducted at the facility to which the plan applies, and a public meeting has been held, then he/she shall forward the State plan, together with the results of the review, the exercise, and the public meeting, to the FEMA Associate Director for Plans and Preparedness.

If, in the judgement of the FEMA Associate Director, the plan with the supporting documentation, is adequate to protect the public health and safety and provides the capability for adequate implementation, he/she shall approve the plan and inform the Governor of the respective State, the NRC, the public, and other appropriate Federal, State, and local agencies.

If the FEMA Associate Director finds that the plans do not adequately meet the planning objectives of the joint FEMA/NRC emergency planning criteria document,[16/] he/she will notify the Governor of the deficiencies. FEMA and the State will discuss the deficiencies and mutually agree on a schedule for correcting them so that the plan can be approved.

The proposed rule provides procedures for amending an approved plan, appeals, maintaining approval status, and adding new facilities. It also includes a stipulation on the frequency for conducting exercises.

B. Nuclear Regulatory Commission Final Rulemaking on Emergency Planning and Preparedness

The Nuclear Regulatory Commission has made a formal reconsideration of the role of emergency planning and preparedness in assuring the continued protection of the public health and safety in areas around nuclear power facilities. After the accident at Three Mile Island, the Commission began this reconsideration in recognition of the need for more effective emergency planning and preparedness in response to reports issued by offices of government and Congressional oversight committees.

In mid-1979, the Commission directed that rulemaking on the subject of emergency planning be undertaken, considered a matter of high priority, and completed expeditiously. On July 17, 1979, the Commission published an Advance Notice of Proposed Rulemaking (44 FR 41483)[17] on emergency plans of State and local governments and of NRC licensees. Approximately 90 comment letters were received in response to this advance notice and the NRC staff analysis of these comments was published in January 1980.[18]

On September 19, 1979, the Commission published for public comment (44 FR 54308),[19] proposed amendments to its regulations concerning the maintenance of emergency plans and a requirement that research reactors also establish and submit emergency plans to NRC. On December 19, 1979, the Commission also published, for public comment (44 FR 75167)[20] proposed amendments for the upgrading of its emergency planning regulations. The comments received and the NRC staff's evaluation will be published in 1980.[21] In addition, the NRC conducted four regional workshops to solicit comments, and these comments were published in April 1980.[22] The NRC staff used the information from these workshops, along with the more than 170 public comment letters concerning the proposed amendments, to develop the final rule.

The final rule is considered an interim upgrade of NRC emergency planning regulations to provide prompt clarification and expansion in areas that have been perceived to be deficient from past experiences. The NRC staff anticipates that further changes in the emergency planning regulations may be proposed and made as more experience is gained after implementing these revised regulations.

The NRC new proposed emergency planning regulations contain the following 3 major changes from past practices:

1. In order to continue operations or to receive an operating license, the NRC will require that an applicant/licensee submit its emergency plans as well as State and local governmental emergency

response plans to NRC. The NRC will then make a finding as to whether the state of on-site and off-site emergency preparedness provides reasonable assurance that appropriate protective measures can and will be taken in the event of a radiological emergency. Specifically:

a. No operating license for a nuclear power plant will be issued unless a finding is made by NRC that the state of on-site and off-site emergency preparedness provides reasonable assurance that appropriate protective measures can be and will be taken in the event of a radiological emergency.

The NRC will base its finding on a review of the FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the NRC license applicant's on-site emergency plans are adequate and capable of being implemented.

b. After January 1, 1981, an operating plant may be required to shutdown if NRC determines that there are such deficiencies that a favorable NRC finding cannot be made or is no longer warranted and the deficiencies are not corrected within four months of that determination.

2. The regulations will have new requirements that emergency planning considerations be extended to "Emergency Planning Zones" (EPZs) around each nuclear power plant. The concept of EPZs has been endorsed by NRC, EPA, and accepted by FEMA and is established as an essential emergency planning criterion in the new FEMA/NRC joint emergency planning interim criteria document discussed in Part III.E. following.

3. Detailed emergency planning procedures to implement radiological emergency plans of nuclear power plants must be submitted by NRC licensees and applicants to the appropriate NRC Regional Office for review.

The Commission is expected to act expeditiously on this proposed final rule.

C. Federal Interagency Assignments of Responsibilities

In his December 7, 1979, statement, the President directed FEMA to "develop and issue an updated series of interagency assignments which would delineate respective agency capabilities and responsibilities and clearly define procedures for coordination and direction for both emergency planning and response".

FEMA is carrying out this directive in several ways. First, through the impending promulgation of three regulations.

1. FEMA is working on a regulation which will outline responsibilities of several Federal departments and agencies in providing assistance to State and local governments in their radiological emergency planning and preparedness activities. In addition to FEMA, agencies involved are the Nuclear Regulatory Commission, Environmental Protection Agency, and the Departments of Health and Human Services, Energy, Transportation, Defense, Agriculture and Commerce.

This regulation will also formally establish Federal interagency organizational arrangements for carrying out this assistance program. Specifically, the regulation will give formal status to the heretofore informal Federal Interagency Central Coordinating Committee (FICCC) and Regional Assistance Committees (RACs).

The main functions of the FICCC, Chaired by a FEMA representative and composed of representatives from each of the above mentioned agencies, will be to provide policy direction of the program of Federal assistance, to help FEMA in resolving issues that arise in the granting of final FEMA approval of a State radiological emergency plan, and to coordinate and approve the work and products of the subcommittees (task forces) on research, training, emergency instrumentation, and public information and education.

The RACs are chaired by a FEMA regional official and have members from Federal agencies represented on the FICCC. The primary functions of the RACs are to assist State and local governments in preparing and reviewing their radiological emergency plans, and in making recommendations to FEMA headquarters on approval of these plans. The RACs also assist in improving the radiological emergency preparedness capabilities of State and local governments.

2. A second regulation being developed that also includes agency assignments is the one dealing with policies and procedures for review and approval of State radiological emergency plans and preparedness measures. The proposed rule, discussed more fully in Part III A., specifies how Federal agencies will work with FEMA, at both the national and regional levels, in assisting with the development of State and local government plans and the approval and exercising of the plans.

3. Another activity which will include delineation of Federal agency responsibilities is a proposed National Radiological Emergency Preparedness Plan (NREPP) which will be designed to strengthen the Federal government's capacity to prepare for and respond to radiological emergencies at nuclear power plants. This plan will clearly define the roles of Federal agencies that should be involved and how their capabilities and resources will be managed during an radiological emergency. We expect to put this plan into regulation form when it is completed. Part III. D. of this report has more to say about this national planning project.

A second way in which FEMA is carrying out the direction of the President to more clearly define Federal responsibilities and procedures related to radiological emergency planning and response is in the interagency organizational arrangements. FEMA has assumed the chairmanship of the FICCC and the RACs. In February 1980, FEMA sponsored a 3-day conference at its U.S. Fire Academy campus in Emmitsburg, Maryland for Federal officials who are involved in the work of these committees. At this conference, the entire radiological emergency preparedness program in support of nuclear power plants was reviewed, including a concentrated analysis of the joint FEMA/NRC interim criteria document for preparation and evaluation of radiological emergency plans. During this analysis, the role of the various participating Federal agencies and specific assignments in applying these criteria were emphasized.

FEMA has also established a new Task Force on Public Information and Public Education under the FICCC which is actively pursuing these concerns. A Task Force on research will be formed in the near future. The existing Task Forces on Training and on Emergency Instrumentation are working actively in their assigned areas under guidance provided by the FICCC.

In May, 1980, the Director of FEMA sent a letter to the heads of all cooperating departments in which he indicated the urgency attached to this activity during the next year, restated what was expected of their organizations in fulfilling the objectives of the President, and asked for the continuing and expanded help of their regional and headquarters management and staff.

D. Development of a Coordinated Federal Radiological Preparedness and Response Capability

The President's assignment of December 7, 1979, for FEMA to take the lead in offsite emergency planning and response activities included responsibility for: (1) developing and issuing an updated series of interagency assignments to delineate Federal department and agency capabilities and responsibilities, (2) defining procedures for coordination and direction of both emergency planning and response, and (3) insuring that the Department of Energy resources and capabilities are available for response to civilian-related radiological emergencies. FEMA has readily accepted those assignments and expects to carry them out expeditiously. It has begun to develop a National Radiological Emergency Preparedness Plan (NREPP). Additional funding has been requested for manpower and other resources in the FY 1980-1981 budgets to handle this new assignment.

In accepting these responsibilities, and looking at what should be included in the national plan, FEMA has examined existing Federal interagency plans, procedures, and capabilities for responding to radiological emergencies. To the extent that existing plans and procedures reflect a capability to respond to radiological emergencies, they will be used and incorporated into a comprehensive, coordinated Federal response capability and these plans and procedures will be improved where necessary. There are 2 interagency plans that are relevant.

The first such plan is the Interagency Radiological Assistance Plan (IRAP).[23] The IRAP was first developed in 1961 by the Atomic Energy Commission for the purpose of providing "prompt and effective radiological assistance... for response to radiological hazards" and the "coordination of Federal, State, and local radiological assistance operations." The IRAP was most recently revised in 1975 by the Energy Research and Development Administration (now DOE), which is currently the designated lead agency for implementing and coordinating the radiological response of the 13 Federal agencies included in this plan.[24] Although the IRAP commits each of these agencies to prepare implementing plans and procedures, many of them have not fully carried out this commitment. IRAP is essentially a statement of participating agency capabilities and resources and an agreement to respond collectively should the need arrive. Some agency resources committed under IRAP were used at the time of the Three Mile Island accident. Rather than a formal implementation of IRAP, some of these agencies independently responded to the emergency without the benefit of DOE acting as the lead coordinating agency for the overall Federal response. DOE did, however, conduct extensive radiological monitoring operations in the vicinity of Three Mile Island, and ultimately gravitated to the position of coordinating the radiological monitoring operations of other Federal agencies.

A revision of IRAP is a needed step toward the development of a coordinated Federal response capability for radiological emergencies. FEMA is working closely with DOE and the other signatory agencies of this plan to prepare a revised plan which provides for a coordinated Federal capability for monitoring, measuring, and assessing the radiation hazards of radiological emergencies. It will assign responsibilities and specify clearly who is in charge of this aspect of the Federal response. This response plan will be an appropriate complement to the NREPP and could be made an annex to it.

A second plan that is relevant to the achievement of a better Federal radiological preparedness and response capability, is the Federal Response Plan for Peacetime Nuclear Emergencies (FRPPNE). The FRPPNE is a policy and planning guidance document rather than a response plan. It defines a spectrum of peacetime nuclear emergencies and assigns planning responsibilities to 31 Federal Departments and agencies. It was published by the Federal Preparedness Agency (now incorporated into FEMA) in April 1977, as an interim document. In its final form, the FRPPNE was intended to include annexes consisting of the Federal operational response plans to cope with the various categories of emergencies defined in the guidance. The response plans were to be prepared by Federal departments and agencies that had cognizance over the nuclear activity that might produce an emergency. Only limited operational planning has been done as a result of the guidance included in the FRPPNE. Some of the concepts and the statements of agencies responsibilities in the FRPPNE should be useful in the development of the NREPP.

Recognizing that the preparation of a comprehensive Federal plan for responding to a radiological emergency cannot be accomplished without time-consuming interagency coordination, and also in recognition of the close tie that will be required between NRC and FEMA, these two agencies will soon reach agreement on a division of responsibilities and functions during an emergency at a nuclear power plant. An enumeration of the agencies' roles and related actions are being set forth in a proposed memorandum of understanding between FEMA and NRC. The resulting agreement will provide an important contribution to the development of the NREPP.

FEMA is taking the following approach in developing the NREPP.

- o A study of the Federal response to the Three Mile Island accident is being conducted, including how this response worked with that of the State and the utility. The purpose of this study is to include the lessons learned in the new national plan.

- o A determination will be made of all the functions that must be a part of the Federal preparedness for, and response to, a radiological emergency at a nuclear power plant. These

functions, which will be the subject of discussion and agreement between FEMA and the agencies concerned, will be translated into agency responsibilities.

- o A clear statement will be developed showing how the Federal response to a radiological emergency should be managed and how it should relate to the response of the State and local governments and the nuclear power plant operator.

- o Planning guidance and administrative requirements will be prepared for use by those agencies assigned responsibilities in the plan to assist them in the initial preparation or revision of their agency plans.

- o FEMA will write a master plan incorporating the above information and considerations.

- o Agency plans will be appended to the master plan to form a consolidated and coordinated National Plan.

- o Appropriate annexes will be prepared on such matters as communications and cost recovery.

- o As a future consideration, FEMA will be looking into the feasibility of adapting the Federal response and decision making to automatic data processing.

FEMA has hired the Systems Research and Applications Corporation to assist in the development of the master plan. This portion of the planning effort should be ready for public comment and trial use in October 1980. The preparation of this national plan would also meet the requirement, in Section 304 of the NRC Authorization Bill for FY 1980, for the President to prepare and publish a National Contingency Plan. This bill (S.562) has been passed by both Houses of Congress and is awaiting Presidential action.

E. New Criteria for Developing and Evaluating Emergency Plans and Preparedness.

In January 1980, NRC and FEMA jointly issued for interim use and comment, the new document entitled: "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (NUREG-0654/FEMA-REP-1).[25] To a great extent, this document incorporates previous guidance intended for use by NRC licensees and State and local governments into one document.[26], [27], [28], [29], [30] The new document also incorporates the lessons learned during and after the accident at Three Mile Island, e.g., improved warning and notification systems and the incorporation of the Emergency Planning Zone (EPZ) concept.

The purpose of this interim guidance and upgraded acceptance criteria is to provide a basis for NRC licensees, State, and local governments to develop radiological emergency plans and to improve emergency preparedness associated with commercial nuclear power plants. It is also intended for use by reviewers in determining the adequacy of State, local and nuclear power plant emergency plans and preparedness. The document contains a series of detailed planning objectives and a listing of specific items of guidance to State and local governments, as well as specific requirements concerning planning and preparedness activities of the licensees of NRC.

Both agencies requested public comment on this interim guidance and acceptance criteria in a Federal Register notice of February 13, 1980 (45 FR 9768).[31] The public comment period ended on May 13, 1980. Both agencies are reviewing the comments received with a view toward publication of a final guidance document in September 1980.

F. Assessment of Evacuation Times Around Nuclear Power Stations

The NRC/FEMA Memorandum of Understanding (MOU) states that in support of NRC licensing reviews, "FEMA will provide NRC with an independent assessment of evacuation times around 12 reactor sites which have the highest population density within the 10-mile Emergency Planning Zone or are mutually agreed upon by FEMA and NRC." Furthermore, "FEMA and NRC agree to discuss future arrangements for similar assessments to be performed by FEMA at other sites with operating reactors and at plants currently under construction."

The 12 sites that NRC selected because they are in high population areas, or are thought to involve special evacuation considerations, are:

	Nuclear Power Plant	State
1.	Indian Point*	New York
2.	Zion*	Illinois
3.	Limerick	Pennsylvania
4.	Bailly	Indiana
5.	Three Mile Island*	Pennsylvania
6.	Fermi	Michigan
7.	Beaver Valley*	Pennsylvania
8.	Shoreham	New York
9.	Seabrook	New Hampshire
10.	Midland	Michigan
11.	Millstone*	Connecticut
12.	Maine Yankee*	Maine

* Licensed to Operate

Although the above 12 sites are those selected for evaluation during FY 1980, NRC requested priority attention for another 13 sites as FEMA resources become available. These sites are:

	Nuclear Power Plant	State
13.	Turkey Point*	Florida
14.	Oyster Creek*	New Jersey
15.	Pilgrim*	Massachusetts
16.	Salem*	New Jersey
17.	Perry	Ohio
18.	Duane Arnold*	Iowa
19.	Haddam Neck*	Connecticut
20.	St. Lucie*	Florida
21.	Trojan*	Oregon
22.	San Onofre*	California

Nuclear Power Plant	State
23. Rancho Seco*	California
24. Catawba	South Carolina
25. Dresden*	Michigan

* Licensed to operate

FEMA agreed to evaluate, independently, the first 12 sites selected by NRC. Currently, FEMA does not have adequate financial resources to evaluate the above 13 sites in FY 1980.

The independent assessments of the evacuation times around the nuclear power plants were conducted by contractors that bid competitively in response to requests for proposals (RFPs). Because of the relatively high population densities within the 10-mile Emergency Planning Zones of Indian Point and Zion, separate contracts were awarded. The contractor for Indian Point is CONSAD Research Corporation, Pittsburgh, Pennsylvania. For Zion, the contractor is Alan M. Voorhees and Associates, McLean, Virginia. The contractor for the remaining sites (with the exception of Seabrook) is Wilbur Smith and Associates, Columbia, South Carolina. During the initial phases of the study, the Governor of New Hampshire objected to Wilbur Smith and Associates conducting the assessment around the Seabrook nuclear power plant, which is located in New Hampshire. The basis for the objection was concern over public acceptance of the assessment because Wilbur Smith and Associates did a study for the Public Services Company of New Hampshire, the owner of Seabrook, in 1974. The technical competence of the organization was not an issue. In order to accommodate the Governor's objection, work by Wilbur Smith and Associates was stopped and the contract with Alan M. Voorhees and Associates was modified to include the assessment for Seabrook.

FEMA recognizes that there is no standard method of assessing evacuation times. Therefore, a central portion of the requests for proposals was for each contractor to outline a methodology provided that an adequate basis for assessing evacuation times is described. Additionally, visits to the 10-mile Emergency Planning Zones and discussions of the assessment with the principal local officials and the nuclear power plant management are required. The objective is to assess the transportation system and routes, the demography of the area under study, and review other evacuation studies that were completed for the area including the estimates of evacuation times prepared by the nuclear facilities in response to a 1979 request by NRC. The general public evacuation assessment is supposed to be conducted under both ideal and adverse conditions. The rationale in terms of traffic flow and weather conditions, in addition to any other conditions, is to be fully described. Also included is an assessment of the evacuation of special facilities, such as hospitals,

prisons, recreational facilities, and transient tourist population at beaches, etc. where special procedures may have to be applied. This part of the assessment is also conducted under both ideal and adverse conditions.

Each contractor is asked to present methods and estimates of times for confirming the evacuation analyses under the different conditions. There are 2 notification assumptions for the assessment. First, the public is notified by whatever means are currently in place within the 10-mile Emergency Planning Zone. Second, the public is to be notified within the 15-minute time frame as provided by the NRC proposed rule on emergency planning. Finally, the contractor is asked to provide any recommendations on ways to improve evacuation around nuclear power plants. Where appropriate, the contractor is to provide a cost estimate for carrying out each recommendation.

Although the contractor reports have not been completed and reviewed in time for this report, some of our tentative conclusions are:

1. The assessment of evacuation times around the nuclear power plant can provide a framework for emergency planning at the local level. It is a focal point for discussion with State and local officials in addition to the nuclear power plant operator. In many instances, it provides a catalyst for developing the local plan.

2. The assessment assists in helping to define the outer boundaries of the 10-mile Emergency Planning Zone, such as the use of political boundaries, natural geographical features, and man-made structures where possible.

3. The assessment assists in establishing subareas based on population considerations and meterological conditions that provide priorities with regard to evacuation.

4. The assessment assists in the establishment of priorities when the risks and benefits of evacuation are weighed against the risks and benefits of alternative protective measures, such as sheltering or administering thyroid blocking potassium iodide.

5. The assessments test the impact of the rapid notification assumptions as described in the NRC emergency planning rule.

6. The assessments provide recommendations for improvement in evacuation times. Some potential examples include education of the public with regard to evacuation routes, hardening shoulders of feeder roads to improve road carrying capacity, and use of police management of traffic jams when they develop.

7. Most studies indicate that the school population could be evacuated either as a separate population, or be returned to home, whereby the students would evacuate with their families. The best mode of evacuation may be influenced by Emergency Planning Zone-specific factors. The models developed in these studies allow alternative assumptions to be tested.

8. The assessments give NRC independent estimates that could be helpful to determine acceptable criteria for evacuation.

9. Finally, the assessments must be viewed as a continuing effort requiring updating if and when demography or other related factors change around given nuclear power plant sites. As the plans evolve, new estimates of the evacuation times may have to be made. The assessments interplay with the plan and alternative protective measures that may be contemplated.

G. Public Information and Education

The Presidential Commission Report concluded that more information should be provided to the public on various aspects of radiation, accidents at nuclear power plants, and responses to emergencies. FEMA was directed to take the lead in developing this public information. In the MOU signed by FEMA and NRC in January 1980, this was confirmed and NRC agreed to assist FEMA by reviewing the educational materials for accuracy. NRC and FEMA also agreed to enter into a separate MOU for public information activities.

A Task Force on Public Information and Education has been formed under the Federal Interagency Central Coordinating Committee to develop informational and educational programs for the public. Two subcommittees have been formed by this Task Force, 1 on public information and another on public education. These subcommittees are presently surveying existing material available to the public. It is their intent to produce recommendations for new information and education by late summer or early fall.

The "information" group will be concentrating on emergency preparedness activities around nuclear power plants with respect to State and local plans, and on what the public can expect in the way of information and instructions at the time of an accident.

The "education" group will be concentrating on more general information to help the public better understand radioactivity, and its hazards, as they relate to nuclear power plants. Many members of the public have a poor understanding of this and can only relate radioactivity to nuclear weapons. The information being developed will put this in perspective.

H. Training Programs

1. History and Evolution of Radiological Emergency Planning and Preparedness Training

In 1973, the FICCC formed a Federal Interagency Task Force on Training and Exercises. This Task Force was charged with determining training needs for State and local government radiological emergency planning and response personnel, and developing training programs to satisfy these needs. The Task Force identified several categories of personnel for whom training was required and appointed Select Working Groups to develop them. The first Select Working Group was appointed in 1974 and developed a "Radiological Emergency Response Planning Course." Subsequently, other working groups developed a "Radiological Emergency Response Operations Course" and a "Radiological Emergency Response Coordinators Course". Each working group was chaired by a representative of that agency deemed to have the most expertise in the chosen area. Other agencies were also represented on the working groups and, in some cases, there were representatives from State and local agencies and from the nuclear utility industry.

2. Current Status of Radiological Emergency Response Training

a. Training courses currently available

(i) Radiological Emergency Response Planning Course - This was the first course developed (in December 1974) and it is intended to provide information and training required to lead and to coordinate development of State and local government radiological emergency plans. It is 1-week long and consists of lectures and a workshop. During the workshop, the students are divided into small groups to evaluate their existing plans using Federal guidance documents. The workshop groups consist of representatives of State and local agencies involved with planning for a particular nuclear power plant site. Additionally, nuclear power plant utility personnel are invited to the course and are also assigned to the workshop groups. One of the prime purposes of these workshops is to open channels of communications between the parties involved (State, local, and the nuclear power plant representatives). Class participants also include representatives of any contiguous State(s) and local governments if the nuclear power plants in question are close to their borders.

The course was presented the first time in March 1975, at the former Defense Civil Preparedness Agency Staff College

in Battle Creek, Michigan. Ten more sessions were presented between then and September 1976. After the first 3 sessions of the course at the Staff College, it was offered in various parts of the country rather than bringing the students to Battle Creek. This was more cost effective because more students could be involved with very little increase in cost.

After the September 1976 session, the course was made available upon request because all States who had a need at that time had had an opportunity to participate. It was known, however, that as new nuclear facilities were built, and because of turnover of personnel, more courses would be required and requested. No sessions were requested from September 1976 until after the Three Mile Island accident. Subsequently, 5 additonal sessions were presented in 1979 and there is a request for at least 1 more in the next 6 months. Maximum individual course capacity is about 40 participants. Since March 1975, 618 persons have attended this course.

(ii) Radiological Emergency Response Operations Course - This is an 8-1/2 day course designed for State and local government radiological emergency response personnel. It is a "hands on" course involving the use of radiological instruments and other special equipment and is meant for those individuals who will physically respond to a radiological accident. It is not a course for planning personnel. Two basic requirements for the course are that the students are, or will be, a member of a radiological emergency response team and that they be nominated by either the State Director of emergency services (or equivalent) or the State Director of radiological health. Federal agencies may also nominate a limited number of participants.

The course is conducted at the Department of Energy's Nevada Test Site under contract with the Reynolds Electrical and Engineering Company Inc., the service contractor at the site. The first 3-1/2 days consist of classroom lectures on basic information on radiation, accident assessment, instrumentation, and responding to a radiological emergency. The second week consists of a series of simulated radiological accidents at the Nevada Test Site. The students are divided into teams, choose a team leader, and respond to the simulated accidents. The course is routinely presented 16 times per year. Maximum individual course capacity is about 25 participants. Since January 1977, 746 persons have attended this course.

(iii) Radiological Emergency Response Coordinators Course - This is basically a technical course for those State and local government personnel who have responsibilities to assess the radiological consequences to the public following an accident at a nuclear power plant and to make decisions and recommendations for protective actions. Students are expected to know basic algebra, be familiar with radiological terms, and have a general knowledge of radiological health physics. Although the course is designed for State radiological emergency response coordinators and their staff, nuclear facility health physics personnel who are responsible for radiological emergency response are also encouraged to attend.

The first part of the course consists of a series of lectures and problem sessions on such topics as protective action guides and protective measures, dose assessment, monitoring, and meteorology. The class is then divided into working groups of about 5 to 8 students and given an accident scenario in several steps. The groups must then evaluate the accident and decide upon recommended protective actions. The course is conducted in various parts of the country. It was presented 5 times during 1976-1977. All States with operating nuclear power plants had an opportunity to participate during these sessions. No sessions were requested from late 1977 until after the Three Mile Island accident. Beginning in October 1979, another series of presentations began. Seven have been conducted through June 1980, with 2 or 3 more scheduled in the next few months. Since November 1976, 345 persons have attended this course.

(iv) Handling Hazardous Materials Transportation Accidents - This is a 20-hour course developed by DOT concerning all classes of hazardous materials for first-at-the-scene emergency response personnel, such as police, fire, and emergency medical services. Although the course does not deal specifically with radiation, most of the emergency planning and response concepts are directly applicable to any emergency. The lessons learned in the course can therefore be applied to transportation accidents where the hazardous material involved is a radioactive material. It is excellent background material for a six-hour course being developed by DOT which deals exclusively with transportation accidents involving radioactive materials. Both courses are self contained and consist of a training package of 35mm slides, tape cassettes, student workbooks, an instructor's guide, and handouts. The 20-hour package is available for about $350 and about 2,000

packages have been sold to State and local governments. The 6-hour package dealing with radioactive materials is scheduled for completion about midsummer 1980.

(v) Professional Medical Courses - Oak Ridge Associated Universities (ORAU) conducts a series of courses in handling radiation accidents for medical personnel. ORAU is a not-for-profit education and research corporation sponsored by 46 colleges and universities. It conducts programs of public and professional education, research, and training under a contract with the Department of Energy and with funds from other private organizations and public agencies. The courses offered are conducted in Oak Ridge, Tennessee, and are:

- Medical Planning and Care in Radiation Accidents:
  A 1-week course designed for physicians who provide medical services to the nuclear industry, as well as city, county, and State health officers who may be called upon to provide first aid or medical care in the event of a radiation accident. The curriculum includes fundamentals of radiation and radiobiology, radiation detection and measurement, care of radioactively contaminated injuries, evaluation and treatment of internal radioactive contamination, and the acute radiation syndromes. In addition, there are demonstrations of equipment and facilities used in evaluation and treatment of radiation injuries. The faculty includes experts in handling the medical aspects of radiation accidents.

- Health Physics in Radiation Accidents:
  A 1-week course for health physicists who may be called upon to respond to accidents involving radioactive materials and personnel injury. The major topics covered are radiation physics review, principles of radiation detection and internal dosimetry, protective clothing and equipment, radiological emergency procedures, and the role of the health physicist in the medical environment. Lectures are complemented by demonstrations, laboratory exercises, and a simulated radiation accident drill.

- Handling of Radiation Accidents by Emergency Personnel:
  A 2- 1/2 day course for emergency room surgeons and nurses who may be called upon to administer initial hospital aid to a radiation accident victim. This course emphasizes the practical aspects of handling a contaminated victim by discussing the fundamentals of radiation, how to detect and measure it,

how to prevent the spread of contamination, how to reduce the radiation dose to the victim and attending personnel, and the role of the medical physicist in caring for contaminated accident victims. Lectures are complemented by demonstrations, laboratory exercises, and a simulated radiation accident drill.

b. Training Courses to be developed

In addition to courses now offered or available, the Task Force is planning others in the coming months. The first priority will be courses for emergency medical services personnel who may have to deal with radioactively-contaminated people. Specifically, these will be training programs for: (1) paramedics who may be expected to be the first-at-the-scene; and (2) hospital emergency room personnel and administrators. FEMA has requested $300,000 for the course development in the FY 1981 supplementary budget request.

c. Funding

For FEMA/NRC courses discussed above [H.2.a.(i), (ii), (iii)], all expenses for State and local government students are currently provided by the Federal government. This is done by issuing invitational travel orders which reimburse the students 100% for travel and per diem expenses. Nuclear industry students are sponsored by their own organizations.

When the interagency training program first started, all participating Federal agencies were to provide a pro-rated share of the training expenses. In practice, this did not work. The NRC was asked by OMB to fund the entire program. For the last 2 years, NRC has funded the entire training program. This includes paying travel expenses for instructors from other Federal agencies. The NRC budget for this program for FY 1980 is approximately $800,000.

When FEMA assumes responsibility for the training programs beginning FY 1981, the funding formula for invitational travel will be changed in steps. For FY 1981, FEMA proposes to fund 100% of the invitational travel. In FY 1982, this will decrease to 75% and in FY 1983, it will decrease again to 50%, which will then make it consistent with the general FEMA policy on matching of training allowances. FEMA will, however, continue to fund all tuition and curriculum costs.

d. Problems of Conducting Radiological Emergency Response Training

Although the training program is of excellent quality, there have been a few problems with the training program. The main problem, funding, was resolved once the NRC began funding the entire

program. Another one which has not been entirely resolved is the lack of critical manpower support given to the program by some participating Federal agencies in both course development and instructor assignment. Some agencies have not consistently supported the program. At times, this is reflected by failing to provide travel funds for their faculty members, and, many times the NRC has had to provide such funds in order to get their participation at training courses.

I. Computer Assisted Emergency Assessment Systems

1. General Background

In the past, assessments of the spread of airborne or waterborne radioactive contamination were made by relating spot measurements in the field to generalized models of the behavior of air or water in graphic form. With the advent of computer technology, extensive research has been conducted in order to make a better representation of the spread of contaminants in water and air as a result of industrial activity of all sorts.

As a result of this research, industry and government agencies are now in a better position to analyze the combined effects of a multiple number of sources over large, regional areas of the country. Such analytical tools are essential in forming policy on such diverse subjects as radioactivity transport and dose assessment, combustion pollutants in the upper and lower atmosphere, the transport of oil slicks from tanker or pipeline leaks, and for predicting the spread of toxic gases release in transportation accidents. Computer systems were used to support the accident assessment at Three Mile Island.

FEMA is interested in the use of computers to assist in its role as emergency manager for the Federal government. FEMA is cooperating with NRC in specifying advanced systems for the assessment of accidents. This is reflected in joint requirements of both agencies for the collection and transmission of meteorological data, nuclear power plant effluent and status data, and other information to be provided by nuclear power plant operators for assessing the consequences of both normal and off-standard operations, such as accidents, to responsible agencies for use in planning, exercising, and testing response capability.

This interest extends to State and local governments. The cost of computers has now become so low, that equipment costs no longer limit the application of computer assessment to centralized, fully-funded institutions. The limits to the use of computers now reside with data collection instruments. It is this limit which still causes considerable dialogue about the future role of computers during emergencies.

2. Candidate Systems Under Consideration

a. Ring Monitors

One approach which appears attractive is the use of concentric rings of fixed monitors around a facility. In theory, such monitors could measure releases and transmit the data to a remote point such as an emergency operations center. Such a system

would also measure and transmit on-site effluent radioactivity measurements as well as the local meterological conditions at the site. Such systems can be used to estimate the amount of radioactivity released, the spread of the contaminants, and, given some extended operational period, be used to construct simulation models of release patterns by statistical analysis.

Because computer models which depict exact conditions for every site are not available, officials expect to supplement the readings off-site with manual instrument readings. This is done as part of the emergency plan, with reliance on the fixed monitors limited to early stages of the incident before manual readings are available. This policy has a relationship to the number of off-site monitors in the rings because the costs of the individual fixed instruments are high and the reliability is not proven.

The State of Illinois has begun installation of a pilot system using the ring concept. They plan to employ 32 fixed monitors located in all directions up to 25 miles from a nuclear power plant. The plant effluents, meterological data and other information about the site will be collected by sensors and, in combination with the radiation data from the rings of monitors, will be put in computer format and displayed at the nuclear power plant emergency operating facility and at the emergency operations center at the State Capitol, Springfield, Illinois. The State will provide statistical models of the behavior of effluent plumes. The first pilot installation will be at the LaSalle nuclear power plant owned and operated by the Commonwealth Edison Company of Chicago, Illinois.

The costs of the system are not yet determined because of the uncertainty of the reliability of the field sensors. Illinois is funding this system by means of a one-time charge of $350,000 for each nuclear power plant site, a supplemental annual charge of $75,000, and other fees on the movement of nuclear waste.

The State of Alabama has also expressed a strong interest in the ring system and is working with the Tennessee Valley Authority toward a pilot installation.

The Task Force on Offsite Emergency Instrumentation of the Federal Interagency Central Coordinating Committee has examined the ring concept and has recommended in one of its reports[32] that a greater number of fixed monitors, perhaps 150, would be required to insure that a minimum of 4 monitors detect the radioactive plume. This number would require an investment of perhaps $3-5 million for each ring system, and the Task Force does not believe it is cost effective.

b. Simulation Models

Another approach substitutes a computerized reoresentation of the effluent plume for the fixed monitors. Measured plant effluent and meterological information is fed into a computer model of the air system around the facility and estimates of the downwind concentration are calculated and, in some advanced systems, displayed as diagrams on a visual display.

The computer models for a regional air system are very complex and much meterological data is required. Data from near-by weather stations, air bases, and from upper air measurements by balloon devices (called radiosondes) are all used to supplement the data from the nuclear plant. There is no single approach to large-scale regional modeling involving areas of hundreds of square miles, although all model codes are based on established physical principles. Generally, modelers are confined by their data base and use improvisations to fill needed information gaps.

The NRC has approached the problem through the use of models which define the mixing in terms of the measured experience at operating stations interpreted for various classes of atmospheric stabilities. These classes first defined by Pasquill, represent a common ground among modelers who prefer the statistical approach combined with judgment. All NRC licensees have been requested to use models based on this approach.[33]

A problem common to all computer modeling is the use of meterological forecasting. Forecasting is, at best, an inexact art. As models become more complex, the computations become more expensive and time consuming, but are still highly dependent on the forecaster's skill. Thus, at some point, model complexity must be balanced with judgment, and all computerized assessment systems must incorporate the judgment of experienced forecasters. The most important single value of computer modeling is its ability to look backward in time and make good estimates of the population exposure as the event progressed, often from a relatively incomplete set of information.

c. Atmospheric Release Advisory Capability (ARAC)

One demonstrated model system for predicting the radiation exposure (dose) uses a simulation of the regional air mass movement upon which is imposed an estimate of the diffusion of radioactive gases and particulates. It is called the Atmospheric Release Advisory Capability (ARAC) and is described below. It was developed by the DOE Lawrence Livermore Laboratory.

ARAC is a computer-assisted emergency management service now operational at DOE nuclear production facilities. Its purpose is

to provide nuclear plant operating officials with estimates of the dispersion and population dose for accidental releases of radionuclides or other hazardous materials as rapidly and accurately as possible. To do this, ARAC develops a series of computer-generated advisories containing historical and projected information based on telemetered environmental and radiological source term data from the site. It does this by a combination of predictive computer models and scientific judgment of analysts on the ARAC team. ARAC is available on call 24 hours a day for those facilities having computer terminal access to the capability.

After the accident at Three Mile Island, the NRC staff evaluated the use of computer-assisted emergency management and concluded that ARAC was a valuable state-of-the art addition to the accident assessment capability around nuclear power plants. NRC proposed to DOE on December 7, 1979, and DOE responded favorably on January 31, 1980, that the joint resources of the agencies should be directed toward a pilot installation at selected commercial nuclear power plants. Accordingly, DOE, FEMA, and NRC are proceeding with a pilot installation to serve three purposes. These are: (1) integration of a computer-assisted emergency management and related training program into the State preparedness program; (2) establishment of telecommunication and data quality standards, and (3) verification of the ARAC system codes in difficult terrain.

The pilot project consists of ARAC computer terminals and data transfer equipment for 2 State emergency operations centers, New York and Illinois, with duplicate equipment in the operators' near-site emergency operations facilities at the Indian Point and Zion nuclear power plants. NRC will also install ARAC in its emergency operations center at Bethesda, Maryland. The funds requested in the NRC FY 1980 budget will provide for the State and local capability and the operational training for the first installation in New York State. As part of the program, Consolidated Edison, the owner of the Indian Point nuclear power plant, will provide equipment and technical support for the on-site portions of the project. DOE will provide some equipment on loan.

The Illinois ARAC installations are planned to provide short term capability for the State at the Zion nuclear power plant, and to allow comparison of the ring approach to the computer simulation approach of ARAC.

The cost for a typical ARAC site terminal advisory installation is:

Site Terminal Equipment	$55,000
Software for Site	75,000
On site connections	5,000
Terminal Maintenance (per year)	4,100
Recurring communication and testing (per year)	12,000
Personnel Training (per year)	15,000
Single runs of entire system/hour	3,500
Initial Installation and First Year Total	$169,600

ARAC was used during the Three Mile Island accident in order to estimate the general population radiological exposure (dose) from the release. During the time of the Three Mile Island accident, ARAC was supporting DOE on-scene commander by providing guidance that helped deploy the surface and airborne measurement systems. In addition, estimates of the radiological source term were made using a combination of ARAC concentration estimates and airborne measurements of concerntration. The ARAC concentration estimates were available in real-time to the DOE on-scene commander and were calculated with computer codes.

After the accident at Three Mile Island, the President's Commission requested that the ARAC set of transport and diffusion models be utilized to provide a calculation of the radiation dose experienced by the general population as a result of the Three Mile Island accident.

ARAC is considered an operational prototype of future computer-assisted emergency management systems. NRC and FEMA expect the results of the pilot program to be valuable in defining the specifics for a national system. Once installed, the basic equipment can also serve in non-nuclear related emergencies. FEMA has requested $1.65 million in its FY 1980 supplementary budget request in order to stimulate the use of such systems at State emergency operating centers. If authorized, these systems would be installed in States with nuclear power plants in more highly populated areas identified in the NRC listing for evacuation studies. (See Part III. F.).

FEMA is working with the Department of Energy on an adaptation of ARAC type systems to a national, but decentralized, system. New York State has started to organize its plan around a computer-assisted assessment system.

J. Exercise Scenarios to Test Plans and Criteria for Evaluation of Exercises

Having emergency plans in place does not in itself assure that the plans can be implemented effectively in the event of an actual emergency. Accordingly, the requirement to periodically test emergency plans using exercise scenarios was recognized in existing AEC and NRC regulations dealing with the licensee's nuclear facility emergency plans. The requirement was also recognized in the NRC's voluntary non-statutory "concurrence" program for State and local government plans supportive of nuclear facilities , and continues as a necessary criteria element in the NRC/FEMA interim criteria document discussed in Part III E of this report.

One of the problems associated with the testing of emergency plans has been the lack of standardized, realistic exercise scenarios to test these plans. Exercise scenarios developed by nuclear facility management and by the States and local governments themselves, rarely were comprehensive enough to test plans realistically. There was also a tendency to create exercise scenarios which resulted in little, if any, off-site radiological consequences which, in turn, required minimal or no response from State and local government organizations. A second problem relates to the need for standardized guidance for Federal, State, and local government observers who evaluate exercises.

To realistically test emergency plans at all levels of government requiries that exercise scenarios cause off-site organizations to respond. Further, comparisons between overall relative capabilities to respond to accidents at many nuclear facilities require that the exercise scenarios and the guidance for observers evaluating the exercise be standardized. Therefore, FEMA and NRC are contracting for development of a book of 10 to 12 standardized exercise scenarios and accompanying guidance for observers in evaluating the exercises on a nationwide basis. This program is scheduled to be completed in the fall of this year, and standardized exercise scenarios and standardized exercise evaluation guidance should be in use by the end of the calendar year.

FEMA has also requested funds in its FY 1981 supplemental budget request, for a computerized exercise simulation and evaluation facility. This facility would generate sample problems, and generate simulated evacuations, if necessary, as part of the selected scenario. The facility would also be able to track the decisionmaking and response actions of involved organizations in an exercise.

K. Thyroid Blocking as a Protective Measure

1. Nature of the Hazard

In certain kinds of nuclear power plant accidents, 1 of the dominant radionuclides that can be released and of concern, are the radionuclides of iodine. The thyroid gland uses iodine in its metabolic processes, but the thyroid cannot distinguish between the stable (non-radioactive) form or the unstable (radioactive) forms of iodine. Nuclear power plants have several engineered safety features to minimize the accidental release of hazardous radioiodines to the environment. These features are such things as protecting the integrity of the fuel containments, chemical sprays, and charcoal filter systems. A protective measure is still needed in the event these engineered safety features fail to prevent the escape of radioiodines from a plant. The use of potassium iodide (KI) to block the thyroid gland from absorbing the hazardous radioiodines that might be released from a nuclear power plant is a recognized protective measure.

2. Availability of Potassium Iodide

Currently, KI is the protective drug being considered for thyroid blocking. Although there are other drugs which can be used to block the thyroid,KI is the only Food and Drug Administration (FDA)-approved drug for this purpose. It does not require a precription by a physician, making it easier to dispense under emergency conditions. (More details of FDA approval and other determinations concerning the use of KI will be discussed later in this part of the report.)

Potassium iodide is currently available as a commercial drug. The two commercial forms are known as the "THYRO-BLOCK TABLET" and the "THYRO-BLOCK SOLUTION." These are available from Wallace Laboratories, Division of Carter-Wallace, Inc., located in Cranbury, New Jersey. The tablets are packaged in bottles holding 14 tablets. The recommended adult dose of the tablets, which contain 130 milligrams of KI, is one per day for 10 days. Half this dose is recommended for children under 1 year of age. Each drop of the Thyro-Block solution contains 21 milligrams of KI. The recommended adult daily dose is 6 drops and again half that amount for children under 1 year of age.

Most undesirable side effects that have been observed are related to the ingestion of higher doses of KI than are recommended here for the thyroid blocking function. Certain people might experience some undesirable side effects at the levels recommended for thyroid blocking. Persons who are known to be allergic to KI or iodides, pregnant women or other persons who are advised by a physician not to use the drug, should not take it. But at the recommended

low doses, undesirable side effects appear to be relatively rare and not very serious.

The National Poison Center Network has reviewed the literature on KI and has evaluated the material as "relatively nontoxic." In their opinion, the 1,820 milligrams of KI per bottle (14 130-milligram tablets) would be of concern only in the unlikely event that an 8 pound infant would ingest it. This is because the lowest estimated lethal dose is 500 milligrams of KI per kilogram of body weight.[34/]

3. Milestones towards the Organized Use of Potassium Iodide as a Radioprotective Drug

a. On December 24, 1975, the Federal Preparedness Agency of the General Services Administration published a notice in the Federal Register (44 FR 59494)[35/] assigning DHEW responsibility to assist State Health Departments "... in the development of plans for the prevention of adverse effects from exposure to radiation, including the use of prophylactic drugs to reduce radiation dose to specific organs." This responsibility was assumed by the Food and Drug Administration of DHEW, now the Department of Health and Human Services (DHHS).

b. The next significant event, and one which was helpful in pointing the direction for developing government policy and guidance, was a report by the National Council on Radiation Protection and Measurements (NCRP). On August 1, 1977, the Council issued a Report entitled, "Protection of the Thyroid Gland in the Event of Releases of Radioiodine (NCRP-55)".[36/] The major conclusions of this report are that:

(1) A major protective action to be considered after a serious accident at a commercial nuclear power reactor, involving the release of radioiodine, is the use of stable iodide as a thyroid blocking agent to prevent thyroid uptake of radioiodines.

(2) Such a protective action should be thoroughly coordinated with a comprehensive medical and public health activity designed to support a full radiological emergency preparedness program for State and local jurisdictions.

c. The next milestone occurred on December 15, 1978, when the FDA published in the Federal Register an invitation to commercial drug firms to prepare and forward New Drug Applications (NDAs) for providing KI in a form and quantity suitable for over-the-counter use in State and local radiological emergency preparedness programs.[37/] In the past, this drug could only be obtained on a prescription basis and for other uses. In this notice, the FDA Commissioner stated that

the drug was safe and effective for use as a thyroid blocking agent in a radiation emergency.

The FDA process of inviting commercial drugs firms to submit NDAs, the review of the NDAs, and the provision and marketing of KI was interrupted by the accident at Three Mile Island, which was the next milestone in gaining acceptance of KI as a radioprotective drug. The accident found the Federal government, the Commonwealth of Pennsylvania, the local jurisdictions and the utility without KI or a policy as to how best to use it if needed. This lack of preparedness led first to confusion and then to bureaucratic heroics to provide the drug on a "crash basis", should it be needed in the event the accident resulted in a release of radioiodines. Mallinckrodt Corporation, on orders from the Bureau of Radiological Health in FDA, produced 237,000 1-ounce vials of liquid KI which were delivered to the Harrisburg area by April 4, 1979, a few days after the first signs of trouble at Three Mile Island. While the product was probably adequate, it was produced so quickly that faulty packaging resulted. Fortunately the drug was not needed in this accident.

d. The next major step was taken on November 9, 1979, by the Bureau of Drugs, FDA, when it approved 2 New Drug Applications for potassium iodide and found that the drug submitted by the Wallace Laboratories " ... is safe and effective ..." for the use spelled out in the labeling. Two NDAs were necessary because the Wallace Laboratories submitted applications for approval of the KI in both tablet and solution form mentioned earlier. On February 22, 1980, FDA published a notice in the Federal Register,[38] officially notifying the public, States, local governments and the nuclear industry of the availability of the approved drug for use in the event of radiological accidents at nuclear power plants, that it requires no prescription, and is available over the counter. In May of 1980, the Wallace Laboratories reported that they had a 2-batch supply of the protective drug available for the approved use.

4. Recommendations of Panels that Investigated the Three Mile Island Accident

The 2 major investigations at the Federal level, the President's Commission[39], and the Special Inquiry Group of the Nuclear Regulatory Commission,[40], both made strong recomendations concerning the need for having KI readily available and prearrangements for its distribution and use at the time of an accident at a nuclear power plant. The Special Inquiry Group also recommended that NRC, in cooperation with FEMA and DHEW, establish criteria for storage and distribution of an agent such as KI, that the nuclear utilities fund its purchase and storage, and that it be available for the general population in the vicinity of nuclear power plants.

5. Recent Developments and Current Situation

In March 1980, the Sandia National Laboratories completed a study for the Nuclear Regulatory Commission and produced a report entitled: Examination of the Use of Potassium Iodide (KI) as an Emergency Protective Measure for Nuclear Reactor Accidents.[41] In essence, this report: "... indicates that if the cost/benefit ratio were the only decision criterion, stockpiling (of KI) for the general public would not be warranted." The Sandia report then suggests that distribution of KI be limited to nuclear site personnel, off-site emergency response personnel and persons in off-site institutions within about 10 miles (e.g., hospitals, prisons) where immediate evacuation may be infeasible or very difficult.

In forwarding the Sandia report to the Commission, the NRC staff recommended that the Commission issue a policy statement endorsing the distribution of KI to the categories of personnel mentioned above. The staff recommended the Commission delay taking a position on distribution of KI to the general public until such time as FDA can make further studies of adverse medical effects and until the results of a June 1980 national meeting, of the Endocrine Society, where a panel will critically examine the use of KI in radiological emergencies, are known. This is consistent with a recent FDA staff position that reflected some hesitation about supporting a plan to distribute KI to the general public without further study of the possible adverse effects.

In commenting on the NRC staff position in May 1980, the FEMA Radiological Emergency Preparedness Division staff said that it had no objection to NRC issuing a policy statement on making KI available for the categories of the population mentioned, but that a policy of excluding the general population at risk might be publically or legally challenged. The FEMA staff also pointed out that the country needs an official, fully-coordinated Federal policy and guidance on the use of the drug, rather than the position of any single Federal agency; and that FEMA looks to the Food and Drug Administration in the Department of Health and Human Services to develop this policy and guidance.

In conclusion, there seems to be an overwhelming series of recommendations for the stockpiling and organized use of KI in the event that an accident at a nuclear power plant requires its use. The major questions still to be answered are how and where to stockpile it and how to organize for its effective distribution in an emergency, and who should pay for the drug. Additionally, stockpiling costs and replacement costs must be addressed. Finally, how much more study of the possible adverse effects to the general population is necessary? Key personnel and agencies with the responsibility for developing official guidance at the Federal level are finding

reasons for delaying the discharge of that responsibility. One reflection of this is an increase in the number of reports raising basic questions on costs, benefits and the safety aspects of using the drug itself. The nation finds itself in the contradictory position of having its special commissions, inquiry groups and official agency policy taking firm, positive positions on the protection of the public while other elements of responsible agencies are asking for more studies and analyses. A decision must soon be made as to whether or not the use of KI will be a valid fully acceptable protective measure for all classes of the population at risk near nuclear facilities in the United States. Such a determination has already been made in a number of foreign countries.

L. Other Cooperative Activities Among Federal Agencies

1. Protective Action Guides

Both EPA and DHHS have responsiblities to develop and promulgate Protective Action Guides (PAGs). PAGs are numerical values of a projected radiological dose to individuals in the population which warrants taking protective action. A Protective Action Guide does not imply an acceptable radiological dose. Since PAGs are based on a projected dose, they are used only in an ex post facto effort to minimize the future risk from an event which is occurring or has already occurred. They are numerical values to be used by decision makers in taking protective actions to minimize or ameliorate the impact on already exposed, or yet-to-be exposed, populations. At the present time, PAGs are considered to be "Agency guidance" and do not yet have the status of Federal guidance.[42], [43], [44] EPA and DHHS are taking steps to convert their respective agency guidance into official Federal guidance which must be approved by the President.

2. Accident Assessment

Accident assessment has been, and continues to be, a problem area. Although defined as an essential emergency planning element in 1970 in the Atomic Energy Commission (now NRC) emergency planning regulations 10 CFR 50 Appendix E[45] for nuclear facility licensees, and later in the former AEC's emergency planning guidance document for State and local governments, "WASH-1293" (now NRC publication NUREG 75/111),[46], and now in the joint NRC/FEMA emergency planning criteria document, NUREG-0654/FEMA-REP-1,[47] much needs to be done to improve accident assessment, both on-site and off-site.

Steps are underway to improve this accident assessment capability. On the nuclear facility side, improved in-plant instrumentation specifically designed for assessing accident situations has been indicated and will now be required. On the Federal, State, and local side, standardized off-site accident assessment techniques and systems need to be developed and improved, especially in the areas of coordination between agencies at all levels of government and in the evaluative/decisionmaking process. The coordination of accident assessment information must also be improved between the nuclear facility operator and the off-site agencies. Guidance concerning the types of emergency instrumentation which might be useful, and the acquisition of instruments and systems themselves, are needed in many localities.

Several programs are now moving to address these problems. Nuclear facility operators will be required to upgrade their emergency plans. Further, they will be required to implement the related recommendations of the NRC "Lessons Learned Task Force"[48], [49] involving instrumentation to follow the course of an accident, and

relate the information provided by this instrumentation to Emergency Action Level Guidelines[50] promulgated by the NRC. This will include instrumentation for post-accident sampling, high range radioactivity monitors, and improved in-plant radioiodine instrumentation since radioiodine can be a dominant radioisotope of concern in airborne radiological releases. The implementation of the "Lessons Learned" recommendation on instrumentation for detection of inadequate nuclear core cooling will also be factored into the emergency plan action level criteria.

Guidance in the areas of radiological instrumentation and off-site accident assessment techniques for States and local governments, is being prepared by the Idaho National Engineering Laboratory under contract to the NRC. Plans are also afoot to test an inexpensive sampling and collection device for airborne radioiodine which together with an existing modified civil defense radiological instrument, has the potential to help provide quick, rough "go" - "no go" information to authorities responding to an accident in off-site areas where a radioiodine release may be the dominant radioisotope of concern. This portable device, invented and recently patented by researchers at the Brookhaven National Laboratory[51], under contract to DOE and NRC, is being independently evaluated by the Idaho National Engineering Laboratory. If the evaluation of the device is favorable, FEMA intends to put it into the existing inventory of civil defense radiological monitoring instruments currently available to State and local government personnel.

3. Interagency Radiological Assistance Plan and Federal Participation in Exercises

FEMA is working with DOE and other Federal agencies involved in the Interagency Radiological Assistance Plan (IRAP) in order to restructure the IRAP agreement to better reflect the lessons learned at Three Mile Island. DOE is drafting a revised agreement which will provide firm agreements on the Federal response which support the assignments of Federal responsibility discussed in Part III. D.

Since elements of IRAP may respond directly to requests from States, local governments, or nuclear facility organizations for lesser emergencies, the agreement must be flexible and provide for assurance that all parties to an escalating event are prepared to coordinate effectively if the accident requires DOE to assume a full field monitoring coordination role. Thus, State and local governments can be assured of prompt response to their requests, knowing that DOE is prepared to handle events beyond State and local capability.

In preparing to meet the emergency planning and preparedness guidance requirements of NRC and FEMA, States need to know what

elements of IRAP response can be counted upon and when they can be made available. Thus direct integration of IRAP with State Plans is necessary. DOE is planning to meet this requirement by a computer simulation of the entire response capability for each of the accident categories identified by NRC and for each nuclear site. Because an annual exercise of State Plans would involve some 40 or more IRAP reponses each year, this simulation will serve as the IRAP response for each exercise. The communication aspects of each exercise in a State involving IRAP will, however, actually be tested during each exercise.

The physical response of IRAP will be exercised at least once every 5 years in conjunction with a State exercise. This will supplement DOE responses to military and non-commercial radiological accidents which occur more frequently.

4. Notification, Communication and Public Warning

FEMA is working with agencies such as the Federal Communications Commission (FCC) and the National Oceanagraphic and Atmospheric Administration (NOAA) which have purview over telecommunications and meteorological assessment systems. This work is aimed at assuring that the coverage of the Emergency Broadcast System (EBS) and NOAA Weather Radio are available to nuclear power plants who wish to incorporate these into the public warning system in the 10-mile Emergency Planning Zones. Although most nuclear power plants plan to use sirens or other acoustic devices as the primary means of notification, EBS and Weather Radio are an intrinsic part of the actual delivery of public information. The policy objective of FEMA is to assure that the combination of sirens and radio transmission can funct on to deliver effective messages to the public within the 15-minute design objective for public notice in the 10-mile Emergency Planning Zone for each commercial nuclear power plant by July 1, 1981. 1981.

FEMA will also work with NOAA and FCC on the exercising of systems to test the public response.

In another area, NOAA Weather Service Data forms an intrinsic part of the operations of ARAC (see Part III. I.) and for the nuclear power plant response to accident assessment required by the NRC and FEMA. Telecommunication arrangements and data format are receiving attention in order to standardize their form and make them available to all parties including State and local governments.

5. Sheltering as a Protective Measure

Sheltering as a protective measure strategy needs more practical Federal guidance for State and local officials. This is especially important in the context of alternative protective measures, such

as evacuation and the administration of thyroid blocking potassium iodide.

The new FEMA/NRC emergency planning and preparedness criteria document requests nuclear facility and State officials to provide the bases for the choice of recommended protective actions for the plume exposure pathway during emergency conditions. The bases are to include, for example, expected local protection afforded in residential units for direct and inhalation exposure, in addition to evacuation time estimates.[52] However, the only sheltering guidance that the Federal government can now offer that may be helpful are three research reports sponsored by NRC[53], [54], and by EPA,[55] and some civil defense reports and guidance on sheltering for nuclear attack.[56] There is no official Federal guidance on sheltering for nuclear power plant accidents suitable for practical use by State and local officials.

Since FEMA, NRC and EPA all have interest in this subject, future cooperation is necessary to agree on how to apply the research completed to date and to develop the practical guidance that will be useful to State and local officials. Because the administration of potassium iodide is involved as an alternative to the sheltering protective strategy, the Bureau of Radiological Health of the Department of Health and Human Services will also be involved in the development of guidance for the sheltering protective strategy.

6. Protective Measures Guidance for the Ingestion Radiological Exposure Pathway 50-Mile Emergency Planning Zone

Some preliminary work has been done by EPA and DHHS on development of protective measures guidance for the ingestion radiological exposure pathway, but there are no practical guidance documents on this subject available as yet for use by Federal, State, and local governments. This guidance is needed to help develop emergency plans for the 50-mile EPZ.

DHHS, EPA, and the Department of Agriculture need to expeditiously develop Federal guidance on interdicting and controlling the accidental radiological exposure to humans via domestic animals and agricultural products in the food chain. This is particularly important for the dairy cow-milk-human pathway. The topics of diversion, conversion, and destruction of agricultural products in the event of radioactive contamination, should be addressed in this guidance with a view toward protecting public health and safety while at the same time minimizing economic loss.

7. Research and Development

The general thrust of research involving radiological emergency preparedness has been in the fields of: (1) monitoring

equipment and dose assessment; and (2) the analysis of pathways for radioactive materials released from accidents. Since the Three Mile Island accident, considerable attention has been given to the human factors involved in many forms of accidental releases of radioactive materials including research on the actions of people under stress and the advisability of the use of radioprotective drugs.

Within FEMA and its predecessor agencies, research efforts have concentrated on the civil defense aspects of nuclear warfare. This has included studies on human behavior incident to sheltering and relocation, studies and equipment development for public warning and notification and, more recently, studies to define the elements of the all-risk approach to emergency management. FEMA also conducts and sponsors research and development on improved dosimeters such as the low-level personal dosimeter being developed in cooperation with the Department of the Navy.

The NRC research on fundamental reactor safety has been independently reported and forms the basis for the adoption of the 10- and 50-mile Emergency Planning Zones. NRC has funded development of field radioiodine monitors and has budgeted for their distribution to State and local government. NRC has also funded a pilot installation of the Atmospheric Release Advisory Capability (ARAC) (Part III. I) designed to research the basis for an improved national assessment system. NRC has studied the behavioral results of the Three Mile Island accident, and has conducted and sponsored studies on the use of radioprotective drugs.

In support of defense-related activities, the Department of Energy is continuing support for development of ARAC and for the development of a wide range of radiological monitoring instrumentation.

The Federal Interagency Central Coordinating Committee, chaired by FEMA, has been asked to integrate the research activities related to radiological emergency preparedness. FEMA is reviewing its ongoing programs and the past efforts in order to sharpen the focus of work needed in the area of response to accidents at commercial nuclear power plants. Public attitude and behavioral response are seen as key subjects around which technical aspects of response and preparedness need to be considered. A typical problem area for research proposed by the Food and Drug Administration, Department of Health and Human Services, is a behavioral response of the public to the options of evacuation, sheltering, and use of radioprotective drugs, singly or in combination, in the event of an accident at a commercial nuclear power plant.

In the interim, FEMA continues to cooperate with NRC on preparedness research topics of mutual interest. These concern

public education, evacuation dynamics, public alerting and notification, and computer assisted assessment technology. FEMA has asked for research funds for a computer-assisted exercise evaluation model which will include the dynamics of dose assessment, evacuation, sheltering, and resource allocation.

IV.
Federal Costs for Radiological Emergency Preparedness

A. FEMA Costs

The President's directive of December 7, 1979, and the NRC/FEMA Memorandum of Understanding which followed, provided the basis for a number of actions needed to support the program. Initially, the President submitted a request for $8.9 million which was considered necessary to implement completion of the reviews scheduled for June 30, 1980. The major portion of this request, $2,275,000, was scheduled to support salaries of contract planners who were to work with the States.

At this writing, the Congress has not appropriated this money, and the program is being supported, at this time, at a lower level of activity by FEMA funds of about $750,000 and the reassignment of FEMA crisis relocation planners from other programs. Lack of funding for other Federal agencies has also decreased the Federal participation on the Regional Assistance Committees which depend on other Federal agencies for voluntary support.

The estimates which follow are based on the original submissions of FEMA, thought necessary to carry out the intent of the President's directive.

The Memorandum of Understanding with NRC also provided means for administering the funds originally requested for radiological emergency preparedness by the NRC's Office of State Programs which included a FY 1980 appropriation of $845,000, a FY 1980 supplementary request for $1,035,000, and a FY 1981 request for $ 1,320,000. The final determination of these requests has not been made, but the FY 1980 funds are being used to support existing programs.

The following summary catalogs the funding sought by NRC and FEMA for the program of improving radiological emergency planning and preparedness around nuclear facilities and transportation accidents involving radioactive material through FY 1983. They are tentative and subject to Congressional action and the determination of OMB under the FEMA/NRC MOU.

	FY 1980 Supp	FY 1981	FY 1982	FY 1983
FEMA Request	$8,900,000	4,673,000	4,500,000	3,850,000
NRC Request	$1,880,000*	1,320,000	-0-	-0-

* $845,000 FY 1980 + $1,035,000 FY 1980 Supp.

In the modified FEMA request of $8,900,000 for the FY 1980 supplementary request, the following items were requested:

1. Activities for FY 1980

To carry out the Presidential directive, FEMA will require funds to: (1) provide for salaries, travel, and personnel benefits of staff to manage the program ($267,000); (2) develop public information and guidance materials ($250,000); (3) contract services totaling $3,775,000 consisting of: (a) exercises evaluation assistance ($300,000), (b) automatic data processing and management information systems ($50,000), (c) National Radiological Emergency Preparedness Plan development ($100,000), (d) research and development on accident assessment, radiation dosimeters and exercise scenarios ($300,000), (e) training of medical personnel ($300,000), (f) workshops and seminars for State and local officials ($200,000), (g) evacuation dynamic analyses studies ($250,000), (h) funding for contract planners at the State level ($2,275,000); (4) develop and provide equipment for accident assessment totaling $2,350,000 consisting of: (a) radiological instrumentation development and distribution ($665,000), and (b) installation of the Atmospheric Release Advisory Capability (ARAC) accident assessment system at selected nuclear power plant sites and State emergency operating centers in highly populated areas ($1,685,000); and (5) grants to State and local government for preparedness functions beyond nuclear power plant capability ($2,258,000).

2. Activities for FY 1981

To carry out the preparedness activities resulting from the President's directive and the Federal support of the radiological emergency planning and preparedness criteria published jointly by NRC and FEMA in January 1980, FEMA will require $4,673,000 in FY 1981, which will include and extend the scope of previous NRC budgetary submissions for radiological emergency planning and preparedness regarding State and local governments. These include: (1) provisions for salaries, travel, and personnel benefits of staff to manage the program ($798,000); (2) development of public information and guidance materials ($250,000); (3) contract services totaling $2,425,000 consisting of: (a) National Radiological Emergency Preparedness exercise ($20,000), (b) computer-assisted emergency management support and development ($100,000), (c) guidance to State and local governments on radioactive plume exposure rate verification systems ($160,000), (d) engineering development and field testing of radioactive plume exposure rate verification systems ($255,000), (e) studies of evacuation and other protective measures dynamics ($700,000), (f) training of State and local government officials (1,020,000), (g) medical training ($100,000), and (h) conduct workshops or seminars for State and local officials ($70,000); (4) develop and provide equipment for accident assessment totaling $700,000 consisting of:

(a) radiological instrument development and deployment ($250,000), (b) provision for an emergency supply of thyroid blocking potassium iodide ($100,000), and (c) provision for a computer-assisted exercise evaluation system ($350,000); and (5) grants to State and local government for preparedness functions beyond nuclear power plant capability ($500,000).

FEMA headquarters has 11 persons on detail from NRC and has 5 persons authorized by OMB early in 1980 for a total of 16 persons.

FEMA Regions have provided the following estimate of staffing and expenses for activities directly concerned with the Radiological Emergency Preparedness Programs.

	FY 1980	FY 1981	FY 1982	FY 1983
Plan Reviews	38 Person Years	28 Person Years	16 Person Years	18 Person Years
Exercise and Upgrades	12 Person Years	23 Person Years	31 Person Years	28 Person Years
	50	51	47	46

In summary, the direct FEMA costs (including NRC contribution) for the program by fiscal years are estimated as follows:

	FY 1980	FY 1981	FY 1982	FY 1983
Persons and Support (Regions)	1,900,000	1,938,000	1,824,000	1,748,000
Persons and Support (HQ)	267,000	798,000	780,000	780,000
Program Support*	1,595,000	5,302,000	4,500,000	4,500,000
	$3,762,000	$8,038,000	$7,104,000	$7,028,000

*(Does not includ FY 1980 supplementary requests.)

These totals do not include the support from other FEMA activities such as a civil defense program which provides indirect support and assistance to the Radiological Emergency Preparedness Programs. They do not include (excepting NRC contributions) the expenses of other Federal agencies or those of State and local governments.

B. Other Federal Agencies

FEMA cannot estimate the headquarters costs of the other agencies, but has estimated the travel and professional commitment to keep the Regional Assistance Committees at full strength and activity. This is necessary for the improvement of State and local government plans and for reviewing and critiquing the annual exercises.

Estimate of the Regional Costs of all Federal Agencies Supporting the Regional Assistance Committees (RACs)

	FY 1980	FY 1981	FY 1982	FY 1983
RAC Person Years				
Plan Review	6	3	3	2
Exercises and Upgrades	6	9	9	8
(Total, all agencies)	12	12	12	10
Travel Expenses (Total, all agencies)	$70,000	$293,000	$164,000	$130,000

V.
Major Issues and Problems

A. Summary of Major Issues Identified by the States

In order to obtain information from the States for this report, the ten Regions of the Federal Emergency Management Agency requested the affected States to provide a written response to the basic questions: What is your timetable to meet the new criteria? What is your estimate of cost to meet the criteria? What funding have you received or will you receive from each involved nuclear utility company? The States responded to the various FEMA Regional Directors and those letters are attached as Appendix A. The States placed differing emphasis on the components necessary for meeting the new criteria. The following is a general summation of State comments on efforts to meet the preparedness level required by the new criteria.

1. Timetables

A majority of the States were able to give firm dates for the submission of revised plans for review by the Regional Assistance Committees (RACs). These dates are presented in the State-by-State summary in Part III. About a quarter of the 31 States affected by operating nuclear power plants will present plans in mid-summer of 1980 with the balance distributed through the fall and winter and into the spring of 1981. With few exceptions, these plans will be conditional submissions because of the reservations a majority of States have about the 15 minute alerting and notification requirement. These time estimates do not reflect additional time requirements for holding public meetings and for FEMA review. The State responses on timetables include, in most cases, actions by counties or lesser jurisdictions. Considering the uncertainty of funding for many of the lesser jurisdictions, it is not clear from the responses how much longer it will take for the needed preparedness to be in place. This may be inconsistent with the timetable in the proposed NRC rule. The situation suggests that the real impact of the new evaluation criteria will not be felt until exercises are held and the preparedness status ascertained. Also, the nature of many State comments about the submissions to the RACs indicates the erroneous notion that RAC review is tantamount to approval of preparedness status.

2. Funding

Substantial funding for software and hardware is viewed as a major necessity in almost every impacted State. This is covered in detail in Part V.C. The funding requirements vary according to the number of nuclear power plants in the State and the number of nuclear power plants in adjacent States. Currently, there is considerable variation in the technique of obtaining the expertise, manpower and hardware funding and support to meet the work requirements. For

example, many Nuclear Civil Protection contract personnel in the States, funded 100% by FEMA, have been diverted from their other planning efforts to assist State and local governments in upgrading plans to meet the new criteria. Some States have passed legislation requiring the utility commpanies to provide funds. There are many variations in these arrangements. The inclusion of the 10 and 50-mile EPZs as a planning basis is adequately documented in the responses, and actions to include the local jurisdictions as a cost element are reported. There is, however, less emphasis on some of the preparedness aspects such as health-physics support and other provisions of the new criteria. The cost estimates reflect a bias towards planning and might underestimate the costs of achieving the other elements of preparedness. Thus, the responses are somewhat incomplete and must be supplemented by other commentary by the States on the NRC rule on emergency planning and on the new criteria in order to get a full understanding of the situation from the States' perspective.

As to the amount of support received from the utility operator, the majority of States expect to obtain direct support either in the form of fees (taxes) or direct contributions in kind. States feel strongly about the impact of the costs on the utilities and themselves and, because in most cases the States are also responsible for the setting of utility rates, the responses tend to include utility costs as State costs. Thus, some reponses to the third question are at odds with the estimates of the second question, except in the case of Texas where no support from the electric utility is sought or expected. In drawing up the new criteria, FEMA and NRC pointed out that State and local governments should look to the utility operator for the majority of support for State and local preparedness. It is not clear from the responses that the long range needs for preparedness will be met without resolution of the various funding responsibilities.

3. General

In their responses, the States offered some comments about specific administrative and technical matters as an extension of their previous comments on the proposed NRC rule and the evaluation criteria. Generally, the basis for the 15-minute warning received most of the commentary. Many States are including the requirements in their planning, while reserving judgment on the timing and effectiveness of the actual installations. It is also clear that some States are actively opposed to the 15-minute warning criterion.

The States consistently identified a need for additional communications equipment in order to activate warning systems, coordinate activities and maintain direction and control of operations.

The responses also indicate that in the future, the States and local governments will be faced with continuing costs far above those needed with the old NRC concurrence process. The immediate need for planning assistance to local governments is reflected in many comments.

Less clearly reflected are the needs for technical professionals in the continuing preparedness activities not yet fully costed. The States do, however, envision a major effort in the development and conduct of exercises. They see a large number of organizational elements involved in a full-scale field exercise, and accordingly anticipate large expenses.

A few States were quite specific about the technical areas. New York, for example, included funds for its proposed computer-assisted assessment and accident management system in its estimate. Generally, the States have identified a need for additional hand-held field equipment, and a few States are actively considering the stockpiling and distribution of potassium iodide.

B. Summary of General Problems Identified in the Federal Review of Plans

The comments offered in this section are a composite of views gained by the headquarters staff of FEMA from written reports of the RACs, from meetings and individual commentary of involved FEMA Regional personnel, and the impressions gained from the review of State comments on the proposed NRC rule and the new criteria.

By and large much of the commentary on plans and preparedenss focused on costs and funding. These matters are treated in Part V.C. Funding and preparedness can be equated, but there is a class of problems like jurisdiction and operational control where funding is less of a problem. Also, in a number of areas such as training, education and the dissemination of guidance in an acceptable way, money cannot buy time. There is evidence that the Federal program for improving the preparedness around commercial nuclear power plants may be moving faster than the statutory base and general public understanding can be impelled. The examples given below are illustrative of this class of problems.

1. Legal Issues

The reviews have encountered a great variation and some inadequacies in the legal basis for both response and preparedness action by States. The relationship of the utility operator and the NRC to the local or State government is not clear and may need clarifying legislation. An example of this is the concern of the NRC that a State, while responsible for the health and safety of its citizens, may take actions less stringent than those determined to be advisable by either the NRC or the utility operator during the course of a rapidly evolving accident. New York has addressed this issue by including a nuclear data link and sophisticated dose assessment capability in its planning basis, thereby putting itself in a position to make such judgments. It is not clear that all States would seek or accept such a role, or would attempt to fund the necessary capability by taxes or assessments on their regulated utilities.

Another example is the matter of jurisdiction within the State. The State primary role specified in the evaluation criteria may cause conflicts in States where the primary emergency response mechanism has centered around the local government and where the State role is supportive or advisory. The converse may also be true in that the anticipated role of the State as outlined in the new criteria may so override local jurisdictions as to create a preparedness vacuum at the local level. The distribution of tax revenues presents a similar jurisdictional problem and needs to be addressed.

Where nuclear facilities have EPZs in more than one State, it is clear that some new arrangements will be necessary. A plume from a major accident is no respector of jurisdictional boundaries. The reviews to date reveal much needed work on the part of States and local governments to resolve planning and preparedness matters in overlapping jurisdictions. This extends to the need for understanding each others' protective action guidelines. While a number of States have entered into compacts for the administration of emergencies, there is currently little indication of the use of such compacts in the development of plans and preparedness in EPZs with multiple jurisdictions.

2. The Federal Response

While strides are being made in the identification and administration of Federal response elements, this work is not evident to the States and continues to cause problems at the State and local levels. States have a legitimate need to know the scope of the Federal response. The States are unwilling to commit to new facilities and resources, such as sophisticated monitoring systems, if there is any indication such commitments will be duplicative of that of the Federal government. Further, they need to be aware of the components of the Federal response so they can prepare receiving facilities, resources and security for them. The DOE is restructuring the IRAP agreement (see Parts III.D.and III.L.) and expects to have a detailed computer simulation of its response components, but this will not be available for 6 to 9 months during which time States must move ahead with preparedness commitments.

3. Alerting and Notifying the Public

In the reviews by the RACs, most State and local plans failed to approach the evaluation criteria elements specified in Appendix 3 of the new criteria. There is, however, an implied risk in the present approach of having NRC stimulate its licensees to design and order systems to meet the criteria of Appendix 3 because the State has the ultimate authority to put these investments in the rate base of regulated utilities. Should State public service commissions resist this, the credibility of NRC and FEMA would be seriously at stake if preparedness deadlines were not met over this issue. A better basis for this requirement needs to be scientifically established, and publicly accepted and rigorously followed. In any event, FEMA intends to use the reaction of the public being notified as the ultimate test of acceptability of alerting and warning systems. This behavioral approach may also be useful in developing the timing of alerts in relation to protective actions such as evacuation and sheltering.

4. Monitoring and Accident Assessment

There is indication that the requirements for 24-hour capability on the part of State emergency services to provide for dose assessment may impose a need for more trained personnel than States can provide within the schedule set by the Federal program. In addition, there is serious question if the salary structure of States can attract the level of professional persons necessary. While this could be classed as a financial or funding matter, it is a problem similar to that faced by the NRC licensees in dealing with the requirements for highly trained shift personnel in the control rooms of nuclear power plants.

5. Public Information and Education

The respective roles of the power plant operator, the State and the Federal government are not well defined. The President has charged FEMA with general educational goals around commercial nuclear power plants, but Congress has failed to appropriate funds. In some States, law and public service commission regulations hamper the ability of regulated utilities to distribute material deemed as promoting nuclear power or explaining its relation to utility investments. The Supreme Court decision of June 20, 1980, which struck down the prohibition against distribution of material in electric bills sought by the State of New York, may clear the air on this issue. In any event, general nuclear education, and the expected actions required of the public in response to alerts, will affect the program for approval of State and utility radiological emergency plans.

C. Costs and Funding

1. Costs

A few months before the new evaluation criteria were issued, the NRC's Office of State Programs published a staff study entitled "Beyond Defense-in-Depth: Cost and Funding of State and Local Government Radiological Emergency Response Plans and Preparedness in Support of Commercial Nuclear Power Stations," NUREG-0553, October 1979.[5/] This study examined emergency plans and preparedness in 14 States which had been developed under then existing guidance, and 8 of which had NRC concurrence. The plans and preparedness of local governments surrounding 24 sites were also reviewed. The study identified a range of costs to State and local governments for their plans and preparedness at each site. These costs were influenced largely by the relative differences in population distribution and other site related factors such as the number of jurisdictions involved. Some important considerations that were found to affect cost include: exercises, communications, radiation monitoring, warning systems, EPZs and local technical directors.

Typical costs determined in NUREG-0553 for State and local government programs for radiological emergency preparedness using Emergency Planning Zones are presented in Table 1. For a State, the initial costs of planning, exercises, training and resources (communications and radiological monitoring instrumentation) were estimated at about $240,000, with associated annual updating costs including exercises, of about $44,000. For local governments, the initial costs were estimated at about $120,000 (for 4 local jurisdictions) with annual updating costs of about $30,000. Thus, the typical total costs to State and local governments in their emergency plans were estimated at about $360,000 initial cost, plus $74,000 in annual updating costs.

Table 1: Typical Costs to State and Local Governments To Develop Emergency Response Programs Within the Emergency Planning Zones (State with one Site)

	State	Local	Total
Plan:			
Initial	$100,000	$40,000	$140,000
Update	10,000	4,000	14,000
Preparedness:			
Exercises	20,000	20,000	40,000
Training:			
Initial	20,000	None	20,000
Update	4,000	None	4,000
Resources:			
Initial	100,000	60,000	160,000
Update	10,000	6,000	16,000
Total:			
Initial	240,000	120,000	360,000
Update	44,000	30,000	74,000

ır sites in areas of high or rapidly growing population der ty, uch as the sites listed in Part II. F, additional costs will be ssociated with such items as evacuation dynamic analyses, sheltering, radioprotecti e drugs, and communications and warning systems. An estimate of about $400,000 was presented in NUREG 0553 for State and local costs at a typical nuclear power plant site to accomplish the preparedness involved with the addition of EPZs. One million dollars was estimated for sites with the highest population densities.

The new 15-minute public alerting and notification requirement is the most significant deviation from the cost estimates above, although other preparedness aspects of the new criteria may result in large one-time costs not yet defined. An estimate of the initial cost of a typical system comprising sirens and tone alert radios ranges from $500,000 to $750,000 according to NRC. Because of the relative high cost of this element of preparedness, there is much pressure from State and local governments and the utilities to carefully review this requirement and to search for innovative ways to achieve appropriate alerting and notification of the public at considerably lower cost.

Therefore, the likely cost for implementation of the new evaluation criteria would appear to be about $1 million per site in a typical State when the cost of a 15-minute public notification system and the impact of inflation are both taken in account. For a site with relatively high population within the 10-mile EPZ, the initial cost could reach $2 million.

FEMA asked the States to estimate the cost of implementation of the new criteria for both State and local governments. Appendix A contains responses from the States that are generally supportive of the earlier estimates illustrated in Table 1 plus the costs of the 15-minute public alerting and notification system. The estimated costs vary considerably from State to State according to their perception of the new criteria and their own specific needs which may go beyond these criteria. There are two outstanding items that warrant special attention because their costs are considerable: alerting and notification; and, advanced radiological monitoring systems.

a. Alerting and Notification Systems

Alabama estimates $2 million per site for a siren system. New Jersey estimates $2 million for its Salem site and $3 million for its Oyster Creek site. Pennsylvania estimates a cost of about $1.6 million per site. These costs are considerably greater than the NRC estimate of $500,000 to $750,000. Arkansas and other States offered estimates in this range.

b. Advanced Radiological Monitoring Systems

Illinois is planning for a remote radiological monitoring system, called a ring system. (See Part III.I.) The estimated cost is $1.75 to $2 million per site. The ring system is a more comprehensive system than is recommended by the new criteria. If other States adopt similar systems, however, the overall costs of preparedness to such States would be considerably greater than they have estimated.

The total costs of implementation of plans and preparedness may be compared to other costs incurred in the construction of a typical 1000 megawatt electrical nuclear power plant or to the taxes and fees usual for such an installation. The capital investment in a single nuclear unit and its equipment is more than $1 billion at the present time. The State and local tax and fee structure, although quite variable, averages about $25 million per year for a $1 billion investment. A particular exception is a publicly owned utility, (such as TVA) which make payments to State and local governments in lieu of taxes and also has a much lower rate structure. When compared to these investment and tax figures, even for the case of a publicly owned utility, the cost of implementation of the new criteria for State and local emergency plans is relatively small.

2. Funding

a. Status

For most States, funding for general civil emergency plans and preparedness comes from general State appropriations and grants from the Federal government. Generally, State agencies such as civil defense or emergency services and radiological health, currently find themselves in a position of having more responsibilities related to radiological emergencies thrust on them at the same time that they are being squeezed financially by inflation and Federal and State budget reductions.

Since the accident at Three Mile Island, there is a growing number of States who have enacted funding legislation for radiological emergency plans and certain aspects of preparedness in support of commercial nuclear power plants. These States are Oregon, Illinois, California, Arkansas and Minnesota.[58] In all these laws, the nuclear power plant operator is assessed a fee to cover some or all of the costs of State plans and preparedness and in some cases, local plans and preparedness. For example, Illinois assesses a one-time charge of $350,000 per nuclear power station, and an annual fee of $75,000 per year per reactor thereafter.[59] The fees are put into a State fund for use principaliy by the State. Oregon's $100,000 per year assessment for each site covers State and local planning within the 10-mile and 50-mile EPZs.[60] In addition,

Oregon uses the assessment to fund Cowlitz County, Washington, plans because the county lies within the EPZs of the Trojan nuclear power plant, which is located in Oregon. A number of additional States considering the assessment approach to raise funds include Maine, Massachusetts, Michigan, New York, Ohio and Washington.[61] New Jersey is unique in that it passed an enabling law that permits the distribution of local tax revenue to impacted neighboring jurisdictions in amounts up to $250,000 per year for radiological emergency plans and preparedness.[62] New Jersey is considering legislation authorizing the fee approach to supplement the funds acquired from its enabling act.[63] Other States are making a variety of different arrangements to get funds from the utilities, or to acquire the services from the utilities in lieu of funds.

Local governments which are located in the 10- and/or 50-mile EPZs generally lack the funds to do the required emergency planning and preparedness. The main reasons are the low priority attention that this activity is given, and the time required to budget and appropriate funds. Because of this, local governments may not be funded adequately and probably lack the technically qualified directors who are responsible for leading the planning effort, conducting exercises, and specifying, purchasing and maintaining preparedness equipment.

b. Proposed Funding Mechanisms

"Inadequate", "sporadic", "uncertain", and "frustrating" are words local, State and Federal officials use to describe the current hodgepodge funding approach to local, State and Federal government radiological emergency response plans and preparedness in support of commercial nuclear power plants. This situation has been compounded by the time deadlines imposed on them.

In terms of funding, the Kemeny Commission recommendations simply state that all local communities should have funds and technical support adequate for preparing the required plans.[64] In his message of December 7, 1979, the President asked Congress for supplemental appropriations to assist local and State governments and to cover Federal costs.[65]

The NRC Special Inquiry Group, directed by Mitchell Rogovin, suggests that NRC and FEMA should give consideration to the method by which funds can be made available to local communities near nuclear plants.[66] Suggestions include Federal grants and for an NRC requirement that utilities pay for local planning efforts. Arguments that support utility funding are that the utility funding would encourage the utility to coordinate its own site-area planning and notification activities with local plans; that such detailed

planning would probably not be required for other types of emergencies; and that those who benefit from the plant should help defray the costs associated with it, which include emergency preparedness costs.

The National Academy of Public Administration (NAPA) addressed the funding problem under contract to the NRC Special Inquiry Group.[67] A NAPA panel recommended that the Federal government establish a grant program to assist State and local governments in planning for and responding to civilian nuclear emergencies. Eligibility should be conditioned upon meeting designated grant requirements. The NAPA staff recommended that:

> The Federal government should levy a tax on utilities owning civilian nuclear power plants. This tax should be used to establish a trust fund to be used for grants by the Federal Emergency Management Agency to States, local governments, and private organizations to fund Community Nuclear Power Plant Site Emergency Boards, Emergency Command, Control, and Communication Centers, emergency training, emergency research, and for related purposes. This would be called the Civilian Nuclear Power Emergency Preparedness Trust and Grant Program.
>
> The eligibility of State and local governments with civilian nuclear power plants in or adjacent to their jurisdications for funds under the Disaster Relief Act of 1974 should be conditioned on participation in the Civilian Nuclear Power Emergency Preparedness Grant Program.[68]

The creation of a "Radiological Emergency Response Plans and Preparedness Fund for State and Local Government" was also suggested in NUREG-0553 as a coherent funding mechanism.[69] Monies for the Fund could be derived substantially from a one time fee of $1 million per site levied on the operator of each nuclear power plant site. Adjustments would be made every year to assure that all costs are recovered. There would be suitable incentives for State and local governments to resolve funding issues with the utilities. Also, NRC would be the most suitable agency to administer the grants to State and local government. In commenting on the report, most utilities said that they prefer to support joint utility/State/local funding without Federal involvement.[70] Since then, the 6 States mentioned have passed their own funding legislation. Nonetheless, many local governments prefer Federal funds. Overall, most utility and government responders preferred FEMA administration, if there is a grant program.

The evolving NRC staff view resulting from consideration of the proposed emergency planning rule, is that the utility has an incentive, based on self interest and responsibility to produce power, to assist State and local government where it is necessary. However, NRC staff believes, in light of the President's Statement, that any direct Federal funding of State or local governments should come through FEMA.[71]

In order to assure adequate levels of preparedness around nuclear power plants some form of Federal legislation may be necessary. This could take the form of a trust fund with grants to State and local governments and reimbursement to Federal agencies for their costs. The trust fund might be funded by a one-time fee, and an annual maintenance fee levied upon nuclear power plant operators. To do this, the legislation would have to provide from $2 to $3 million from each operating nuclear power plant site. The maintenance fee would be based on the trust fund operating experience. In order to accommodate the desires of States and utilities to make other arrangements, the legislation could provide for a local option. Any Federal legislation needs to consider the matter of funds distribution to local governments.

VI
Conclusions and Recommendations

A. Status of State and Local Emergency Plans and Preparedness

Conclusions

There are 31 States affected by operating nuclear power plants and an additional 9 States affected by nuclear power plants scheduled for operation.

The Federal review of States affected by operating nuclear power plants suggests: significant progress is being made to improve radiological emergency plans and preparedness; much of the progress came since the publication of new interim criteria published in January 1980;State and local governments recognize the interim criteria as basically sound; and State and local governments have a renewed commitment to radiological emergency planning and preparedness.

Eight States with operating nuclear power plants will submit plans for review by mid-summer, with the balance distributed through the fall and winter and into the spring of 1981. Submissions will be provisonal in nature because of the 15-minute public notification requirement. There may be some delay because of the additional time necessary to hold public meetings and conduct FEMA headquarters review required for approval of plans.

The Federal review of the States affected by nuclear power plants scheduled for operation suggests: that the States are becoming more active in the planning phase, but at a considerably lower level compared to the States with operating nuclear power plants; and the progress being made by other States with operating nuclear power plants serves as a model for States with plants soon to become operational.

Recommendation

o FEMA should press on with review of State plans and increase its efforts to provide assistance to States if the objective of adequate plans and demonstrated preparedness is to be achieved in time to meet proposed schedules.

B. Comprehensive Preparedness Versus Radiological Emergency Preparedness

Conclusions

There is a definite link between preparedness to cope with the broad range of natural and manmade civil emergencies and readiness to effectively handle radiological emergencies. Those organizations that have a strong comprehensive emergency preparedness program, including a good general emergency plan, are more likely to show strength in the development of an effective radiological emergency preparedness program. Achieving effectiveness in the radiological areas will be difficult without such general emergency preparedness strength.

On the other hand, it is clear that some radiological preparedness measures, such as those related to notification and warning, evacuation, exercises that simulate radiological accidents, training, and intensive planning effort at all levels of government and in the nuclear utilities, are bound to add significantly to the general civil emergency preparedness of the nation.

Recommendation

o Federal, State, and local governments should continue the current emphasis on radiological emergency preparedness activities recognizing that it can contribute to, but ultimately will be measured against the strength of the comprehensive civil emergency readiness program of the Nation.

C. Radiological Planning Versus Radiological Preparedness

Conclusions

There is a tendency to equate having an approved plan with being prepared to respond to a radiological emergency. This point of view should be discouraged. A good, well-written plan is an important step toward achieving a preparedness capability, but it is only that. As mentioned earlier in the report, preparedness is measured in how effective the plan proves to be in tests and exercises. Beyond these tests and exercises, radiological preparedness

means such things as having emergency organizations and emergency instrumentation identified and in the proper place, an accident assessment system in place, and the notification and public warning system installed.

Much of the Federal assistance to State and local governments has been in plan development and evaluation. Lesser emphasis has been placed on preparedness in its broader context.

Recommendation

o FEMA and other involved Federal agencies should continue to provide encouragement and assistance in the development of State and local government radiological emergency plans and preparedness.

D. Federal Organizational and Personnel Arrangements to Administer the Program

Conclusions

FEMA has taken the necessary steps to assume leadership of the Federal program. It assumed Chairmanship of the Federal Interagency Central Coordinating Committee (FICCC), the policy coordinating body in radiological emergency planning and preparedness, and the Federal Interagency Regional Assistance Committees (RACs) that provide direct contact with State and local governments in planning and other preparedness development and evaluation.

FEMA and NRC have recognized the need for close cooperation in the transfer of the lead agency role. A Memorandum of Understanding has been useful in guiding this cooperation.

FEMA has established a separate Radiological Emergency Preparedness Division in its Office of Plans and Preparedness to administer the program. It is temporarily manned by professionals from NRC. The program could be adversely affected if the experience represented by this group does not remain in FEMA.

The program is also dependent on personnel resources of other Federal agencies, particularly at the regional level. The continued availability of these resources is uncertain without specific budgeting and personnel assignment action.

Recommendations

o FEMA and NRC should take prompt steps to assure that the new Radiological Emergency Preparedness Division remains adequately staffed during the transition period when final decisions are being made on the transfer from NRC of functions, positions, and people and the hiring of new people by FEMA.

o Other Federal agencies cooperating in this effort should commit personnel resources to carry out their responsibilities including budgeting for them, if necessary. Further, FEMA recommends that Federal agencies credit personnel activities in this area as a full part of performance objectives for career appointees.

E. Federal Regulations Assigning Responsibilities and Clarifying Agency Roles

Conclusions

Federal agency responsibilities for assisting State and local governments in radiological planning have not changed significantly over those that were first agreed to in January 1973 and revised in December 1975. Federal organizations involved have changed. Formalizing these responsibilities in a FEMA regulation, which is in process, will add clarity to the program and should assist in gaining approval for the resources required to carry out the responsibilities.

There is a potential area of duplication and conflict between FEMA and NRC concerning their roles in the review and approval of State and local radiological emergency plans and the general status of off-site preparedness in the vicinity of nuclear power plants. Attempts have been made to clarify the respective roles of FEMA and NRC through the proposed rules that are under consideration, and both agencies have supported legislation which would amend the Atomic Energy Act of 1954. The proposed changes would give FEMA responsibility for making determinations on the sufficiency of State and local plans and preparedness.

Recommendations

o FEMA should expedite the process of gaining agency concurrence in the proposed regulation, formally assigning responsibilities in relation to State and local government radiological emergency plans and preparedness.

o FEMA and NRC should continue their efforts to clarify their roles related to the adequacy of State and local government preparedness around nuclear power plants including the suggested legislative remedy.

F. Coordinated Federal Radiological Preparedness and Response

Conclusions

The experience at Three Mile Island showed the need for an improved, better coordinated Federal response to a radiological emergency. This experience has raised many State questions and doubts about what can be expected from the Federal government and how its response will mesh with that of the State and its local jurisdictions.

Three actions are in process, all of which should be completed by October 1, 1980, that address this recognized deficiency. First, the revision of the Interagency Radiological Assistance Plan will provide a closer tie to State plans, concentrate on Federal radiological emergency monitoring and accident assessment capabilities, and how these capabilities will be managed in an emergency situation. FEMA is working with the Department of Energy on this revision. Second, in recognition of their key roles in a Federal response to a radiological accident at a nuclear power plant, FEMA and NRC will soon sign a Memorandum of Understanding delineating these roles. Third, FEMA is working on a National Radiological Emergency Preparedness Plan which will cover all of the elements of Federal preparation for, and response to, a radiological accident at a nuclear power plant. It will also include guidance for agency plans which will become a part of the FEMA plan. (Some agencies are now working on their own plans.) This FEMA plan would meet a recent legislative requirement that the President prepare and publish a National Contingency Plan to protect the public health and safety in the event of an accident at a nuclear power plant.

Recommendations

o FEMA, and other Federal agencies with a role in the Federal response to a radiological emergency, should complete the projects in progress by October 1, 1980, and any follow-on actions as soon as possible thereafter.

o FEMA should keep the States advised of Federal progress in this area as an assist in their planning and preparedness, and should consult with the States to assure appropriate interaction between Federal, State, and local organizations during a response to a radiological emergency.

G. New Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants

Conclusions

The joint FEMA-NRC criteria document was a milestone in the Federal assistance to State and local governments. It is forward looking for a number of reasons. It reflects cooperation between the two key Federal agencies involved. It combined, for the first time, guidance to nuclear plant operators and State and local governments, thus showing the close relationship between the plans and preparedness of these entities. This document incorporates a requirement for establishment of Emergency Planning Zones (EPZs) around nuclear power plants as a basis for planning. Establishment of the EPZs was in response to a long-standing request from the States for guidance on what kind of an accident to base plans and preparedness. In December 1978, after over 2 years of work, a joint NRC/EPA Task Force published its report which recommended the establishment of the EPZs. The criteria document places more stringent requirements for notification and public warning of an accident at a nuclear power plant. Finally, it emphasizes existing capabilities as distinct from written assertions in a paper plan.

While the State and local governments are responding with revisions to their plans, based on the new criteria, they are concerned about a change of signals from the Federal Government and, as will be discussed later, the cost of meeting some of the criteria.

Recommendation

o FEMA and NRC should produce a final criteria document, taking into account comments received from all sources, by September 30, 1980.

H. Public Information and Education

Conclusion

o FEMA, NRC and other involved Federal agencies have formed a task force to screen available public education materials on radiation and response to radiological emergencies. These materials will form the bases for decisions on what additional materials need to be developed and how best to present them.

The task force is also concerned with the public information aspects of the response to a radiological emergency, prompted largely by the Three Mile Island experience, and will be making some recommendations on how to improve this aspect.

Recommendations

o The interagency task force should continue its efforts and be encouraged by the Federal Interagency Central Coordinating Committee to produce some useful material by the end of 1980.

o An item for consideration would be the design of educational courses at the primary and secondary school level in order to supplement short term efforts of explaining preparedness activities around nuclear power plants.

I. Training

Conclusions

The training of Federal, State and local officials in radiological emergency planning, operational response, and coordination, totaling over 1700 individuals since early 1975, is a bright spot in the Federal assistance to State and local governments. These training programs are of excellent quality. Separately, Oak Ridge Associated Universities has contributed significantly by conducting several courses for professional medical personnel in handling of radiation accident victims.

Deficiencies exist in training programs for first-at-the scene police, fire, and emergency medical services personnel, and FEMA is planning training programs in these areas.

Transfer of the training coordination and funding from NRC to FEMA is scheduled for October 1, 1980.

Faculty and course development assistance from other Federal agencies has become a problem and, if it continues, could have a serious impact on the training activity.

There is a general concern about the availability of trained personnel to perform the accident assessments at the State and local government level.

There is a need for a system of accreditation in order to satisfy continuing education requirements for professional career development.

Recommendations

o The Federal Interagency Central Coordinating Committee should take vigorous actions to complete the development of courses for first-at-the-scene personnel and make arrangements for making the courses available to those needing them.

o Cooperating Federal agencies should take the necessary actions to assure the availability of qualified people to assist FEMA in the development of training courses and as faculty.

o FEMA should explore the possibility of an accreditation program.

o FEMA should work with the American Health Physics Society to stimulate the development of health physics technology courses at the community college level in order to aid in making personnel available to State and local governments.

J. Exercise Scenarios and Evaluation Criteria

Conclusion

To make the exercises that are conducted to test the effectiveness of plans meaningful, it is necessary to have scenarios that simulate representative types of accidents that could occur at nuclear power plants and the off-site radiological consequences. To

fill this need, NRC and FEMA are having 10 to 12 standardized exercise scenarios prepared. In addition, guidance will be prepared for use by observers in evaluating exercises.

Recommendations

o Since this service to State and local governments is long overdue, FEMA and NRC should make every effort to have scenarios and guidance on exercise evaluation in the hands of the States and nuclear utilities before the end of 1980.

o FEMA should accelerate development of a standard, computerized exercise evaluation model, against which individual plans of localities can be tested and exercises planned and carried out to verify planning assumptions.

K. Assessment of Evacuation Times for the Population Around Nuclear Power Plants

Conclusions

FEMA conducted independent assessments of the time required for evacuation around 12 nuclear power plants with the highest populations within the 10-mile EPZ, or having special evacuation considerations. Conclusions drawn from a preliminary review indicate that these assessments will:

1. provide many State and local planners with a first assessment for fulfilling an important element in the new criteria document;

2. provide a framework for emergency planning at the local level which can be a catalyst for developing the local plan;

3. test the impact of the 15-minute public notification criterion, such as shortening the evacuation time but increasing congestion compared to the existing notification system;

4. help to establish priorities of evacuation compared to supplementary protective measures, such as sheltering and administering thyroid blocking potassium iodide; and

5 provide recommendations for improvement in evacuation times.

Recommendations

FEMA should:

o Continue funding of the evacuation time assessments, especially for the 25 higher population (or other consideration) sites;

o Conduct reviews of the assessments by Federal, State, and local government planners to identify a superior methodology;

o Conduct a study of the comparative risks and benefits of evacuation compared to alternative protective actions.

L. Sheltering as a Protective Measure

Conclusions

In the event of an accident, sheltering in a building or other structure may be a suitable protective action which should be considered in addition to, or in lieu of, evacuation or taking thyroid blocking potassium iodide.

The existing Federal guidance on sheltering which is derived from the civil defense program is not directly applicable to nuclear power plant accidents. Some research reports on sheltering as a protective measure for nuclear power plant accidents have been prepared by NRC and EPA.

Recommendation

o FEMA should provide sheltering guidance suitable for practical use by State and local officials. This should include comparative alternative protective strategies, such as evacuation and administration of thyroid blocking potassium iodide.

M. Thyroid Blocking as a Protective Measure

Conclusions

The administration of proper dosages of potassium iodide to block the thyroid against the uptake of the radionuclides of iodine is a long recognized protective measure. Radioiodine is the dominant radionuclide of concern in certain types of radiological releases from nuclear power plants.

The Food and Drug Administration has approved the manufacture of potassium iodide in a form suitable for thyroid blocking in an emergency.

The Presidential Commission and the NRC Special Inquiry Group recommended the use of potassium iodide.

There is no official Federal policy or guidance for the purchase, storage, distribution, and use of potassium iodide.

Because of the lack of official Federal policy and guidance, States are hesitating to purchase and distribute potassium iodide.

Recommendations

o Official Federal policy and practical guidance for the use of potassium iodide as a protective measure should be expeditiously developed. The Department of Health and Human Services (DHHS) should develop official Federal policy and practical guidance for the use of potassium iodide as a protective measure.

o As regards to purchase, storage, and distribution of potassium iodide, FEMA should prepare policy and guidance in cooperation with DHHS.

o Pending the development of this Federal policy and guidance, FEMA should purchase immediately, at least a sufficient quantity for use at a centrally located site and maintain this quantity for rapid deployment to other sites if needed.

N. Computer Assisted Emergency Assessment Systems.

Conclusions.

There are three useful types of computer assisted emergency assessment systems under considerations for measuring radiological doses after an accident: ring monitors, simulation and diffusion models, and the Department of Energy's Atmospheric Release Advisory Capability (ARAC).

FEMA is interested in the use of computers to help in its role as emergency manager for the Federal Government,and in assisting State and local governments in adopting this technology.

FEMA recognizes that the ARAC system represents the state-of-the-art among systems available for immediate application.

An ARAC pilot project has been established by FEMA for 2 State emergency operations centers (New York and Illinois) and the Indian Point and Zion nuclear power plants respectively in these States.

Recommendations

FEMA should:

o Continue to fund its pilot program to evaluate completely the ARAC system.

o Continue to monitor, in cooperation with NRC, all competing radiological dose assessment systems.

O. Monitoring Instruments.

Conclusions.

An inexpensive radioidine sampling and monitoring device was developed at the Brookhaven National Laboratory. The device is designed for use in the field and has the potential to fill an existing gap in the currently available inventory of portable radiation monitoring instruments. It is being independently evaluated by the Idaho National Engineering Laboratory.

Other field monitoring instruments are being developed by FEMA in order to replace and supplement the exisitng stock of radiological instruments, many of which are old rehabilitated civil defense instruments not suited to the character of nuclear plant accidents. Progress in bringing these instruments into general use by State and local governments is hampered by the lack of appropriations to FEMA for this purpose.

Recommendation

o The work on these instrument systems should be accelerated and FEMA should press for funds to complete the development and initial distribution of these instruments.

P. Instrumentation Guidance

Conclusion

Guidance on the use of radiation emergency instrumentation and offsite radiological assessment techniques is needed by State and local governments. This guidance is currently under developement by the Idaho National Engineering Laboratory.

Recommendation

o FEMA and NRC should accelerate the development of guidance and make it available to State and local governments on an expedited basis.

Q. Public Alerting

Conclusion

Rapid public alerting in the event of an accident is a central element of adequate planning.

The 15-minute public alerting systems are the most expensive part of off-site plans and preparedness and are primarily a capital cost. Estimates range from $500,000 to several million dollars,

depending on the site. The system includes sirens, tone alert radios and various other elements. The need for such rapid alerting is the subject of much debate.

Recommendation

o FEMA and NRC should engage behavioral scientists in an immediate effort to resolve issues related to the timing, nature and testing of public response to emergency alerting and notification around fixed nuclear facilities. This activity would provide a basis for setting design objectives such as the 15-minute time to notify 100% of the population in the 5 mile radius within the plume exposure planning zone. This work must recognize the practical aspects of meeting the proposed NRC requirement for having such systems in place by July 1, 1981 and the fact that large investments must be committed.

R. Research and Development

Conclusions

The general thrust of research and development for radiological emergency preparedness has been in: (1) monitoring equipment and dose assessment, and (2) the analysis of pathways for radioactive materials released from accidents.

Since the accident at Three Mile Island, there has been growing need for research in the area of human factors, such as the behavior of persons under stress during accidents at nuclear power plants.

FEMA cooperates with other Federal agencies in a wide variety of research. Examples are: low level personnel dosimeters with the Department of the Navy, and ARAC with NRC and DOE.

Recommendations

FEMA should:

o Continue to review and recommend relevant Federal activity in research and development, through the Federal Interagency Central Coordinating Committee.

o Cooperate with other Federal agencies in behavioral research of alternative protective actions.

o Cooperate with NRC in research areas, such as education needs, evacuation dynamics, public alerting and notification and computer-assisted assessment technology.

o Fund a computer-assisted exercise evaluation model that includes the dynamics of dose assessment, evacuation,sheltering and resource allocation.

S. Legal Issues

Conclusion

The legal basis for planning by the States is inadequate in a number of respects and it varies from State to State. This includes the relationship of the nuclear facility operator and NRC to the local or State government, the role of the State with respect to local government, and State compacts and agreements.

Recommendation

o FEMA and NRC should take the lead with States and the nuclear industry to seek a forum for developing adequate remedies for resolution of these legal issues.

T. Financial Considerations

Conclusions

Radiological emergency planning and preparedness is a considerable expense for State and local governments. There is much debate over how to fund the programs since funding now is inadequate, sporadic, uncertain, and frustrating.

Local governments are in most need of adequate and continuous funding for their plans and preparedness. Of special concern is the need for technically qualified local emergency services directors.

Many States also have inadequate funding for their plans and preparedness. Arkansas, California, Illinois, Minnesota, and Oregon have laws to defray some of their costs. A unique feature of these laws is that funds are derived from assessments on the utilities. A number of other States are entertaining similar legislation. As a result, the consumer of electricity pays the cost of planning and preparedness.

FEMA expects to expend $3.8 million in FY 1980 for its activities in radiological emergency preparedness. An additional $5.1 million has been requested. In addition, the Federal agencies need $0.5 million to support the RAC reviews of State plans at the levels needed to meet the schedules in the proposed NRC rule. FEMA estimates the FY-1981 Federal costs at $8.8 Million. These Federal costs would currently be derived from appropriations that are derived from general revenue.

The studies performed by the Presidential Commission, the NRC Special Inquiry Group, the National Academy of Public Administration, and NRC and FEMA staff, recommend that some part of the cost of preparedness be paid for by the nuclear utilities. The cost of preparedness should be incorporated into the cost of electricity from nuclear power plants. They all agree that local government costs should be paid by the utilities. Some of these studies, indicate that the utilities should also pay State costs. The studies do not address recovery of Federal costs.

In a typical State, the likely cost for implementation of the interim guidance appears to be about $1 million per site. For a site with relatively high population within the 10-mile EPZ, the initial cost could reach $2 million or more.

When compared to the investment in a single nuclear power plant of about $1 billion and typical taxes of about $25 million per year paid by the utility, the costs of State and local emergency planning and preparedness are relatively small.

The majority of States expect to receive some support from the utility operator either in the form of fees (taxes) or direct contribution in kind. What portion will be ultimately left to the States is not resolved. There are many gaps in coverage and in timeliness of funding.

Recommendations

o States should work out equitable arrangements with utilities and appropriate governmental entities for funding of emergency preparedness around nuclear power plants.

o States are encouraged to place radiological emergency preparedness costs into the costs of electricity power so that they are viewed as an extention of original investment decisions for the nuclear power plants.

o If the States fail to act, or choose not to act as recommended above, the Congress should create a fund derived from assessments on nuclear power which would be used to assure the appropriate level of radiological emergency planning and preparedness. The source of the funds could be a one-time $1 million per site tax on the utilities that operate the nuclear power plants. For high population sites, the tax might be as high as $2 million. Provisions to exempt those utilities that fund local government adquately on their own would be included. The level of tax would be reviewed to assure that all local costs are recovered. Adjustments to the one time tax and additional taxes may be necessary. If States continue to be inadequately funded, an incremental tax would be levied. Grants would then be made to States without adequate funding. Utilities that adequately fund State and local governments would not be taxed.

o FEMA, in cooperation with other Federal agencies, should study the issue of the recovery of Federal costs for radiological emergency preparedness and make appropriate recommendations for action by the Congress.

Footnotes

Many of the listed documents can be obtained for a fee from:

* The National Technical Information Service (NTIS)
  Springfield, Virginia 22161;

* U.S. Government Printing Office (GPO)
  Washington, D.C. 20402; and

* The NRC Public Document Room (PDR)
  1717 H Street, N.W.
  Washington, D.C. 20555

1/ "Emergency Plans for Production and Utilization Facilities," 10 CFR 50 Appendix E (1970).

2/ Office of Emergency Preparedness. "Nuclear Incident Planning-Fixed Facilities," 38 Fed. Reg. 2356, (Jan. 24, 1973).

3/ U.S. Nuclear Regulatory Commission, Office of International and State Programs. "Guide and Checklist for the Development and Evaluation of State and Local Government Radiological Emergency Response Plans in Support of Fixed Nuclear Facilities," NUREG-75/111 (Reprint of WASH-1293) (Revision No. 1 12-01-74), 1975. Supplement No. 1, "Essential Guidance Elements and Associated Checklist Elements for NRC Concurrence in State and Local Government Radiological Emergency Response Plans," (Mar. 15, 1977).

4/ Exec. Order No. 12148 15 Weekly Comp. of Pres. Docs. 1277 (Jul. 20, 1979).
Exec. Order No. 12155 15 Weekly Comp. of Pres. Docs. 1620 (Sept. 10, 1979).
Exec. Order No. 12156 15 Weekly Comp. of Pres. Docs. 1621 (Sept. 10, 1979).

5/ "Radiological Incident Emergency Response Planning; Fixed Facilities and Transportation," 40 Fed. Reg. 59494 (Dec. 24, 1975).

6/ "Reorganization Plan No. 3 of 1978," 43 Fed. Reg. 41943 (Sept. 19, 1978).

7/ U.S. Nuclear Regulatory Commission, Office of State Programs. "Radiological Emergency Response Planning," Handbook for Federal Assistance to State and Local Governments, Revision 1 (NUREG-0093/1) (Jan. 1979).

8/ See footnote 3.

9/ U.S. Nuclear Regulatory Commission and Environmental Protection Agency. "Planning Basis for Emergency Response to Nuclear Power Reactor Accidents," NRC/EPA Task Force Report NUREG-0396/EPA-5206-1-78-016. 44 Fed. Reg. 61123 (Oct. 23, 1979). Also Environmental Protection Agency. "EPA Policy Statement; Planning Basis for Emergency Responses to Nuclear Power Reactor Accidents," 44 Fed. Reg. 2893 (Jan. 15, 1980).

10/ Dr. John G. Kemeny. "Report of the President's Commission on the Accident at Three Mile Island, the Need for Change, the Legacy of TMI," Library of Congress Catalog Card No. 79-25694, GPO 1979, 0-305-557 (Oct. 1979).

11/ Office of the White House Press Secretary. Fact Sheet: "The President's Response to the Recommendations of the President's Commission on the Accident at Three Mile Island" (Dec. 7, 1979).

12/ See footnote 11.

13/ Exec. Order No. 12202, 45 Fed. Reg. 17939 (Mar. 20, 1980).

14/ "Memorandum of Understanding Between NRC and FEMA to Accomplish a Prompt Improvement in Radiological Emergency Planning and Preparedness," 45 Fed. Reg. 5847 (Jan. 24, 1980).

15/ "Review and Approval of State Radiological Emergency Plans (Draft)," Federal Emergency Management Agency. (Proposed Rule), Washington, D.C. 20472 (Jun. 2, 1980).

16/ U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency. "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, for Interim Use and Comment," (NUREG-0654/FEMA-REP-1) (Jan. 1980).

17/ "Adequacy and Acceptance of Emergency Planning Around Nuclear Facilities," 10 CFR Part 50, Appendix E, 44 Fed. Reg. 41483 (Jul. 17, 1980).

18/ U.S. Nuclear Regulatory Commission, Office of Standards Development. "NRC Staff Preliminary Analysis of Public Comments on Advance Notice of Proposed Rulemaking on Emergency Planning (NUREG-0628) (Apr. 1980).

19/ "Production and Utilization Facility Licensees; Emergency Planning," 44 Fed. Reg. 54308 (Sept. 19, 1979).

20/ "Emergency Planning" (Proposed Rule), 10 CFR Part 50, 44 Fed. Reg. 75167 (Dec. 19, 1979).

21/ U.S. Nuclear Regulatory Commission. NUREG-0684 (now in preparation). (Staff analysis of comments on the Proposed Rule).

22/ U.S. Nuclear Regulatory Commission, Office of Standards Development. "Proceedings of Workshops on Proposed Rulemaking on Emergency Planning for Nuclear Power Plants" (NUREG/CP-0011) (Apr. 1980).

23/ U.S. Department of Energy. "Interagency Radiological Assistance Plan" (DOE/EV-0010) (Reprint of ERDA-10) (Revised April 1975 and March 1978).

24/ See footnote 23.

25/ See footnote 16.

26/ "Emergency Plans for Production and Utilization Facilities," 10 CFR 50, Appendix E, (Revised Jan. 1, 1979).

27/ U.S. Nuclear Regulatory Commission, Office of Standards Development. "Emergency Planning for Nuclear Power Plants" (Regulatory Guide 1.101) (Revision Mar. 1977).

28/ See footnote 3.

29/ U.S. Nuclear Regulatory Commission and U.S. Environmental Protection Agency. "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," NUREG-0396/EPZ-520/1-78-016) (Dec. 1978).

30/ U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation. "Emergency Action Level Guidelines for Nuclear Power Plants (Draft)," (NUREG-0610) (Sept. 1979).

31/ "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," (NUREG-0654/FEMA-REP-1), 45 Fed. Reg. 9768 (Feb. 23, 1980).

32/ Federal Emergency Management Agency. "Guidance on Off-Site Radiation Measurement Systems (Draft) Phase I, Airborne Releases" Federal Interagency Task Force on Off-Site Emergency Instrumention (Date for publication unspecified).

33/ D. Slade (editor). U.S. Atomic Energy Commission. "Meteorology and Atomic Energy" (Jul. 1968).

34/ Richard W. Morantz, M.D., Associate Professor, Pediatrics, University of Pittsburgh, Director, National Poison Center Network, Pittsburgh, Pennsylvania 15112. Letter to Ms. Julia Cox, Department of Health, Commonwealth of Pennsylvania (Mar. 19, 1980).

35/ See footnote 5.

36/ National Council for Radiation Protection Publications, P.O. Box 30175, Washington, D.C. 20014.

37/ "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency, Request for Submissions of New Drug Applications and Notice of Availability of Labeling Guidelines," 43 Fed. Reg. 58798 (Dec. 15, 1978).

38/ "Potassium Iodide for Thyroid Blocking in Radiation Emergency Only; Approval and Availability," 45 Fed. Reg. 11912 (Feb. 22, 1980).

39/ See footnote 10.

40/ Mitchell Rogovin. U.S. Nuclear Regulatory Commission. "Three Mile Island, A Report to the Commission and the Public" (NUREG/CR-1250) (Jan. 1980).

41/ D.C. Aldrich and R.M. Blond. Sandia National Laboratories, Albuquerque, New Mexico 87185 for the U.S. Nuclear Regulatory Commission. (Draft) Examination of the Use of Potassium Iodide (KI) as an Emergency Protective Measure for Nuclear Reactor Accidents" (NUREG/CR-1433 and SAND 80-0981) (Mar. 1980).

42/ "Accidental Radioactive Contamination of Human Food and Animal Feeds, Recommendations for State and Local Agencies," 43 Fed. Reg. 58790 (Dec. 15, 1975).

43/ U.S. Environmental Protection Agency, Office of Radiation Programs, Washington, D.C. 20460. "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" (EPA-520/1-75-001) (Revised Jun. 1979).

44/ "Development Plan -- Issuance of Protection Action Guides for Airborne Releases of Radioactivity as Federal Guidance," 44 Fed. Reg. 75344 (Dec. 19, 1979).

45/ See footnote 26.

46/ See footnote 3.

47/ See footnote 16.

48/ U.S. Nuclear Regulatory Commission. "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendation" (NUREG-0578) (Jul. 1979).

49/ U.S. Nuclear Regulatory Commission. "TMI-2 Lessons Learned Task Force, Final Report" (NUREG-0585) (Oct. 1979).

50/ See footnote 30.

51/ Carl H. Distenfeld and Joseph R. Klemish, Jr., U.S. Department of Energy. "Mixed Species Radioiodine Air Sampling Readout and Dose Assessment System" (U.S. Patent 4,079,628) (Mar. 21, 1978).

52/ See footnote 16.

53/ U.S. Nuclear Regulatory Commission. "Public Protection Strategies for Potential Nuclear Reactor Accidents; Sheltering Concepts with Existing Public and Private Structures" (SAND 77-1725) (Feb. 1978).

54/ U.S. Nuclear Regulatory Commission. "Examination of Off-site Radiological Emergency Protective Measures for Nuclear Reactor Accidents Involving Core Melt" (SAND-78-0454) (NUREG/CR-1131) (Oct. 1979).

55/ Prepared by G.H. Anno and M.A. Dore for the U.S. Environmental Protection Agency. "Protective Action Evaluation Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/1-78-001B) (Apr. 1979) (Revised Aug. 1978).

56/ Federal Emergency Management Agency. "Publications Stock, Status Report" (Feb. 1980).

57/ U.S. Nuclear Regulatory Commission, Office of State Programs. "Beyond Defense-in-Depth: Cost and Funding of State and Local Government Radiological Emergency Response Plans and Preparedness in Support of Commercial Nuclear Power Stations" (NUREG-0553) (Oct. 1979) (Also known as "Salomon" Report).

58/ Oregon Act: "An Act - Senate Bill No. 641," Chapter 726, Laws 1979 (Approved July 24, 1979).

Illinois Act: "Illinois Nuclear Safety Preparedness Act: Public Act 81-5,7, Laws 1979, Senate Bill No. 1084 (Approved Sept. 14, 1979).

California Act: "An Act - Senate Bill No. 1183," Chapter 956, Laws 1979 (Approved Sept. 22, 1979).

Arkansas Act: An Act to Establish the Arkansas Nuclear Planning and Response Program; to Provide a Method for Funding the Cost

of Initiating and Maintaining the Program; and for Other Purposes," Senate Bill No. 32, Act 67-1980 (Approved Feb. 6, 1980).
"An Act to Create an Arkansas Nuclear Planning and Response Fund and to Make an Appropriation for the Personal Services and Operating Expenses of the Arkansas Nuclear Planning and Response Teams for the Period Ending June 30, 1981; and for Other Purposes," Senate Bill No. 37, Act 18-1980 (Approved Apr. 17, 1980).

Minnesota Act: "Minnesota Nuclear Safety Preparedness Act," H.F. 1842 as amended (Approved Apr. 17, 1980).

59/ See footnote 58, Illinois Act.

60/ See footnote 58, Oregon Act.

61/ Maine Act: "An Act to License Users of Ionizing and Nonionizing Radiation Equipment," H. P. 1682 (Introduced Jan. 10, 1980).

Massachusetts Act: "An Act to Levy Charges Against Operators of Nuclear Power Plants within the Commonwealth for the Support of Preparedness and Response Plants," H-2012 (Introduced Jan. 2, 1980).

Michigan Act: "Michigan Nuclear Preparedness Act," Department of Public Health Proposal (Undated).
"A Bill to Provide for Nuclear Safety Preparedness," Department of State Police Proposal (Undated).

New York Act: Legislation introduced by Speaker Fink, 1980 A. 11100-A, The Fink Bill passed in the Assembly and is under consideration in the Senate.

Ohio: Legislation that passed the Ohio House of Representatives and is under consideration by the Ohio Senate.

Pennsylvania Act: "An Act Amending Title 35 (Health and Safety) of the Pennsylvania Consolidated Statutes, Providing for Radiation Emergency Responses"

Washington Act: "An Act Relating to Preparedness for Nuclear Accidents," Senate Bill No. 3402 (Introduced Jan. 21, 1980).

62/ New Jersey Act: "An Act - Assembly Bill No. 1272," Chapter 231, Laws 1979 (Approved Oct. 24, 1979).

63/ New Jersey Act: State Assembly Bill 966, Under legislative review.

64/ See footnote 10 (page 77).

65/ See footnote 11.

66/ See footnote 40 (page 132).

67/ National Academy of Public Administration for U.S. Nuclear Regulatory Commission. "Major Alternatives for Government Policies, Organizational Structures, and Actions in Civilian Nuclear Reactor Emergency Management in the United States" (NUREG/CR-1225, page 8) (Jan. 1980).

68/ See footnote 67 (page 44).

69/ See footnote 57.

70/ "Cost and Funding of State and Local Government Radiological Emergency Response Plans; Report to NRC Office of State Programs of Funding of State and Local Government Radiological Emergency Response Plans; Issuance and Availability of Report for Public Comments," 44 Fed. Reg. 64929 (Nov. 8, 1979) Also 44 Fed. Reg. 66113 (Nov. 16, 1979).

71/ Robert B. Minogue, Director, Office of Standards Development, U.S. Nuclear Regulatory Commission. "Final Rulemaking on Emergency Preparedness" (SECY-80-275, pages 27 and 28) (Jun. 3, 1980).

APPENDIX A

State Views on Planning and Preparedness Effort

The FEMA Regional Directors notifed the States that in order to prepare the report to the President, it would be helpful if the States requiring radiological emergency plans in support of nuclear power plants send a letter to the appropriate Regional Director of FEMA with their answers to three questions. These questions are presented below:

1. Assuming little substantive change in the interim criteria for Radiological Emergency Plans as set forth in NUREG-0654/FEMA-REP-1;

   A. What is your timetable (including that of involved local governments) to meet new criteria for all operating commercial power reactor sites within your State?

   B. What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites scheduled to become operational in the near future (by 12/31/81) within your State?

   C. What is your timetable (including that of invclved local governments) to meet the new criteria for all operating commercial power reactor sites located in another State but adjacent to your commo.. border (within 50-mile Emergency Planning Zone (EPZ) for ingestion exposure pathway planning and within 10-mile EPZ for plume exposure pathway planning)?

   D. What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites scheduled to become operational in the near future (by 12/31/81), located in another State but adjacent to your common border (within 50-mile EPZ for ingestion exposure pathway planning and within 10-mile EPZ for plume exposure pathway planning)?

2. What is the estimate of the cost to meet the interim State/local criteria for each site, in and out of your State which requires 10-mile EPZ and 50-mile EPZ planning in your State?

   A. One time cost:

      (1) State?
      (2) Each involved local government?

B. Maintenance of plans (including exercises) or other continuing costs (per annum) for each site in 2.A. above:

(1) State?
(2) Each involved local government?

3. What funding for State/local radiological emergency planning and preparedness have, or will you receive from each involved individual nuclear utility?

The responses from the States are included in this Appendix.

STATE OF ALABAMA
CIVIL DEFENSE DEPARTMENT
ADMINISTRATIVE BUILDING
MONTGOMERY 36130

FOB JAMES
GOVERNOR

SAM B. SLONE, III
Director

May 27, 1980

Mr. Frank Newton
Regional Director
Federal Emergency Management Agency
Region IV
1375 Peachtree St. NE, Suite 664
Atlanta, Georgia 30309

RE: Message No. R IV - 06/62

Dear Mr. Newton:

The following information is provided as requested in your message of 23 May.

A. Timetables for meeting 0654 criteria

1. Operational commercial power reactor sites in Alabama.

All criteria should be met by January 1, 1981 except for a remote monitoring capability at the Farley Nuclear Power Plant and for a prompt notification system. The remote monitoring capability should be installed by January 1, 1982. The date for a 15 minute notification capability is unknown as it is not possible to ascertain the survey-production-installation time required for a siren system in the six counties involved. A siren system is the only means by which Alabama can meet this criteria.

2. Commercial power reactor sites scheduled to be operational in Alabama by 12/31/81.

Not applicable

3. Operational commercial power reactor sites in adjacent states.

Sequoyah, Tennessee: 50 mile EPZ January 1, 1981

4. Commercial power reactor sites in adjacent states scheduled to be operational by 12/31/81.

Not applicable

B. Cost to meet criteria

1. One time costs.

a. State: $5.5 million

This figure includes the cost of installing a siren system at each of the two operational plants in Alabama (over $2 million each site); remote monitoring and related health systems ($250,000 each site); administrative expenses for planning, publication and exercising the plans.

b. Local government: $450,000

This figure is the sum of $75,000 for each of the six counties involved. It primarily includes procurement of communications equipment and administrative costs necessary to meet the criteria and cope with a serious nuclear incident at power plant.

2. Maintenance of plans

a. State: $160,000 per year

This figure includes maintenance of radiological and health equipment ($100,000); plans publication and exercise ($10,000); and salary and administrative expenses for two state employees, one each in Radiological Health and Civil Defense ($50,000).

b. Local government: $18,000 per year

This figure is the sum of $3,000 for each of the six counties. It includes maintenance costs for REP dedicated equipment, exercise of plans, administrative costs, and public information expenses.

C. Funding received or funding to be received.

No direct funding has been received or is programmed to be received. The two involved utilities have funded for installation of dedicated circuits between the utilities and the state and local governments. Preliminary discussion is scheduled with the utilities to determine additional equipment and personnel necessary to meet the criteria. These requirements cannot be formalized until after the criteria is final.

D. Added Comments

Alabama remains firm in its opposition to several of the criteria in 0654 and the manner and direction in which the review and finalizing of the criteria is apparently taking place. Mr. Frank A. Camm, FEMA Associate Director, in a letter of 5 May to Dr. Ira B. Myers, Alabama State Health Officer, stated that "We are planning a meeting with State representatives to review the comments received concerning NUREG-0654/FEMA-REP-1. This meeting will precede any formal action to revise the document and publish it in final form." We wholeheartedly support and look forward to this meeting.

Sincerely,

Sam B. Slone, III
Director

SBS:DLO:th
cc: File

STATE OF ARKANSAS
OFFICE OF EMERGENCY SERVICES
DEPARTMENT OF PUBLIC SAFETY
P. O. BOX 758
CONWAY, ARKANSAS 72032

BILL CLINTON
GOVERNOR

LEE M. EPPERSON
DIRECTOR

June 6, 1980

Mr. Dale Milford
Regional Director
FEMA, Region 6
Federal Center
Denton, TX 76201

Dear Dale:

I am responding to your message R 031301Z Jun 80 concerning our emergency plans in support of the commercial nuclear power plant in Arkansas. The information we will provide is our best estimate at this time in terms of schedules and costs; however, I would like to emphasize we cannot establish realistic schedules and costs until the NUREG-0654 FEMA-REP-1 criteria is finalized and we complete the initial state and local plans, exercise and maintain them the first year. Our response to your questions follows:

Question 1: What is your timetable (including that of involved local governments) to meet new criteria for all operating commercial power reactor sites within your state?

Answer 1: Since the events of Three Mile Island, our efforts have been to work in partnership with the local and federal government agencies and the utility to develop plans, equip the systems and exercise the plans on an accelerated schedule. Our present timetable is to resubmit state and local plans by July 15, 1980, for FEMA review and approval; to exercise those plans by October 15, 1980; and to correct the deficiencies and be operational January 1, 1981. The initial level of operational capability will be low because of the inability to complete a massive public education program. This will be a priority program for calendar year 1981.

Question 2: What is the estimate of the cost to meet the interim state/local criteria for each site, in and out of your state which requires 10-mile EPZ and 50-mile EPZ planning in your state?

Question 2A: One-time cost?

Answer 2A: A (1): State one time costs are funded from two sources: state general operation funds and funds provided by the utility levied in recent legislation. The utility provided funds to establish and maintain a Nuclear Planning and Response office adjacent to the plant. The cost to establish this office and operate until January 1, 1981, is $280,000. State general funds of approximately $50,000 will be expended by all state agencies prior to January 1, 1981.

A(2): Local government expenses will vary depending on the area and population threatened. An initial training exercise has been completed in each county. The major need identified was communications equipment for warning and managing an evacuation. An estimated $210,000 for communications equipment was identified. We have presented this requirement to the utility for funding.

Question 2B: Maintenance of Plans (including exercises) or other continuing costs (per annum) for each site in 2.A. above?

Answer 2B: B (1): On site Nuclear Planning and Response office - utility funds $280,000; state general funds - $50,000.

B (2): Local governments - 4 @$15,000 each - $60,000.

Question 3: What funding for state/local radiological emergency planning and preparedness have you received, or will you receive from each involved individual nuclear utility?

Answer 3: In addition to the $280,000 per annum to operate the on-site Nuclear Planning and Response office, the utility is committed to the installation of a warning system. The latest estimates approximates $750,000.

Dale, I hope this information gives you the picture on where we are in Arkansas relative to nuclear power plant planning. Let me reemphasize the need for funds to purchase communications and warning equipment. Any help FEMA can provide on this problem will be appreciated.

Sincerely,

Lee M. Epperson

ip

cc Mr. Robert Lyford
Mr. David Moseley
Mr. Frank Wilson

STATE OF CALIFORNIA — EDMUND G. BROWN JR., Governor

OFFICE OF EMERGENCY SERVICES
POST OFFICE BOX 9577
SACRAMENTO, CALIFORNIA 95823
(916) 421-4590

June 3, 1980

Francis S. Manda, Acting Regional Director
Federal Emergency Management Agency, Region IX
211 Main Street, Room 220
San Francisco, CA 94105

Dear Mr. ~~Manda~~ Frank,

This is in response to your request, received May 28, asking for detailed information on California Nuclear Power Plant Radiological Emergency Preparedness Planning.

Our timetable for meeting the criteria in NUREG-0654 for all (operating and under construction) commercial power reactors in California is determined by recent legislation, Section 8610.5 of the California Government Code (copy attached).

Emergency Planning Zones determined and guidance provided to local jurisdictions	July 1, 1980
State Plan revision completed	September 22, 1980
Draft of new and revised County Plans completed	January 1, 1981
Final County Plans completed	March 22, 1981

Our estimates of the cost to meet the interim State and local criteria for each site in California using the Emergency Planning Zones developed above are:

One Time Costs

State (This cost cannot be allocated on a "per site" basis)		$ 600,000
Local		
Diablo Canyon	$250,000	
Rancho Seco	650,000	
San Onofre	400,000	
Humboldt Bay	100,000	
Local government's total		1,400,000
		$2,000,000

Yearly Cost of Plan Maintenance

State	$100,000
Local governments: 10% of the local costs above	140,000

Thus, total maintenance costs are estimated at $240,000. Funds available under Section 8610.5 of the California Government Code are limited to two million dollars for initial planning; these funds are provided by the utilities. There is no funding for plan maintenance or for exercises.

We hope this information and the estimated costs will be useful in preparing your report to the President. Please contact us if we can provide further information.

Sincerely,

Alex R. Cunningham

ALEX R. CUNNINGHAM
Director

Att (1)
Not Included

STATE OF COLORADO

Department of Military Affairs
DIVISION OF DISASTER EMERGENCY SERVICES
Camp George West
Golden, Colorado 80401
Phone (303) 279-2511

CODES

June 6, 1980

Mr. Donald G. Eddy
Acting Regional Director
Region Eight
Federal Emergency Management Agency
Denver Federal Center, Bldg. 710
Denver, Colorado 80225

Attention: Mr. N. Paul Alley

Dear Mr. Eddy:

In response to your verbal request of May 30, 1980, the answers to the three questions you provided are submitted as follows:

1. Assuming little substantive change in the interim criteria for Radiological Emergency Plans as set forth in NUREG-0654/FEMA-REP-1--

A. What is your timetable (including that of involved local governments) to meet new criteria for all operating commercial power reactor sites within your state?

RESPONSE: Basically, most of the interim criteria have been fulfilled. However, resolution of those controversial items in the criteria such as the near-site Emergency Operations Facility, 100% of the population notified within 15 minutes etc. plus the procurement of some hardware items will probably take until October or November 1980.

B. What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites scheduled to become operational in the near future (by 12/31/81) within your State?

RESPONSE: Not Applicable to Colorado.

C. What is your timetable (including that of involved local governments) to meet the new criteria for all operating commercial power reactor sites located in another state but adjacent to your common border? (Within 50 mile emergency planning zone (EPZ) for ingestion exposure pathway planning and within 10 mile EPZ for plume exposure pathway planning.)

RESPONSE: Not Applicable to Colorado.

D. What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites scheduled to become operational in the near future (by 12/31/81) located in another state but adjacent to your common border? (Within 50 mile EPZ for ingestion exposure pathway planning and within 10 mile EPZ for plume exposure pathway planning.)
NOTE: Question has four parts, A through D.

RESPONSE: Not Applicable to Colorado.

2. What is the estimate of the cost to meet the interim State/local criteria for each site, in and out of your State, which requires 10 mile EPZ and 50 mile EPZ planning in your State?

A. One Time Cost

(1) State - $32,000 (does not include controversial items under review)

Includes:

a. Procurement of meteorological equipment.

b. Procurement of potassium iodide.

c. Communications equipment (e.g. dedicated line from Forward Command Post to State EOC, mobile telephones etc.)

d. Publication costs of RERP and public information brochure.

e. Film badges and other permanent record devices.

f. Training of response personnel.

g. Personnel costs.

h. Upgrading one hospital to handle contaminated victims.

i. Miscellaneous (e.g. lab analysis for exercises, expendable supplies for decontamination, special maps, identification (security) supplies, etc.)

(2) Involved Local Government $7,500.

Includes:

a. Publication costs of local RERP.

b. Personnel costs.

c. Miscellaneous.

B. Maintenance of plans (including exercises) or other continuing costs (per annum) for each site in 2.A. above:

(1) State - $60,000

Includes:

a. Exercises required by NUREG-0654/FEMA-REP-1 (Emergency Response Exercise, Communications Drill, Radiological Monitoring Drill and two Health Physics Drills).

b. Plans Review and Modification.

(2) Weld County - $8,000

Includes:

a. Annual Emergency Response Exercise and Medical Emergency Drill.

b. Plans Review and Modification.

3. What funding for State/Local Radiological Emergency Planning Preparedness have or will you receive from each involved individual nuclear utility?

It is uncertain at this point what funds will be made available by the Public Services Company of Colorado (PSC). PSC has indicated that it will share costs of publication of a brochure to

be sent to residents in the vicinity of the plant. This cost is being negotiated now. Fulfillment of the 15 minute warning criteria may involve costs for sirens or some alternative mode. PSC has stated that it feels this is a State responsibility.

There has been no clear cut policy established delineating Utility or State Agency cost responsibility in areas where planning interfaces. This would include joint monitoring, meteorological, communication, potassium iodide disbursement and early notification. So far, the PSC has not shown interest in making funds available. To date, commitment by PSC has been by gentlemen's agreement.

Sincerely,

JOHN P. BYRNE
Director

JPB:wv

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC SAFETY

OFFICE OF CIVIL PREPAREDNESS

June 2, 1980

Mr. Stephen J. McGrail
Director, FEMA Region One
John W. McCormack Post Office
& Courthouse Bldg. 4th Floor
Boston, Mass 02109

Dear Mr. McGrail:

Subject: Radiological Emergency Preparedness

Reference is made to your TWX message, P 222020Z May 80, subject as above. The purpose of this letter is to provide replies to the questions contained in referenced message for your report to the President.

1. Following is Connecticut's timetable:

   A. To meet new criteria for all operating commercial power reactor sites (including all involved local governments):

      January 1, 1981

NOTE: Connecticut has a current, concurred-in plan, usable in the interim.

NOTE: In the event of a relaxation of the proposed rule's requirement for completion (Jan. 1, 1981), then Connecticut's timetable to meet the new criteria would be changed to December 31, 1981. This is a more realistic date.

   B. To meet new criteria for commercial power reactor sites scheduled to become operational in the near future, by 12/31/81: not applicable. Connecticut has no new sites coming on line by 12/31/81. Millstone III will come on line later.

   C. To meet the new criteria for all operating commercial power reactor sites located in an adjacent states:

      1. Within 50 mile EPZ - August 28, 1980. Current state plans and state departmental plans now provide the capability for ingestion pathway monitoring. August 28, 1980 is nominated as the timetable completion date because an exercise scheduled for August, 1980, will formally complete preparations.

      2. Within 10 mile EPZ - not applicable; there are no adjacent state site 10 mile EPZ's which affect Connecticut.

Phone:
360 Broad Street — Hartford, Connecticut 06115

D. To meet the new criteria for commercial power reactor sites, located in an adjacent state, schedule to become operational, in the near future (Shoreham, N. Y.):

1. Within 50 mile EPZ - Same as 1.C. (1) above, August 28, 1980.

2. Within 10 mile EPZ - not applicable.

2. Estimates of the costs to meet interim state/local criteria for each site, in and out of state;

NOTE: No out-of-state 10 mile EPZ's reach Connecticut.

Millstone - 10 and 50 mile EPZ's

State Costs	854,933
Local Costs (8 towns)	728,696
Total Costs for Millstone Site	1,583,629

Conn. Yankee - 10 mile and 50 mile EPZ's

State Costs	854,934
Local Costs (18 Towns)	1,639,566
Total Costs for Conn. Yankee Site	2,494,500

Rowe, Massachusetts - 50 mile EPZ - none. The requirement to meet two 50-mile EPZ's for two instate power reactors will generate small additional cost to meet criteria related to Rowe.

Shoreham, Long Island - same as above.

Indian Point, N. Y. - same as above.

A. One time costs

1. State:

Millstone	534,199
Connecticut Yankee	534,199
Total One-Time Costs for State	1,068,398

2. Local Governments:

Millstone - 8 towns; $60,729 per town	485,832
Conn. Yankee - 18 towns; $60,729 per town	1,093,122
Total One-Time Costs for Locals	1,578,954

B. Maintenance of Plans including exercises and other continuing costs per annum;

1. State:

Millstone	320,734
Conn. Yankee	320,735
Total Per Annum Costs	641,469

2. Local Governments:

Millstone - 8 towns; $30,357 per town	242,856
Conn. Yankee - 18 towns; $30,357 per town	546,426
Total Per Annum Costs	789,282

3. Support (not direct funding support) costs expected to be provided to the benefit of Connecticut by utilities over the next 18 months.

A. Millstone I, II, (III under construction) -

Telephone alerting system	$ 37,500	(est.)
Planning & printing	$250,000	(approx.)

B. Connecticut Yankee

Telephone alerting system	$ 37,500	(est.)
Planning & printing	$250,000	(approx.)

C. Indian Point, N. Y. - none

D. Shoreham, N. Y. - none

E. Rowe, Mass - none

I hope this information fills your requirement. However, in your report to the President, I recommend that you emphasize the interim nature of the guidance with which we are working and that, therefore, changes are possible. We will do the best we can.

Sincerely,

Frank Mancuso

Frank Mancuso
State Director

FM:mrs

cc: CF

STATE OF DELAWARE
DEPARTMENT OF PUBLIC SAFETY
EMERGENCY PLANNING AND OPERATIONS DIVISION
P.O. BOX C
DELAWARE CITY, DELAWARE 19706

OFFICE OF THE
DIRECTOR

PHONE (302) 834-4531

May 28, 1980

Mr. Charles Johnson, Director
FEMA Region III
Curtis Building
6th and Walnut Streets
Philadelphia, Pa. 19106

Dear Mr. Johnson:

This is in response to your inquiry regarding the status of planning by the State of Delaware for Nuclear Power Plants.

A. The State of Delaware has no commercial Nuclear Power Plants sited or planned to be sited within its boundaries.

B. Delaware is directly affected by Power Reactors located in three adjacent states.

1. Salem I and II, located at Lower Alloways Creek, N.J.
   10 mile EPZ
   50 mile ingestion zone

2. Peach Bottom II and III located south of Lancaster, Pa.
   50 mile ingestion zone

3. Calvert Cliffs I and II located at Lusby, MD
   50 mile ingestion zone

C. Delaware's timetable for completion of Emergency Planning is January 1, 1981 at the State level. We are requesting that local government meet this completion date also. The revised Delaware Plan has been submitted to the RAC for review.

D. Costs for planning only.
Initial Cost
State: $75,000
Local: $75,000

E. Maintenance of plans only.
Annual Cost
State: $35,000
Local: $35,000

F. We have received no funding from any public utility.

The costs reflected above do not include the expense of an adequate public warning system. We have no funds for this project, therefore, we can give no projected completion date for the public warning system.

Sincerely,

James W. McCloskey
Director

cc: Mary Jornlin

GOVERNMENT OF THE DISTRICT OF COLUMBIA
EXECUTIVE OFFICE - OFFICE OF EMERGENCY PREPAREDNESS

June 2, 1980

EXECUTIVE OFFICE
OFFICE OF CIVIL DEFENSE
300 INDIANA AVENUE, N.W.
WASHINGTON, D. C. 20001

Mr. Charles Johnson
Director, FEMA Region III
Curtis Building
6th & Walnut Street
Philadelphia, Pennsylvania 19106

Dear Mr. Johnson:

In response to the teletype message from Palmer Scarnecchia, RAC Chairman, concerning information for the report to the President, we hereby submit the following responses to the questions listed:

1. A. No requirement. We have no operating nuclear power reactors in the District of Columbia.

   B. No requirement. No reactor sites scheduled for the District of Columbia in the near future.

   C. Ingestion Exposure Pathway planning should be completed by December 31, 1980.

   D. No other commercial power reactors are scheduled to become operational by December 31, 1980 in adjacent states that would place the District of Columbia within the 50-mile EPZ.

2. Cost Estimate

   A. One Time Cost
   (1) - State - $14,000 (Staff planning, inter-agency meetings, materials)

   (2) - Local governments - Not applicable to D.C.

   B. Plans Maintenance Costs
   (1) - State - $3,550 (Inter-agency meetings, materials)

   (2) - Local governments - Not applicable to D.C.

3. The District of Columbia will not receive funding from the Baltimore Gas and Electric Company (Calvert Cliffs Nuclear Power Company).

Sincerely,

Ax19

Richard G. Bottorff,
Acting Director

STATE OF FLORIDA

DEPARTMENT OF COMMUNITY AFFAIRS
DIVISION OF PUBLIC SAFETY PLANNING AND ASSISTANCE

BOB GRAHAM
GOVERNOR

JOHN G. BURKE
DIVISION DIRECTOR

JOAN M. HEGGEN
SECRETARY

June 4, 1980

Mr. Frank Newton, Regional Director
Federal Emergency Management Agency
Region IV
1375 Peachtree Street, N.E.
Suite 664
Atlanta, Georgia 30309

Dear Mr. Newton:

The following information is provided in response to the request for a status report on REP planning. A projected schedule is enclosed. Since Florida's reactors are now in operation, the schedule applies only to questions 1.A.(1.) and 1.A.(3).

Data related to question 1.B.1. is contained in the attached chart. These are only estimates, however, since much of the necessary equipment has not yet been purchased.

Maintaining the plan (question 1.B.2.) will mainly require personnel expenditures. In addition, conducting one exercise and three courses at each plant site annually will require considerable staff time and travel monies from several state agencies as well as from the affected local governments. Our estimate of state costs is $30,500 annually. We also estimate an average annual cost of $5,000 to each of six local governments within the plume exposure pathway E.P.Z., for a total average cost of $60,500 annually.

The utility companies have provided funding as outlined on the attached chart. If you need additional information, please notify us.

Sincerely,

Robert S. Wilkerson
Bureau Chief

RSW/JWP/nb

Ax20

BUREAU OF DISASTER PREPAREDNESS
1720 SOUTH GADSDEN STREET, TALLAHASSEE, FLORIDA 32301 (904) 488-1320

FLORIDA REP PLANNING SHCEDULE

STATE PLAN

June 30	-	First draft of all procedures for State actions related to plume radiation exposure.
August 31	-	First draft of all procedures for State actions related to radiation exposure.
September 30	-	First draft of State Plan, including county components and site-specific state plans, completed for submission for RAC evaluation.

COUNTY PLANS (RISK AND HOST)

June 30	-	Completion of local plans for Farley Site, St. Lucie, and Crystal River Site.
July 31	-	Completion of local plan for Turkey Point Site.

EXERCISES

November 30	-	Completion of series of exercises involving all appropriate governments.

FINALIZATION OF PLAN

November 30	-	Completion of all necessary plan revisions and submission to RAC for final review.

INITIAL PLANNING COSTS

TO MEET REQUIREMENTS OF NUREG 0654

Planning costs for 2.5 persons for one year	$ 48,000
Early warning systems (E.6. in NUREG 0654)	
Levy County	45,000
Citrus County	30,000
St. Lucie County	150,000
Martin County	21,500
Dade County	86,000
Monroe County	3,000
	$335,500
Dynamic analysis for evacuation times of Crystal River (J.10.1.)	$ 25,000
Emergency response exercises (N.1.)	4,500
I^{131} Measuring Equipment (I.7)	25,000
Response team equipment for Turkey Point (I.9)	15,000
Dosimeters (K.3.a)	
600 self-reading at $55 each	$ 33,000
300 TLD at $35 each	10,500
3 TLD readers at $7,000 each	21,000
	$ 64,500
Total estimated cost	$515,500

UTILITY EXPENDITURES TO DATE

(to aid governments meet criteria)

FP & L Study of Evacuation of times	$ 77,000
FP & L and FPC funding for one State health Physicist	21,000
FPC early warning systems for Citrus County	30,000
FPC early warning system, communications equipment, and one staff position for Levy County	51,000
	$179,000

STATE OF GEORGIA

Department of Defense

Civil Defense Division

OFFICE OF THE STATE DIRECTOR
POST OFFICE BOX 18055
Atlanta, Ga.
30316

MAJ GEN BILLY M. JONES
DIRECTOR

6 June 1980

Mr. Frank Newton
Regional Director
Federal Emergency Management Agency
Region IV
1375 Peachtree Street, N.E.
Atlanta, Georgia 30309

Dear Mr. Newton:

The following information was forwarded, this date, to Jack Richardson in reply to his Message No. RIV-0462, 231557Z May 1980. The response is keyed to questions in the referenced message.

A.(1) A plan for Plant Hatch and Plant Farley has been developed by the State of Georgia which addresses the new criteria in NUREG 0654. This plan is currently in effect at the local and state level.

A.(2) No other power reactor sites are scheduled to become operational in this time frame within Georgia.

A.(3) The State of Georgia has developed plans for all nuclear facilities that have 50 mile EPZs in Georgia. These facilities are: (1) TVA-Sequoyah Nuclear Plant in Tennessee, (2) Duke Power Oconee Plant, (3) Savannah River Plant and the Allied General Nuclear Services--Barnwell Nuclear Fuel Plant, and (4) Alabama Power Company Plant Farley. The State of Georgia plans, which meet the 50 mile EPZ criteria, are currently in effect at the state government level. Local governments within the 50 mile EPZ are aware of requirements and are capable of providing resources.

A.(4) Not applicable, no such facility scheduled for operation during referenced time frame.

B.(1)(A) The state has provided resources (manpower and equipment) from several state agencies to complete the Georgia REP. This effort was accomplished with existing resources with no additional funding received by the agencies having a role in emergency planning. It must be recognized that while these agencies were involved in emergency planning,

they were not able to be engaged in other assigned program functions. Considering plan aspects alone, the state has likely expended about $70,000 to develop the current REP. Additionally, the state has spent about $80,000 to procure and equip a mobile laboratory for use in radiological emergency response.

B.(1)(B) Local governments involved in REP preparation for fixed facilities have done so without additional funding. These agencies have absorbed the cost of such planning in their routine operating budgets.

B.(2)(A) It is estimated that the cost of maintenance of plans, to include drills and exercises, will cost the state about $15,000 per year per site.

B.(2)(B) It is expected that local governments will expend on the order of $8,000 per year per site to maintain plans and conduct drills, exercises, and training.

C. No special funds will be appropriated at the state or local level for this effort. Hopefully, federal funds will eventually be made available as a means of helping defray the cost of such programs.

If I or my staff can be of further assistance on this subject, please let me know.

Sincerely,

BILLY M. JONES
Major General
Director

Illinois Emergency Services and Disaster Agency
110 East Adams Street, Springfield, Illinois 62706

May 30, 1980

Mr. Patrick H. McCollough
Federal Emergency Management Agency
Region V
Federal Center
Battle Creek, MI 49016

Dear Mr. McCollough:

In response to your request RV-0066 on the status of the Illinois radiological emergency response planning, I am providing the information below.

Question #1: Timetable

A. All operating commercial power reactor sites should meet the new criteria by March 30, 1981.[1]

B. The LaSalle Nuclear Power Station is scheduled to load in September, 1980; therefore, the site should meet the new criteria by August 30, 1980.

C/D. No timetables currently exist for meeting the new criteria for commercial power reactor sites located in adjacent states.

Question #2: Estimated Costs

A/B. A one-time cost for remote monitoring equipment for each plant is approximately $1.75 to $2.0 million. The State's annual cost for planning is approximately $425,000, with planning defined as the original planning process, maintenance, updating and exercises of the plan. This is budgeted dollars only, and does not include the time and effort put in by other state employees not specifically funded under this program. The cost to local governments cannot be calculated since it is primarily in the form of employee time and labor which is included in their normal salaries.

[1]That is, providing the NCP contract can be modified to allow those planners to remain on the IPRA project as long as necessary.

Question #3: Funding Received from Utility

A. The utility is required to pay a one-time charge of $350,000 per nuclear power station in the state and an annual fee of $75,000 for each nuclear power reactor for which an operating license has been issued in order to cover the cost of establishing emergency plans to deal with the possibility of nuclear accidents (including the purchase of remote monitoring equipment).

If I can be of further assistance, please do not hesitate to call.

Sincerely yours,

E. Erie Jones
Director

EEJ/cs

STATE OF INDIANA

May 28, 1980

Mr. Patrick H. McCollough, Director
Plans and Preparedness Division
FEMA - Region V
Battle Creek, Michigan 49016

Subject: Radiological Emergency Response
Planning Status

Dear Mr. McCollough:

The following is in response to your message RV-0066, May 23, 1980:

Question 1A - Not applicable. Indiana has no operational commercial power reactors at this time.

Question 1B - Not applicable. There will be no operational commercial power reactor in Indiana by December 31, 1981.

Question 1C - Our time table to meet the new criteria, as contained in NUREG 0654/FEMA RP 1, for all new commercial power reactors located in adjacent states will be completed by December 31, 1980 for the 50 mile Ingestion Pathway Emergency Planning Zone (EPZ). Reactors in adjacent states do not affect Indiana relative to the 10 mile Plume Exposure Pathway EPZ.

Question 1D - All commercial power reactor sites located adjacent to Indiana scheduled for completion by December 31, 1981 will be incorporated into the time table to meet the new criteria by June 30, 1981.

Question 2A, (1) - No extraordinary costs are expected in meeting new criteria.

Question 2A, (2) - No extraordinary costs are expected in meeting new criteria.

Note: Indiana's policy is to plan to meet all potential hazards. Radiological Response Plans will be accomplished with available assets.

Question 2B, (1) - Indiana estimates it will cost the state $10,000 per site for annual exercises and plan maintenance.

Question 2B, (2) - It is estimated it will cost local counties within the 10 mile EPZ $2,000 annually for annual exercises and plan maintenance.

Question 3 - The State of Indiana has received no funding from any nuclear utility for emergency planning. The support that the state has received from the utility has been in the form of typing and printing of the plans. Indiana does require the utilities to ensure that county plans are technically correct.

Sincerely,

Milton M. Mitnick
Director

MMM/ew

COPY

STATE OF IOWA

May 27, 1980

Mr. Francis X. Tobin, Director
FEMA, Region VII
Old Federal Office Building, Room 407
911 Walnut Street
Denver, Colorado 80225

Dear Sir:

Reference Harold Pickering's memorandum subject: Radiological Emergency Preparedness Plans, dated May 22, 1980.

Requested data is as follows:

I. Duane Arnold Nuclear Power Plant (Iowa)

A. Benton County Plan estimated for completion by July 1, 1980

1. Estimated costs for plan publications $700
2. Estimated costs for annual plan maintenance & exercises $500

B. Linn County does not intend to reverse current plan completed by a contractor employed by Dunae Arnold until the final NUREG 0654 is published.

1. Estimated costs for plan publication $800
2. Estimated costs for annual plan maintenance & exercises $5000

II. Quad Cities Nuclear Power Pland (Illinois)

A. Clinton County Plan is completed.

1. Estimated costs for plan publication $700
2. Estimated costs for annual plan maintenance & exercises $500
3. Traveling expenses $100

B. Scott County plan estimated for completion by June 20, 1980.

1. Estimated costs for plan publication $700
2. Estimated costs for annual plan maintenance & exercises $500

III. Genoa Boiling Water Reactor (Wisconsin)

A. Allamakee County plan is estimated for completion by end of July, 1980.

1. Estimated costs for plan publication $700
2. Estimated costs for annual plan maintenance maintenance and exercises $500

IV. Ft. Calhoun Nuclear Plant (Nebraska)

A. Harrison County plan is estimated for completion by end of June, 1980.

1. Estimated costs for plan publication $700
2. Estimated costs for annual plan maintenance and exercises $500

B. Potawattanie County plan is estimated for completion by end of July, 1980.

1. Estimated costs for plan publication $500
2. Estimated costs for annual plan maintenance & exercises $1000

V. Cooper Nuclear Plant (Nebraska)

A. This facility affects Iowa only in the food ingestion pathway area.

VI. The food ingestion zone planning for each of the above nuclear power plants will be accomplished by the State Department of Agriculture.

1. This plan is estimated for completion by end of July.

2. Estimated costs for plan publication by six state departments $3600

3. Estimated costs for state plan publication $6000

4. Estimated annual costs for state and state department plans annual maintenance and exercises. $5000

5. Estimated annual cost for one new state planning position to maintain state plan, assist state departments and counties in plan maintenance and coordinate annual exercises with nuclear power plants. $5000

6. Additional radiological equipment for state Radiation Response Teams $27000

7. Estimated potassium iodide tablets for EPZ populations. Unless shelf life is extended, this amount will be necessary every three years. $60000

8. Communications equipment for RAD teams $20000

VII. No funding support is anticipated from the nuclear power plants.

Sincerely,

John D. Crandall
Director

cc: County CD Directors
C. Fred Stout

STATE OF KANSAS

THE ADJUTANT GENERAL

DIVISION OF EMERGENCY PREPAREDNESS

TOPEKA, KANSAS 66601

3 June 1980

Mr. Francis X. Tobin, Director
Federal Emergency Management Agency
Region VII
911 Walnut, Room 405
Kansas City, Missouri 64106

Attention: Mr. Harold Pickering

Dear Mr. Tobin:

This is in response to your memorandum dated 22 May 1980 subject: Radiological Emergency Preparedness Plans. Answers are keyed to questions in paragraphs 1, 2, and 3 of your memorandum.

1. a. No operating commercial power reactor in the State of Kansas.

   b. No commercial reactors scheduled for completion by December 31, 1981.

   c. State plan will be updated to comply with NUREG-0654/ FEMA-REP-1 by October 31, 1980; local plans will be updated by December 31, 1980.

   d. N/A

2. a. State: $5,250; local: $5,250

   b. State: $10,500; local: $10,500

3. None.

Sincerely,

MAHLON G. WEED
Colonel, USA (Ret)
Deputy Director

MGW:cd

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF MILITARY AFFAIRS
DIVISION OF DISASTER AND EMERGENCY SERVICES
FRANKFORT
40601

2 June 1980

Mr. Frank Newton, Director
Federal Emergency Management Agency
Region IV
1375 Peachtree Street N.E.
Atlanta, Georgia 30309

ATTENTION: Mr. Jack Richardson

Dear Mr. Newton:

In reply to your twx of 231557Z May 80.

1. There are no operational nuclear reactors within the state of Kentucky

2. There are no nuclear reactors under construction in the state of Kentucky

3. There are no operational reactors within 50 miles of the state of Kentucky

4. It is proposed to have a plan completed for the Zimmer Nuclear Power station now under construction by 30 June 1981

6. Cost of planning for the Zimmer Nuclear Power Plant is as follows:

$265, 000	for DES planning staff
$100,000	for DES staff support
$75,000	for Area Coordinator support
$100,000	for Radiological Health
$35,000	for Department of Natural Resources
$10,000	for Agriculture Department
$50,000	for other state agencies.

Cost of planning for the Marble Hill Plant is as follows:

$200,000	For DES planning staff
$100,000	For DES staff Support
$75,000	For Area Coordinator support
$100,000	For Radiological Health
$20,000	For Department of Natural Resource
$8,000	For Agriculture Department
$30,000	For other state agencies planning.

7. Planning for the local counties:

Zimmer Plant	
Campbell County:	$50,000
Bracken County	$25,000
Pendleton County	$25,000
Host Counties	$20,000
Marble Hill Plant	
Trimble County	$25,000
Oldham County	$40,000
Host County	$15,000

8. Cost for maintenance of these plans per year are as follows:

DES	$100,000
KY Dept of Natural Resources	$10,000
Radiological Health	$35,000
Campbell County	$25,000
Bracken County	$5,000
Pendelton County	$5,000
Trimble County	$5,000
Oldham County	$15,000
Host Counties	$10,000

9. At present the state of Kentucky has not received any funding from any utility for this planning. We have been promised funding from Cincinnati Gas and Electric, and Public Service, Indiana but no money has been committed. It has been proposed that they advance the state $250,000 for state total planning services cost.

Sincerely,

WILBUR R. BUNTIN, JR.
Executive Director

WRB/CB/asb

041 06/06/0 1921Z

STATE OF LOUISIANA

DE LOUI 006 1581900

R 061900Z JUNE 80

FM LOUISIANA OFFICE OF EMERGENCY PREPAREDNESS

TO FEMA REGION SIX DENTON TX

BT

UNCLAS

THIS IS IN REPLY TO IWX NUMBER RAGE 004 LOUI, DATED 03 JUNE 80. BY LOUISIANA STATUTE, THE LOUISIANA NUCLEAR ENERGY DIVISION (LNED) HAS THE LEAD RESPONSIBILITY FOR DEVELOPMENT OF EMERGENCY RESPONSE PLANS FOR FIXED NUCLEAR FACILITIES. STATE NCP PERSONNEL HAVE BEEN DETAILED ON TEMPORARY FIVE (5) MONTH BASIS, TO ASSIST LNED IN THIS PLANNING EFFORT.

A. NEITHER RIVER BEND (ST. FRANCISVILLE) NOR WATERFORD 3 (TAFT) ARE SCHEDULED TO BECOME OPERATIONAL BY 12/31/80.

B. N/A

C. (1) THE GRAND GULF NUCLEAR POWER PLANT IS LOCATED IN MISSISSIPPI, NORTH OF NATCHEZ, ON THE LOUISIANA-MISSISSIPPI BORDER. A DRAFT COPY OF THE EMERGENCY RESPONSE PLAN FOR THIS AREA WAS COMPLETED RECENTLY. THIS PLAN IS BEING REVIEWED BY A RAC TEAM FOR COMPLIANCE WITH NUREG-0654 FEMA REP-1. WE ARE PRESENTLY AWAITING COMMENTS RESULTING FROM THIS REVIEW.

(2) THE FOLLOWING REPLY REFLECTS ONLY COSTS INCURRED BY THE STATE AND LOCAL EMERGENCY PREPAREDNESS OFFICES FOR DEVELOPMENT OF EMERGENCY RESPONSE PLANS. COST ESTIMATES BY LNED FOR IMPLEMENTING EMERGENCY RESPONSE PLANS TO MEET NUREG-0654 FEMA REP-1 ARE CURRENTLY UNDER EVALUATION AND COULD NOT BE OBTAINED AT THIS TIME.

$130,000 (INCLUDES ONE TIME COST OF DEVELOPMENT AND FIRST YEAR COST OF MAINTENANCE AND EXERCISES.)

A. $55,000

(1) $40,000 (SCHEDULED SIX MONTH NCP PLANNING PERIOD FOR ALL THREE (3) SITES EFFECTING LOUISIANA.)

(2) $15,000 (EMERGENCY RESPONSE PLAN FOR GRAND GULF.)

B. $75,000

(1) $30,000

(2) $45,000

(3) NONE - NEGOTIATIONS ARE PRESENTLY UNDERWAY FOR FUTURE FUNDING BY UTILITY COMPANIES.

SIGNED: FARNHAM L. MORRISON, ASSISTANT SECRETARY, OEP

BT

STATE OF MARYLAND

DEPARTMENT OF
PUBLIC SAFETY AND CORRECTIONAL SERVICES

HARRY HUGHES
GOVERNOR

GORDON C. KAMKA
SECRETARY
PUBLIC SAFETY AND
CORRECTIONAL SERVICES

MARYLAND
CIVIL DEFENSE AND
DISASTER PREPAREDNESS AGENCY
PIKESVILLE 21208
AREA CODE 301 486-4422

EDWIN R. TULLY
DEPUTY SECRETARY
FOR PUBLIC SAFETY

GEORGE M. BROOKS
DIRECTOR OF CIVIL DEFENSE
AND DISASTER
PREPAREDNESS AGENCY

June 3, 1980

Mr. Charles T. Johnson, Regional Director
Region III
Federal Emergency Management Agency
Curtis Building
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Attention: Mr. Palmer C. Scarnecchia
Regional Advisory Committee Chairman

Dear Mr. Johnson:

Reference your teletype of May 23, 1980, subject: Report to the President on REP, the status of State and local plans in Maryland is as follows:

1(a). Annex Q, the State Generic Plan, and Appendix Q-1, which deals specifically with the Calvert Cliffs Nuclear Power Plant, and incorporates the separate REPs of Calvert, Dorchester and St. Mary's Counties, are expected to be in final draft form the week of June 2nd. They will be distributed to all applicable State agencies and local jurisdictions for concurrence. When concurrences are received, they will be submitted to the Governor for approval. Thereafter, they will be forwarded to the FEMA Region III R.A.C. for concurrence towards the end of June.

In addition to the foregoing Plume Zone counties, separate plans have been or will be completed for the following counties by the first week in June:

Anne Arundel,
Caroline,
Charles,
Prince George's,
Queen Anne's,
Somerset,
Talbot, and
Wicomico.

These jurisdictions have either an ingestion zone/evacuation support role to perform or an exclusively ingestion zone function.

1(b). No new commercial nuclear reactors are planned or under construction in Maryland at this time.

1(c). In-house planning has already begun on Appendix Q-2 to the State REP. This Appendix addresses the Peach Bottom Nuclear Power Plant, some three miles north of the Maryland/Pennsylvania line on the Susquehanna River. It will incorporate the separate REPs of Harford and Cecil Counties. Target date for its completion is now set for the end of August.

The northern tier of jurisdictions in Maryland, including Harford and Cecil Counties, can be affected in the following manner from the nuclear power plants listed:

JURISDICTION	POWER PLANT FACILITY	FUNCTION PLANNED
Baltimore City & Baltimore County	Peach Bottom, Pa.	Ingestion Zone; evacuation support to Harford County
	Three Mile Island, Pa.	Ingestion Zone; evacuation support to York County, Pa.
Carroll County*	Three Mile Island, Pa.	Ingestion Zone; evacuation support to York County, Pa.
Cecil County	Peach Bottom, Pa.	Plume Zone; Ingestion Zone
	Three Mile Island, Pa.	Ingestion Zone; evacuation support to Lancaster Co., Pa.
	Salem, New Jersey	Ingestion Zone; evacuation support to New Castle County, Delaware
Frederick County*	Three Mile Island, Pa.	Ingestion Zone; evacuation support to York County, Pa.
Harford County	Peach Bottom, Pa.	Plume Zone; Ingestion Zone
	Three Mile Island, Pa.	Ingestion Zone; evacuation support to York County, Pa.
	Salem, New Jersey	Ingestion Zone

Kent County*	Peach Bottom, Pa.	Ingestion Zone; evacuation support to New Castle County, Delaware
Queen Anne's County*	Peach Bottom, Pa.	Ingestion Zone
	Salem, New Jersey	Ingestion Zone; evacuation support to Delaware Counties

* indicates those jurisdictions with completed plans. Planning is expected to be completed by September, 1980, for all others.

1(d). The only new power plant outside of Maryland which is scheduled to go on line in the near future is the Limerick facility in Montgomery County, Pennsylvania. Harford and Cecil Counties in Maryland fall within its Ingestion Zone, and the actions planned would be similar in every respect to those for the Peach Bottom and Three Mile Island facilities.

2(a). Cost estimates to meet interim State/local criteria for each site are as follows:

(1) State: one @ $500,000 and a second @ $75,000, for a total of $575,000.

(2) Local jurisdictions in plume zones: five @ $25,000, for a total of $125,000. Local jurisdictions in ingestion zones or furnishing support: eight @ $10,000, for a total of $80,000.

2(b). Per annum estimated cost for maintenance of Plans including training, drills, exercises is as follows:

(1) State: $50,000.

(2) Each involved local jurisdiction: thirteen @ $10,000, for a total of $130,000.

3. No direct funding for State/local radiological emergency planning and preparedness has been received from nuclear utilities. However, the Baltimore Gas & Electric Company, owners and operators of the Calvert Cliffs Nuclear Power Plant, has entered into a contract with Stone & Webster Engineering of Boston. Stone & Webster was retained to prepare Annex Q and Appendix Q-1, dealing with State and local response to an accident at Calvert Cliffs, of the State RERP. Estimated cost to the Baltimore Gas & Electric Company is $500,000. This Agency has received no funds for the development of Appendix Q-2, which addresses the Philadelphia Electric Company's Peach Bottom Plant. Further, no financial support has been received from the Three Mile Island or the Salem, New Jersey plants. Both the Peach Bottom and Calvert Cliffs facilities are currently in the process of examining different systems that can be used to provide timely notification

to State and local governments, and to disseminate an alert signal to 100% of the resident and transient population within a five mile radius of each plant. It is presumed that the installation and recurring costs of such systems will be paid by these facilities. Actual figures are not available at this time.

If you have further questions concerning the foregoing, please contact my Operations Officer, Dr. Charles Browne, at 486-4422.

Sincerely,

GEORGE M. BROOKS
Director

GMB:JKO'B:amj

BUREAU OF CIVIL EMERGENCY PREPAREDNESS
STATE HOUSE • AUGUSTA, MAINE 04333 • (207) 622-6201

DEPARTMENT OF DEFENSE AND VETERANS SERVICES

June 9, 1980
Ltr. #140-80-1

Stephen J. McGrail
Regional Director
Federal Emergency Management Agency
442 John W. McCormack, POCH
Boston, Massachusetts 02109

Attn: George Patrick

Dear Mr. McGrail:

This letter is in response to FEMA, Region I teletype P 222020Z May 1980 in which specific data was requested in connection with the planning actions associated with the Maine Yankee Contingency Plan and other planned actions associated with peacetime nuclear planning.

The following documentation conforms with the format set forth in FEMA, Region I teletype P 222020Z May 1980:

1A. As you will recall, the "draft submission" of the Maine Yankee plan was mailed to U.S. Nuclear Regulatory Commission, 31 December 1979. This plan was developed in accordance with NUREG 75/111 and NUREG 0610. Subsequently, with the publication of NUREG 0654/FEMA REP-1, this plan is currently undergoing expansion, review and updating. It is envisioned that all rewriting and updating will be completed 30 June 1980. A limited number of copies will be printed to satisfy Federal Review/Acceptance Procedures.

1B. Presently, Maine Yankee is the only nuclear reactor power plant operating within the State of Maine. It is understood that no additional nuclear power plants are currently planned within this state.

1C. At the present time nuclear power plants are not in operation in other states which meet this criteria.

1D. Point LePreau Nuclear Power Plant, located in New Brunswick, Canada, is presently under construction, and is scheduled to become operational summer 1981. Because of established federal criteria this bureau will be required to develop a contingency plan for Point LePreau since a small portion of Washington County is within fifty (50) miles of the plant site. Additionally,

liaison should be established with the Canadian government by the U.S. State Department within the near term. This Bureau anticipates completing all contingency planning actions August 1981. It should also be noted that prior to the nuclear power plant at Seabrook, N.H., becoming operational, a contingency plan will be required. However, this action is not scheduled for completion until Summer 1983. This planning process will require liaison with New Hampshire Civil Emergency Preparedness.

2A. One time estimated cost - State

(1) To date, six (6) state staff members have devoted approximately fifty (50) percent of their efforts in developing a peacetime nuclear contingency plan. The estimated costs to develop this plan are:

Salaries .....$ 42,000.00

Travel Expenses .....$ 1,000.00

Printing and Graphics .....$ 3,000.00

Emergency Public Information .....$ 2,000.00

(2) The local utility company has funded a private engineering firm to develop local plans for certain communities within the EPZ. Costs to date to the utility company $150,000.00

(3) Unique radiological and support equipment for Maine Yankee....*$ 81,936.00
*See MECEP Letter #107-80-1 of 14 May 1980.

2B. One time estimated cost - Local Government

(1) This particular funding aspect has involved two (2) counties and twenty (20) local communities on a part-time basis for approximately nine (9) months. In view of the fact that local plans were developed by a private engineering company and this bureau, the estimated cost is most difficult to determine. However, the total estimated administrative costs for these governmental organizations are .....$ 5,000.00

2C. Estimated annual maintenance of plan - State

(1) Salary and expenses for one Peacetime Nuclear Planner.

Pay Range 20.....$ 22,500.00

(2) Plan Maintenance .....$ 5,000.00

(3) Radiological response van with communications to Maine State Police and MECEP LGRS plus necessary radiological detection and analyzing equipment .....$ 25,000.00

(4) One additional Radiological Instrument Technician.

Pay Range 16 .....$ 19,500.00

(5) Training and Exercises .....$ 10,000.00

(6) Public Information .....$ 2,000.00

(7) Maintenance of additional communications equipment to support Maine Yankee .....$ 1,000.00

(8) Financial costs to have one staff member on standby at all times.....$ 7,000.00

(9) Pager system for selected MECEP staff members .....$ 1,500.00

Note: Basic system presently available within State House Complex. Only additional individual pagers would be required for five (5) staff members.

(10) Five Thousand (5000) 730 Dosimeters and chargers..... $1,000,000.00

2D. Estimated annual maintenance of plan - Local Government

(1) One Peacetime Nuclear Planner for Lincoln County CEP.

Salary and expenses, Pay Range 10 .....$ 13,000.00

(2) Tests and Exercises .....$ 10,000.00

(3) Administrative expenses for all local governments within the EPZ of Maine Yankee.

(a) Maintenance of warning and communications systems .....$ 5,000.00

(b) Plan maintenance .....$ 2,000.00

(c) Protective clothing for emergency workers .....$ 5,000.00

3. Estimated funding to date for local emergency planning and preparedness which has been funded by a utility company.

A. Development of local plans $150,000.00
(for communities within the EPZ).

B. Additional financial supoort which the local utility plans to commit is not known at this time.

GRAND TOTAL $1,413,436.00

Sincerely,

Lionel A. Cote
State Director

LAC/bjm

C O P Y

STATE OF MICHIGAN

From Peter R. Basolo, Deputy State Director Emergency Services to Patrick H. McCollough, Director, Plans and Preparedness, Director FEMA Region Five Battle Creek.

In reference to your inquiry concerning the status of Radiological Emergency Response Plans the following three questions are detailed:

I. Question One

Part A. The State of Michigan anticipates completion of new criteria elements set forth in NUREG 0654/FEMA-REP 1 by June 30, 1980. The Michigan Emergency Preparedness Plan was reviewed by the Regional Advisory Committee (RAC) on May 12th and 13th and changes to the plan are now in the process of development. These changes are expected to be completed by June 30, 1980. The RAC indicated that if these changes were made the plan would then be determined adequate.

Part B. Although the FERMI II and Midland plants will not be operational until the mid 1980's, the new criteria elements will be met by December 31, 1980, if the Nuclear Civil Protection Planning Contract is permitted to continue Radiological Emergency Response Planning.

Part C. The only operating commercial nuclear power reactor site located in another State but adjacent to the Michigan border is the Davis-Besse plant in Ohio. Planning to meet new criteria elements for Davis-Bessie will be completed when the planning is done for FERMI II in Monroe County, Michigan. Assuming the NCP contract is extended for REP, new criteria elements for Davis-Besse could be completed by December 31, 1980.

Part D. There is no commerical nuclear reactor site scheduled to become operational by December 31, 1980, located in another State but adjacent to Michigan. The site for the Bailly plant in Indiana has been selected but construction has not started. When construction is under way, planning will be initiated.

II. Question Two

Part A. 1. State $630,000.

2. Local Government $1,750,000.

Part B. 1. State $120,000.

2. Local Government $190,000

III. Question Three

No funding is presently available, but some legislative interest exists to possibly pass legislation requiring funding assistance by the utilities. At this time, no such bill has been entered in the legislature.

STATE OF MINNESOTA

MINN 349 REGD

189 06/04/0 1738Z

DE MINN 0349 1561800

R 041230 JUNE 1980

FM SDES MINN

TO FEMA REGION FIVE, BATTLE CREEK, MICHIGAN

BT

UNCLAS

ATTENTION ED ROBINSON

IN RESPONSE TO YOUR REQUEST RV-0066, MAY 23, 1980, ON RADIOLOGICAL EMERGENCY RESPONSE PTANS, WE ARE PROVIDING THE FOLLOWING INFORMATION:

1. A. JANUARY 1, 1981

   B. NOT APPLICABLE

   C. JANUARY 1, 1981

   D. NOT APPLICABLE

2. A. 850,000 INCLUDING HARDWARE

   B. 200,000

   WE ARE SITE SPECIFIC BECAUSE ONE UTILITY OPERATES ALL PLANTS IN MINNESOTA AND MATERIALS PURCHASED WILL BE UTILIZED FOR ALL FACILITIES. FURTHER, WE DO NOT KNOW SPECIFICALLY HOW MUCH IT WILL COST TO IMPLEMENT A 15 MINUTE NOTIFICATION SYSTEM WHICH WILL BE SITE SPECIFIC.

3. WE HAVE RECEIVED 500,000 WITH A THEORETICAL 100,000, ANNUALLY THEREAFTER.

GERALD R. KITTRIDGE/D/MINNESOTA

BT

STATE OF MISSISSIPPI
Mississippi Civil Defense Council
P. O. Box 4501, Fondren Station
JACKSON, MISSISSIPPI 39216

Telephone 354-7201

J. E. MAHER
Acting Director, Vice-Chairman

WILLIAM F. WINTER
Governor, Chairman
BILL ALLAIN
Attorney General, Member
COHEN E. ROBERTSON
Adjutant General, Member

May 28, 1980

Mr. Frank Newton, Director
FEMA, Region IV
1375 Peachtree Street, N.E.
Atlanta, Georgia 30309

Dear Mr. Newton:

This is in response to your message number RIV-0462 regarding the status of Radiological Emergency Preparedness. The responses below are keyed to the questions posed in the message.

A.1. Not applicable. There are no operating reactors within the State.

A.2. Grand Gulf Nuclear Station will not be operational for commercial power production until sometime in the spring of 1982. Fuel loading is scheduled for August 1981. All planning is keyed to that date. See attached schedule. Fuel loading for the Yellow Creek Nuclear Plant is now scheduled for January 1985, according to TVA.

A.3. Not applicable.

A.4. Not applicable.

B.1.A. $500,000.00

B.1.B. $700,000.00

B.2.A. $232,000.00

B.2.B. $ 40,000.00

C. None.

If additional information is needed, please let me know.

Sincerely,

J.E. Maher
Director

JEM:es
Attachment

REVISED PLAN/EXERCISE SCHEDULE RADIOLOGICAL EMERGENCY RESPONSE

06/01/80	All plans complete for Review
06/10/80	Comments on Plans due from State Agencies
06/30/80	Report to President by FEMA/NRC - Status of State Plans
09/01/80	Implementing Procedures complete (State/Local Agencies)
09/15/80	First Table-Top Exercise and Critique
10/15/80	Implement First Table-Top Exercise recommendations into plans and implementing procedures
10/31/80	Discuss and finali e plans for Second Table-Top Exercise
11/14/80	Second Table-Top Exercise and Critique
12/01/80	Implement Second Table Top Exercise recommendations into plans and implementing procedures
01/05/81	Plan first All Agency Coordinated Exercise
02/02/81	First All Agency Actual Exercise (Critique/Recommendations/ Revise Plans)
04/01/81	Second All Agency Actual Exercise (Critique/Recommendations/ Revise Plans)
07/01/81	All Agency Exercise for NRC/FEMA Evaluation (Critique/ Recommendations/Revise Plans)
10/01/81	Second All Agency Exercise for NRC/FEMA Evaluation (if necessary)

Joseph P. Teasdale
Governor

F. M. Wilson
Director

Robert E. Buechler
The Adjutant General

STATE OF MISSOURI
DEPARTMENT OF PUBLIC SAFETY
OFFICE OF THE ADJUTANT GENERAL
DISASTER PLANNING & OPERATIONS
George M. Atchison, Director
1717 Industrial - P. O. Box 116
Jefferson City, Missouri 65102

Adjutant General of Missouri
Division of Highway Safety
Division of Liquor Control
Division of Water Safety
Missouri Council on Criminal Justice
Missouri State Highway Patrol
State Fire Marshal

June 2, 1980

Mr. Francis X. Tobin
Regional Director
Federal Emergency Management Agency
Region VII
911 Walnut Street, Room 405
Kansas City, Missouri 64106

Dear Mr. Tobin:

Following is our reply to Harold Pickering's memo dated May 22, 1980, subject: Radiological Emergency Preparedness Plans.

Regarding questions 1a & b, Missouri does not now have within its borders an operating commercial power reactor nor will we have within the 12/31/81 date. The first power plant is scheduled to go on line in October 1982. However, our office timetable for radiological emergency preparedness is to have an Interim Nuclear Accident Plan completed by August 1981.

Regarding questions 1c & d, there is a commercial power reactor in a contiguous state; Cooper Nuclear Station at Brownville, Nebraska. Again, our office timetable calls for Missouri's INAP, with the appropriate county plan, to be completed by August 1981.

Regarding question 2, which addresses costs of developing and maintaining state and local plans, including exercises, we estimate the following:

State Plan (includes 45 man-days state staff for local Cooper plan);

Development	275 man-days @ $100	$27,500
Maintenance	105 man-days @ $100	$10,500

Local Plan (Cooper);

Development	30 man-days @ $75	$ 2,250
Maintenance	50 man-days @ $75	$ 3,750

Local Plan (Callaway);

Development:		
State Staff	150 man-days @ $100	$15,000
Local	200 man-days @ $ 75	$15,000
Maintenance:		
State Staff	90 man-days @ $100	$ 9,000
Local	75 man-days @ $ 75	$ 5,625
	TOTAL	$88,625

These figures are conservative in that they primarily reflect salaries of persons involved and only partial per diem expenses during exercises. Total costs, which we are unable to estimate at this time, should include actual food, lodging and travel expenses of all persons involved in an exercise; secretarial costs; printing and xeroxing expense; telephone calls, etc., for each agency involved. This could easily add to the above total approximately $100,000 for initial purchases, and $5,000 to $10,000 for annual maintenance and exercises.

Regarding question 3, neither state nor local governments have received any funding from private utilities for planning purposes or acquisition of equipment and other related materials required to satisfy the requirements as set out in NUREG 0654/FEMA-REP-1.

Sincerely,

George M. Atchison
Director

GMA:nd

Hon. Charles Thone
Governor

STATE *of* NEBRASKA
MILITARY DEPARTMENT
STATE CIVIL DEFENSE AGENCY
1300 Military Road
Lincoln, Nebraska 68508
(402)471-3241

Major General Edward C. Binder
Director

Francis A. Laden
Assistant Director

6 June 1980

MEMORANDUM TO: Federal Emergency Management Agency
Regional Advisory Committee Chairman

FROM: Assistant Director
Nebraska Civil Defense Agency

SUBJECT: Radiological Emergency Preparedness Plans

Reference memorandum 22 May 1980 from FEMA Region 7 in which cost and time estimates were requested based on the assumption that NUREG 0654/FEMA-REP-1 as presently written were to be adopted with little substantive change.

The emergency planning guidance in NUREG 0654 is very specific and complex. Based on the above assumption, implementation of NUREG 0654 by State and local governments as well as our two nuclear power plants will be equally complex. In terms of individual criteria elements phasing, timely provision of funding support and agency cross coordination will be extremely important. For these reasons it is felt that the only way to produce meaningful estimates would be to specifically outline the essential planning assumptions on which our estimates are based. Therefore, we assume that:

1. The proposed rulemaking changes to 10 CFR 50 will be approved as currently written. Implementation of the revised 10 CFR 50 and NUREG-0694 will be directed prior to 1 Jan 1981. It is also assumed that necessary changes to plant emergency plans will be made to be effective 1 Jan 1981.

2. Full compliance with all criteria elements of NUREG 0654 as currently written will be beyond State and local resources. Some type of funding support will be required. For planning purposes it is assumed that Federal funding support will be effected and that the earliest reasonable date for this to be available will be 1 Oct 1981.

3. Existing State and Federal agency resources will remain as presently constituted and will not be reduced by government economy measures.

4. The recently completed FEMA Region 7 RAC review which identified criteria elements requiring revision will be considered to be final and will not be expanded in scope.

5. NUREG 0654 criteria elements which equally apply to all levels (State, local and plant) will be satisfied by detailed completion of the requirement for one level with appropriate references being made in the emergency plans for the other two levels.

The following information requested in the above cited memo is submitted:

a. Reference paragraph 1 a

Based on our planning assumptions there are two possible implementation dates. The January date comprises emergency plan revisions which can be made using existing resources provided corresponding changes are made in plant emergency plans and procedures. The October date represents criteria items which can only be resolved only by additional funding support for planning assistance, equipment procurement and consultant services. Both estimates are based on meeting the new criteria for the two Nebraska power plants. The following are estimated completion times related to these dates.

Criteria items for implementation on 1 Jan 81: Six months
Criteria items for implementation 1 Oct 81: Two years

b. Reference paragraph 2 a(1) and (2)

In development of cost estimates for the two power plants we have attempted to list only those requirements that exceed our reasonable estimates of our existing State and local funded resources. State costs mainly represent planning assistance to local governments, equipment/supplies procurements, consultant services and other staff support. The local estimate is based on EOC improvements, emergency services equipment items and related support costs. The following cost estimates apply:

One time cost (initial) State:	$1,505,252
One time cost (initial) Local:	61,170

c. Reference paragraph 2 b(1) and (2)

To support annual maintenance of plans, exercises and other recurring costs the following would be required for two nuclear power plants. Recurring costs are composed of ongoing equipment maintenance charges and continued consultant services. The State data includes direct State planning assistance to local governments:

State:	$339,740
Two local governments:	13,520

d. Reference paragraph 3

Funding support by the two nuclear power plants would mainly apply for 15 minute area warning systems. Currently both plants are each evaluating several options to satisfy this requirement and estimates cannot be given. However, it is felt that total eventual support could be as high as $5 million.

for Francis A. Laden

FRANCIS A. LADEN
Assisant Director
Nebraska Civil Defense Agency

STATE OF NEW HAMPSHIRE

NEW HAMPSHIRE CIVIL DEFENSE AGENCY

ONE AIRPORT ROAD, CONCORD, NEW HAMPSHIRE 03301 • 603/271-2231

June 3, 1980

Stephen McGrail, Regional Director
Federal Emergency Management Agency
Region One
John W. McCormack Post Office and Courthouse
Boston, Massachusetts 02109

Dear Mr. McGrail:

SUBJECT: Your TWX #368 dated 5/22/80 - Radiological Emergency Preparedness

Response to subject questions is as follows:

1.A - No operating plants in New Hampshire.

1.B - No operating plants in New Hampshire by 12/31/81 as of present schedule. Seabrook, N. H. plant under construction.

1.C - Operating plant at Vernon, Vermont (Vermont Yankee) within 10-mile and 50-mile EPZ. Operating plant at Rowe, Mass. (Yankee Rowe) within 50-mile EPZ. Compliance with criteria, dependent on funding required to correct deficiencies, scheduled for July 1981.

1.D - No known plants under construction in adjacent states within 10-mile or 50-mile EPZ of New Hampshire.

2. New Hampshire cannot submit meaningful estimates of funding requirements at this time, regardless of sources of such funding. Surveys currently in progress should provide partial basis for some estimates at a later date.

3. No direct funding has been received or requested by the state from any utility as of this date.

Please let me know if further information is required.

Sincerely,

Eileen Foley

Eileen Foley
Director

EF:EAS

State of New Jersey
DEPARTMENT OF LAW AND PUBLIC SAFETY
DIVISION OF STATE POLICE
POST OFFICE BOX 7068
WEST TRENTON, NEW JERSEY 08625
(609) 882-2000

JOHN J. DEGNAN
Attorney General

COLONEL C. L. PAGANO
Superintendent

June 2, 1980

Ms. Rita Meyninger
Regional Director
Federal Emergency Management Agency
26 Federal Plaza, Room 1349
New York, NY 10278

Dear Ms. Meyninger:

The following information is furnished in reply to your request dated May 23, 1980:

Paragraph 1a

Responsibilities, procedures, and resources needed to meet the criteria set forth in NUREG-0654/FEMA-REP-1 have been identified, coordinated, and confirmed in principle by all the governments and agencies with a role in New Jersey's Radiation Emergency Response Plan. All the base data for the writing of State and local plans has been assembled -- the writing is in progress.

The Generic Plan that defines the concept of emergency operations, responsibilities, and the organization for area support is complete. The target date for completion of the supporting plans for the two reactor sites is June 15th. The State Department of Environmental Protection's accident assessment plan and plans for management of technical programs are also scheduled for completion by June 15th.

Resolution of policy and procedures or the acquisition of hardware relating to the following elements will be delayed beyond June 15th:

- Systems for prompt notification at both reactor sites will be ready for installation by June 1, 1981.
- Siting and constrction of each Nuclear Power Plant's Near-Site EOF will begin January 1, 1981, if criteria are firmed within the month of June.
- Exposure control systems will be fully operational by September 1, 1980, if funds for dosimetry become available before the end of June. Interim measures are in effect now.

- Potassium iodide target date depends on availability of funds for purchase. Distribution can be achieved three months after the potassium iodide becomes available.

- Public education pamphlets will be published and distributed eight months after funds become available. Text material is available now.

- Reuter-Stokes monitoring networks and State Emergency Area Communications Systems can be installed six months following the availability of funds.

At this writing, New Jersey has all the essential elements of public protection in place with the exception of potassium iodide and notification systems needed to meet the 15-minute criteria. All other criteria specified in NUREG-0654 would govern the management of any public safety accident occurring today. Funds for systems described above will become available if State Assembly Bill 966 now under legislative review, becomes law.

Paragraph 1b

There will be no changes in the Public Response Plan for Artificial Island (the Salem Generating Station site) when Salem No. 2 becomes operational. For all practical reasons, it is one and the same site.

Paragraph 1c

The target date for completion of 50-mile EPZ plans is September 1, 1980.

Paragraph 1d

There are no Nuclear Power Plants scheduled to become operational by December 31, 1980, outside New Jersey which would create an ingestion pathway within the State.

Paragraph 2a

One Time Costs:	State	- $2,625,000
	Local	
	Ocean County	- 3,714,500
	Salem County	- 2,581,500
	Cumberland County	- 401,000
		$9,322,000

Paragraph 2b

Annual Recurring Costs:	State	- $ 90,000
	Local	
	Ocean County	- 30,000
	Salem County	- 15,000
	Cumberland County	- 5,000
		$140,000

Paragraph 3a

Funding by Public Service Electric & Gas for implementation of public response plans: $2,000,000 for a 15-minute warning or notification system.

Paragraph 3b

Funding by Jersey Central Power and Light for implementation of public response plans: $3,000,000 for a 15-minute warning or notification system.

We trust the above responses fulfill your inquiry.

Very truly yours,

Joseph A. Rogalski

Joseph A. Rogalski, Major
Deputy State Director
Emergency Management

STATE OF NEW YORK
DEPARTMENT OF HEALTH OFFICE OF PUBLIC HEALTH

TOWER BUILDING • THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA • ALBANY, N.Y. 12237

DAVID AXELROD, M.D.
Commissioner
GLENN E. HAUGHIE, M.D.
Director of Public Health

LOCAL HEALTH MANAGEMENT
WILLIAM F. LEAVY
Director

June 6, 1980

Ms. Rita Meyninger
Regional Director
Federal Emergency
Management Agency
Region II
26 Federal Plaza
New York, NY 10007

Dear Ms. Meyninger:

This is in response to your letter of May 23, 1980, in which you requested an assessment of our status in developing radiological emergency plans.

We plan to submit State and County pl ns to you for concurrence by September or early October of 1980. Some of the implementing aspects of those plans can be put in place, when approved, by January 1, 1980. Some aspects of the plans, when approved, will not be implementable until mid 1981. Still other plan aspects, those related to direct reactor monitoring at a state operated Emergency Operations Center, will not be implementable until late 1981 or early 1982.

Out of state sites will be capable of being monitored within the time frames stated above.

Out of state sites scheduled for operation by December 31, 1981 will be capable of being monitored within 6 months of such sites becoming operative.

Cost estimates. No additional state or county funds have been appropriated for staff, equipment, etc. There is no indication that there will be any such appropriations. However, legislation introduced by Speaker Fink, and other members of the New York State Assembly, would impose fees upon the operators of commercial nuclear reactors. The bill (1980 A. 11100-A) levies a one time $2 million fee per reactor, and thereafter an annual $500,000 fee per reactor, subject to reopening if the Legislature is satisfied that additional funds are necessary.

The Fink bill has passed in the Assembly and is under consideration in the Senate. The Legislature is planning to adjourn or recess next week. Passage before that time is not a certainty.

Our preliminary estimates indicate that the counties and the state will need about $17.5 million for full start up costs to monitor all present and soon to come on line reactors. Thereafter, we will need about $7 million on an ongoing basis.

We have a commitment from the affected utilities for current funding of 9 staff ($250,000 - $440,000) for emergency plan preparation. This agreement does not deal with plan implementation. The utilities are not committed to any further contributions.

We have made significant progress with plan preparation. If the Fink bill becomes law, we will be able to implement the plan.

Sincerely yours,

Donald B. Davidoff
Project Manager
Nuclear Emergency
Planning Group

North Carolina Department of
CRIME CONTROL
& PUBLIC SAFETY

State Highway Patrol · Alcohol Law Enforcement · Crime Control · National Guard · Civil Preparedness · Civil Air Patrol

James B. Hunt, Jr., Governor

Burley B. Mitchell, Jr., Secretary

June 3, 1980

Mr. Frank Newton, Regional Director
Federal Emergency Management Agency
Region IV
1375 Peachtree Street, N.E., Suite 664
Atlanta, Georgia 30309

Dear Mr. Newton:

Answers to questions in your message No. RIV-0462 are as follows:

A.

(1) 30 June 1981

(2) 1 August 1980

(3) Cannot be determined at this time.

(4) Cannot be determined at this time.

B. (1) 1,050,000

(A) 250,000*

(B) 20,000/county x 40 counties 800,000*

(2)

(A) 100,000/site x 2 sites 200,000*

(B) 20,000/county x 40 counties 800,000*

C. None

*Best estimates that can be arrived at as of June 2, 1980.

Sincerely,

David E. Kelly
Assistant Secretary for
Public Safety

Attachment (TWX)

P.O. Box 27687 · 512 N. Salisbury Street · Raleigh, NC 27611 · (919)733-2126

C O P Y

STATE OF OHIO

ADJUTANT GENERAL'S DEPARTMENT

2825 WEST GRANVILLE ROAD
WORTHINGTON, OHIO 43085

DISASTER SERVICES AGENCY

JAMES C. CLEM
MAJOR GENERAL
THE ADJUTANT GENERAL

JAMES A. RHODES
GOVERNOR

AGOH-DS

4 June 1980

Mr. James W. Wahner, Regional Director
Federal Emergency Management Agency
Region V
Attn: Plans & Preparedness
Battle Creek, Michigan 49016

ATTN: Mr. Joe Hatcher

Dear Mr. Wahner:

Reference is made to your teletype message RV-0066 dated May 23, 1980, Ref: EMO, Subject: Radiological Emergency Response Planning Status.

The information you requested is provided with reference to the specific questions and parts:

QUESTION 1 - Part A - Please see attached chart
Part B - Please see attached chart
Part C - Please see attached chart
Part D - Please see attached chart
Part E - Remarks referencing Perry Nuclear Plant units 1 & 2 to become operational in 1984 & 1985, were added by Ohio DSA.

QUESTION 2 - Part A - The total cost to implement the plan which meets the criteria is:

1 - Davis-Besse Nuclear Plant
State - $277,967
Local - $000,000

2 - Zimmer Nuclear Power Station
State - $66,370
Local - $00,000

3 - Beaver Valley Nuclear Power Station
State - $66,370
Local - $00,000

4 - Perry Nuclear Power Station
State - $66,370
Local - $00,000

5 - Fermi II Nuclear Station
State - $0
Local - $0

6 - Marblehill Nuclear Power Station
State - $0
Local - $0

Part B -

1 - Davis-Besse Nuclear Power Station
State - $50,000 each year for FY 81,82,83
Local - $00,000

2 - Zimmer Nuclear Power Station
State - $50,000 each year for FY 81,82,83
Local - $00,000

3 - Beaver Valley Nuclear Power Station
State - $50,000 each year for FY 81,82,83
Local - $00,000

4 - Perry Nuclear Power Station
State - $50,000 each year for FY 81,82,83
Local - $00,000

5 - Fermi II Nuclear Station
State - $0
Local - $0

6 - Marblehill Nuclear Power Station
State - $0
Local - $0

QUESTION 3 - To date no direct funding from the utility companies has been received. If legislation which has passed the Ohio House of Representatives and is now being considered by the Ohio Senate becomes law, it is expected that Ohio DSA would receive $100,000 annually from each site in Ohio with no revenue from sites outside of Ohio. The earliest date possible projected for this funding is January 1981.

FOR THE DIRECTOR

(Signed by W. Grace for)

CURTIS GRIFFITH, JR.
Deputy Director

SITE	COUNTIES	PLANNING ZONE	PLANNING COMPLETION	PLANNING IMPLEMENTATION
DBNPS	*OTTAWA	10	FY 80	1st Exercise - Sept 80
	*LUCAS	10/50	FY 80	2nd Exercise - Sept 81
	*WOOD	50	FY 81	3rd Exercise - Sept 82
	*SANDUSKY	50	FY 81	4th Exercise - Dept 83
	*ERIE	50	FY 81	
	*FULTON	50	FY 81	
	*HENRY	50	FY 82	
	HANCOCK	50	FY 82	
	WYANDOT	50	FY 82	
	CRAWFORD	50	FY 81	
	HURON	50	FY 81	
	RICHLAND	50	FY 82	
	*LORAIN	50	FY 81	
	*SENECA	50	FY 82	
ZIMMER	*CLERMONT	10	FY 82 (Oct./ Dec 81)	1st Exercise - July 81
	HAMILTON	50	FY 83	2nd Exercise - Nov. 81
	*BUTLER	50	FY 83	
	WARREN	50	FY 83	
	CLINTON	50	FY 83	
	BROWN	50	FY 83	
	HIGHLAND	50	FY 83	
	ADAMS	50	FY 83	
	PIKE	50	FY 83	
	FAYETTE	50	FY 83	
	GREENE	50	FY 83	
	MONTGOMERY	50	FY 83	
PERRY	LAKE	10/50	FY 83 (Oct./ Dec 82)	1st Exercise - June 83
	ASHTABULA	10/50	FY 84	2nd Exercise - Oct. 83
	GEAUGA	10/50	FY 84	
	CUYAHOGA	50	FY 84	
	SUMMIT	50	FY 84	

DBNPS

1. TECO current offer for 5 mile siren system must stand firm.
2. State/County decision for 5-10 mile sirens by 1 Oct. '81.
3. Assuming that the TECO will install the early warning outdoor notification sirens before January 1 1981 and that state-local governments will not support funding of sirens for the 5-10 mile radius area, a completed notification system as described in NUREG 0654/FEMA REP-1 will not be possible for the Davis-Besse plant until 30 June 1981. This will be the single limiting factor for all the criteria.

* Denotes counties which also fall into the 50 mile IPZ for the FERMI II NPS.

** Denotes county which will fall into the 50 mile IPZ for the Perry NPS.

ZIMMER

1. CG&E must react favorable or unfavorably to county equipment request by 1 September 1980.
2. Initial start-up exercise scheduled for July-November 1981.
3. Until local governments in Clermont County can reach an agreement with the CG&E on pre-arranged emergency response equipment and capability, there will be little if any county activity in emergency planning completion. The State has drafted a plan on the former criteria, but is not prepared to revise this draft according to 0654 until the county agrees to collaborate with the State in a planning effort. It is estimated that this could take until December 31 1981.

* Denotes counties which also fall into the 50 mile IPZ

for the Marble Hill, Indiana NPS.

PERRY

* Denotes those counties which also fall into the 50 mile IPZ for the Beaver Valley NPS.

** Denotes those counties which also fall into the 50 mile IPZ for the DBNPS.

SITE	COUNTIES	PLANNING ZONE	PLANNING COMPLETION		PLANNING IMPLEMENTATION
Continue PERRY					
	*PORTAGE	50	FY 81		SAME
	*TRUMBULL	50	FY 81		
	*MANHONING	50	FY 81		
	MEDINA	50	FY 84		
	**LORAIN	50	FY 81		
BVNPS	COLUMBIANA	10/50	FY 81	(Oct./ Dec 80)	Implement during
	*MAHONING	50	FY 81		April - Sept. 81 (2)
	*TRUMBULL	50	FY 81		
	STARK	50	FY 81		
	*PORTAGE	50	FY 81		
	JEFFERSON	50	FY 82		
	BELMONT	50	FY 82		
	HARRISON	50	FY 82		
	CARROLL	50	FY 82		
	TUSCARAWAS	50	FY 82		

GENERAL REMARKS

PERRY

SAME

BVNPS

1. BVNPS will start up 1 July 81 if communication test wit county is successful.
2. DLP has committed resources to installation of sirens in Columbiana County (FY 81) date of installation.
3. The Ohio portion of the 10 mile EPZ which involves Columbiana County can be completed with plan development and implementation of outdoor audible warning systems in two phases. Phase I plan development completed 1 Oc 1980. Phase II full criteria implementation by 30 June 1981. Again the limiting factor for Phase II is the notification system. The 50 mile portion of this plan cannot be completed in planning or implementation until FY 82 .

* Denotes those counties which also fall within the 50 mile IPZ for the Perry NPS.

GEORGE NIGH
Governor

OKLAHOMA CIVIL DEFENSE

SEQUOYAH - WILL ROGERS BUILDINGS
POST OFFICE BOX 53365
OKLAHOMA CITY, OKLAHOMA 73152
405-521-2481

HAYDEN HAYNES
State Director

June 4, 1980

Mr. Dale Milford, Director
Federal Emergency Management Agency
Region Six
Federal Center
Denton, Texas 76201

Dear Mr. Milford:

In response to your teletype message request number 031301Z June, 1980, the following information is provided:

A1. (A) $45,000
(B) Three Counties $1,000 Each
2. (A) $25,000
(B) None

B1. (A) None Received
(B) Unknown if additional funds will be received

Sincerely,

Hayden Haynes

Hayden Haynes

BHM/bt

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Department of Energy

LABOR & INDUSTRIES BUILDING, ROOM 102, SALEM, OREGON 97310 PHONE 378-4040

June 5, 1980

Neale V. Chaney
Regional Director, FEMA
Federal Regional Center
Bothell, WA 98011

Dear Mr. Chaney:

Your letter of May 23, 1980 requested responses to three questions. Our responses are enclosed.

Sincerely,

Lynn Frank
Director

LF/DG:swd
7834A

Enclosure

cc: Tom Walt, PGE

Question 1

Assuming little substantive change in the interim criteria for Radiological Emergency Plans as set forth in NUREG-0654/FEMA-REP-1;

a. What is your timetable (including that of involved local governments) to meet new criteria for all operating commercial power reactor sites within your state?

Answer: Oregon intends to have implemented the requirements of NUREG-0654/FEMA-REP-1 by July 1, 1980. These requirements are subject to various interpertations. Additional actions by Oregon may be necessary as the result of FEMA/NRC review.

b. What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites scheduled to become operational in the near future (by 12/31/81) within your state?

Answer: Not applicable.

c. What is your timetable (including that of involved local governments) to meet the new criteria for all operating commercial power reactor sites located in another State but adjacent to your common border (within 50-mile emergency planning zone (EPZ) for ingestion pathway planning, and with 10-mile EPZ for plume exposure pathway planning)?

Answer: Not applicable.

d. What is your timetable (including that of involved local governments) to meet the new criteria for all operating commercial power reactor scheduled to become operational in the near future (12/31/81), located in another State but adjacent to your common border (within 50-mile EPZ for ingestion exposure pathway planning and within 10-mile EPZ for plume exposure pathway planning)?

Answer: Not applicable.

Question 2

What is the estimate of the cost to meet the interim State/local criteria for each site, in and out of your State, which requires 10-mile EPZ and 50-mile EPZ planning in your State?

a. One-time cost

1. State?
2. Each involved local government?

b. Maintenance of plans (including exercises) or other continuing costs (per annum) for each site in 2.a. above?

1. State?
2. Each involved local government?

Answer: The following are cost estimates for Oregon emergency planning around Trojan. These are very crude because they represent only additional costs required by the new criteria and do not include in-kind service provided by governmental agenices and Portland General Electric, all of which have been large.

	Oregon State	Columbia County
One Time	$20,000	$40,000
Annual Maintenance	$30,000	$40,000

Question 3

What funding for State/local radiological emergency planning preparedness have you received, or will you receive, from each involved individual nuclear utility?

Answer: Portland General Electric has provided equipment, consultants and employee time as needed to support Oregon planning. Conslutant's costs borne by PGE to date are $41,400. Further, local government agencies are required by state law.

PENNSYLVANIA EMERGENCY MANAGEMENT AGENCY
P.O. BOX 3321
HARRISBURG, PENNSYLVANIA 17105

June 12, 1980

Mr. Charles T Johnson
Regional Director, Region III
Federal Emergency Management Agency
Curtis Building, Seventh Floor
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Attention: Mr. Palmer C. Scarnecchia

Dear Mr. Johnson:

This letter is in reply to your teletype R-3 0028 SGD Scarnecchia, RAC Chairman. The responses will be keyed to your questions.

1. A. Timetable to meet planning criteria (NUREG - 0654) to include local plans for operational power reactor sites.

TMI	July, 1980
Peach Bottom	September, 1980
Beaver Valley	" "
Shippingport	" "

B. Power reactor sites scheduled operational by December 31, 1981.

None.

C. Timetable to meet planning criteria (NUREG - 0654) to include local plans for operational power reactors in anotner State.

10 Miles	50 miles
None	Oyster Creek, NJ - Oct. 80
	Indian Point, NY - Oct. 80
	Salem, NJ - Oct. 80

D. Timetable to meet planning criteria to include local plans for future (12/31/81) power reactor sites in another State.

None.

2. Cost data for meeting State/local criteria (Attached). The cost data provided is an estimate for planning purposes only.

3. Funding provided by each individual nuclear utility.

None.

Sincerely,

Oran K. Henderson

Oran K. Henderson
Director

OKH:dmw (TEL: 717-783-8150)

Attachment

ESTIMATED COST DATA

The following cost data are estimates of State, county and local costs to meet the criteria of NUREG - 0654:

I.	STAFF	$ 406,000
II.	TRAVEL	$ 20,000
III.	DIRECT COSTS (activation)	$ 25,000
IV.	SUBCONTRACT (art work & supplies, printing & reproduction, brochures, handouts, mailing expenses, map development)	$ 25,000
V.	TRAINING (program development, printing, student travel, & accomodations, training aids, student course materials)	$ 205,000
VI.	INFORMATION/EDUCATION (program development, media production costs, printing and distribution costs, publication costs, (phone books, newspapers, etc.)	$ 101,000
VII.	RISK COUNTIES @ 15,000 for 14 (preparation, refinement, distribution of plans; training & exercises; printing and distribution of brochures & handouts; media publication costs)	$ 210,000
VIII.	ALERT/WARNING UPGRADE	
	A. Initial Costs:	
	approx. $1,600,000 per site (excludes fuel fabrication sites)	
	three operational sites, plus two under construction	$8,000,000
	B. Operation & Maintenance:	
	approx. $75,000 annually per site for five sites	$ 375,000

IX. OTHER COSTS:

Monitoring Equipment, dosimeters, readout & recording capability, ARAC, protective clothing & equipment, communications upgrade, training	$300,000
Annual maintenance	$ 10,000

X. TOTAL COSTS

$ 406,000		Personnel
$ 20,000		Travel
$ 25,000		Direct Costs
$ 25,000		Subcontract
$ 205,000		Training
$ 101,000		Info/Education
$ 210,000		$15,000 for 14 counties
$ 300,000		Other Costs
$1,292,000	-	1st year
(-)$ 325,000	-	(initial equipment and activation costs)
$ 967,000	-	2nd year (exclusive pay increments and raises)

Alert/Warning upgrade: $8,000,000

Annual Operation/Maintenance; $ 385,000*

* in real '80 dollars

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEFENSE CIVIL PREPAREDNESS AGENCY
State House
Providence, R. I. 02903

June 4, 1980

Mr. Stephen J. McGrail, Director
Federal Emergency Management Agency
Region One
442 John W. McCormack Post Office & Courthouse
Boston, Massachusetts 02109

Dear Mr. McGrail:

This letter is in response to your wire P222020Z, May 1980, subject "Radiological Emergency Preparedness" as it pertains to off-site Nuclear Reactor Emergency Planning, equipment, training and exercising, in Rhode Island according to NUREG-0654/FEMA-REP-1.

Question 1A. There are no Commercial Power Reactor Plants in Rhode Island.

Question 1B. There are no Commercial Power Reactor Plants scheduled to become operational in the near future in Rhode Island.

Question 1C. Rhode Island's concern is related to the following three out of state Nuclear Reactor Commercial Power Plants whose relationship to Rhode Island is portrayed in Enclosure 1. Note that each of these plants will only effect Rhode Island, and its municipalities, with problems of their Ingestion Exposure Pathways.

Pilgrim Nuclear Power Plant
Plymouth, Massachusetts

Millstone Nuclear Power Plant
Waterford, Connecticut

Haddam Nuclear Power Plant
Haddam, Connecticut

As may be seen by Enclosure 1, most Rhode Island communities lie within the fifty mile EPZs, the possible Ingestion Exposure Pathways of all three plants. The time table for the local governments and the State of Rhode Island for the acquisition of necessary support equipment and materials, and the hiring and training, of the statewide concerned emergency services personnel is presently estimated as October 1981, provided the necessary funds are made available.

As no Rhode Island community lies within the ten mile Emergency Planning Zone (EPZ) of the possible Plume Exposure Pathways, this problem is not addressed. The nearest community is Westerly, Rhode Island, approximately eighteen miles from the Millstone Plant.

Question 1D. There are no known Commercial Power Reactor Plants scheduled to become operational, which will be located at sites other than those indicated by Enclosure 1, within fifty miles of Rhode Island.

Question 2A. No funds are necessary to prepare a plan for the problems of a ten mile EPZ, Plume Exposure Pathway in Rhode Island, or its cities and towns as no ten mile EPZ exists in Rhode Island.

The one time planning costs for the fifty mile EPZ, the Ingestion Exposure Pathway, is estimated for the: (1) State of Rhode Island as $600,000.00 and (2) for the involved municipalities of the state as $390,000.00, making a total of $990,000.00.

Question 2B. The annual cost of the maintenance of the plans, including exercises, is estimated as $60,000.00for the State of Rhode Island and as $40,000.00 for the combined municipalities, making a total of $100,000.00 annually.

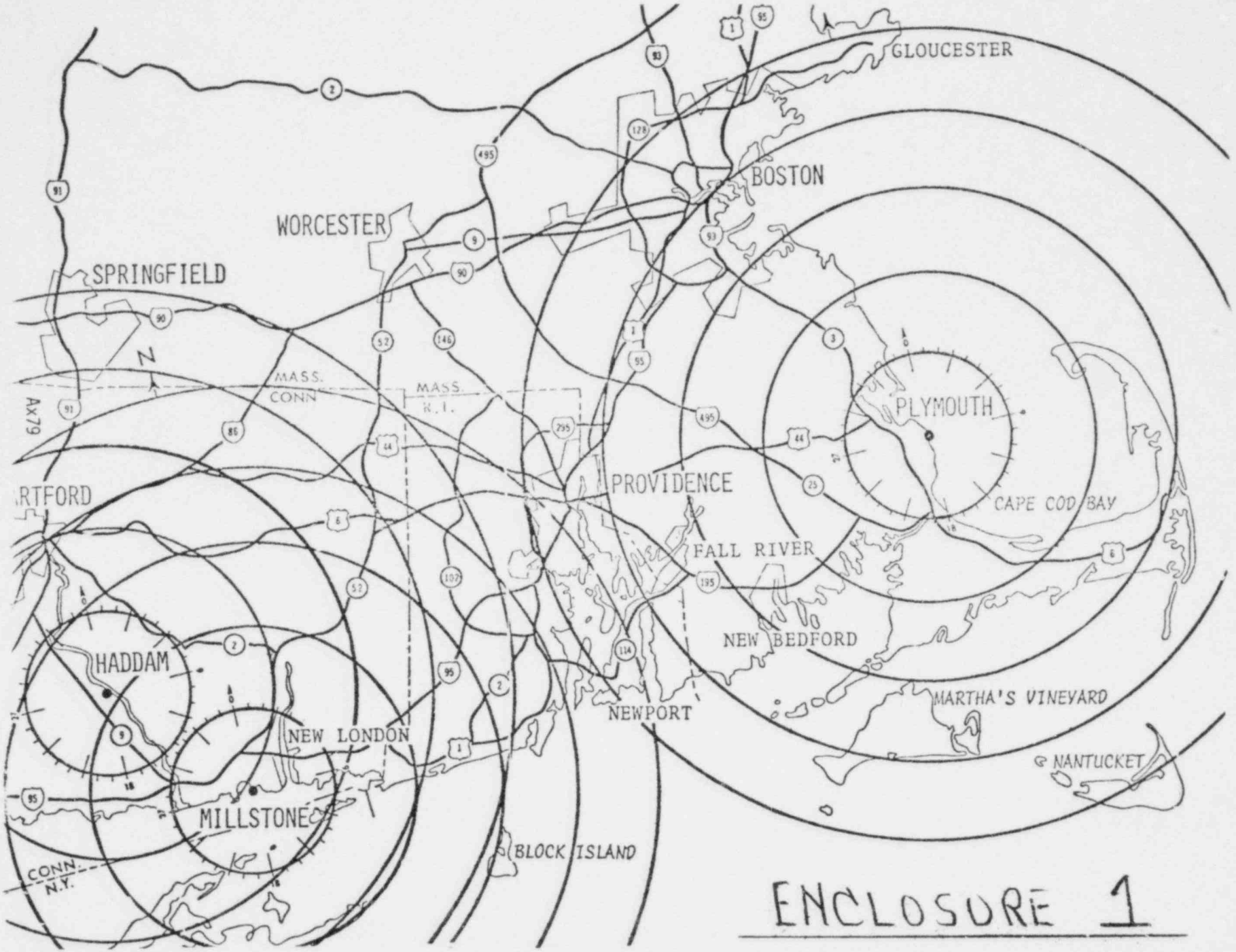
Question 3. No funds have been received, or are anticipated, from any involved nuclear facilities, nor has any other source of funds been identified.

Sincerely,

Santo Amato
Director

LFH:mma

Enclosure


GLOUCESTER
BOSTON
WORCESTER
SPRINGFIELD
MASS.
CONN
MASS.
R.I.
PLYMOUTH
PROVIDENCE
CAPE COD BAY
FALL RIVER
NEW BEDFORD
HADDAM
NEW LONDON
NEWPORT
MARTHA'S VINEYARD
NANTUCKET
MILLSTONE
BLOCK ISLAND
CONN.
N.Y.
AX79

ENCLOSURE 1

Emergency Preparedness Division
OFFICE OF THE ADJUTANT GENERAL OF SOUTH CAROLINA

Rutledge Building
1429 Senate Street
Columbia, South Carolina 29201

MG T. ESTON MARCHANT
The Adjutant General

BG
~~XXX~~. GEORGE R. WISE
Director

May 29, 1980

Mr. Frank Newton, Regional Director
Federal Emergency Management Agency
Region IV
Suite 664
1375 Peachtree Street, NE
Atlanta, Georgia 30309

Attn: Dr. Ray Boyette

Dear Mr. Newton:

1. Reference: FEMA Message Number RIV-0462, 23 May 1980 from the Regional Director.

2. GENERAL:

   A. South Carolina's report is predicated on meeting all criteria of NUREG-0654/FEMA-REP-1 with the exception of the fifteen (15) minute notification of the public within the 10 mile EPZs. This requirement cannot be currently met in any of the 10 mile EPZs of nuclear power facilities in South Carolina. Until such time as funds are made available to the state to achieve such capability, it is impossible to meet this criteria.

   B. Funds for RER planning to this date in South Carolina have been drawn from modification of the State NCP Contract (Crisis Relocation) and from State Personnel and Administration Funds. There have been no funds or other resources made available specifically for Fixed Nuclear Facility RER planning other than the above. This report considers only the expenditures of the EPD and counties and does not attempt to assess costs to other state and local government RER agencies for FNF Planning.

3. SPECIFIC:

   A. Paragraph 1.A.(1), Reference. Timetable for completion of Planning for Operating In-State Facilities.

(1) H. B. Robinson - November, 1980.
(2) Oconee - December, 1980.

B. Paragraph 1.A.(2), Reference. Timetable for completion of Planning for In-State Facilities coming on-line before 12/31/81.

(1) V. C. Summer - January-March, 1981.

C. Paragraph 1.A.(3), Reference. Timetable for Adjacent State Facilities Planning. (50 mile EPZ only.)

(1) South Port (Brunswick, N.C.) - August, 1980.
(2) The South Carolina State Operational RER Plan will provide for 50 mile EPZ Planning and Procedures for the Ingestion Pathway for all affected South Carolina Counties.

D. Paragraph 1.A.(4), Reference. Timetable for Adjacent State Facilities Planning for plants to come on-line by 12/31/81. (50 mile EPZ only.)

(1) MacGuire (N.C.) - August, 1980.
(2) Remarks 3.C.(2) above applies.

E. Paragraph 1.B.(1)(A) & (B). One time cost for each facility requiring 10 & 50 mile EPZ Planning.

(1) H. B. Robinson, Darlington County (Note: Prototype Facility).

STATE EPD		$67,000.00
Darlington County		14,000.00
Chesterfield County		14,000.00
Lee County		8,000.00
	Total	$103,000.00

(2) Oconee, Oconee County.

STATE EPD		$33,500.00
Oconee County		8,000.00
Pickens County		8,000.00
	Total	$49,500.00

(3) V. C. Summer, Fairfield County.

STATE EPD		$33,500.00
Fairfield County		7,000.00
Newberry County		6,000.00
Richland County		10,500.00
Lexington County		6,000.00
	Total	$63,000.00

(4) South Port (Brunswick, N.C.). The 50 mile EPZ Ingestion Pathway planning for South Carolina will be a part of the State Plan and will encompass all affected counties for monitoring, reporting, decontamination procedures on the state level supported by the Clemson Agricultural Extension Service, which maintains current agricultural data for all South Carolina counties. A cost is not assigned as this is incorporated in the overall plan.

(5) MacGuire, N.C. Remarks E(4) above applies.

(6) Grand total - One-time cost $215,500.00.

F. Paragraph 1.B.(2) (A) & (B), Reference. Costs per annum by state and local government for maintenance of plans to include exercise for each site.

(1) H. B. Robinson

STATE EPD		$15,250.00
Darlington County		2,500.00
Chesterfield County		2,500.00
Lee County		1,800.00
	Total	$22,050.00

(2) Oconee

STATE EPD		$ 8,000.00
Oconee County		1,800.00
Pickens County		1,800.00
	Total	$11,600.00

(3) V. C. Summer

STATE EPD		$14,000.00
Fairfield County		2,500.00
Newberry County		2,500.00
Richland County		2,500.00
Lexington County		2,500.00
	Total	$24,000.00

(4) South Port, N.C.

1 county at $300.00 per county	$ 300.00

(5) MacGuire, N.C.

4 counties at $300.00 per county	$ 1,200.00

(6) Grand total - Per annum maintenance costs $59,150.00

G. See Enclosure 1 for costs and timetable summations.

Sincerely,

ROSS B. MILLER
Deputy Director

RBM:PBM:ncs

Enclosure 1

NUCLEAR FACILITY RER REPORT
SOUTH CAROLINA

CURRENT OPERATING COMMERCIAL FACILITIES (PARA. 1.A, REFERENCE)

H. B. Robinson, Darlington County, S. C.

	Timetable for Completion	One-time Cost	Plans Maintenance (Include Exercises)	Comments
South Carolina	November 1980	$67,000.00	$15,250.00	-Prototype Facility
Darlington Co.	November 1980	14,000.00	2,500.00	-Five (5) Planners
Chesterfield Co.	November 1980	14,000.00	2,500.00	State Level EPD
Lee Co.	November 1980	8,000.00	1,800.00	-State and local RER
TOTALS		$103,000.00	$22,050.00	Agencies not considered.

Oconee, Oconee County, S. C. (Para. 1.A.(1), Reference)

South Carolina	December 1980	$33,500.00	$ 8,000.00	-Five Planners
Oconee Co.	December 1980	8,000.00	1,800.00	State Level EPD
Pickens Co.	December 1980	8,000.00	1,800.00	-State and local RER
TOTALS		$49,500.00	$11,600.00	Agencies not considered.

Power Reactors Comming On-Line (S.C.) by 12/31/81 (Para. 1.A.(2), Reference)

South Carolina	January 1981	$33,500.00	$14,000.00	-Five Planners
Fairfield Co.	January 1981	7,000.00	2,500.00	State Level EPD
Newberry Co.	January 1981	6,000.00	2,500.00	-State and local RER
Richland Co.	January 1981	10,500.00	2,500.00	Agencies not considered.
Lexington Co.	January 1981	6,000.00	2,500.00	
TOTALS		$63,000.00	$24,000.00	

GRAND TOTALS, THREE FACILITIES:	$215,500.00	$57,650.00	
		1,500.00	-Add for Counties in 50 mile EPZ from adjacent State Facilities
Total Maintenance - Per Annum		$59,150.00	

Ax84

Enclosure 1

COPY
STATE OF TENNESSEE

TO: FEMA IV Regional Director, Atlanta
FR: SCD Tennessee
BT
UNCLAS
Signed Eugene P. Tanner, State Director (DSD-0) June 2, 1980:
Refer to RIV-0462 Message.

1.A. (1) Sequoyah:
Plan Completed and Submitted to FEMA: June 30, 1980
Interim Response Operational Readiness: June 9, 1980
Eliminate Operational Deficiencies: September 30, 1981
New Criteria Operational Readiness: December 31, 1980

1.A. (2) Watts bar:
Plan Completed and Submitted to FEMA: September 30, 1980
Interim Response Operational Readiness: February 28, 1981
Eliminate Operational Deficiencies: September 30, 1981
New Criteria Operation Readiness: December 31, 1981

1.A. (3) Browns Ferry:
Plan completed and Submitted FEMA: June 30, 1980

1.A. (4) None by the December 31, 1981 date identified in TWX.
1.B. (1) (A)(B)(2)(A)(B): Requested information not presently available. Complete interim cost identification will be ready by mid-June and shared with FEMA-IV. Longer term costs for both Watts Bar and Sequoyah will be available by August 30, 1980.

1.C: TVA has reimbursed the state and local government as follows:
1. Under a separate contract the TVA has funded the preparation of a plan, training for State and local government personnel, and exercising of the plan.
2. TVA currently aguments Tennessee DPH, Division of Radiological Health staff with a fulltime TVA employee (Dianne Larsen).
3. No other funding has been provided State or local governments for the purposes of Radiological Emergency Planning or Operations Purposes.

DIVISION OF DISASTER EMERGENCY SERVICES

TEXAS DEPARTMENT OF PUBLIC SAFETY

5805 N. Lamar Blvd.
Box 4087
Austin, Texas 78773
512/452-0331, Ext. 2430

WILLIAM P. CLEMENTS, JR.
Governor

JAMES B. ADAMS
Director

FRANK T. COX
Coordinator

June 10, 1980

Mr. Dale Milford, Regional Director
Federal Emergency Management Agency
Region VI
Federal Center
Denton, Texas 76201

Dear Dale:

The Division of Disaster Emergency Services, Texas Department of Public Safety, as the agency charged by State law with planning for and coordination of all phases of emergency preparedness, response and recovery, has filed written objections to fifteen (15) major provisions of NUREG-0654. DES has voiced additional objections at three workshops which were either hosted by or attended by FEMA and/or NRC. DES has also concurred in the Petition for Rulemaking filed on behalf of Duke Power Company, Texas Utilities and Generating Company and Washington Public Power Supply System which raised additional questions about provisions of NUREG-0654. Finally, DES has requested clarification on numerous provisions contained in NUREG-0654 which could have vastly differing impacts depending on how they are interpreted by NRC/FEMA. To date, we have not received a single answer to any of our questions; nor have we received an indication that any of our objections are being considered by NRC or FEMA. It is therefore with considerable reservation that we respond to your request for estimated costs of complying with the provisions of NUREG-0654. Based on a document which is unacceptable as guidance, and which may or may not be modified and reissued as requirements; we can only guess at what the cost of plans as finally developed will be.

It is the opinion of this division that the State cost (one time) of developing response plans for the 10 and 50-mile EPZ's, based on NUREG-0654 in its present form, would be on the order of $96,300 for the first site and approximately another twenty (20) percent of that figure for each of the two additional sites in this state. This cost would be strictly for salary and benefits for state personnel involved and would exclude office space, equipment and supplies, travel and per diem, and any facilities and hardware which might be required.

June 10, 1980

Insofar as cost to local government is concerned, it is not practical to attempt to identify dollar expenses because of the wide variance from site to site. We do estimate, however, that local plan development (one time) would require approximately four man months for each involved local government. Twenty-four hour manning of communications links would require an additional two man years per local government. These are small communities and do not even have twenty-four police patrols; the only reason they would ever need twenty-four hour manning of communications links is to meet a NUREG requirement so the total cost for those additional personnel must be totally charged to FNF planning and response.

Cost of maintenance of plans at both the state and local levels would range from twenty (20) to thirty (30) percent of initial development costs, depending on final interpretation of the type and number of tests and exercises required by NUREG-0654.

Costs of facilities and equipment as indicated in NUREG-0654 could easily double other costs of plan development and maintenance at both state and local levels.

As we have stated in both written and verbal comments submitted to NRC and FEMA, Texas has received no funding from involved utilities and does not anticipate doing so. Emergency preparedness is the responsibility of government. If expenditures are necessary to protect the life and property of the citizenry, it is the constitutional and statutory responsibility of government to provide necessary funds. Any implication that individual nuclear utilities should be specifically required to pay part or all of the costs incurred by government in meeting its responsibilities would be inappropriate unless every chemical plant, banking institution or other commercial enterprise in the state is required to do likewise. Government services are provided to all segments of the commercial and private community; nuclear utilities should not have to pay a subscription fee to receive what is being provided to the remainder of the community at common expense.

Copies of the written comments submitted to FEMA and/or the NRC by this division, and a copy of the Petition for Rulemaking referenced above are submitted as an attachment to this letter. These attachments will illustrate the difficulties of identifying specific cost factors in fixed nuclear facility response planning and will further explain why this division does not feel that present guidance warrants devoting the time and effort necessary to develop a more exact estimate of costs based on criteria which hopefully will be extensively revised.

Sincerely,

for Robert A. Lonford

Frank T. Cox
State Coordinator

FTC:Bc

Attachments

Not Included

COMMONWEALTH of VIRGINIA

George L. Jones
State Coordinator

H. Kim Anderson
Deputy Coordinator

State Office of Emergency and Energy Services

310 Turner Road
Richmond, Virginia 23225
(804) 745-3305

June 4, 1980

Mr. Charles T. Johnson, Director
Region Three
Federal Emergency Management Agency
Curtis Building, Seventh Floor
Sixth and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Johnson:

The following information is provided in response to Message R-30028 signed Scarnecchia, RAC Chairman, dated May 23, 1980:

Question 1: What is your timetable (including that of involved local governments) to meet the new criteria for all commercial power reactor sites within your state?

a. The answer to all four parts of this question are the same. We believe it is essential that the State and all local government radiological emergency response plans be revised to meet the new criteria and published with the same effective date. When published, the Virginia Plan will meet the new criteria for operation of commercial power reactors in the State as well as in adjacent states and other fixed nuclear facilities within the State.

b. A draft of the State Plan revised to meet the new criteria will be provided to your headquarters for review on or before June 30, 1980. We anticipate that your review and our consideration of your comments can be accomplished by no later than September 1, 1980; and that the State Plan can be published and ready for distribution by October 15, 1980.

c. We will initiate revision of the eleven local government plans to be compatible with the revised draft State Plan on or before June 30, 1980. Assuming we will be permitted to use NCP Planners to assist with this work, we anticipate that a draft of the first revised local plan can be provided for your review by July 15, 1980; and that all of these local plans can be revised to incorporate your comments on the first revised local plan by October 1, 1980. Printing and distribution of these local plans will require approximately two weeks.

d. Based on the above, we anticipate that the revised State and local government plans required to support commercial nuclear power stations can become effective by October 15, 1980.

e. We also anticipate that local plans for jurisdictions within the Emergency Planning Zones of fixed nuclear facilities other than commercial nuclear power stations will be revised by December 31, 1980.

f. The operator of the two commercial nuclear power stations in the State (VEPCO) has indicated that their target date for providing improved communications and warning systems to meet the new criteria is January 1, 1981.

Question 2a:

One-time costs to meet new criteria:

a. State and local plan update - $30,000. This includes unfunded cost of a State Lead Planner for the period July 1 - December 31, 1980 plus miscellaneous costs of plan development, printing, and distribution. It does not include plan development costs through June 30, 1980, the cost of continued NCP- and P&A-funded planner and secretarial support, or the cost of State agency and local government staff assistance.

b. Improved communications and warning to meet the new criteria - $3,208,000. This is the facility operator's estimate of the one-time cost of providing improved communications and warning for the two in-State nuclear power stations. Systems design has not yet been completed.

Question 2b:

Estimated per annum cost of plans maintenance, exercises, and other recurring costs*:

a. State - $65,000

This includes salaries, office space, etc. for one Planner C, one Planner B, and .6 of a Clerk Stenographer to coordinate annual update of the State Plan; to assist eleven local governments with the annual update of their plans; to coordinate the development and conduct of an annual exercise to include a post-exercise critique and preparation of an after-action report; to coordinate a public education program and an annual training program for State agencies and local government staffs. It also includes cost of printing and distributing annual changes to the State Plan and State costs of conducting an annual exercise.

b. Eleven Local Governments - $2,500 Each

This includes the cost of printing annual changes to local plans and the communications, transportation, and miscellaneous costs of local government participation in the annual training exercise. It assumes that exercises will be conducted during normal duty hours and does not include overtime cost. The cost of these exercises could vary considerably based on the requirements of the FEMA-approved scenario.

c. Recurring Costs of Warning Systems Maintenance - No estimate of cost is available at this time. The facility operator plans to procure and install systems to meet the revised criteria and turn them over to the local governments for operation and maintenance.

* These estimates are based on current costs. An annual inflation factor should be applied to determine costs for subsequent years.

Question 3: What funding for State/local radiological emergency planning and preparedness have you or will you receive from the involved nuclear facility?

a. The facility operator is planning to provided improved communications and warning systems. However, when installed, the operator expects the local governments to assume responsibility for maintenance.

b. We have not received nor do we anticipate receiving any funds from the nuclear facility for maintenance of State and local government plans or exercises.

No State funds have been identified to continue this program beyond June 30, 1980. In a letter to Governor Dalton dated January 11, 1980, Mr. Macy indicated that the President had requested Congress to provide a supplemental appropriation which would be used by FEMA to support State hiring of professional planners to accomplish the work necessary to meet the revised criteria. This FEMA support is urgently needed at this time.

I trust the above information is responsive to your needs. If you have additional questions, please call Ernie King or Hank Allard of our Plans Division at (804) 745-0760.

Sincerely,

George L. Jones

GLJ/ESK/jgl

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF EMERGENCY SERVICES
4220 E. Martin Way, Olympia, Washington 98504 206/753-5255

Edward Chow, Jr., Director

June 4, 1980

Mr. Neale V. Chaney, Regional Director
Federal Emergency Management Agency
Federal Regional Center
Region X
Bothell, Washington 98011

RE: Your letter dated May 23, 1980

SUBJ: Report to the President on the status of radiological emergency preparedness

Dear Mr. Chaney:

The referenced letter requests answers to three specific questions concerning the development of Washington State's Radiological Emergency Plan for Fixed Nuclear Facilities. Attached are the answers to your questions.

Sincerely,

Edward Chow, Jr.
Director

EC:cw

Radiological Emergency Preparedness

Question 1

a. At this time there are no commercial plants operating in Washington State.

b. At this time there are no commercial power reactor sites scheduled to become operational in the near future (12/31/81) within Washington State.

c. Our timetable for the submittal of a plan to federal authorities is August 15, 1980, with review and preparation for a major exercise by October 1, 1980. We anticipate receiving the necessary approvals by January 1, 1981.

d. At this time there are no commercial power reactor sites in adjacent states scheduled to become operational in the near future. (12/31/81)

Question 2

a. State: Estimated cost for each site is approximately $100,000.00. (Trojan, Hanford, and Satsop)

Each involved local governments: The cost to meet the interim local criteria for each site which requires 10 EPZ has been determined to be approximately $141,000.00 for each involved local government. At this time there are no figures available for the 50 EPZ.

b. State: Estimated maintenance and other cost per site is approximately $50,000.00.

Each involved local government: Estimated maintenance and other costs to local governments has been determined to be approximately $30,000.00.

Question 3

a Operating Nuclear Utility

Portland General Electric - Trojan (in thousands)

	committed	proposed
	1980	1981
State	14,200	63,000
Local	116,000	20,000

b Other utilities under construction

	committed	proposed
State	1980	1981
WPPSS #2	10,143	44,366
WPPSS #1&4	4,057	17,746
WPPSS #3&5	8,114	35,000
Puget Power	4,057	17,746

	committed		proposed
Local	1980		1981
aggregate	16,250	Benton-Franklin area	41,350
		Grays Harbor area	9,600

STATE OF WEST VIRGINIA

RTRA WVIR 123 REGB

863 06/10/0 17197

DE WVIR 16217007
R 01017007 JUNE 80
FM DIR STATE CIVIL PREP CHARLESTON WV
TO REGR/FEMA RGN III OLNEY MD
BT
UNCLAS ATTN- PALMER SCARNECCHIA, FEMA RGN III RAC CHAIRMAN
SUBJECT- REPORT TO THE PRESIDENT ON REP
YOUR 231955Z MAY 80
THE STATE OF WEST VIRGINIA AND HANCOCK COUNTY, WV, PROJECT THE FOLLOWING TIMETABLE AND COST ESTIMATES FOR REP WITH REGARD TO THE BEAVER VALLEY POWER SITE, SHIPPINGPORT,PA.
QUESTION 1.
A. NOT APPLICABLE
B. NOT APPLICABLE
C. BOTH THE HANCOCK COUNTY AND WEST VIRGINIA REPS WILL BE SUBMITTED TO THE RAC BY AUGUST ', 1980.
D. NOT APPLICABLE
QUESTION 2.
A. (1) $22,000
   (2) $2,000
B. (1) $3,000
   (2) $1,000
QUESTION 3.
DUQUESNE LIGHT COMPANY HAS PROVIDED THE SERVICES OF NUS CORPORATION TO ASSIST IN THE DEVELOPMENT OF STATE AND COUNTY REPS. IN ADDITION, THEY ARE WORKING ON THE ESTABLISHMENT OF A NOTIFICATION SYSTEM FOR THE RESIDENTS OF HANCOCK COUNTY RESIDING WITHIN 10 MILES OF THE FACILITY, AND A COMMUNICATIONS SYSTEM WHICH WILL PROVIDE SUITABLE CONTACT BETWEEN THE FACILITY AND HANCOCK COUNTY OES.
BT

State of Wisconsin \ DEPARTMENT OF LOCAL AFFAIRS & DEVELOPMENT

Lee Sherman Dreyfus
Governor

Bruce A. Hendrickson
Secretary

DIVISION OF EMERGENCY GOVERNMENT
4802 SHEBOYGAN AVENUE
MADISON, WISCONSIN 53702
(608) 266-3232

28 May 1980

Mr. Patrick H. McCollough, Director
Plans & Preparedness Division
FEMA Region V, Federal Center
Battle Creek, Michigan 49016

Dear Mr. McCollough:

In reply to your teletype message RV-0066, May 23, 1-80, Ref: EMO, Wisconsin provides the following answers to questions contained therein:

1A. Wisconsin Radiological Emergency Response Plan (RERP) is currently being updated to include the provisions of NUREG-0654 FEMA-REP-1. Power plant planning for the 3 Wisconsin plants (Dairyland Cooperative at Genoa, Vernon County, Kewaunee Nuclear Power Plant at Kewaunee, Kewaunee County and Point Beach Nuclear Power Plant at Two Creeks, Manitowoc County) is being updated in accordance with NUREG-0654 FEMA REP-1. This will be reflected in the State RERP which will be forwarded to your office before 30 June 1980.

1B. No new nuclear plants are scheduled to be operational in Wisconsin by 12/31/81.

1C. Prairie Island Nuclear Power Plant, Red Wing, Minnesota and Zion Nuclear Power Plant, Zion, Illinois affect counties in Wisconsin. The Pierce County and Dunn County plans (affected by Prairie Island) have been completed and are included in the State RERP. Final revision to these plans will be accomplished by 30 June 1980. The Zion Nuclear Power Plant plan affecting Kenosha, Racine and Walworth Counties in Wisconsin is being reviewed at this time. Anticipate RAC review and submission prior to 30 June 1980.

1D. Information available to this Division at this time indicates no new reactor sites are scheduled to become operational in states adjoining Wisconsin by 12/31/81.

2A(1) State costs to this point in time are estimated below:

NCP Contract personnel (6 months time)	$37,000
Director-Bureau Civil Preparedness (6 months time)	15,000
4 Area Directors-each local plant (3 months time)	22,000
DEG Administrative time (part-time)	10,000
Health & Social Services-Radiation Protection Section (4 months time)	10,000
Other State Agencies-State Patrol, Highway, Social Services, etc.	6,000
	$100,000

2A(2) Although it is difficult to estimate actual local costs expended without much detailed research, we are providing an estimate based on the the following formula:

Local involved services: Emergency Government Director, Law Enforcement, Fire & Rescue, Health & Medical, Social Services and Highway. 6 functions @ 40 hours each X $12 per hour (est.) 40 hours X $12 = $480 X 6 — $ 2,880 per affected county

($12 per hour includes administrative costs)

$2,880 X 8 counties (affected by 5 nuclear power plants) — $ 23,040

2B(1) One-fourth (1/4) of amount shown in 2A(1) above* — $ 25,000

2B(2) One-fourth (1/4) of amount shown in 2A(2) above* — $ 5,760

*Based on estimate staff requirements

3. State and local emergency planning to date has received no funds from any of the nuclear utilities. However, we call your attention to a letter from this Division to the FEMA Regional Director dated 14 May 1980 requesting guidelines on assessment of costs for plan development against utilities. Cost estimates are tentative. If the plan updates and required yearly exercises continue to increase in complexity, the cost estimates may have to be revised upward. To date we have received no answer to this request.

Sincerely,

Michael P. Early
Administrator

MPE:MS:s

Appendix B

Status of Radiological Emergency
Preparedness Plans

This Appendix lists titles and dates of the latest available plans for each State or locality within the plume exposure Emergency Planning Zone of all operating nuclear power plants. It also lists proposed dates for revision of the plan where available.

Note that many of the plans are actually current drafts of existing State plans. This is indicative of the intense effort put forth over the last few months by the States and the localities to further improve their radiological emergency preparedness posture.

APPENDIX B

JUN 20, 1980

STATUS OF RADIOLOGICAL EMERGENCY PREPAREDNESS PLANS

NOTE: An "*" after a scheduled completion indicates that the revised plan has been received by the region for review.

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN ALABAMA

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
ALABAMA (BELLEFONTE (UC))	9/1/79 CHANGE TO 6/72 ANNEX B TO RADIATION EMERGENCY PLAN	8/31/80
JACKSON CO (BELLEFONTE (UC))		
ALABAMA (BROWNS FERRY)	9/1/79 CHANGE TO 6/72 ANNEX B TO RADIATION EMERGENCY PLAN	8/31/80
LIMESTONE CO (BROWNS FERRY)	9/1/79 ANNEX B TO RADIATION EMERGENCY PLAN, TAB E2	8/31/80
LAWRENCE CO (BROWNS FERRY)	9/1/79 ANNEX B TO RADIATION EMERGENCY PLAN, TAB E3	8/31/80
MORGAN CO (BROWNS FERRY)	9/1/79 ANNEX B TO RADIATION EMERGENCY PLAN, TAB E1	8/31/80
LAUDERDALE CO (BROWNS FERRY)		8/31/80
ALABAMA (FARLEY)	9/1/79 CHANGE TO 6/72 ANNEX B TO RADIATION EMERGENCY PLAN	8/31/80
HOUSTON CO (FARLEY)	9/1/79 ANNEX B TO RADIATION EMERGENCY PLAN, TAB E4	8/31/80
HENRY CO (FARLEY)	9/1/79 ANNEX B TO RADIATION EMERGENCY PLAN, TAB E5	8/31/80
ALABAMA (YELLOW CREEK (UC))	9/1/79 CHANGE TO 6/72 ANNEX B TO RADIATION EMERGENCY PLAN	8/31/80
LAUDERDALE CO (YELLOW CREEK (UC))		
COLBERT CO (YELLOW CREEK (UC))		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN ARKANSAS

FEMA REGION 6 (NRC REGION 4)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
ARKANSAS (ARKANSAS)	12/79 CHANGE TO 4/77 RADIOLOGICAL INCIDENT EMERGENCY RESPONSE PLAN (ANNEX Q)	7/15/80
POPE CO (ARKANSAS)	5/80 (DRAFT) POPE COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/15/80
JOHNSON CO (ARKANSAS)	5/80 (DRAFT) JOHNSON COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/15/80
LOGAN CO (ARKANSAS)	5/80 (DRAFT) LOGAN COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/15/80
YELL CO (ARKANSAS)	UNDATED (DRAFT) YELL COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/15/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN CALIFORNIA

FEMA REGION 9 (NRC REGION 5)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
CALIFORNIA (DIABLO CANYON (UC))	8/78 CHANGE TO 7/75 NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	10/15/80
SAN LUIS OBISPO (DIABLO CANYON (UC))	3/77 SAN LUIS OBISPO COUNTY NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	1/1/81
CALIFORNIA (HUMBOLDT BAY)	8/78 CHANGE TO 7/75 NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	10/15/80
HUMBOLDT CO (HUMBOLDT BAY)	3/9/76 CO. OF HUMBOLDT CONTINGENCY PLAN	1/1/81
CALIFORNIA (RANCHO SECO)	8/78 CHANGE TO 7/75 NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	10/15/80
SACRAMENTO CO (RANCHO SECO)	4/79 CHANGE TO 11/76 SACRAMENTO COUNTY NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	1/1/81
AMADOR CO (RANCHO SECO)		
SAN JOAQUIN CO (RANCHO SECO)		
CALAVERAS CO (I) (RANCHO SECO)		
CALIFORNIA (SAN ONOFRE)	8/78 CHANGE TO 7/75 NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	10/15/80
ORANGE CO (SAN ONOFRE)	10/75 ORANGE COUNTY EMERGENCY RESPONSE PLAN (SAN ONOFRE)	1/1/81
SAN DIEGO CO (SAN ONOFRE)	7/75 UNIFIED SAN DIEGO COUNTY NUCLEAR POWER PLANT EMERGENCY RESPONSE PLAN	1/1/81

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN COLORADO

FEMA REGION 8 (NRC REGION 4)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
COLORADO (FORT ST VRAIN)	4/80 (DRAFT) STATE RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR FT. ST. VRAIN (UPDATED 6/80)	PENDING *
WELD CO (FORT ST VRAIN)	5/80 (DRAFT) WELD COUNTY EMERGENCY OPERATIONS PLAN, ANNEX S, "RERP FOR FT. ST. VRAIN"	PENDING
BOULDER CO (FORT ST VRAIN)		
LARIMER CO (FORT ST VRAIN)		
FORT LUPTON (FORT ST VRAIN)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN CONNECTICUT

FEMA REGION 1 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
CONNECTICUT (CONNECTICUT YANKEE)	3/78 CHANGE TO 3/77 ANNEX V TO STATE EMER. OPNS. PLAN (INCLUDES CHESTER THRU PORTLAND, AND LYME LISTED BELOW)	PENDING
CHESTER (CONNECTICUT YANKEE)		
COLCHESTER (CONNECTICUT YANKEE)		
DEEP RIVER (CONNECTICUT YANKEE)		
DURHAM (CONNECTICUT YANKEE)		
EAST HADDAM (CONNECTICUT YANKEE)		
EAST HAMPTON (CONNECTICUT YANKEE)		
HADDAM (CONNECTICUT YANKEE)		
KILLINGWORTH (CONNECTICUT YANKEE)		
MARLBOROUGH (CONNECTICUT YANKEE)		
MIDDLETOWN (CONNECTICUT YANKEE)		
PORTLAND (CONNECTICUT YANKEE)		
HEBRON (CONNECTICUT YANKEE)		9/2/80
ESSEX (CONNECTICUT YANKEE)		9/2/80
WESTBROOK (CONNECTICUT YANKEE)		9/2/80
CLINTON (CONNECTICUT YANKEE)		9/2/80
MADISON (CONNECTICUT YANKEE)		9/2/80
MIDDLEFIELD (CONNECTICUT YANKEE)		9/2/80
LYME (CONNECTICUT YANKEE)		
SALEM (CONNECTICUT YANKEE)		9/2/80
CONNECTICUT (MILLSTONE)	3/78 CHANGE TO 3/77 ANNEx V TO STATE E.O.P. (INCLUDES NEW LONDON THRU EAST LYME AND LYME LISTED BELOW)	PENDING
NEW LONDON (MILLSTONE)		
WATERFORD (MILLSTONE)		
EAST LYME (MILLSTONE)		
OLD LYME (MILLSTONE)		9/2/80
LYME (MILLSTONE)		
SALEM (MILLSTONE)		9/2/80
MONTVILLE (MILLSTONE)		9/2/80
LEDYARD (MILLSTONE)		9/2/80
GROTON (MILLSTONE)		9/2/80
OLD SAYBROOK (MILLSTONE)		9/2/80
STONINGTON (MILLSTONE)		9/2/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN DELAWARE

FEMA REGION 3 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
DELAWARE (SALEM)	5/1978 (DRAFT) DELAWARE RADIOLOGICAL EMERGENCY PLAN	PENDING *
NEW CASTLE CO (SALEM)		8/1/80
KENT CO (SALEM)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN FLORIDA

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
FLORIDA (CRYSTAL RIVER)	4/79 RADIATION EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	8/31/80
CITRUS CO (CRYSTAL RIVER)	4/79 EMERGENCY RESPONSE PLAN FOR RADIATION RELEASE	6/30/80
LEVY CO (CRYSTAL RIVER)	4/79 EMERGENCY EVACUATION PLAN FOR RADIATION RELEASE	6/30/80
FLORIDA (ST LUCIE)	4/79 RADIATION EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	8/31/80
ST LUCIE CO (ST LUCIE)	4/79 RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	6/30/80
MARTIN CO (ST LUCIE)	4/79 EMERGENCY EVACUATION PLAN FOR RAD. RELEASE	6/30/80
FLORIDA (TURKEY POINT)	4/79 RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	8/31/80
DADE CO (TURKEY POINT)	4/79 EMERGENCY RESPONSE PLAN FOR OFF-SITE RADIATION RELEASE	8/31/80
MONROE CO (TURKEY POINT)		8/31/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN GEORGIA

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN	
GEORGIA (FARLEY)	5/4/79 RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
EARLY CO (FARLEY)	5/4/79 ANNEX B TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
GEORGIA (HATCH)	5/4/79 RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
APPLING CO (HATCH)	5/4/79 ANNEX A TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
TOOMBS CO (HATCH)	5/4/79 ANNEX A TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
MONTGOMERY CO (HATCH)	5/4/79 ANNEX A TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	PENDING	
JEFF DAVIS CO (HATCH)	5/4/79 ANNEX A TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
TATTNALL CO (HATCH)	5/4/79 ANNEX A TO RADIOLOGICAL EMERGENCY PLAN FOR FIXED NUCLEAR FACILITIES	5/31/80	*
GEORGIA (VOGTLE (UC))	5/4/79 EMERGENCY & DISASTER OPERATIONS PLAN	5/31/80	*
BURKE CO (VOGTLE (UC))			

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN ILLINOIS

FEMA REGION 5 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
ILLINOIS (DRESDEN)	MAY 1980 (DRAFT) ILLINOIS PLANNING FOR RADIOLOGICAL AGENCIES VOLUME I	PENDING
GRUNDY CO (DRESDEN)	MAY 1980 (DRAFT) VOLUME II CHAPTER 6, GRUNDY COUNTY, OF STATE PLAN	PENDING
KENDALL CO (DRESDEN)	MAY 1980 (DRAFT) VOLUME II CHAPTER 8, KENDALL COUNTY, OF STATE PLAN	PENDING
WILL CO (DRESDEN)	MAY 1980 (DRAFT) VOLUME III CHAPTER 12, WILL COUNTY, OF STATE PLAN	PENDING
KANKAKEE CO (DRESDEN)		
ILLINOIS (LASALLE (UC))	MAY 1980 (DRAFT) ILLINOIS PLANNING FOR RADIOLOGICAL AGENCIES VOLUME I	PENDING
LASALLE CO (LASALLE (UC))		
ILLINOIS (QUAD CITIES)	MAY 1980 (DRAFT) ILLINOIS PLANNING FOR RADIOLOGICAL AGENCIES VOLUME I	PENDING
ROCK ISLAND CO (QUAD CITIES)		
WHITESIDE CO (QUAD CITIES)		
HENRY CO (QUAD CITIES)		
ILLINOIS (ZION)	MAY 1980 (DRAFT) ILLINOIS PLANNING FOR RADIOLOGICAL AGENCIES VOLUME I	PENDING
LAKE CO (ZION)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN IOWA

FEMA REGION 7 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
IOWA (DUANE ARNOLD)	4/80 (DRAFT) CHANGE TO 3/77 ANNEX F TO IOWA EMERGENCY PLAN (INCLUDES ALL COUNTY PLANS)	PENDING *
LINN CO (DUANE ARNOLD)		9/1/80
BENTON CO (DUANE ARNOLD)		9/1/80
IOWA (FORT CALHOUN)	4/80 (DRAFT) CHANGE TO 3/77 ANNEX F TO IOWA EMERGENCY PLAN (INCLUDES ALL COUNTY PLANS)	PENDING *
HARRISON CO (FORT CALHOUN)		9/1/80
POTTAWAMI CO (FORT CALHOUN)		9/1/80
IOWA (LA CROSSE)	4/80 (DRAFT) CHANGE TO 3/77 ANNEX F TO IOWA EMERGENCY PLAN (INCLUDES ALL COUNTY PLANS)	PENDING *
ALLAMKEE CO (LA CROSSE)		9/1/80
IOWA (QUAD CITIES)	4/80 (DRAFT) CHANGE TO 3/77 IOWA EMERGENCY PLAN (INCLUDES ALL COUNTY PLANS)	PENDING *
CLINTON CO (QUAD CITIES)		9/1/80
SCOTT CO (QUAD CITIES)		9/1/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MAINE

FEMA REGION 1 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MAINE (MAINE YANKEE)	12/18/79 (DRAFT) RADIOLOGICAL INCIDENT PLAN	PENDING
ARROWSIC (MAINE YANKEE)	12/18/79 (DRAFT) SECTION IX OF STATE RADIOLOGICAL INCIDENT PLAN (INCLUDES ALL "MAINE YANKEE" TOWNS)	PENDING
GEORGETOWN (MAINE YANKEE)		
PHIPPSBURG (MAINE YANKEE)		
WEST BATH (MAINE YANKEE)		
BATH (MAINE YANKEE)		
BOWDOINHAM (MAINE YANKEE)		
WOOLWICH (MAINE YANKEE)		
BRUNSWICK (MAINE YANKEE)		
ALNA (MAINE YANKEE)		
BOOTHBAY (MAINE YANKEE)		
BOOTHBAY HARBOR (MAINE YANKEE)		
BRISTOL (MAINE YANKEE)		
DAMARISCOTTA (MAINE YANKEE)		
DRESDEN (MAINE YANKEE)		
EDGECOMB (MAINE YANKEE)		
NEW CASTLE (MAINE YANKEE)		
SOUTH BRISTOL (MAINE YANKEE)		
SOUTHPORT (MAINE YANKEE)		
WESTPORT (MAINE YANKEE)		
WISCASSET (MAINE YANKEE)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MARYLAND

FEMA REGION 3 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MARYLAND (CALVERT CLIFFS)	3/3/80 MARYLAND DISASTER ASSISTANCE PLAN, ANNEX Q, RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/1/80
CALVERT CO (CALVERT CLIFFS)	3/3/80 MARYLAND DISASTER ASSISTANCE PLAN, APPENDIX 1 TO ANNEX Q, RERP	7/1/80
ST MARYS CO (CALVERT CLIFFS)	3/3/80 MARYLAND DISASTER ASSISTANCE PLAN, APPENDIX 1 TO ANNEX Q, RERP	PENDING
DORCHESTER CO (CALVERT CLIFFS)	3/3/80 MARYLAND DISASTER ASSISTANCE PLAN, APPENDIX 1 TO ANNEX Q, RERP	PENDING
MARYLAND (PEACH BOTTOM)		6/30/80
CECIL CO (PEACH BOTTOM)		6/30/80
HARFORD CO (PEACH BOTTOM)		6/30/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MASSACHUSETTS

FEMA REGION 1 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MASSACHUSETTS (PILGRIM)	12/18/79 COMPREHENSIVE EMERGENCY RESPONSE PLAN, APPENDIX 3 (RERP FOR FIXED NUCLEAR FACILITIES)	PENDING
BOURNE (PILGRIM)	12/18/79 APPENDIX 3, SECTION C TO COMPREHENSIVE EMERGENCY RESPONSE PLAN (INCLUDES ALL "PILGRIM" TOWNS)	PENDING
CARVER (PILGRIM)		
DUXBURY (PILGRIM)		
HANOVER (PILGRIM)		
KINGSTON (PILGRIM)		
LAKEVILLE (PILGRIM)		
MARSHFIELD (PILGRIM)		
MIDDLEBOROUGH (PILGRIM)		
PLYMPTON (PILGRIM)		
WAREHAM (PILGRIM)		
BRIDGEWATER (PILGRIM)		
PLYMOUTH (PILGRIM)		
MASSACHUSETTS (VERMONT YANKEE)	12/18/79 COMPREHENSIVE EMERGENCY RESPONSE PLAN, APPENDIX 3 (RERP FOR FIXED NUCLEAR FACILITIES)	PENDING
BERNARDSTON (VERMONT YANKEE)	12/18/79 APPENDIX 3, SECTION E TO COMPREHENSIVE EMERGENCY RESPONSE PLAN (INCLUDES ALL "VERMONT YANKEE" TOWNS)	PENDING
COLRAIN (VERMONT YANKEE)		
GILL (VERMONT YANKEE)		
GREENFIELD (VERMONT YANKEE)		
LEYDEN (VERMONT YANKEE)		
NORTHFIELD (VERMONT YANKEE)		
WARWICK (VERMONT YANKEE)		
MASSACHUSETTS (YANKEE-ROWE)	12/18/79 COMPREHENSIVE EMERGENCY RESPONSE PLAN, APPENDIX 3 (RERP FOR FIXED NUCLEAR FACILITIES)	PENDING
BUCKLAND (YANKEE-ROWE)	12/18/79 APPENDIX 3, SECTION D TO COMPREHENSIVE EMERGENCY RESPONSE PLAN (INCLUDES ALL "YANKEE-ROWE" TOWNS)	PENDING
CHARLEMONT (YANKEE-ROWE)		
CLARKSBURG (YANKEE-ROWE)		
COLRAIN (YANKEE-ROWE)		
FLORIDA (YANKEE-ROWE)		
HAWLEY (YANKEE-ROWE)		
HEATH (YANKEE-ROWE)		
MONROE (YANKEE-ROWE)		
NO. ADAMS (YANKEE-ROWE)		
SAVOY (YANKEE-ROWE)		
ROWE (YANKEE-ROWE)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MICHIGAN

FEMA REGION 5 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MICHIGAN (BIG ROCK POINT)	4/80 (DRAFT) NUCLEAR EMERGENCY PREPAREDNESS PLAN, VOLUMES 1-4, DIVISION OF RADIOLOGICAL HEALTH (DRH)	PENDING
CHARLEVOIX CO (BIG ROCK POINT)	4/80 (DRAFT) CHARLEVOIX COUNTY VOLUME 2, DRH, BIG ROCK POINT, TAB J-1 THRU J-7, *EPZ*	PENDING
EMMET CO (BIG ROCK POINT)		
ANTRIM CO (BIG ROCK POINT)		
MICHIGAN (D. C. COOK)	4/80 (DRAFT) NUCLEAR EMERGENCY PREPAREDNESS PLAN, VOLUMES 1-4, DIVISION OF RADIOLOGICAL HEALTH (DRH)	PENDING
BERRIEN CO (D. C. COOK)	4/80 (DRAFT) BERRIEN COUNTY VOLUME 3, DRH, D.C.COOK, TAB K-1 THRU K-7, *EPZ*	PENDING
MICHIGAN (PALISADES)	4/80 (DRAFT) NUCLEAR EMERGENCY PREPAREDNESS PLAN, VOLUMES 1-4, DIVISION OF RADIOLOGICAL HEALTH (DRH)	PENDING
VAN BUREN CO (PALISADES)	4/80 (DRAFT) VAN BUREN COUNTY VOLUME 4, DRH, PALISADES, TAB L-1 THRU L-7, *EPZ*	PENDING
ALLEGAN CO (PALISADES)		
BERRIEN CO (PALISADES)	7/1/79 BERRIEN COUNTY EMERGENCY OPERATIONS PLAN	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MINNESOTA

FEMA REGION 5 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MINNESOTA (LA CROSSE)	1/15/80 MINNESOTA NUCLEAR POWER PLANT EMERGENCY PLAN	PENDING
HOUSTON CO (LA CROSSE)	1/15/80 STATE NUCLEAR POWER PLANT EMERGENCY PLAN (INTEGRAL PART)	PENDING
MINNESOTA (MONTICELLO)	1/15/80 NUCLEAR POWER PLANT EMERGENCY PLAN	PENDING
ANOKA CO (MONTICELLO)		
WRIGHT CO (MONTICELLO)	1/15/80 CD CHECKLIST FOR WRIGHT COUNTY (STATE NUCLEAR POWER PLANT EMERGENCY PLAN)	PENDING
SHERBURNE CO (MONTICELLO)	1/15/80 CD CHECKLIST FOR SHERBURNE COUNTY (STATE NUCLEAR POWER PLANT EMERGENCY PLAN)	PENDING
HENNEPIN CO (MONTICELLO)		
MINNESOTA (PRAIRIE ISLAND)	1/15/80 MINNESOTA NUCLEAR POWER PLANT EMERGENCY PLAN	PENDING
DAKOTA CO (PRAIRIE ISLAND)	1/15/80 STATE NUCLEAR POWER PLANT EMERGENCY PLAN (INTEGRAL PART)	PENDING
GOODHUE CO (PRAIRIE ISLAND)	1/15/80 STATE NUCLEAR POWER PLANT EMERGENCY PLAN (INTEGRAL PART)	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN MISSOURI

FEMA REGION 7 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
MISSOURI (COOPER STATION)	5/80 CHANGE TO 3/74 INTERIM NUCLEAR ACCIDENT PLAN	PENDING
ATCHISON CO (COOPER STATION)	10/79 NUCLEAR EMERGENCY RESPONSE PLAN	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN NEBRASKA

FEMA REGION 7 (NRC REGION 4)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
NEBRASKA (COOPER STATION)	7/79 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR NUCLEAR POWER PLANT INCIDENTS	PENDING
NEMAHA CO (COOPER STATION)	11/79 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR NUCLEAR POWER PLANT INCIDENTS	PENDING
NEBRASKA (FORT CALHOUN)	7/79 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR NUCLEAR POWER PLANT INCIDENTS	PENDING
WASHINGTON CO (FORT CALHOUN)	8/79 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR NUCLEAR POWER PLANT INCIDENTS	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN NEW HAMPSHIRE

FEMA REGION 1 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
NEW HAMPSHIRE (VERMONT YANKEE)	4/21/80 STATE EMERGENCY PLAN, ANNEX R - RADIOLOGICAL EMERGENCY RESPONSE	PENDING *
CHESTERFIELD (VERMONT YANKEE)		12/1/80
HINSDALE (VERMONT YANKEE)	4/21/80 STATE EMERGENCY PLAN, ANNEX R - RADIOLOGICAL EMERGENCY RESPONSE	PENDING *
RICHMOND (VERMONT YANKEE)		12/1/80
SWANZEY (VERMONT YANKEE)		12/1/80
WINCHESTER (VERMONT YANKEE)		12/1/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN NEW JERSEY

FEMA REGION 2 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
NEW JERSEY (OYSTER CREEK)	6/80 (DRAFT) RADIOLOGICAL RESPONSE PLAN FOR NUCLEAR POWER PLANT	PENDING
OCEAN CO (OYSTER CREEK)	6/80 (DRAFT) APPENDIX 5 TO ANNEX G TO STATE RERP - OYSTER CREEK PUBLIC RESPONSE PLAN - OCEAN COUNYY	PENDING
NEW JERSEY (SALEM)	6/80 (DRAFT) RADIOLOGICAL RESPONSE PLAN FOR NUCLEAR POWER PLANTS	PENDING
SALEM CO (SALEM)	6/80 (DRAFT) APPENDIX 4 TO ANNEX F TO STATE RERP - ARTIFICIAL ISLAND PUBLIC RESPONSE PLAN - SALEM COUNTY	PENDING
CUMBERLAND CO (SALEM)	6/80 (DRAFT) APPENDIX 5 TO ANNEX F TO STATE RERP - ARTIFICIAL ISLAND PUBLIC RESPONSE PLAN - CUMBERLAND COUNTY	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN NEW YORK

FEMA REGION 2 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
NEW YORK (FITZPATRICK)		
OSWEGO CO (FITZPATRICK)		
NEW YORK (GINNA)	12/78 CHANGE TO 9/77 EMERGENCY PLAN FOR RADIATION ACCIDENTS	9/1/80
WAYNE CO (GINNA)	6/80 (DRAFT) WAYNE COUNTY EMERGENCY PLAN FOR RADIATION ACCIDENTS	9/1/80
MONROE CO (GINNA)	6/80 (DRAFT) MONROE COUNTY EMERGENCY PLAN FOR RADIATION ACCIDENTS	9/1/80
NEW YORK (INDIAN POINT)	12/78 CHANGE TO 9/77 EMERGENCY PLAN FOR RADIATION ACCIDENTS	9/1/80
WESTCHESTER CO (INDIAN POINT)	6/80 (DRAFT) WESTCHESTER COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR RADIATION ACCIDENTS	PENDING
ROCKLAND CO (INDIAN POINT)		
ORANGE CO (INDIAN POINT)	6/80 (DRAFT) ORANGE COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR RADIATION ACCIDENTS	PENDING
PUTNAM CO (INDIAN POINT)	6/80 (DRAFT) PUTNAM COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR RADIATION ACCIDENTS	PENDING
NEW YORK (NINE MILE POINT)	12/78 CHANGE TO 9/77 EMERGENCY PLAN FOR RADIATION ACCIDENTS	9/1/80
OSWEGO CO (NINE MILE POINT)	6/80 (DRAFT) OSWEGO COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR RADIATION ACCIDENDTS	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN NORTH CAROLINA

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
NORTH CAROLINA (BRUNSWICK)	10/11/79 CHANGE TO 1/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR FIXED NUCLEAR FACILITIES - ANNEX A	7/31/80
BRUNSWICK CO (BRUNSWICK)		
NEW HANOVER CO (BRUNSWICK)		
NORTH CAROLINA (CATAWBA (UC))	10/11/79 CHANGE TO 1/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/31/80
MECKLENBERG CO (CATAWBA (UC))		
GASTON CO (CATAWBA (UC))		
NORTH CAROLINA (HARRIS (UC))	10/11/79 CHANGE TO 1/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/31/80
WAKE CO (HARRIS (UC))		
CHATHAM CO (HARRIS (UC))		
HARNETT CO (HARRIS (UC))		
LEE CO (HARRIS (UC))		
NORTH CAROLINA (MCGUIRE (UC))	10/11/79 CHANGE TO 1/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/31/80
MECKLENBERG CO (MCGUIRE (UC))		
LINCOLN CO (MCGUIRE (UC))		
GASTON CO (MCGUIRE (UC))		
IREDELL CO (MCGUIRE (UC))		
CATAWBA CO (MCGUIRE (UC))		
NORTH CAROLINA (PERKINS (UC))	10/11/79 CHANGE TO 1/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	7/31/80
DAVIS CO (PERKINS (UC))		
ROWAN CO (PERKINS (UC))		
DAVIDSON CO (PERKINS (UC))		

STATUS OF RADIOLOGICAL EMERGENCY PREPAREDNESS PLANS IN OHIO

FEMA REGION 5 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
OHIO (BEAVER VALLEY)	4/80 (DRAFT) PLAN FOR RESPONSE TO RADIATION EMERGENCIES AT LICENSED NUCLEAR FACILITIES (APP.A TO STATE PLAN)	PENDING
COLUMBIANA CO (BEAVER VALLEY)		
OHIO (DAVIS BESSE)	4/80 (DRAFT) PLAN FOR RESPONSE TO RADIATION EMERGENCIES AT LICENSED NUCLEAR FACILITIES (APP.A TO STATE PLAN)	PENDING
OTTAWA CO (DAVIS BESSE)	5/80 (DRAFT) - INTEGRAL PART OF STATE PLAN, APP.A	PENDING
LUCAS CO (DAVIS BESSE)		
OHIO (PERRY (UC))	4/80 (DRAFT) PLAN FOR RESPONSE TO RADIATION EMERGENCIES AT LICENSED NUCLEAR FACILITIES (APP.A TO STATE PLAN)	PENDING
PERRY CO (PERRY (UC))		
OHIO (ZIMMER (UC))	4/80 (DRAFT) PLAN FOR RESPONSE TO RADIATION EMERGENCIES AT LICENSED NUCLEAR FACILITIES (APP.A TO STATE PLAN)	PENDING
CLERMONT CO (ZIMMER (UC))		

STATUS OF RADIOLOGICAL EMERGENCY PREPAREDNESS PLANS IN OREGON

FEMA REGION 10 (NRC REGION 5)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
OREGON (TROJAN)	4/80 OREGON STATE TROJAN EMERGENCY RESPONSE PLAN	PENDING
COLUMBIA CO (TROJAN)	4/80 OREGON STATE TROJAN EMERGENCY RESPONSE PLAN (COLUMBIA COUNTY PROCEDURES)	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN PENNSYLVANIA

FEMA REGION 3 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
PENNSYLVANIA (BEAVER VALLEY)	3/80 (DRAFT) PENNSYLVANIA DISASTER OPERATIONS PLAN, ANNEX E, FIXED NUCLEAR FACILTIY INCIDENTS	PENDING *
BEAVER CO (BEAVER VALLEY)		
ALLEGHENY CO (BEAVER VALLEY)		
PENNSYLVANIA (PEACH BOTTOM)	3/80 (DRAFT) PENNSYLVANIA DISASTER OPERATIONS PLAN, ANNEX E, FIXED NUCLEAR FACILITY INCIDENTS	PENDING *
LANCASTER CO (PEACH BOTTOM)		
YORK CO (PEACH BOTTOM)		
PENNSYLVANIA (SUSQUEHANNA (UC))	3/80 (DRAFT) PENNSYSVANIA DISASTER OPERATIONS PLAN, ANNEX E, FIXED NUCLEAR FACILITY INCIDENTS	PENDING *
LUZERNE CO (SUSQUEHANNA (UC))		
COLUMBIA CO (SUSQUEHANNA (UC))		
PENNSYLVANIA (THREE MILE ISLAND)	3/80 (DRAFT) PENNSYLVANIA DISASTER OPERATIONS PLAN, ANNEX E, FIXED NUCLEAR FACILITY INCIDENTS	PENDING *
DAUPHIN CO (THREE MILE ISLAND)	5/5/80 ANNEX E - COUNTY FIXED NUCLEAR INCIDENT RESPONSE PLAN	PENDING
LANCASTER CO (THREE MILE ISLAND)	5/30/80 EMERGENCY EVACUATION PLAN - TMI	PENDING
YORK CO (THREE MILE ISLAND)	6/4/80 (DRAFT) PROTECTIVE ACTION PLAN FOR TMI	PENDING
CUMBERLAND CO (THREE MILE ISLAND)	5/9/80 (DRAFT) TMI EMERGENCY RESPONSE PLAN	PENDING
LEBANON CO (THREE MILE ISLAND)	5/20/80 RADIATION INCIDENTS - TMI	PENDING

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN SOUTH CAROLINA

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
SOUTH CAROLINA (CATAWBA (UC))	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
YORK CO (CATAWBA (UC))		
LANCASTER CO (CATAWBA (UC))		
SOUTH CAROLINA (CHEROKEE (UC))	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
CHEROKEE CO (CHEROKEE (UC))		
YORK CO (CHEROKEE (UC))		
SOUTH CAROLINA (OCONEE)	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
OCONEE CO (OCONEE)		6/30/80
PICKENS CO (OCONEE)		6/30/80
ANDERSON CO (OCONEE)		6/30/80
SOUTH CAROLINA (ROBINSON)	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
DARLINGTON CO (ROBINSON)		6/30/80
CHESTERFIELD CO (ROBINSON)		6/30/80
KERSHAW CO (ROBINSON)		6/30/80
LEE CO (ROBINSON)		6/30/80
SOUTH CAROLINA (SUMMER (UC))	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
FAIRFIELD CO (SUMMER (UC))		
NEWBERRY CO (SUMMER (UC))		
LEXINGTON CO (SUMMER (UC))		
RICHMOND CO (SUMMER (UC))		
SOUTH CAROLINA (VOGTLE (UC))	12/30/78 CHANGE TO 12/17/76 PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	6/30/80
BARNWELL CO (VOGTLE (UC))		
AIKEN CO (VOGTLE (UC))		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN TENNESSEE

FEMA REGION 4 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN	
TENNESSEE (CLINCH RIVER (UC))	11/15/79 CHANGE TO 8/76 ADMINISTRATIVE EMERGENCY PROCEDURES FOR RADIOLOGICAL INCIDENTS	5/12/80	*
ROANE CO (CLINCH RIVER (UC))			
LOUDON CO (CLINCH RIVER (UC))			
KNOX CO (CLINCH RIVER (UC))			
ANDERSON CO (CLINCH RIVER (UC))			
TENNESSEE (HARTSVILLE (UC))	11/15/79 CHANGE TO 8/76 ADMINISTRATIVE EMERGENCY PROCEDURES FOR RADIOLOGICAL INCIDENTS	5/12/80	*
TROUSDALE CO (HARTSVILLE (UC))			
SMITH CO (HARTSVILLE (UC))			
MACON CO (HARTSVILLE (UC))			
WILSON CO (HARTSVILLE (UC))			
SUMNER CO (HARTSVILLE (UC))			
TENNESSEE (PHIPPS BEND (UC))	11/15/79 CHANGE TO 8/76 ADMINISTRATIVE EMERGENCY PRODEDURES FOR RADIOLOGICAL INCIDENTS	5/12/80	*
HAWKINS CO (PHIPPS BEND (UC))			
GREENE CO (PHIPPS BEND (UC))			
SULLIVAN CO (PHIPPS BEND (UC))			
TENNESSEE (SEQUOYAH)	5/80 (DRAFT) STATE MULTI-JURISDICTIONAL RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR SEQUOYAH	5/12/80	*
HAMILTON CO (SEQUOYAH)	5/80 (DRAFT) APP. 1, HAMILTON COUNTY EMERGENCY EVACUATION PLAN FOR PLUME EXPOSURE PATHWAY ZONE	5/12/80	*
BRADLEY CO (SEQUOYAH)	5/80 (DRAFT) APP.2, BRADLEY COUNTY EMERGENCY EVACUATION PLAN FOR PLUME EXPOSURE PATHWAY ZONE	5/12/80	*
TENNESSEE (WATTS BAR (UC))	11/15/79 CHANGE TO 8/76 ADMINISTRATIVE EMERGENCY PROCEDURES FOR RADIOLOGICAL INCIDENTS	5/12/80	*
RHEA CO (WATTS BAR (UC))			*
MCMINN CO (WATTS BAR (UC))			
MEIGS CO (WATTS BAR (UC))			
ROANE CO (WATTS BAR (UC))			
TENNESSEE (YELLOW CREEK (UC))	11/15/79 CHANGE TO 8/76 ADMINISTRATIVE EMERGENCY PROCEDURES FOR RADIOLOGICAL INCIDENTS	5/12/80	*
HARDIN CO (YELLOW CREEK (UC))			

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN VERMONT

FEMA REGION 1 (NRC REGION 1)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
VERMONT (VERMONT YANKEE)	4/9/80 CHANGE TO 1/80 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR FIXED NUCLEAR FACILITIES	PENDING
VERNON (VERMONT YANKEE)	4/11/80 VERNON NUCLEAR POWER PLANT EMERGENCY AND EVACUATION PLAN	PENDING
GUILFORD (VERMONT YANKEE)		9/1/80
BRATTLEBORO (VERMONT YANKEE)		9/1/80
HALIFAX (VERMONT YANKEE)		9/1/80
MARLBORO (VERMONT YANKEE)		9/1/80
DUMMERSTON (VERMONT YANKEE)		9/1/80
VERMONT (YANKEE-ROWE)	4/5/80 CHANGE TO 1/80 RADIOLOGICAL EMERGENCY RESPONSE PLAN FOR FIXED NUCLEAR FACILITIES	PENDING
STAMFORD (YANKEE-ROWE)		9/1/80
READSBORO (YANKEE-ROWE)		9/1/80
WILMINGTON (YANKEE-ROWE)		9/1/80
WHITINGHAM (YANKEE-ROWE)		9/1/80
SCARSBURG (YANKEE-ROWE)		9/1/80
WOODFORD (YANKEE-ROWE)		9/1/80

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN VIRGINIA

FEMA REGION 3 (NRC REGION 2)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
VIRGINIA (NORTH ANNA)	10/10/79 CHANGE TO 1/76 EMERGENCY OPERATIONS PLAN - PEACETIME DISASTERS, ANNEX I-V TO VOLUME II, RERP	PENDING
LOUISA CO (NORTH ANNA)	5/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
SPOTSYLVANIA CO (NORTH ANNA)	10/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
HANOVER CO (NORTH ANNA)	5/77 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
CAROLINE CO (NORTH ANNA)	2/78 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
ORANGE CO (NORTH ANNA)	12/78 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
VIRGINIA (SURRY)	10/10/79 CHANGE TO 1/76 EMERGENCY OPERATIONS PLAN - PEACETIME DISASTERS, ANNEX I-V TO VOLUME II, RERP	PENDING
SURRY CO (SURRY)	7/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
ISLE OF WIGHT CO (SURRY)	5/79 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
JAMES CITY/WMBG (SURRY)	9/76 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
YORK CO (SURRY)	UNDATED (DRAFT) RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
NEWPORT NEWS (SURRY)	8/77 RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
WILLIAMSBURG (SURRY)		

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN WASHINGTON

FEMA REGION 10 (NRC REGION 5)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
WASHINGTON (TROJAN)	5/76 WASHINGTON STATE PLAN FOR FIXED NUCLEAR FACILITY INCIDENTS	9/15/80
COWLITZ CO (TROJAN)	3/76 CHANGE TO 7/15/74 COWLITZ COUNTY PEACETIME RADIOLOGICAL INCIDENT MANUAL	7/30/80
WASHINGTON (WPPSS 3,5)		
GRAYS HARBOR CO (WPPSS 3,5)		
WASHINGTON (WPPSS 1,2,4)		
BENTON-FRNKLN CO (WPPSS 1,2,4)		3/31/81

STATUS OF RADIOLOGICAL
EMERGENCY PREPAREDNESS PLANS
IN WISCONSIN

FEMA REGION 5 (NRC REGION 3)

STATE AND LOCAL GOVERNMENTS IN PLUME EXPOSURE ZONES	DATE AND TITLE OF REVIEWED PLAN OR DRAFT	SCHEDULED DATE FOR COMPLETION OF A REVISED PLAN
WISCONSIN (KEWAUNEE)	3/80 (DRAFT) PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
KEWAUNEE CO (KEWAUNEE)	4/80 (DRAFT) TAB O TO STATE RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
MANITOWOC CO (KEWAUNEE)	6/80 (DRAFT) MANITOWOC COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
BROWN CO (KEWAUNEE)		
WISCONSIN (LA CROSSE)	3/80 (DRAFT) PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
VERNON CO (LA CROSSE)	4/80 (DRAFT) TAB O TO STATE RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
WISCONSIN (POINT BEACH)	3/80 (DRAFT) PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
MANITOWOC CO (POINT BEACH)	6/80 (DRAFT) MANITOWOC COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
KEWAUNEE CO (POINT BEACH)	4/80 (DRAFT TAB O TO STATE RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
BROWN CO (POINT BEACH)		
WISCONSIN (PRAIRIE ISLAND)	3/80 (DRAFT) PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
PIERCE CO (PRAIRIE ISLAND)	6/79 ANNEX I (RADEF) TO PIERCE COUNTY EMERGENCY OPERATIONS PLAN	PENDING
WISCONSIN (ZION)	3/80 (DRAFT) PEACETIME RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING
KENOSHA CO (ZION)	6/80 (DRAFT) KENOSHA COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN	PENDING

APPENDIX C

Status Review of State and Local Plans

The charts on the following pages present the current status in the review of State and local radiological emergency response plans which are being upgraded to the new criteria for all operating reactor sites in each of the 31 States addressed in Section II A. The columns are explained as follows:

- o FEMA Region - The number of the FEMA Region within which the State is located.

- o Radiological Emergency Response Plan - This indicates States and off-site areas which have plans that address radiological emergencies at nuclear power plants.

- o RAC Review of Plan - The Regional Assistance Committee (RAC) has reviewed State or local plans against the new criteria.

- o Deficiencies to State - Comments have been provided, as a result of RAC review, to the State or local government for their consideration in further revising their plan.

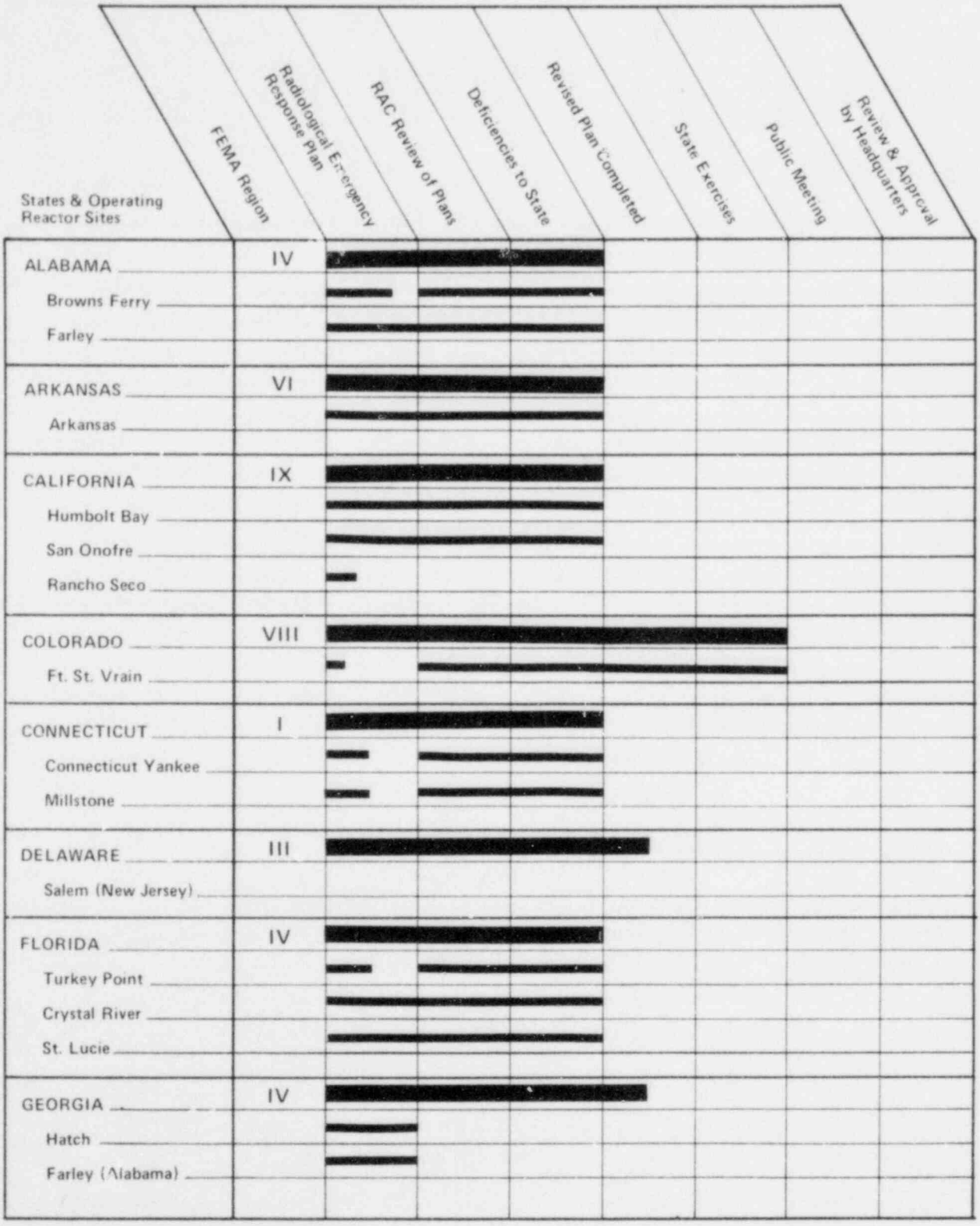
- o Revised Plan Completed - The State or local government has completed the revision of its plan based on deficiencies noted by ther RAC review and the FEMA Regional Director determines that a plan is ready for an exercise and public meeting.

- o State Exercise - The State and involved local governments have conducted an exercise and the exercise has been observed and critiqued by FEMA.

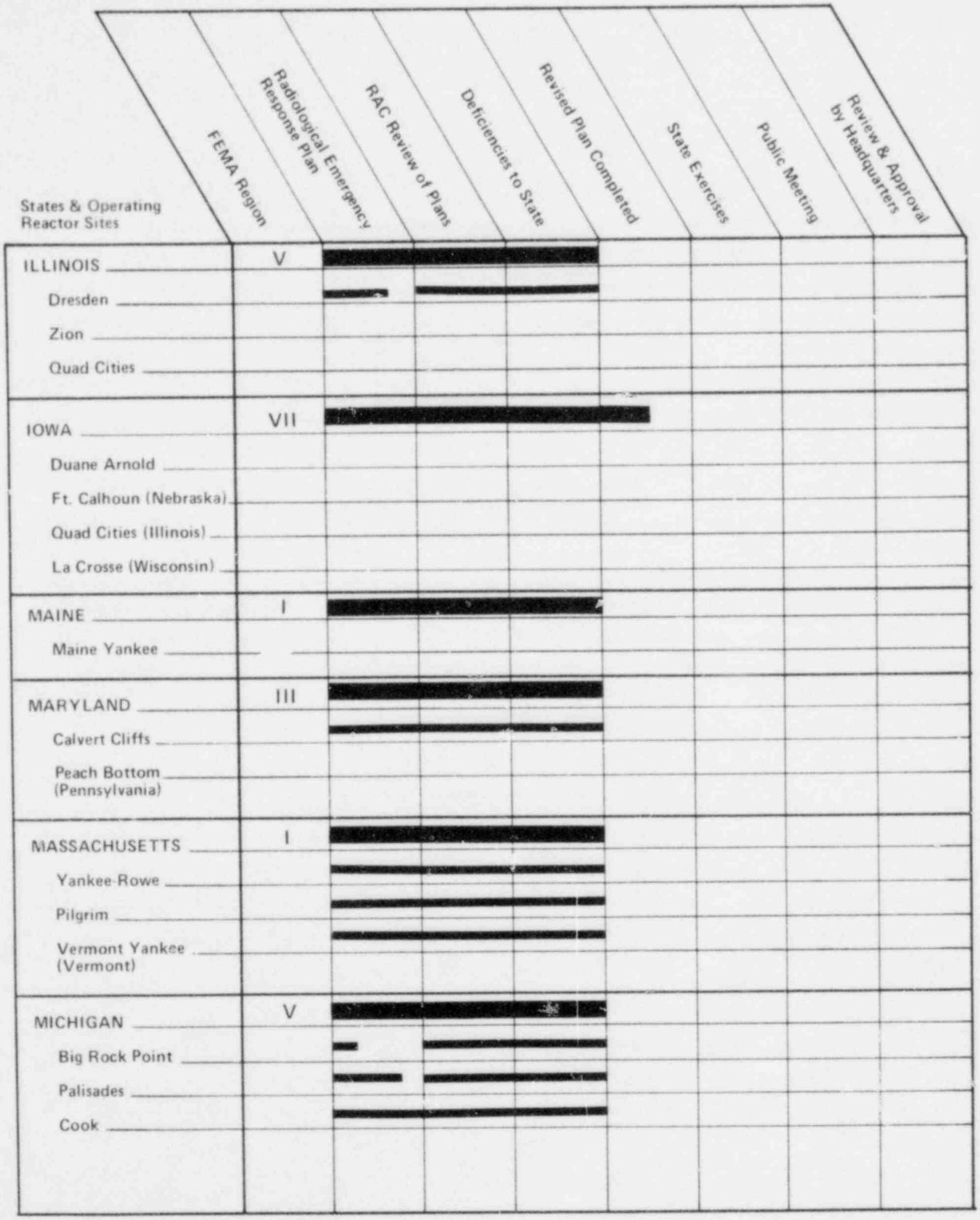
- o Public Meeting - The State or FEMA has conducted a public meeting concerning all plans in support of a particular nuclear power plant site.

- o Review and Approval by Headquarters - FEMA Headquarters has reviewed all of the information on a plan provided by the FEMA Regional Director, and renders its approval.

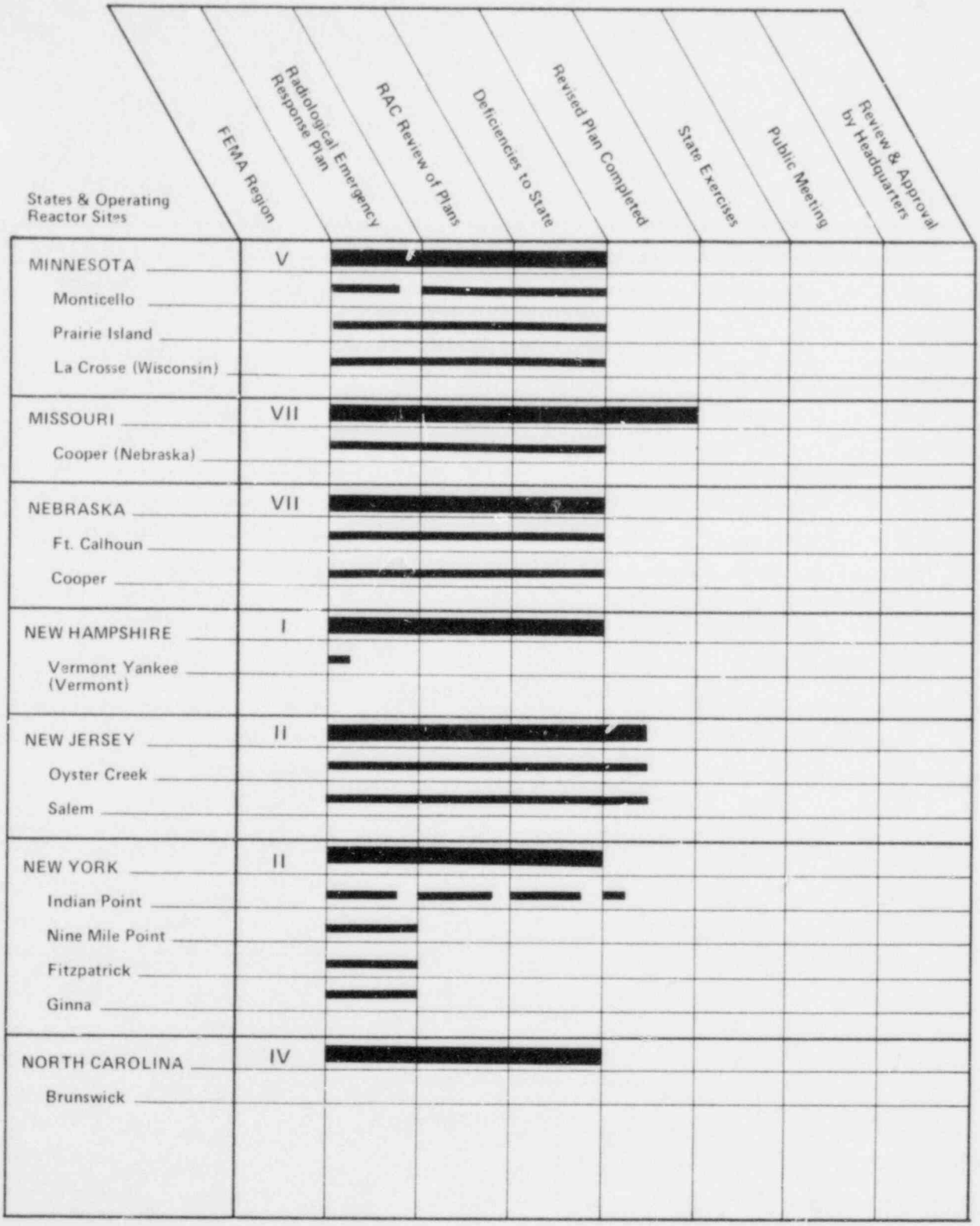
Status of Review of State and Local Plans



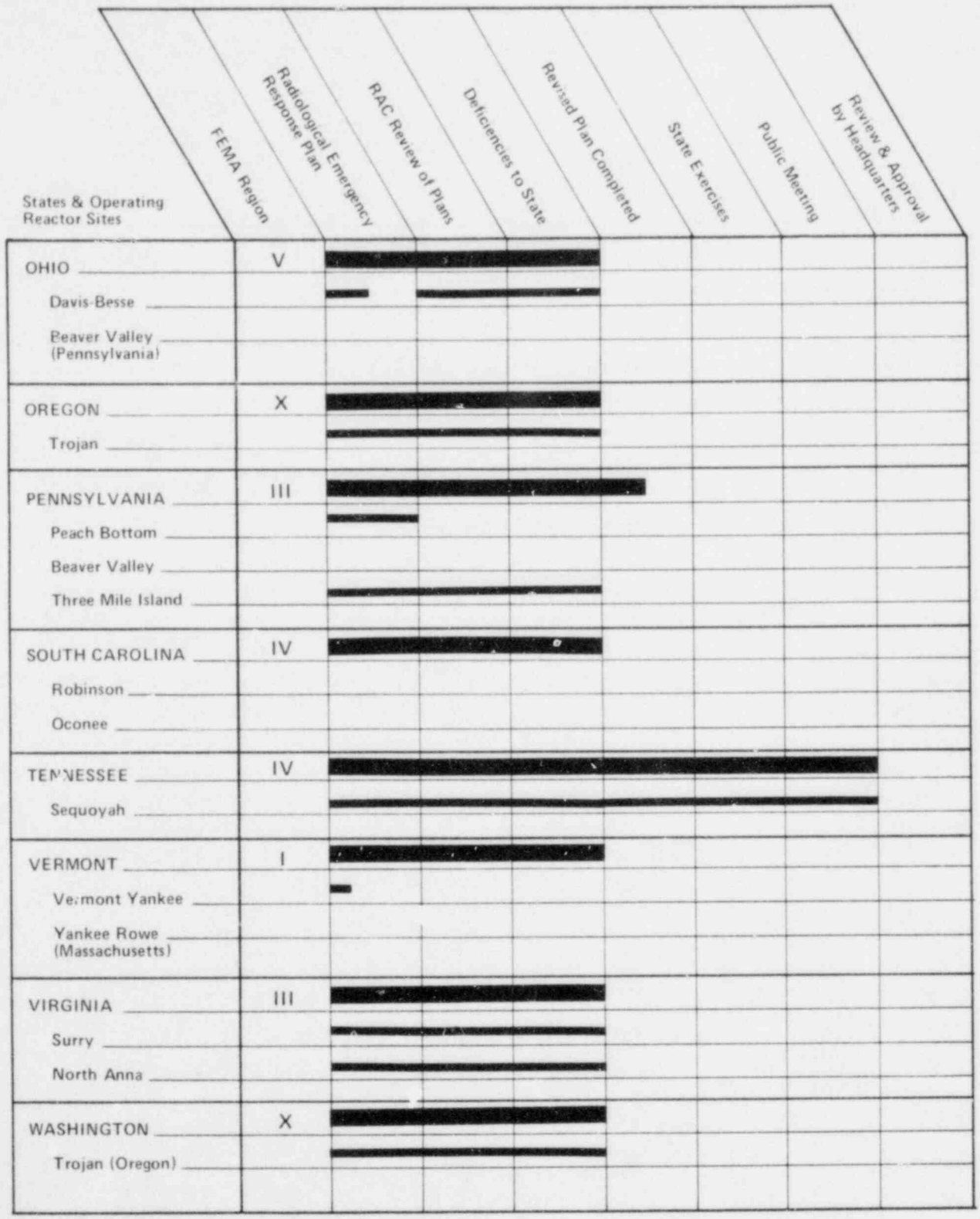
Status of Review of State and Local Plans



Status of Review of State and Local Plans



Status of Review of State and Local Plans



Status of Review of State and Local Plans